Challenges and Opportunities of Remote Work as a New Work Model in Indonesia: A System Literature Review

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ABSTRACT : *Remote working has become a common practice, especially during the COVID-19 pandemic. Despite the existence of research on remote work, there are still gaps that need to be addressed. There is a significