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Global virtual work: a review, integrative framework, and future research opportunities

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Abstract

Digitalization and global disruptions have fundamentally changed how we approach work. Global virtual work has become increasingly widespread in recent years, often replacing or complementing traditional expatriation and international business travel. To advance our understanding of this phenomenon, we systematically reviewed the literature on global virtual work, distinguishing it into three domains: global virtual teams, distributed work, and the use of digital technologies. For each domain, we examined key actors, their objectives, underlying theories, methodologies, and findings. The first domain provides insights into the antecedents, moderators, and mediators of the effectiveness of global virtual teams. The second domain explores individual and organizational research on diverse distributed work arrangements, such as offshoring, global platforms, and global nomads. The third domain addresses the enabling and moderating roles that digital technologies play in facilitating global virtual work. Synthesizing prior research, we developed a multilevel conceptual framework that integrates inputs, processes, and outcomes of global virtual work, offering novel perspectives. We outlined promising opportunities for future research across four themes: people, technology, context, and time. Additionally, we examined the practical implications of our findings for policymakers, managers, and individual workers as they navigate the evolving landscape of global virtual work.

Keywords Global virtual work · Global virtual teams · Distributed work · Digital technologies · Global nomads · Gig workers · Systematic literature review · Multilevel model · Future research opportunities

Introduction

Historically, multinational enterprises (MNEs) have primarily relied on the physical cross-border exchange of employees (e.g., expatriates and international business travelers) to manage global business. Increased global

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mobility and the international relocation of work have ensured location-based expertise and facilitated knowledge transfer (Froese et al., 2021; Minbaeva et al., 2014; Peltonkorpi et al., 2022; Shaffer et al., 2012). However, recent megatrends, such as the COVID-19 pandemic (Caligiuri et al., 2020; Gibson, 2020) and digitalization (Benitez et al., 2023), have upended how global work is organized. MNEs now rely less on physical exchanges of employees and more on virtual forms of collaboration, also referred to as “remote,” “hybrid,” and “technology-enabled” work (Benitez et al., 2023; Gibson & Grushina, 2021; Gibson et al., 2021). Defined as collaborative work among individuals, teams, and organizations that spreads across countries and that is enabled by technology-mediated communication (Hinds et al., 2011; Stahl & Maznevski, 2021; Stahl et al., 2010), global virtual work (GVW) extends recent conceptualizations of virtual work in two important ways (Nurmi & Hinds, 2016; Raghuram et al., 2019): It emphasizes the cross-national (across national contexts characterized by different regulations/laws and digital infrastructures) and the cross-cultural (across cultural contexts characterized by different cultural values, languages, and time zones) facets of geographic dispersion.

Current estimates indicate that 16% of global work is performed on a fully remote basis (Steward, 2022), and 82% of employees working remotely expect virtual work to be the future of work (GitLab, 2021). Organizations have increasingly invested in digital technologies (e.g., AI-enabled collaborative tools and videoconferencing systems, metaverse technologies) to support the expansion of GVW. For example, European companies invested over USD 100 billion in 2021 to drive their virtual work transformation (e.g., hardware, software, and services) (Statista, 2022). The key reasons for GVW are the need to rapidly deploy expertise or knowledge, increase flexibility and agility, and efficiently capitalize on human competencies located in different geographic areas (Lehdonvirta et al., 2019; Yang et al., 2015). GVW can involve a broad pool of talent regardless of participants’ locations (Kirkman et al., 2013), reduce costs for employers and employees (Oshri et al., 2008; Wang et al., 2020), and ensure local responsiveness to global strategies (Gibson et al., 2019; Maznevski & Chudoba, 2000). However, the literature on GVW is fragmented across disciplines, and we need a scholarly synthesis of this widely dispersed knowledge (Selmer et al., 2022).

To improve our understanding of this evolving phenomenon and its implications for international business research and practice, we adopted a multidisciplinary perspective of GVW. We conducted a review to address the basic questions of who, what, why, how, where, and when of GVW. Our research objectives were to: (1) provide a systematic review of the literature on GVW, (2) develop an integrative framework regarding how GVW creates value, and (3)

stimulate further research and suggest ways in which MNEs and individuals can best capitalize on and manage GVW.

Our pursuit of these objectives makes several contributions to the literature. First, although previous literature has focused differentially on global virtual teams (Lin et al., 2023; Taras et al., 2019), global mobility (Shaffer et al., 2012; Stoermer et al., 2021), virtual work (Gilson et al., 2015; Raghuram et al., 2019), and virtual technologies (Gibson et al., 2021), we provide a consolidated and systematic review of the relevant literature across different disciplines on the *global* aspect of virtual work. Our literature review revealed three major domains: global virtual teams (globally dispersed individuals working together in groups), distributed work (work that occurs for global organizations or platforms), and the use of digital technologies (focus on technological tools, platforms, and artifacts used in GVW).

Second, based on our systematic and cross-disciplinary literature review of relevant research, we contribute by developing a multilevel conceptual framework for GVW. Organizing key constructs identified in our systematic literature review into an inputs–mediation–outputs–inputs framework (Ilgen et al., 2005) and drawing on insights from process studies (Langley et al., 2013), we conceptualized the GVW process as an iterative and recursive cyclical pattern. Prior studies focused mainly on a single level of analysis (e.g., individual level; Presbitero & Toledano, 2018) or on two levels (e.g., individual and team levels; Davaei et al., 2022). However, we recognized that GVW is inherently a multilevel phenomenon, with individuals nested in teams, organizations, and national or transnational macroenvironments (e.g., Taras et al., 2019). By synthesizing the literature, we provide a multilevel perspective that encompasses and crosses key levels of analysis and elements to present a synthesized and integrated view of GVW. Our framework is useful for those seeking to gain comprehensive insights into the distinctive challenges and opportunities of working in a global virtual context. We also highlight under-researched topics within the extant literature on GVW.

Third, our systematic literature review and integrated conceptual framework provide the basis for future research directions and also have important managerial implications. We highlight specific gaps and emerging issues in the current literature and real-world challenges that deserve research attention. In doing so, we chart novel, cross-disciplinary opportunities for future research on GVW organized around four themes we identified as transcendent across domains. These are people, technology, context, and time. In this way, we seek to develop a domain-bridging understanding of GVW that extends our understanding of the literature and opens up new lines of inquiry. We also inform MNEs and their employees about how they can best meet the challenges of the new realities of GVW and exploit its opportunities.



Methods

We followed a five-step sequential approach to conduct an integrated and systematic literature review (e.g., Gastel & Day, 2016; Gaur & Kumar, 2018; Meyer et al., 2020). First, since research on global work attracted the attention of researchers in the 1990s (Shaffer et al., 2012) and was followed closely by growing interest in virtual work (Raghuram et al., 2019), we specified the period of 1990–2023 to search for relevant publications. Second, to obtain an integrated cross-disciplinary overview, we included in our sampling frame all journals indexed in the Web of Science, a large and well-recognized scholarly database (Melville et al., 2004; Paul & Criado, 2020). Third, we selected keywords to identify papers that combined the topics “virtual work” (i.e., “virtual team,” “remote work,” “virtual work,” “technology-mediated work,” “technology-mediated team,” “computer-mediated team,” “computer-mediated work,” “telework,” “telecommute,” “distant work,” and “distant team”) with keywords related to the global dimension of work (i.e., “global,” “multinational,” “expatriate,” “international,” “foreign,” “multicultural,” “cross-cultural,” “cross-national,” and “intercontinental”) (Raghuram et al., 2019). Fourth, we explored the citations within the articles and added any articles with similar topics but different terminologies (e.g., “gig work” and “digital nomad” for the topic of virtual work and “offshore” for the topic of global work). To better capture the technology literature (Vatrapu et al., 2012), we added the keywords “virtual world,” “human–computer interface,” and “translation software.” To include only papers that addressed the global dimension of virtual work, we used the Boolean operator “AND” in all searches to establish a link between the keywords for the topics. As a final step, we screened the abstracts, keywords, and, if necessary, the full texts to determine the relevance of papers to GVW.

Our initial search found 2152 articles. One coauthor screened them and eliminated 1587 articles that included our keywords but pertained to other fields (e.g., mechanics, geology, mathematics) with no relevance to international business. We removed 219 more articles after a more in-depth reading of abstracts and full texts because they only marginally considered the global nature of virtual work or lacked relevance (e.g., a focus on physical instead of virtual gig workers), because the keywords were used only to introduce and justify their research or because the articles were not research-oriented (e.g., commentaries and project reports). To decide the inclusion or exclusion of these articles, another coauthor was involved. This coauthor screened these questionable articles independently to gain an overview of their contents and applicability to the

GVW context. Both coauthors then discussed and agreed on the inclusion or exclusion of such articles. This resulted in a final set of 346 articles for our review.

We classified the journals in which the articles were published into disciplines based on the Academic Journal Guide (CABS, 2021). Table 1 lists these journals by disciplines in which we identified more than two publications on GVW. Most of the listed articles were published in journals in information management/information systems (81), followed by a notable number of articles in international business and area studies (31), human resource management and employment studies (21), and organizational studies (19). Most papers (77%) in our dataset used empirical approaches (e.g., qualitative, quantitative, mixed methods) to study GVW, but 23% were nonempirical (e.g., literature reviews). Among the empirical approaches, 47% used quantitative methods, 38% were qualitative in nature, 14% were mixed-methods studies, and 1% were meta-analyses.

Next, we manually reviewed the articles to get a deeper understanding of their contents and linkages and to gain a preliminary idea of how to categorize them. We used Leximancer, a semiautomated content analysis tool (Leximancer, 2023) to support the categorization, increase the validity of findings, reduce human bias, and identify nuanced (potentially undetected) connections between articles (Engstrom et al., 2022; Lemon & Hayes, 2020). Leximancer is a data mining software program that analyzes the core concepts in articles and identifies domains with conceptual similarity. The program assigns articles to the most common domains to visually represent the associations and overlaps between the topics in the articles and present a conceptual overview of the semantic data structure. This approach helped us to gain a better understanding of the relationships between the articles because it provided orientation for users to understand the content of texts and thus complemented and supported the manual interpretation of data (Cretchley et al., 2010; Wilk et al., 2019). Two researchers discussed the output and tried different domain sizes, comparing them with our earlier preliminary thinking about categorization (Engstrom et al., 2022), and reached conclusions based on both Leximancer’s output and their research expertise. We thus identified three distinct domains: global virtual teams, distributed work (excluding work on global virtual teams), and the use of digital technologies (see Fig. 1).

We then assigned the articles to these domains. As a starting point, we used Leximancer’s initial indications of which articles belonged to which domains. Two researchers working separately screened these initial indications and assigned the articles to the domains. Articles were assigned to more than one domain in those cases in which such assignments were appropriate. In 95.4% of the cases, both researchers assigned the same codes to the articles;



Table 1 Distribution of articles by field and journal name

Field	Journal name	<i>n</i>
Information management/information systems	IEEE Transactions on Professional Communication*	16
	Journal of Management Information Systems	14
	Information Systems Journal	6
	Journal of Global Information Management	6
	MIS Quarterly	6
	Information and Software Technology*	5
	Information Systems Research	5
	Information and Management	5
	Journal of the Association for Information Systems	5
	Journal of Information Technology	4
	Software Quality Journal*	3
	International Journal of Information Management	3
	Journal of Universal Computer Science*	3
International business and area studies	Journal of International Management	12
	Journal of International Business Studies	7
	Journal of World Business	7
	International Business Review	5
Human resource management and employment studies	International Journal of Human Resource Management	11
	New Technology, Work and Employment	4
	Personnel Review	3
	Work, Employment and Society	3
Organization studies	Organization Science	8
	Journal of Knowledge Management	4
	Organizational Dynamics	4
	Group and Organization Management	3
Psychology (organizational)	Small Group Research	5
	Journal of Organizational Behavior	5
	Journal of Applied Psychology	3
	Sustainability*	6
General management, ethics, gender, and social responsibility	Journal of Business Research	4
	International Journal of Engineering Education*	5
Management development and education	Academy of Management Learning and Education	3
	International Journal of Project Management	5
Operations and technology management	Production Planning and Control	3
	Group Decision and Negotiation	4
Operations research and management science	Journal of Product Innovation Management	3
Innovation	Journal of Management in Engineering	3
Sector studies		

Journals are classified according to the Academic Journal Guide (CABS, 2021). Given journals marked with an asterisk (*) were not listed in the Academic Journal Guide (CABS, 2021), we classified them based on our knowledge of their focus. The table contains journals with more than two publications.

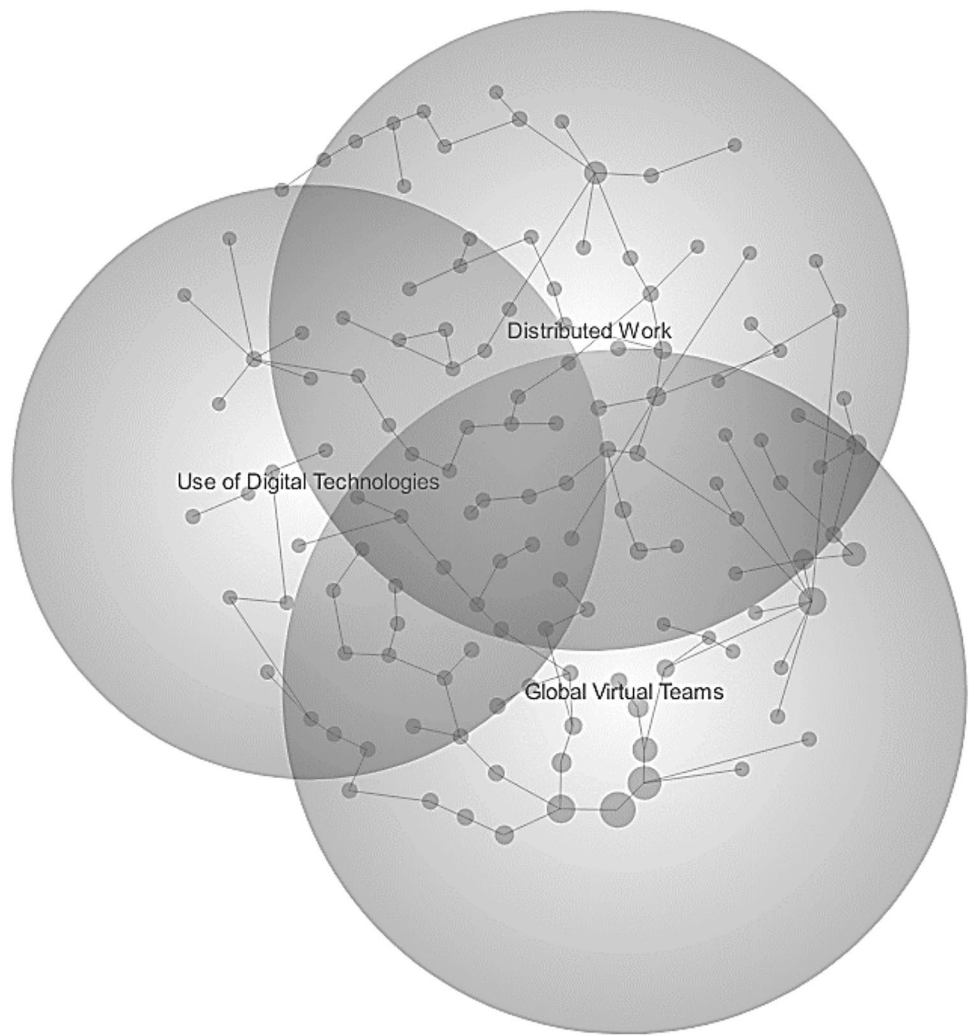
in those cases, in which they differed, all inconsistencies were discussed and resolved (Baldessarelli et al., 2022). Figure 2 portrays the number of publications and the distribution of papers by domain and year, with the totals indicating increasing attention to this topic from the first publication in 1996 to the beginning of 2023.

A review of what we know about global virtual work

Our review is organized into the three domains identified: global virtual teams, distributed work, and the use of digital technologies. Within each domain, we address:



Fig. 1 Visual representation of domains in the literature on global virtual work. The nodes and edges within and between domains represent core concepts of articles identified by Leximancer and their thematic connection. Relevant nodes and edges were interpreted and evaluated by the research team and displayed in the literature reviews



(1) the actors involved and the environments in which GVW occurs; (2) the objectives of the actors for engaging GVW (e.g., why global virtual workers or multinational enterprises do the GVW); (3) predominant theories; (4) frequently used methods for the research; and (5) key findings. For each domain, we provide a table that summarizes our key findings and lists exemplary articles.

Global virtual teams

Research on global virtual teams examines the collaboration of individuals who are globally dispersed, rely on communication technologies, and work together to accomplish a common goal in a team setting (Jarvenpaa & Leidner, 1999; Jimenez et al., 2017). Much of the work in this domain focuses on the people doing the GVW. We identified 251 papers that fit into this domain, indicating that of the three domains, it is the most mature and comprehensive. Table 2 summarizes the domain.

Actors and environments

We identified several different actors and environments at different levels in, within, or between which global virtual teams and their members operate. MNEs, contracted suppliers, educational institutes, and developers are the typical contexts of global virtual teams. Within MNEs, global virtual teams are used to connect members of different country locations (Eisenberg & Mattarelli, 2017; Vahtera et al., 2017) or to manage contracted suppliers in an onshore–offshore relationship (Sidhu & Volberda, 2011) between an organization and its foreign partner (Presbitero & Toledano, 2018). Moreover, educators are increasingly interested in using global virtual teams in their programs, an interest that transcends country borders (Davison et al., 2017; Taras et al., 2013). The global new product development environments in which software engineers collaborate (i.e., global R&D) tend to rely on global virtual teams (Nurmi & Hinds, 2016; Stewart & Gosain, 2006).



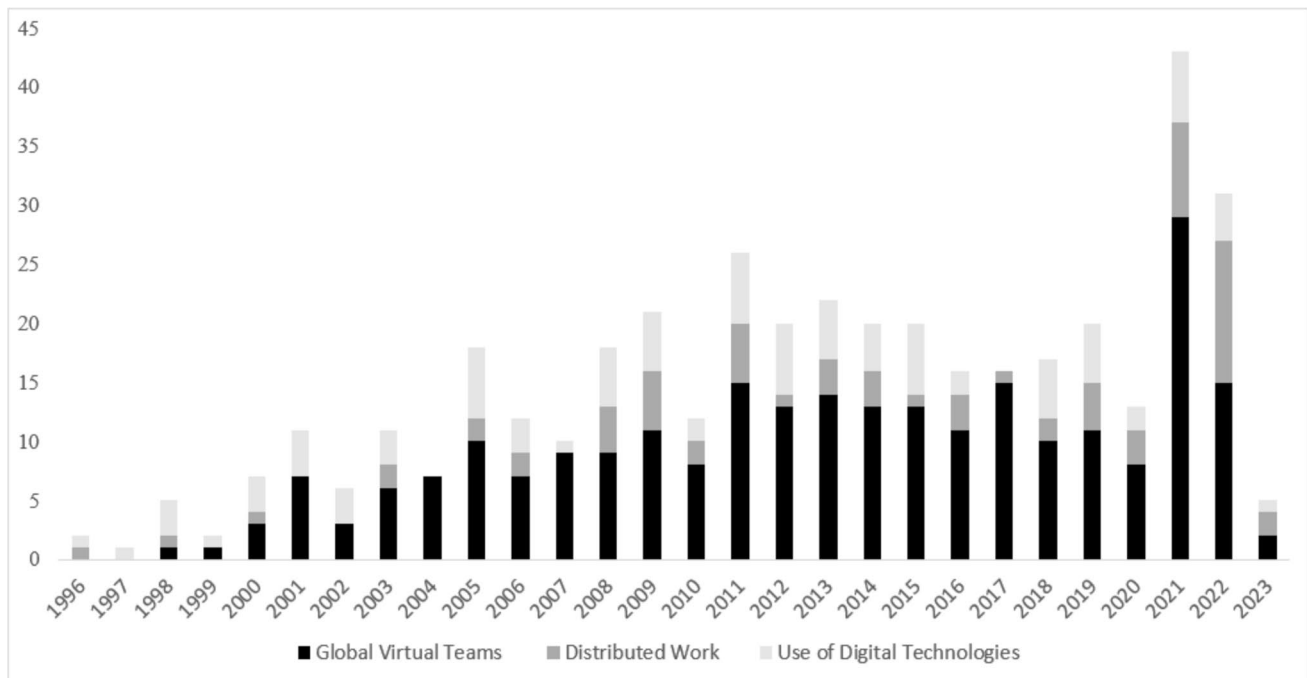


Fig. 2 Distribution of papers by domains and years (1996 to early 2023)

Objectives

The objectives of different actors involved in global virtual teams vary substantially. One major objective is to exchange knowledge across national boundaries. Actors involved in global virtual teamwork seek to acquire and apply knowledge (Haas, 2006), share it between different entities (Eisenberg & Mattarelli, 2021), transfer it to partners (Oshri et al., 2008), or maintain it (Cramton, 2001). Another key reason for implementing such teams is to bring together globally distributed expertise (Gibson et al., 2021; Kirkman et al., 2013) to provide complex engineering services that require a global workforce (Jarvenpaa & Keating, 2021) or respond quickly to spontaneous situations (Yang et al., 2015). Reducing costs, such as travel (Sutanto et al., 2011) and labor (Oshri et al., 2008), is another objective for using global virtual teams. Additionally, global virtual R&D teams, especially those comprising independent software engineers (Stewart & Gosain, 2006) or product developers (McDonough et al., 2001), are formed to enhance the innovativeness of new products. Finally, future managers (e.g., students) may participate in a global virtual team to learn about effective collaboration and best practices for communicating across cultures (Erez et al., 2013; Johnson et al., 2022; Taras et al., 2013).

Theories

The topics studied in this domain are quite diverse, reflecting the theoretical richness that has provoked the formation of numerous explanatory theories. Only a few theories are relied upon extensively. These typically focus on explaining patterns of intrateam phenomena such as cross-cultural or interindividual interactions (i.e., individual, team, country, or across levels). Social identity is by far the most extensively invoked of these theories (Tajfel & Turner, 1986). It addresses the extent to which individuals define themselves in terms of a particular group membership to such an extent that the group's characteristics become a part of these individuals' self-concept. Identification with a particular group affects individuals' attitudes and behaviors. Social identity theory has been used to explain the effect of subgroups (e.g., cultural, national, or temporal subgroups) on global virtual team collaboration and outcomes and to understand ways to overcome the adverse effects of subgroups. Similarity attraction theory (Byrne, 1971), which addresses why favorable interactions occur between similar (rather than different) team members, has also been frequently invoked. This theory explains that people often feel close to others similar to them. It has been applied in different research contexts to explain conflict and trust among individuals in global virtual teams. Attribution theory (e.g., Gilbert et al.,



Table 2 Overview of literature on global virtual teams (*n* articles = 251)

Category	Sub-category	Sample articles
Actors/environments	Individuals in work teams in MNEs	Global virtual teams in MNEs (Eisenberg & Mattarelli, 2017; Vahtera et al., 2017)
	Teams of contracted suppliers	Global virtual teams in the offshoring sector (Presbitero & Toledano, 2018; Sidhu & Volberda, 2011)
	Teams in education	Global virtual student teams (Davison et al., 2017; Taras et al., 2013)
	R&D teams	(Open source) software development teams (Nurmi & Hinds, 2016; Stewart & Gosain, 2006)
Objectives	Knowledge exchange	Knowledge acquisition and application (Haas, 2006), sharing (Eisenberg & Mattarelli, 2017), transfer (Oshri et al., 2008), or maintenance (Cramton, 2001)
	Global expertise	Distributed innovation potential (Kirkman et al., 2013), complex engineering services (Jarvenpaa & Keating, 2021), fast/spontaneous responses (Yang et al., 2015)
	Cost reduction	Reduction of travel costs (Sutanto et al., 2011) or labor costs by using offshoring teams (Oshri et al., 2008)
	R&D	Software development (Stewart & Gosain, 2006), new product development (McDonough et al., 2001)
	Learning	Global virtual teams (Erez et al., 2013; Johnson et al., 2022; Taras et al., 2013) as means of student learning and training
Theories	Intrateam differences	Social identity theory (Tajfel & Turner, 1986), similarity attraction theory (Byrne, 1971)
	Individual characteristics	Attribution theory (e.g., Gilbert et al., 1988; Tetlock, 1985)
	Knowledge management	Transactive memory system theory (Wegner, 1986)
Methods	Quantitative	Survey research (Taras et al., 2019), meta-analysis (Stahl et al., 2010)
	Qualitative	Ethnographic study (Gibbs, 2009), theory building (Cramton & Hinds, 2014) with grounded theory (Glaser & Strauss, 1967)
	Mixed-methods	Interviews, observations, surveys (Gibson et al., 2019), and logs (Maznevski & Chudoba, 2000)
	Literature review	Typology or theoretical framework (Bell & Kozlowski, 2002; Hinds et al., 2011)
Key findings	National cultural context	The effect of culture (Hinds et al., 2011)
	Team characteristics	Diversity (Stahl & Maznevski, 2021; Stahl et al., 2010; Taras et al., 2019) or temporal dispersion (Cummings et al., 2009)
	Individual characteristics	The role of cultural intelligence/cross-cultural competence (Erez et al., 2013; Presbitero, 2021) or brokerage (Mattarelli et al., 2017) for boundary-spanning
	Leadership	The effect of different leadership styles (Bell & Kozlowski, 2002; Hill & Bartol, 2016; Kayworth & Leidner, 2001)
	Collaborative behaviors	Communication (Maznevski & Chudoba, 2000), coordination (Cramton, 2001; Montoya-Weiss et al., 2001), formalization (Gibson et al., 2019), participation (Gibbs et al., 2021)
	Trust	Challenge of creating and maintaining trust (Jarvenpaa & Leidner, 1999; Zakaria & Yusof, 2020)
	Conflict	Role/management of conflict (Montoya-Weiss et al., 2001; Paul et al., 2004)

Articles may appear in more than one domain. Citations are included in the References section.

1988; Tetlock, 1985) has been used to address the assumptions that individuals make about team members based on common perceptual biases. In doing so, individuals are likelier to attribute behavior to a person's disposition than they are to a situation that may account for the behavior. This theory has been applied to explain challenges in cross-cultural or geographically dispersed collaboration involving global virtual teams. Finally, theories of transactive memory systems (Wegner, 1986) have been widely used when studying knowledge management in these teams. In explaining how individuals learn about the distribution of knowledge

in their global virtual teams and how team members use this distributed knowledge to achieve results, these theories have served as a basis for unraveling the patterns of acquisition, use, and/or organization of knowledge among individuals in global virtual teams to accomplish their tasks.

Methods

To explore the different facets and outcomes of global virtual teams, researchers have adopted various methodological approaches. The majority used classic methods such as



cross-sectional surveys (e.g., Taras et al., 2019) to understand the effects on these teams at different levels (e.g., individual, team, country, or multiple levels). Interestingly, such studies of collaboration have rarely examined within-individual differences and their changes over time. Other methodological approaches, especially in early research, have involved qualitative techniques such as ethnographic studies (Gibbs, 2009) to explore facets of collaboration among global virtual teams, primarily at individual and team levels. Given that numerous researchers also explored new phenomena (e.g., Cramton & Hinds, 2014), a grounded theory approach (Glaser & Strauss, 1967) was often applied within the qualitative research paradigm to build theory. Mixed-method approaches, such as a combination of interviews, observations, surveys (e.g., Gibson et al., 2019), and logs (Maznevski & Chudoba, 2000), were rarely used. A few scholars have also contributed typologies or theoretical frameworks of global virtual teams (Bell & Kozlowski, 2002; Hinds et al., 2011). Even with the exponential growth in research into such teams, surprisingly little effort has gone into synthesizing or verifying findings or to identifying hidden patterns in the data, and only two meta-analyses (Stahl et al., 2010; Wang et al., 2017) have been conducted. Experimental studies, which can help establish single- and cross-level causal inferences, are largely absent.

Key findings

Research on global virtual teams has tended to focus on seven areas: (1) national cultural contexts, (2) team characteristics, (3) individual characteristics, (4) leadership, (5) collaborative behaviors (i.e., interactions, communication, and coordination), (6) trust, and (7) conflict. First, because global virtual teams span national boundaries, the literature emphasizes the effects of the *national cultural context* (i.e., country level) in which actors are embedded (Hinds et al., 2011) as antecedents and moderators. For instance, Muethel and Hoegl (2010) developed a conceptual model in which national cultural values directly affect the functioning of global virtual teams. They proposed that humane orientation, performance orientation, uncertainty avoidance, collectivism, and assertiveness within members' countries of origin are positively related to employees' shared leadership behaviors, but power distance is negatively related to these behaviors. Another study found the extent to which a culture was high context versus low context has a direct impact on how decisions are made and communicated (Zakaria, 2017). Furthermore, information about the cultural context (i.e., cultural cues) of an e-mail sender can mitigate negative perceptions of other team members about violations of professional e-mail conversations (Vignovic & Thompson, 2010). In short, prior research has suggested differential effects of the national cultural context on teams' outcomes.

However, research has not yet sufficiently considered the extent to which the cultural context serves to shape or moderate team processes and outcomes in a virtual global team environment.

Second, research on *team characteristics* has dominated the global virtual team literature (e.g., O'Leary & Cummings, 2007). Scholars have examined various forms of team diversity and reported both linear and curvilinear effects, along with complex moderating relationships (Cummings & Haas, 2012); other studies have reported mixed findings (e.g., Stahl & Maznevski, 2021; Stahl et al., 2010). National diversity within global virtual teams was found to negatively affect team innovation, but this liability became an asset when the team had a psychologically safe communication climate (Gibson & Gibbs, 2006); national diversity attenuated the relationship between collaborative style and group performance (Paul et al., 2004). Differences in the economic conditions of members' home countries positively affected team performance (Taras et al., 2019) and decreased the salience of trust in achieving performance (Lauring et al., 2021). Another study found a curvilinear (U-shaped) relationship between national diversity and community of practice performance (Kirkman et al., 2013). Cultural differences within global virtual teams were negatively associated with communication effectiveness (Klitmøller & Lauring, 2013) and positively associated with intrateam conflict (Kankanhalli et al., 2006). Differences in personal perceptions or characteristics negatively affected satisfaction (Taras et al., 2019) and completion of simple tasks (Wang et al., 2017). Temporal dispersion has also received considerable attention (Cummings et al., 2009). Different facets of temporality were positively associated with task completion speed (Espinosa et al., 2015) and team performance (Massey et al., 2003), but negatively associated with task product quality (Espinosa et al., 2015) and coordination speed (Cummings et al., 2009).

Third, research on the effects of team members' *individual characteristics* (Haas, 2006) has mainly focused on understanding how cross-cultural competencies, such as cultural intelligence (CQ) and brokerage, shape outcomes (Maynard et al., 2012). CQ has been investigated extensively and linked to a variety of outcomes. CQ was shown to enable individuals to move comfortably between different cultures (Lisak & Erez, 2015; Zander et al., 2012), and positively affected intrateam communication accommodation, interpersonal exchanges (Presbitero, 2021), task performance (Presbitero & Toledano, 2018), and willingness to share knowledge (Collins et al., 2017). In overcoming language barriers (Tenzer & Pudenko, 2016), CQ reduced the detrimental effect of foreign language anxiety on individuals' task performance (Presbitero, 2020). Another form of cross-cultural competence identified was brokerage, which is defined as mediation between different cultural subgroups.



Bridging cultures using cultural brokerage can create mutual knowledge and enhances the accuracy of perceptions about dispersed team members (Mattarelli et al., 2017). These important studies notwithstanding, other individual characteristics and competencies beyond CQ or brokerage have seldom been examined despite their potential to promote or hinder collaboration in global virtual teams.

Fourth, the role of *leadership* has primarily been examined at the individual and team levels. Empowering team leadership and a mentoring role have been positively associated with collaborative behaviors and, indirectly, with performance (Hill & Bartol, 2016) through regular communication and articulation of responsibilities (Kayworth & Leidner, 2001). Having a global identity, cultural intelligence (Lisak & Erez, 2015), and international experience enabled leaders to communicate and lead global virtual teams more effectively (Lu et al., 2021), and leaders' cultural gap-bridging behaviors enhanced global virtual team members' work engagement (Hundschell et al., 2022). Shared leadership has received attention in the literature (e.g., Nordbaeck & Espinosa, 2019), with different country components (e.g., normative and cognitive) resulting in different shared leadership behaviors (Muethel & Hoegl, 2010). The dominant focus has been on the facilitative effects of leadership. We are unaware of any research that examines toxic styles or behaviors, such as abusive or unethical leadership, in global virtual teams.

Fifth, research has focused on understanding individual and team-level *collaborative behaviors*, such as interactions, communication, and coordination. In one study, effective global virtual teams adapted their communication patterns to the task, developing an intense rhythm of face-to-face communication punctuated by periods of remote communication (Maznevski & Chudoba, 2000). In another, a positive communication climate was created at the beginning of the teamwork by communicating relationally-oriented content (Glikson & Erez, 2020). Temporal coordination enhanced interactive behaviors and performance (Massey et al., 2003) and served as a moderator between conflict and global virtual team success (Montoya-Weiss et al., 2001). The communication and coordination of information are especially challenging for global virtual teams because they affect knowledge sharing (Cramton, 2001). Processes that promoted knowledge sharing (i.e., formalization) were positively related to teams' effectiveness (Gibson et al., 2019). In the study of Gibbs's et al., (2021), uneven participation was overcome through the development of an engagement orientation (i.e., participating not just to help others or learn from others, but for mutual exchanges), concerted efforts to develop interactions across geographically dispersed sites, and input solicitation, all of which were positively related to teams' effectiveness. Although collaborative behavior usually develops over time, most studies were cross-sectional

and hence unable to capture processes that are time-varying or unfold over time.

A sixth set of studies has extensively examined the emergent state of interindividual *trust* and its consequences. As reported by Jarvenpaa and Leidner (1999) and further explored by Zakaria and Yusof (2020), global virtual teams experienced a form of swift trust, yet trust affected them in a variety of ways across conditions (Jarvenpaa et al., 2004). For example, trust had less of an effect on the attitudes of team members who were adequately socialized (Jarvenpaa et al., 2004). More frequent communication between team members was found to enhance trust within teams (Sarker et al., 2011). In turn, this enhanced knowledge sharing (Raab et al., 2014), job role clarity, and performance (Lauring et al., 2021); if trust is lacking, this lack hinders the relationship between willingness to share knowledge and knowledge-sharing behavior (Collins et al., 2017). Factors that risked inhibiting the development of trust included cultural and communication differences (Cheng et al., 2016). However, research has yet to examine how the duration of a collaboration (e.g., comparing short-term vs. long-term projects) may affect trust and subsequent outcomes. Furthermore, research on other emergent states is largely lacking.

A final set of studies has evolved specifically around the process of (inter)individual and team *conflict*. The working conditions in global virtual teams (e.g., cultural and functional diversity, reliance on electronic communication) were found to promote both task and relational conflict (Kankanhalli et al., 2006). Affective conflict (i.e., interpersonal discord among team members characterized by perceptions of self-interest-driven behavior or feelings of anxiety/discomfort) was negatively related to knowledge identification, which in turn was amplified by dispersion (Vahtera et al., 2017). Relational conflict (i.e., the consequences of interpersonal mismatches related to personal traits, preferences, and interpersonal interactions, resulting in negative emotional responses) attenuated the positive effect of leadership behavior on work engagement (Hundschell et al., 2022). Adapting the management of team conflict to the situation increased the success of teams (Montoya-Weiss et al., 2001), and collaborative conflict management increased their performance (Paul et al., 2004). However, global virtual team conflict as an evolving construct (i.e., development or interindividual patterns of conflict) has not been examined. This results in a lack of understanding of cycles of provocation, management, and learnings from conflict or the potential (a)symmetrical distribution of conflicts among team members and their causes.

Distributed work

Research within the second domain, distributed work, encompasses different types of GVW arrangements apart



from those based on global virtual teams. These studies typically focus on organizational context and processes or challenges involving work done in multiple countries. We identified 68 papers within this domain. Table 3 contains an overview.

Actors and environments

Unlike the previous domain on global virtual teams, the level of analysis of distributed work typically focuses on individual workers, jobs, structures, organizations or platforms, or interactions between these. The actors and environments are diverse. A major body of studies addressed gig work (i.e., freelance work provided by an independent contractor on a temporary basis) or global digital platforms where workers connect with clients around the world via the internet to provide services such as data entry, software development, or graphic design (e.g., Lehdonvirta et al., 2019; McDonnell et al., 2021). Another

stream of research addressed offshore arrangements (e.g., Kumar et al., 2009; Lehdonvirta et al., 2019), which are generally characterized by knowledge work conducted by administrative or information technology (IT) experts who work for a service provider in a low-labor cost country (e.g., India) to serve clients in a highly developed country (e.g., the United States). Many articles on distributed work refer to global virtual workers in general who are often assumed to operate within the boundaries of MNEs (Mortensen & Neeley, 2012), with less emphasis on the experience of individual people. However, a recent stream of studies has focused on digital or global “nomads” who repeatedly travel or relocate abroad and work digitally (e.g., Sanul, 2022), including social media influencers who have a global reach (Aroles et al., 2023; Wang et al., 2020). Only a few studies have addressed the metaverse or virtual world in which work occurs without borders in a virtual reality (Agres et al., 1998; Davis et al., 2009), and in global virtual organizations in which globally dispersed

Table 3 Overview of literature on distributed work (*n* articles = 68)

Category	Sub-category	Sample articles
Actors/environments	Global virtual work in MNEs	Work conducted in MNEs (Mortensen & Neeley, 2012)
	Global platforms and gig workers	Working for global platforms (Lehdonvirta et al., 2019)
	Offshoring	Indian offshoring arrangements (Leonardi & Bailey, 2008)
	Global nomads	Digital nomads in Thailand (Loryn, 2022)
Objectives	Cost reduction	Outsourcing to low-cost countries (Lehdonvirta et al., 2019), global nomads relocate to lower-cost countries (Wang et al., 2020)
	Knowledge and skills	Knowledge transfer (Leonardi & Bailey, 2008), access knowledge and skills (Lehdonvirta et al., 2019)
	Personal reasons for relocation	Lifestyle, freedom, curiosity, travel hobby, and adventure (Sanul, 2022; Wang et al., 2020)
Theories	Understanding contracts	Signaling theory (Lehdonvirta et al., 2019), transaction cost theory (van Slageren et al., 2023)
	Individual attitudes and behavior	Social information processing theory (Mortensen & Neeley, 2012)
	Exploratory	Grounded theory (Glaser & Strauss, 1967), interpretivist approaches (Gertsen & Zolner, 2014), or no specified theories
Methods	Literature review	Literature review on HRM in the digital economy (Donnelly & Johns, 2021), conceptual development of work design in offshoring (Kumar et al., 2009)
	Qualitative	Interviews (Gertsen & Zolner, 2014), analysis of blogs and social media (Aroles et al., 2023)
	Quantitative	Survey research (Peters et al., 2016), gravity models (Slageren et al., 2023)
	Mixed-methods	Statistical analysis of digital trace data and interviews (Lehdonvirta et al., 2019)
Key findings	Job characteristics and job contracts of global virtual workers	Job types of global nomads (Sanul, 2022) and gig workers (McDonnell et al., 2021), flexible but precarious jobs (Wood et al., 2019)
	Global job design and relationship management	Coordination of offshore work and MNEs (Levina & Vaast, 2008), the future design of global virtual work (Wang et al., 2020)
	HRM practices	International recruitment and cross-cultural training (Caligiuri et al., 2020; McDonnell et al., 2021), organizational socialization (Jain et al., 2011)

Articles may appear in more than one domain. Citations are included in the references section.



workers, groups, or organizations work together virtually (Ilon, 2011; Oliveira et al., 2010).

Objectives

The objectives for engaging in distributed work vary by actors and the type of global work arrangement. Dominant factors driving many types of global work arrangements are lower costs, the availability of skills and knowledge in different locations, and flexibility (e.g., Lehdonvirta et al., 2019; Leonardi & Bailey, 2008; Sanul, 2022; Wang et al., 2020). If the focus is on lower costs, MNEs typically outsource work via platforms or offshoring to emerging countries such as to those in Eastern Europe or Southeast and South Asia as well as to developing countries in Africa (Lehdonvirta et al., 2019). In addition to these objectives, global nomads work abroad for personal reasons such as lifestyle, freedom, curiosity, travel, purchasing power, and adventure (Sanul, 2022; Wang et al., 2020). Global nomads typically move to global cities, such as London and Berlin, or to low-income countries such as Thailand, Mexico, or Chile. For the latter, many pursue global cost arbitrage in which they can earn a high income while living in a low-cost country (Wang et al., 2020).

Theories

Many studies on distributed work draw on well-established theories in business, economics, sociology, and other disciplines to understand contracts or relationships between global virtual workers and organizations. Job characteristics, which examines the content of tasks and roles (Gibson & Grushina, 2011), are often invoked. Other works adopt signaling theory (Lehdonvirta et al., 2019) as an explanation. It describes how parties communicate and interpret information. Other studies have relied on social information processing theory (Mortensen & Neeley, 2012), which suggests behavior can be learned from informational and social environments (Salancik & Pfeffer, 1978). Several qualitative papers have developed their own theories (e.g., Gertsen & Zølner, 2014; Wood et al., 2019), but a substantial portion of the articles on distributed work, including literature reviews and perspective articles, did not explicitly invoke any theory.

Methods

Literature reviews, qualitative, and quantitative method studies are equally common in the literature on distributed work. Literature reviews have focused on numerous topics such as human resource management (HRM) in the digital economy (Donnelly & Johns, 2021) or work design in offshoring (Kumar et al., 2009). Qualitative researchers have relied mostly on interviews (e.g., Gertsen & Zølner, 2014).

Rare exceptions include the analyses of the blogs and social media of global nomads (Aroles et al., 2023) and online conversations among gig workers (Waldkirch et al., 2021). The quantitative studies mainly used surveys and standard statistical analyses, such as regressions (Peters et al., 2016), as well as other analyses such as gravity models (van Slageren et al., 2023) that are more common in examinations of bilateral trade flows in international economics. Seven studies used a mixed-methods approach that combined qualitative and quantitative methods (e.g., Lehdonvirta et al., 2019). It is noteworthy that studies on offshore work arrangements have primarily relied on qualitative approaches.

Key findings

Within the distributed work domain, we identified key findings in three areas: (1) job characteristics and job contracts of global virtual workers, (2) global job design and relationship management, and (3) HRM practices. First, several articles focused on understanding the *job characteristics and job contracts of global virtual workers* (e.g., Aroles et al., 2023; Wang et al., 2020). Job characteristics and job contracts varied substantially across actors and environments. For example, employees in MNEs and offshore sites were typically employed full-time under permanent contracts, but global nomads and gig workers usually had flexible jobs and multiple clients. Sanul (2022) distinguished three types of skills among digital nomads: (1) soft skills for copyediting, website design, or social media marketing; (2) high-demand skills in technological jobs such as programming or software engineering; and (3) entrepreneurial skills. Global platform researchers distinguish between gig work performed online, such as cloud work or crowd work, and gig work performed locally such as on digital applications or capital platforms (McDonnell et al., 2021). The central concerns of both global nomads and gig workers are finding jobs or projects and long-term benefits such as pensions and healthcare (Aroles et al., 2023; Sanul, 2022; Wang et al., 2020). Research has documented that global virtual workers may suffer from job insecurity, low pay, social isolation, work–life imbalance, overwork, and poor health (Petriglieri et al., 2018; Sanul, 2022; Wang et al., 2020; Wood et al., 2019). At the same time, research shows these workers often enjoy increased autonomy, flexibility, task variety, and learning potential, which in turn improve innovation, satisfaction, and engagement (Nurmi & Hinds, 2016; Wood et al., 2019). GVW has been shown to offer higher pay for host country nationals in low-cost countries than typical domestic jobs (Lehdonvirta et al., 2019; Wood et al., 2019). Thus, although many gig workers suffer from the precarious nature of GVW, some highly qualified gig workers can reap the benefits of increased agency.



Second, several key findings within this domain concern *global job design and relationship management* in coordinating work between suppliers (global virtual workers) and providers of work (MNEs and platforms). In the context of offshoring, most studies focused on examining how to manage offshore outsourcing and coordinate employees and activities between MNEs and offshore units (Levina & Vaast, 2008). For example, Leonardi and Bailey (2008) found that distributed engineers at an offshore site in India had problems understanding engineering task assignments from home sites in North America. As a solution, the home sites developed five work practices (i.e., defining requirements, monitoring progress, fixing returns, routing tasks strategically, and filtering quality) to transfer occupational knowledge to the offshore site. Other studies demonstrated that perceived proximity of workers improved relationship quality in distributed work (e.g., O’Leary et al., 2014). Wang et al. (2020) called for a paradigm change in work design, moving away from Taylorism, which focuses on assigning employees to specific tasks to increase efficiency, in favor of adopting a flexible combination of traditional work with increasingly machine-controlled arrangements. In their metatheory of global work encounters, Thomason and Gibson (2024) identified three types: cosmopolitan (different status of global participants), hybrid (adaptations to create new space), and optimally distinct (selective use of different elements), and outlined the conditions (geography, work design, and approach to differences), processes (maintenance, adaptation, adjustment), characteristics (status entrenchment, amalgamation, uniqueness-commonality), and outcomes at individual, interpersonal, and task levels. They emphasized that each encounter type has its role but highlighted a gap in understanding how encounters evolve or can be tailored for specific goals. This likely requires multilevel or mixed-method approaches—as well as exploration of contexts other than the typical Western samples—to capture the variety of distributed work experiences across the globe.

A third area of distributed work research addressed the crucial role of *HRM practices* in facilitating the success of GVW. International HRM researchers highlighted the importance of recruiting, motivating, training, and retaining global virtual workers (Caligiuri et al., 2020; McDonnell et al., 2021). Given cross-cultural differences and the lack of physical interactions, cross-cultural training and organizational socialization were emphasized (Asatiani et al., 2021; Gertsen & Zølner, 2014; Jain et al., 2011). Other research focused on the important roles of goal setting, organizational support, and project management in enabling global workers to achieve desired levels of task performance (Verburg et al., 2013). Platforms often use traditional recruitment practices in combination with new forms of algorithmic shortlisting (McDonnell et al., 2021). For example, it was documented

that the digital platform attraction and selection process consists of (1) including value propositions to attract workers, (2) prescreening, (3) shortlisting, (4) selection based on contests and profile reviews/ratings/portfolios, and (5) negotiations with preferred workers (Williams et al., 2021). Waldkirch et al. (2021) identified HRM practices that pertain to training and development, feedback, appraisal, platform literacy, and support of gig workers. Several studies also targeted macro human resource issues, demonstrating that although the low labor cost and legal environment of a country may attract the location of offshore units and the migration of global nomads (Sanul, 2022), organizations tend to prefer global virtual workers in culturally similar countries (van Slageren et al., 2023). The expansion of global platforms may change the labor structures in host countries because they create unstable employment relations and weaken labor rights (Petriglieri et al., 2018; Schou & Bucher, 2022; Wood et al., 2019), but they also offer more opportunities and better pay for highly skilled workers (Lehdonvirta et al., 2019).

Use of digital technologies

The research within this domain examines the role of digital technologies in enabling GVW, often by positioning technology in a mediating or embedding role, and the role of digital technology infrastructure as a boundary condition that reinforces the inputs and business outcomes of GVW in such a way that the technology serves as a moderator. Although information management and information systems research have a long and rich tradition, this discipline has only recently been used to understand GVW, so research within this third domain is nascent. Although there are some common patterns of research among the three domains (see Fig. 1), the focus of this domain is the impact of digital technologies (i.e., the IT artifact) on work across spatial and temporal boundaries (e.g., time zones), organizations, and society. We identified 93 such papers within this domain. Table 4 contains an overview.

Actors and environments

Research in this domain addresses the impact of digital technologies on a variety of actors and environments, including collaborators and offshoring arrangements. For example, Kankanhalli et al. (2006) examined the impact of digital technologies on teams’ performance. Although less common, other studies within this domain explored the broad environment of global virtual citizens, that is, citizens who can be connected virtually using digital technologies (e.g., Agres et al., 1998; Donnelly & Johns, 2021). Finally, because partially or fully outsourcing a firm’s IT capabilities is common in many large organizations, studies within this



Table 4 Overview of the literature on the use of digital technologies (*n* articles = 93)

Category	Sub-category	Sample articles
Actors/environments	Collaborative processes	How technology enables collaboration across geographical and time zone boundaries (Kankanhalli et al., 2006)
	Global virtual citizens	Individual citizens (Agres et al., 1998) and remote workers (workers operating outside firms using digital technologies) (Donnelly & Johns, 2021)
	Offshoring	Indian offshore employees working for U.S. home sites (Leonardi & Bailey, 2008)
Objectives	Managing interactions	Communication and collaboration (Schmeil et al., 2012)
	Virtual communities and teleworking	Creation of new work practices (Leonardi & Bailey, 2008), and the facilitation of remote work (Donnelly & Johns, 2021)
	Virtual project management	Virtual product development management (Tavcar et al., 2005)
	Conflict management and performance	Strategies to avoid/manage conflicts (Kankanhalli et al., 2006)
	Agility	Resource, process, and linkage agility in global software development teams (Sarker & Sarker, 2009)
Theories	Focus on digital technologies	Media richness theory and media synchronicity theory (Davis et al., 2009; Dennis et al., 2008; Shachaf, 2008), and technology affordances theory (Gibson et al., 2021)
	Focus on processes	Knowledge transfer theory (Leonardi & Bailey, 2008)
	Focus on the organization	World-systems theory (David et al., 2008)
Methods	Literature review	Literature on metaverse technologies (Davis et al., 2009)
	Qualitative	Interviews, site visits, observations of video conferences and conference calls, and frequent discussions on single or multiple case study(ies) (David et al., 2008; Persson et al., 2012), and grounded theory (Glaser & Strauss, 1967)
	Quantitative	Survey data (Cummings et al., 2009)
	Mixed-methods	Interviews and survey data (Leonardi & Bailey, 2008); longitudinal case study combined with secondary data (e.g., communication logs) (Kankanhalli et al., 2006); mixed-method analysis of 48 global teams (Gibson et al., 2021)
Key findings	Digital technologies for spatial/temporal boundaries	Digital technologies selection to coordinate global virtual work and reduce coordination delays (Cummings et al., 2009)
	Virtual worlds, avatars, people	Use of virtual reality, augmented reality, and metaverse technologies (e.g., Second Life) to enable the collaboration between virtual teams (Davis et al., 2009), and e-learning (Franceschi, Lee, Zanakakis, & Hinds, 2009)
	Digitally enabled remote work	Managing human resources for remote work (Donnelly & Johns, 2021), and leveraging digital technologies (e.g., cloud computing, data analytics, e-mail, instant messaging) for crowdsourcing (Holtgrewe, 2014) or successful virtual team implementation (Chinowsky & Rojas, 2003)
	Collaboration through technology	Skills and digital technologies infrastructure for collaboration (Tavcar et al., 2005), strategies to avoid, resolve, and manage conflicts between global virtual teams (Kankanhalli et al., 2006; Pauleen & Yoong, 2001), and knowledge management for effective collaboration (Gibson et al., 2021; Shachaf, 2008)

Articles may appear in more than one domain. Citations are included in the references section.

domain examined the use of technologies for GVW from an offshoring perspective (e.g., Leonardi & Bailey, 2008). However, the literature has yet to address how other types of global virtual workers (e.g., digital nomads, global citizens) use digital technologies in a GVW context.

Objectives

The main objective of actors within this domain was the use and leverage of digital technologies to resolve the specific challenges of GVW. The different actors use digital technologies for communication and collaborative

processes (e.g., Davis et al., 2009) and reduce conflicts (Kankanhalli et al., 2006). Organizations use digital technologies to create new workplace practices for IT-enabled remote work (Leonardi & Bailey, 2008), and embed digital technologies in the HR strategy (Shaw & Holland, 2010). Another key objective of organizations is to increase innovation and agility (i.e., new product development) via digital technologies (e.g., Sarker & Sarker, 2009). Surprisingly, cost and time have been relatively neglected in the literature; we did not identify any studies that examined whether costs affect the use of digital technologies in GVW arrangements.



Theories

Many of the theories used in research within this domain focus on digital technology artifacts and include theories of media richness (Daft et al., 1987), media synchronicity (Davis et al., 2009; Dennis et al., 2008; Shachaf, 2008), and technology affordances (Gibson et al., 2021). Media richness theory was the most frequently theory for explaining the choice of communication media based on its richness, which is defined as the media's ability to convey an understanding of the needs of the task (DeRosa et al., 2004). Media synchronicity theory was used to explain which media should be chosen to fit the required communication process (Dennis et al., 2008). This theory focuses on the ability of media (digital technology, or IT artifact) "to support synchronicity, a shared pattern of coordinated behavior among individuals as they work together" (Dennis et al., 2008, p. 575). Technology affordances theory (Clark & Brennan, 1991) acknowledges that technology may have multiple uses or affordances and is used to explain how a specific user or group of users perceive the possible uses (and usage consequences) of technology (e.g., Gibson et al., 2021; Leonardi, 2011). In addition, some researchers in this area applied the theories of knowledge transfer (Leonardi & Bailey, 2008), or world-systems. The latter is a multidisciplinary approach to social change that emphasizes global systems, as opposed to nation-states, as the primary unit of social analysis (David et al., 2008). Others developed their own theory or did not refer explicitly to any theories.

Methods

Researchers within this domain used a variety of research methods to examine the use of digital technologies in GVW. Corresponding with the nascent, exploratory phase of this research, the dominant methodologies were qualitative (e.g., Persson et al., 2012) and conceptual (e.g., Davis et al., 2009). Quantitative research methods were less common (e.g., survey data; Cummings et al., 2009), and only a small number of studies (6) within this domain used mixed methods (e.g., Gibson et al., 2021; Srivastava & Chandra, 2018). Longitudinal methods were not used in this domain, and we could not find any studies that synthesized the quantitative literature (i.e., meta-analysis). As with other nascent international business topics, expanding the range of research methods is desirable.

Key findings

The research conducted within this domain addressed a diverse set of topics, including: (1) digital technologies for spatial and temporal boundaries, (2) virtual worlds, avatars, and people, (3) digitally enabled remote work, and

(4) collaboration through technology. A first set of studies pertained to how *digital technologies* can help users thrive across *spatial and temporal boundaries* and improve coordination in GVW. This area of research has received much attention over the years. For example, Cummings et al. (2009) classified communication technologies into synchronous (e.g., web conferencing) and asynchronous (e.g., e-mail). They found that synchronous web conferencing reduced coordination delays for global workers in similar time zones compared with those located across different time zones. They also found that greater use of e-mails did not reduce coordination delays for global workers in different time zones, but it did reduce coordination delays for those in similar time zones (Cummings et al., 2009). In general, however, we were surprised at how little research has examined simultaneously the positive (e.g., employee productivity and GVW) and negative (e.g., techno-stress and techno-invasion) sides of digital technology usage and their effect on organizations and individuals.

A second set of studies addressed *virtual worlds, avatars, and people*, such as virtual reality, augmented reality, and metaverse technologies (e.g., Second Life, Facebook metaverse) as means of enabling virtual collaboration (e.g., Davis et al., 2009). For example, Davis et al. (2009) proposed a conceptual framework for future research on metaverses based on five factors: (1) the metaverse, (2) people/avatars, (3) technological capabilities, (4) behaviors, and (5) outcomes.

A third set of studies focused on *digitally enabled remote work* (e.g., Donnelly & Johns, 2021), which included research on the leveraging of digital technologies (e.g., cloud computing, data analytics, e-mail, and instant messaging) for crowdsourcing (e.g., Holtgrewe, 2014). For example, Holtgrewe (2014) conceptualized the potential of cloud technologies and big data to execute crowdsourcing (i.e., the collection of opinions and information from employees to solve a business problem) initiatives and the challenges for employees and unions in organizations. Chinowsky and Rojas (2003) conceptually explored the role of digital technologies in enabling the successful implementation of virtual teams in the engineering and construction industries.

Finally, a fourth set of studies addressed *collaboration through technology*, examining skills and digital infrastructure (Tavcar et al., 2005), strategies to avoid conflicts (Pauleen & Yoong, 2001), and knowledge management for successful collaboration (Shachaf, 2008). As previously noted, there is much potential for conflict when collaborators work across cultures, time zones, and languages, and studies within this domain point to technological solutions for resolving or reducing conflict. For example, Kankanhalli et al. (2006) found that electronic communication and a lack of immediate feedback in asynchronous media contributed to task conflict. Gibson et al.



(2021) found that when collaborators worked on new activities, with new purposes for interaction, and shifted technologies accordingly, collaborations were more effective. This coevolution of purpose with technology use formed new affordances that enabled collaborators to create knowledge and sustain effectiveness. Literature has also identified the potential for the use of translation software to overcome conflicts in a GVW environment. This software can be used to translate conversations between individuals speaking different native languages in real-time or time-shifted interactions, primarily focusing on movement between a native language and English. Research found that translation software does not disrupt communication, is accepted among users (Calefato et al., 2016), and is evolving into a viable tool for cross-national collaboration (Niu & Yang, 2022). However, much more research is needed to gain deeper insights into both the positive and negative impacts of translation software.

Integrative framework for global virtual work

Building on our systematic literature review, we constructed an integrative framework that summarizes and incorporates perspectives across the three domains of GVW. Collectively, our review illuminated various antecedents, mediators, and moderators that have predicted a variety of GVW outcomes and incorporated various actors (i.e., individual global virtual workers, teams, and organizations) and environments (i.e., digital, country, and global). Synthesizing this research, we developed a multilevel, inputs–mediation–outputs–inputs framework (Ilgen et al., 2005) to portray a rich and broad picture of GVW reality (see Fig. 3). Drawing on process studies (Langley et al., 2013) and the business value of IT (Benitez et al., 2023), we conceptualized this as an iterative and recursive cycle.

In accordance with multilevel theorizing (Klein et al., 1999) and based on our review, we recognized four levels of analysis that are relevant and integral to a comprehensive understanding of GVW. At the macroenvironmental level,

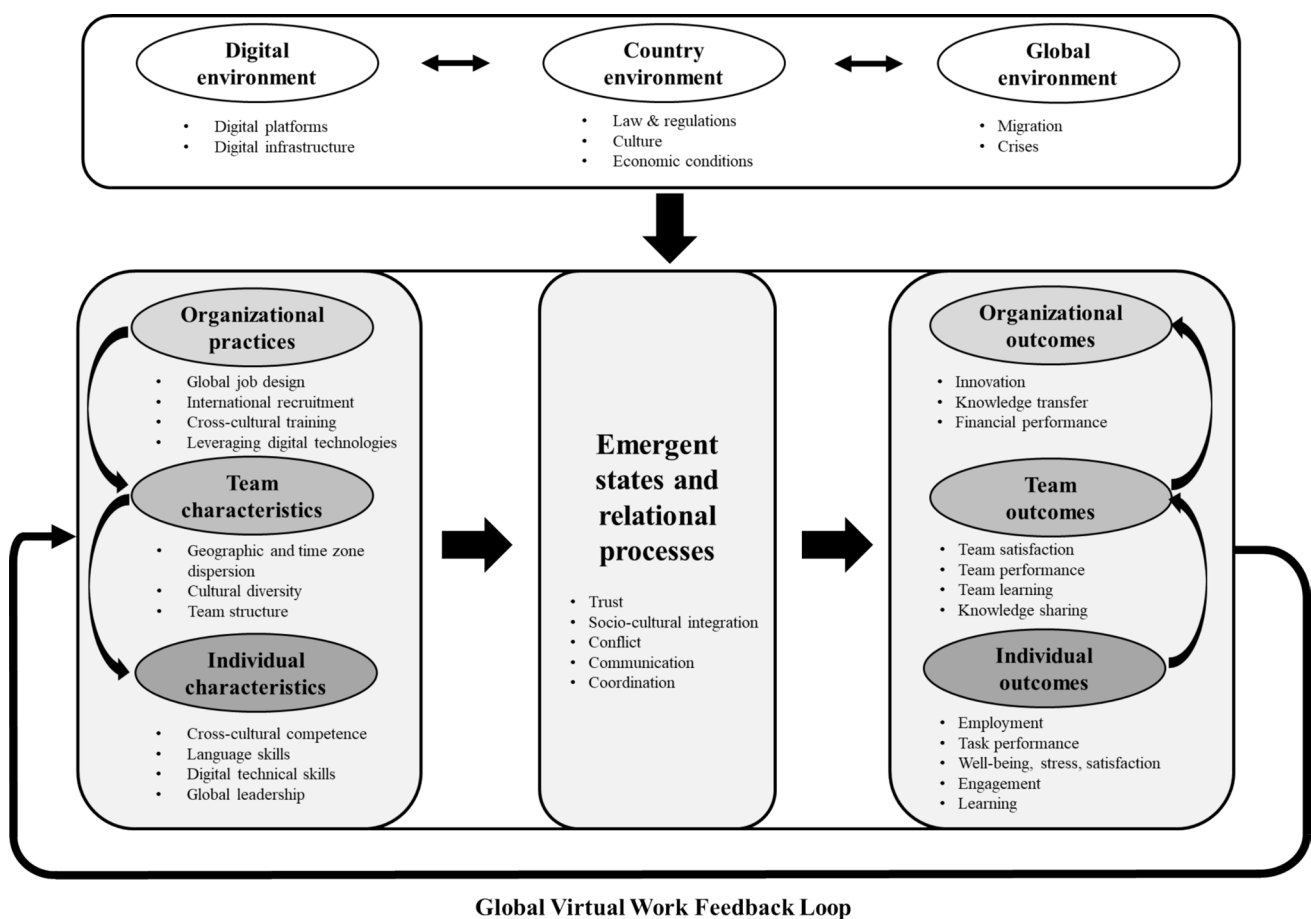


Fig. 3 Emergent conceptual framework for global virtual work literature



we conceptualized the digital (e.g., platforms and infrastructure), country (e.g., law and regulations, cultural context, and economic conditions), and global (e.g., migration and crises) environments as exogenous factors capable of influencing the entire GVW process in manifold ways. Because no clear hierarchical distinction exists between these three features, we conceptualized them as all existing on the “macro level.” Furthermore, because these three features can have cross-level effects, we positioned them as overarching dimensions that affect the entire GVW process. These environmental forces can directly influence inputs, emergent states and relational processes, and outcomes across all levels of GVW, but they are particularly pertinent for understanding context and technology. For instance, processes such as cross-cultural integration and communication vary substantially across cultural contexts (Jarvenpaa & Leidner, 1999). The legal environment in some countries (e.g., Germany) may result in strict employment policies that, along with changes in migration flows (a macro environment force), may affect team composition and emergent states and relational processes. The economic conditions of countries (e.g., labor or living costs) may influence organizational practices (e.g., offshoring/outsourcing decisions; Lehdonvirta et al., 2019), team structure (Leonardi & Bailey, 2008), or individual preferences (e.g., relocation to lower-cost countries; Wang et al., 2020). The different environmental-level factors may also influence one another; for example, new digital infrastructure may require new laws and regulations to protect privacy.

Digital, country, and global environments may also change the nature of the relationships between inputs, emergent states and relational processes, and outcomes. For instance, synchronous digital infrastructure (e.g., telephone, text communication, and web conferencing) can reduce delays in coordination for individuals working across spatial boundaries (Cummings et al., 2009). Similarly, a country’s digital platforms and infrastructure (i.e., digital environment) may affect the specific digital capabilities firms can develop (i.e., organizational capabilities) and the digital technical skills available in the workforce (i.e., individual characteristics), which will affect emergent states and relational processes and outcomes. Additionally, cultural differences (i.e., the country environment), as well as changing workforce demographics through migration (i.e., the global environment), may amplify the negative effects of conflict on knowledge sharing (Vahtera et al., 2017) and influence the choice of communication media for knowledge sharing (Klitmøller & Luring, 2013).

In terms of inputs, we considered three levels of analysis: organizational (i.e., organizational practices), team (i.e., team characteristics), and individual (i.e., individual characteristics). At the organizational level, our review indicated that HRM practices, such as global job design, international recruitment, and cross-cultural training (McDonnell et al.,

2021) serve as inputs for emergent states and relational processes and also influence teams’ and individuals’ inputs. A similar effect on teams and individuals occurs through the extent to which an organization uses, assimilates, and leverages digital technologies. For example, recruitment, cross-cultural training, and a firm’s idiosyncratic capabilities to leverage digital technologies affect the contributions made by teams and individuals in GVW.

Key team-level inputs include cultural (Taras et al., 2019), geographic (Gibson & Gibbs, 2006), and temporal dispersion of team members (Cummings et al., 2009) as well as team structure (Gibson et al., 2021), with particular attention to tasks, such as the formalization of task roles and responsibilities. These features affect GVW through emergent states and relational processes and are influenced by environmental boundary conditions (such as digital platforms or migration).

At the individual level, the emphasis is on people, and our review highlighted four key inputs: cross-cultural competence (Mattarelli et al., 2017), language skills (Presbitero, 2020), digital technical skills (Benitez et al., 2018; Tavcar et al., 2005), and global leadership (Lu et al., 2021). All of these serve to improve or, in some instances, inhibit emergent states and relational processes. It is noteworthy that these individual, team, and organizational factors may have direct and interactive effects on emergent states and relational processes. They may also directly affect various individual-, team-, and organizational-level outcomes. For example, how an organization leverages digital technologies (e.g., a live translation software) may influence the effectiveness of cross-cultural corporate training, the appearance of conflicts, and, ultimately, learning and team satisfaction. Social identity theory (Tajfel & Turner, 1986), attribution theory (e.g., Gilbert et al., 1988; Tetlock, 1985), and signaling theory (Lehdonvirta et al., 2019) offer alternative theoretical explanations for these expected relationships.

Emergent states and relational processes, including trust, sociocultural integration, conflict, communication, and coordination, are at the heart of the framework and are essential for GVW to create value. These processes occur as interactions between at least two partners, which can include global virtual team members within an MNE (Vahtera et al., 2017), individual workers across MNEs, and global platforms (e.g., Lehdonvirta et al., 2019). We include the latter to emphasize that, increasingly, such interactions are not exclusively human-to-human but also encompass interactions between humans and platforms, organizations, or digital technologies (Wang et al., 2020). A central finding from our review is that MNEs can leverage skills in diverse locations and cultures if they can communicate, collaborate, create trust, and reduce conflict among diverse global virtual workers. Research on distributed work has also highlighted the need for the sociocultural integration of organizational outsiders into models of GVW (Jain et al., 2011). The emergent states



and processes in this part of the model reflect an interaction of people, technology, context, and time. These relational processes between different actors can largely be explained by theories of social identity (Tajfel & Turner, 1986), similarity attraction (Byrne, 1971), media richness (Daft et al., 1987), and media synchronicity (e.g., Davis et al., 2009; Dennis et al., 2008; Shachaf, 2008).

Our review revealed the importance of various outcomes at organizational, team, and individual levels, with emergent states and relational processes having both direct and indirect effects on all three. At the organizational level, key outcomes encompass innovation, knowledge transfer, and financial performance, including lower costs. Interestingly, much less research exists on organizational-level outcomes than on the other two levels. At the team level, research has identified outcomes such as a team's satisfaction, performance, learning, and knowledge sharing (Taras et al., 2019). These are often measured via the aggregation of individual outcomes or by the assessment of a leader or customer outside the team (Gibson & Gibbs, 2006). Individual-level outcomes included employment, task performance, well-being/stress/satisfaction, engagement, and learning. Success, performance, and effectiveness have been measured in terms of objective indicators such as task performance and by subjective indicators such as global virtual workers' satisfaction. The literature on distributed work has also highlighted the importance of securing continuous, well-paying employment and the well-being of workers.

It is important to note that GVW is temporal in nature, with current cycles affecting future iterations. In line with process studies (Armstrong & Baron, 2005; Langley et al., 2013), outcomes can lead to experiences that determine the future GVW experiences of individuals, teams, or organizations. Poor outcomes would typically necessitate alterations in the inputs: Individuals, teams, and organizations can implement organizational practices and select individuals and teams with the needed characteristics to improve the next iteration of the GVW experience. For instance, if members of a global virtual team struggled to achieve their objectives (e.g., poor task performance), their organization could offer cross-cultural training and/or recruit team members with specially needed skills. Although we depict a GVW feedback loop from (final) outcomes to inputs, the feedback loop may also occur anytime during the GVW experience and lead to iterations in the inputs and relational process linkages.

By highlighting the key factors at each level that have been identified in prior research and integrating these into a single framework, we reveal ways of linking inputs, emergent states/processes, and outputs that offer a rich reservoir of opportunities for future research. We also note that inputs and outputs are themselves dynamic, and relationships may occur among them. For example, as well-being and

satisfaction increase for global virtual workers, corresponding changes may occur in teams' outcomes. Finally, in line with multilevel theorizing (Klein et al., 1999), we propose that higher-level environmental factors may influence lower-level inputs and that lower-level outcomes may aggregate or emerge to higher-level outcomes. Both top-down effects and bottom-up processes are possible (Bamberger, 2008). For instance, individual engagement can result in collective outcomes, such as teams' task performance or organizational performance (Gibbs et al., 2021; Stahl et al., 2010), and collective knowledge sharing at the team level is related to organizational innovations (Gibson et al., 2021). The framework thus reveals a variety of potential relationships to explore in future research.

Discussion

Based on our systematic literature review of global virtual teams, distributed work, and the use of digital technologies, we developed an integrated framework reflecting prior research to portray how GVW can create value. Our framework illustrated the importance of context at multiple levels and the temporal aspects of GVW. In this section, we first provide a brief, comparative summary of each domain in our systematic review, and then synthesize our knowledge to propose overarching, domain-bridging future research directions around the themes of people (who), technology (how), context (where), and time (when). Finally, we draw attention to the practical implications of GVW for policymakers, managers, and individual workers.

Comparing the three global virtual work research domains

As delineated in Table 5, for each of the three domains in our review, we summarized more saturated research areas (what we know more about) and less saturated research areas (what we know less about and want to know more). The more saturated areas reflect the most frequently researched issues, theories, and methods used in prior research. The less saturated research areas have been emerging or explicitly mentioned as future research directions in prior research, and they reflect the reality of GVW today, as we have observed and documented in the most recent research programs still in progress.

Our delineation of research issues, along with a consideration of research theories and methods, provides a roadmap for future research within and across the three domains (see Table 5). For instance, more research is warranted to understand the antecedents of well-being and stress among members of global virtual teams. When perusing the different areas of less saturated research, we noticed that more



Table 5 Comparative summary of research saturation and future research themes

	More saturated research areas (What we know more about)	Less saturated research areas (What we know less about and want to know more)	Overarching, future research themes
Domain			
<i>Global virtual teams</i>			
Issues examined or emerging	Role of cross-cultural competence/cultural intelligence	Language, digital technical intelligence, resilience	People
	Performance, learning and knowledge sharing	Well-being, stress	People
	Antecedents and consequences of trust and conflict	Leveraging digital technologies (e.g., AI, virtual reality)	Technology
	Cultural diversity	Role of environment (e.g., law and regulations, migration)	Context
	Geographic and time zone dispersion	Job design, international recruitment	Context
		Time perspective on emergent states and processes within teams (e.g., acculturation)	Time
		Cyclical nature of global virtual teamwork	Time
		Disruptive events (e.g., global health crisis, war)	Time
Theories	Social identity, similarity attraction	Team situational awareness, institutional logics	Context
Methods	(Cross-sectional) surveys, qualitative research	Longitudinal methods, within-person designs, experiments, meta-analyses	Time
<i>Distributed work</i>			
Issues examined or emerging	Global job design, job characteristics	Global nomads, gig workers, global social media influencers	People
	International recruitment, training, organizational socialization	Tolerance for uncertainty/resilience	People
	Offshoring	Leveraging digital technologies (e.g., AI, virtual reality)	Technology
		Role of environment (e.g., country's digital infrastructure, migration)	Context, technology
		Virtual organizations	Context
		Disruptive events (e.g., climate disasters, war)	Time
	Contract/relationship-related theories, social identity	Acculturation (i.e., process), communication theories	People, technology, time
Methods	Literature review, qualitative research	Longitudinal methods, multilevel modeling, mixed methods	Context, time
<i>Use of digital technologies</i>			
Issues examined or emerging	Digital technical skills	Balancing the bright and dark consequences of digital technology on individuals and organizations	People, technology, context
	Digitally embedded remote work	Technology–human interactions	People, technology
	Digital technologies for spatial and temporal boundaries	Leveraging digital technologies (e.g., AI, virtual reality)	Technology
		Role of the country's digital platforms and infrastructure	Technology, context
		Using technology to tackle disruptive events (e.g., war and migration flows)	Time
	Media richness	Technology affordances, knowledge transfer	People, technology



Table 5 (continued)

	More saturated research areas (What we know more about)	Less saturated research areas (What we know less about and want to know more)	Overarching, future research themes
Methods	(Cross-sectional) surveys, qualitative research	Longitudinal methods, Comparative case studies, mixed-methods	Context, time

“Issues examined or emerging” include “Actors/environment,” “Objectives,” and “Key findings” presented previously within each domain.

saturated research areas in one domain sometimes correspond with less saturated research areas in another domain. To address this, we encourage future research that draws from expertise generated in one domain and applies that knowledge to another domain (i.e., bridging domains). For instance, substantial knowledge of platform work from the domain of distributed work can be applied to global virtual teams.

Going beyond specific suggestions for future research in each specific domain, we then categorized the less saturated research areas into four domain-bridging, overarching themes for future research. All of these are in line with the core tenets of GVW: (1) *people* using (2) *technology* to work in a (3) *global context* (4) *over time* (Hinds et al., 2011; Nurmi & Hinds, 2016). These themes aim to consolidate the knowledge across all domains and build connections between them. We explain these themes and future directions in the following section.

Future research opportunities

To move the field forward, it is imperative that we address current features of GVW that have yet to be reported in research. Many of these new forms and features of GVW have been enabled by very recent developments in the macro context, including new technologies, and cultural, policy, or economic developments. Here we consider a variety of research opportunities for investigating new avenues and innovations regarding people, technology, context, and time issues associated with GVW. We also draw from related, recent research to expand our horizon to propose promising future research directions.

People

Individuals play a key role in GVW. Our integrative framework emphasizes individual characteristics, such as cross-cultural competence, and individual outcomes, such as task performance. Extending prior research, we encourage investigations of less researched, but increasingly important individual knowledge, skills, and abilities (KSAs) that are needed in GVW and outcomes that are desired, especially by the younger generation of global workers who will negotiate the realities of GVW throughout their careers.

As for KSAs, we need more research on language skills, digital technical intelligence, and resilience. The importance of English as the language of business has been emphasized in international business research (Presbitero et al., 2023). However, what is the role of fluency in English as well as other languages and other cognitive competencies in GVW, particularly in light of new translation technologies? The theory of multiple intelligences suggests that different types of intelligence are important predictors of performance (Gardner, 1993). In GVW, individuals work together with others from different cultures via computer-mediated technology. Whereas substantial research has illuminated the important role of cultural intelligence (e.g., Erez et al., 2013; Presbitero, 2021), we know little about digital technical intelligence. Given rapid advancements in technology, more research is needed to understand the role of digital technical intelligence (Makarius & Larson, 2017). Future research may also consider different types and profiles of intelligence that are important in GVW. Resilience—the capability to withstand and bounce back from difficulties—has become an increasingly important quality in recent years, particularly in times of high uncertainty (Hartmann et al., 2020). Because the context of global work can entail excessive uncertainties, global workers need resilience (Davies et al., 2019). Thus, we encourage more research to increase our understanding of the interaction of context and resilience among individuals engaged in all aspects of GVW.

At the individual level, prior research focused primarily on identifying the determinants of GVW performance indicators such as task performance or the acquisition, sharing, and transfer of knowledge. The goals of the younger generation of workers have shifted. Well-being, lifestyle, satisfaction, and health have become important in the attraction, motivation, and retention of a younger workforce. However, research is lagging on the determinants of the well-being, stress, and health of individuals engaged in GVW. Research on GVW can draw inspiration from psychology and career literature. For instance, scholars in psychology have begun to investigate the ramifications of the “always connected” cultures of many organizations and the resultant technostress that employees experience (Wang et al., 2023). In the literature on sustainable careers, scholars have identified happiness, health, and productivity as the three critical goals for maintaining long-term career success (De Vos et al.,



2020). The global and flexible nature of GVW provides great opportunities to leverage these goals, but we need more research to understand how people engaged in GVW achieve them. We note recent research that documents differences in the meaning of happiness and flourishing across countries (Case et al., 2023). Global virtual workers will need to navigate these differences especially as they work in global virtual teams, where reconciling such differences may pose challenges.

Individuals working in MNEs were the main focus in earlier studies of international business. Technology and globalization have provided new opportunities for individuals to seek various global job opportunities (Sanul, 2022; Wang et al., 2020), but there is a scarcity of research on various new types of global workers such as global nomads, gig workers, or global social media influencers. More research is needed to understand the situations, goals, challenges, and successes of such global virtual workers.

Technology

A second core issue for future research that emerged from our review concerns the ongoing digital transformation of organizations and the effect on individuals of this transformation and the digital technologies involved. Emerging digital technologies (e.g., AI, blockchain, 5G, cloud computing, and business data analytics) are critical for the successful transformation of business processes and models as well as employee and customer experiences (Wessel et al., 2021). During the COVID-19 pandemic, many companies accelerated their digital transformation strategies, realized the potential business value of these strategies, and invested in related digital technologies (Benitez et al., 2023). This presents many different opportunities for future research on GVW. Given the inequalities in the speed and volume of digitalization across countries (Srinivasan & Eden, 2021), a country's digital platforms and infrastructure (e.g., 5G implementation) may affect the idiosyncratic digital capabilities (e.g., AI management capability) firms can develop and the digital technical skills available in the workforce. These affect the emergent states, relational processes, and outcomes of GVW. This topic promises to become a cutting-edge area of research.

We also encourage research into how AI is likely to change the future of GVW. This is a highly relevant issue, and the academic literature is still in its infancy. Recent research has highlighted AI integration in human resource management practices (Pan & Froese, 2023) and strategy (Ruiz et al., 2024). This integration presents opportunities and challenges for the workforce and organizational operations (Chowdhury et al., 2024). Generative AI (i.e., AI that can create new content based on learned patterns and structures, such as ChatGPT and Google Gemini) and AI-enabled

collaborative platforms (e.g., Zoom) can help organizations and executives optimize remote work and collaboration of GVW. For example, organizations can leverage AI to analyze recordings of meetings (i.e., historical conversational data) to discover patterns and new business opportunities and predict trends. Real-time translation and transcriptions and multilingual communication enabled by AI are likely to help optimize global virtual teams' knowledge sharing and productivity. AI-powered virtual assistants can anticipate employees' needs and provide personalized recommendations to enhance productivity. On the other hand, generative AI may create uncertainty for workers by heightening risks related to well-being, bias, misuse, misinformation, insensitivity, privacy, ethical dilemmas, and security (Budhwar et al., 2023). Conceptualizing and understanding responsible and explainable AI, as well as theorizing and testing empirically how companies and executives can balance its light and dark sides requires cross-disciplinary attention in future research. Similarly, integration of generative AI in the workplace may affect the technology-human interactions in GVW and efforts to combat global societal challenges (e.g., climate change and migration flows). In the context of GVW, examining how to allocate tasks between humans and AI as well as who and how such tasks are delegated and coordinated (Dwivedi et al., 2023) are all promising research arenas. Implementation of generative AI may also change job profiles within organizations to the extent that migration flows are influenced. We encourage scholars to develop significant and insightful research on this relevant topic.

Finally, although research on virtual reality, augmented reality, and metaverse technologies is emerging (e.g., Recker et al., 2021; Schmeil et al., 2012), their implementation is outpacing our scholarly understanding of the affordances, value creation purposes, integration, and change management processes necessary to use these technologies in GVW. We encourage research that examines how organizations, executives, and teams can use and integrate metaverse technologies in GVW to create virtual worlds and avatars that simulate and augment employees' experiences and teams' (e.g., knowledge sharing, team building) and individuals' outcomes (e.g., engagement, collaboration). These new technologies also hold great potential for organizations to achieve diversity, equity, and inclusion objectives, but can also promote feelings of inequity or dehumanization (Gibson et al. 2023a, 2023b). Technology affordances may provide a theoretical grounding for such investigations (Gibson et al., 2021).

Context

Although prior research has examined team and organizational contexts, comparatively little is known about the influence of the macroenvironment and its implications



across levels. A polycontextual approach (i.e., the consideration of multiple contextual influences; Tsui et al., 2007) may help in conceptualizing and analyzing these cross-level influences of the macroenvironment on individual global virtual workers and teams as well as global organizations. Our review has identified the digital environment (digital platforms, digital infrastructure), the country environment (law and regulations, culture, economic conditions, labor market), and the global environment (migration, crises) as key macro-level factors. We expect that these interact with one another and with factors at other levels. For example, we view as promising the examination of how economic growth may promote the leveraging of digital technologies, team structures that enable this leverage, and the subsequent development of technology skills within the workforce. At the same time, future research could also explore how global virtual workers make use of social movements or engage in socially responsible behavior to shift national policies. Future research may also focus on specific macro-level phenomenon such as migration. The directions and geographic dispersion of global migration have shifted (de Haas et al., 2019), including an increase in global digital nomads. As a result, GVW is likely to be characterized by even greater heterogeneity of workers—a change referred to in migration studies as “super-diversity” (Vertovec, 2022). We understand very little about how MNEs must reshape GVW to integrate such a diverse workforce (Hajro et al., 2017) while aligning workforce demands and availability globally. From a methodological perspective, future research is encouraged to conduct comparative studies or multilevel analyses to investigate the influence of macro-level contexts.

Furthermore, we need more theoretical understanding of institutional logics in a GVW environment. Institutional logics refer to material practices, rules, beliefs, and assumptions that evolved historically and are socially constructed (Thornton & Ocasio, 1999). These logics are manifested at different levels and can be differentiated between states, markets, religions, communities, progressions, families, and corporations (Thornton et al., 2012). Institutional logics can also emerge within organizations (e.g., MNEs) and be influenced by geographical or cultural contexts in which the organizations are embedded (Greenwood et al., 2010). This leads to organizations being exposed to multiple logics (Besharov & Smith, 2014) that vary according to context and time (Thornton et al., 2012). Because GVW can be executed in different institutional logics (i.e., caused by different contexts) simultaneously (e.g., cultural practices or rules across countries and cultures bridged by technology), future research should examine how multiple institutional logics affect entities and outcomes of GVW across space and time. Institutional theory (DiMaggio & Powell, 1983; Kostova et al., 2008) may help understand the various influences of the macroenvironment.

Recent shifts in the broader nature of work will influence our understanding of global job design and organizational structures. While boundaryless career chasers (i.e., individuals who pursue jobs across different employers and countries) was a dominating trend during the past two decades (Greenhaus et al., 2008), many individuals are now experiencing boundaryless jobs. Consulting companies and the media have proclaimed that jobs are being replaced by skills (Griffiths & Jones, 2022; Tynan, 2023). Individuals may no longer hold only one job but work on multiple jobs (e.g., assignments, projects) simultaneously where they can leverage their unique skill sets. Indeed, it is common for global nomads to simultaneously work for multiple clients on various projects. Likewise, agile working and open sourcing have become common in global IT projects (Daniel et al., 2013; Persson et al., 2012). New organizational forms, such as virtual organizations, have been created to take advantage of these trends, but such GVW arrangements have received little research attention. More research is needed examining the objectives and expectations of global virtual workers and global virtual organizations to enable workers to navigate the increasing complexity of jobs and organizational contexts. MNEs need to understand how to make the best use of such arrangements to gain knowledge and skills and to compete in such an environment.

Time

Another opportunity for future research pertains to the role of time in various aspects of GVW. Most of the research in our literature review tended to have a static view of GVW. However, this perspective can lead to flawed conclusions. We know from research on teams that collaboration is subject to cyclical, linear, or episodic developments (Larson et al., 2020; Marks et al., 2001). This implies a temporal aspect of task execution that includes transitory and operative phases (Bell & Kozlowski, 2012). Therefore, we encourage research centered on deciphering the underlying temporal aspects of GVW. Process research (Langley et al., 2013) could identify the affective and behavioral developments and consequences of GVW as well as the emergence facet of emergent states (i.e., time perspective). Related research on the development of virtual team collaboration (Blay et al., 2024), acculturation/adjustment of expatriates (Bhaskar-Shrinivas et al., 2005; Takeuchi, 2010), temporal diversity (Taras et al., 2024), and the management of time zone differences (Chauvin et al., 2024) could provide further inspiration. We recommend longitudinal methods, including within-person designs, to analyze the temporal and evolving nature of GVW.

As we noted in our review, GVW arrangements are often temporary, with specific objectives and predefined timeframes, such as the development of a new product or the



creation of a global platform that is scheduled to go live on a specific date. Future research could analyze the long-term sequences of GVW assignments and potential interventions within or between the iterative and recursive cycles depicted in our integrated framework. Many other GVW arrangements, however, lack an explicit timeframe such as when MNEs hire offshore service providers or when global nomads work as digital assistants (Sanul, 2022; Wang et al., 2020). These arrangements may be subject to constant surveillance, may be entirely dependent on rapidly shifting market conditions, and may be terminated at any time. How do organizations, teams, and individuals plan and coordinate global work projects with uncertain time horizons? How might organizations assign teams and employees to different global virtual projects? How do emergent states and relational processes unfold in short-term global virtual projects versus indefinite, long-term global work arrangements? These are questions worthy of future research.

Time may also be an exogenous force. Disruptive events that have severe consequences for GVW can be considered as an exogenous force on a timeline. For example, COVID-19 pandemic restricted international business travel in 2020 and forced MNEs to increasingly rely on GVW instead. Urgencies may also disrupt GVW, for instance, when hurricanes or earthquakes temporarily disable the use of digital technologies. Once the immediate crisis has passed, many organizations and workers may struggle to regain balance, and managers face decisions about how/whether to use in-person or virtual collaboration in tandem or sequence. GVW likely has major strengths in volatile, uncertain, complex, and ambiguous (VUCA) environments, given its greater flexibility and versatility over traditional forms of work. This can help organizations adapt to disruptions in the external environment such as in times of political turbulence, economic crises, or natural disasters (George et al., 2016; Oh & Oetzel, 2022). The emerging literature on organizational resilience suggests that agile, empowered (and often remote) teams are critical to helping organizations respond to, and bounce back from, crises, turbulence, and disruptions in the external environment—conditions that have recently become the “new normal.” We encourage researchers to examine how GVW can help organizations respond to these disruptive events. Given the importance of time for all these questions, future research will likely need to adopt mixed and longitudinal methods.

Highlighting the practical implications of global virtual work

Our review and framework can raise awareness among policymakers, organizations, and global virtual workers about factors at multiple levels that comprise and influence GVW. From a policy perspective, our framework situates GVW as

both flowing from and contributing to labor flows and economic development. GVW is not a panacea, but it may help provide solutions for maintaining national competitiveness as well as for managing transnational challenges and opportunities such as migration. At the organizational level, the objectives for GVW (e.g., cost reduction, flexibility, access to global talent) can guide decisions about global job design, the selection, integration, and capitalization of appropriate digital technologies, and international recruitment of people engaged in GVW. The individual and team characteristics included in our integrated framework are important for the selection of workers and the composition of teams. In addition to the traditional focus on technical expertise, we also view cross-cultural competence, language proficiency, and digital collaboration skills as key considerations for avoiding conflict, facilitating communication and integration, and generating positive outcomes.

Our review and integrated framework also highlight the critical roles of cross-cultural training, support systems and processes, and leadership. We emphasize the need to address communication, collaboration, building trust, managing conflict, cross-cultural interactions, leveraging digital technologies, and the sociocultural integration of global virtual workers for maximum engagement, knowledge sharing, innovation, and performance. Although global virtual team members are often members of the same organization, gig workers, global nomads, and distributed workers might not be familiar with the organization or cultural context. Consequently, they may lack a sense of connection to it. Global virtual workers experiencing work in a cross-cultural milieu will likely, if they are to be effective, need to adjust their cultural proclivities (Gibson et al. 2023a, 2023b; Takeuchi, 2010). Thus, organizations should support sociocultural onboarding. Likewise, individuals may need to acquire new skills and knowledge to secure employment and maintain GVW arrangements that align with their personal priorities, satisfaction, and well-being.

Our integrative framework, inspired by a process perspective (Langley et al., 2013) and performance management cycle (Armstrong & Baron, 2005) recognizes that global work is episodic and recursive. This emphasizes the need for ongoing diagnosis, feedback processes, and change management (Gibson & Grushina, 2021). Past outcomes should guide the future design of organizational practices, and team and individual characteristics. Continuous and deliberate evaluation should inform decisions about whether to extend, repeat, or discontinue GVW arrangements and can help identify and enact relevant interventions, such as relocations, global job redesign, or supplemental training. For instance, the purpose of GVW often encompasses knowledge sharing and innovation, but a challenge for MNEs is the transfer of knowledge across global virtual teams and into an organization (Gibson et al., 2021). The extent of



transfer and uptake in various locations should be assessed and adjustments made accordingly.

Conclusion

Recent megatrends, such as digital transformation, globalization, and the COVID-19 pandemic, have triggered fundamental changes and created new realities for GVW. To better understand what we know, as well as what we do not yet know, about these phenomena, we provided a systematic literature review of the actors and environments, objectives, theories, methods, and key findings of GVW research. Based on this review, we developed an integrative, multilevel conceptual framework reflecting the inputs, processes, and outcomes of GVW and explicating factors at the individual, team, organizational, and macro-environmental levels. Conceptualizing GVW as an iterative, recursive cycle, our integrated framework provides the foundation for novel future research opportunities within and across domains, as well as recommendations for policymakers, organizations, and individual workers to create value through GVW. We hope to inspire future interdisciplinary research in a variety of international business research avenues with regard to the people, technology, context, and time issues that are central to GVW.

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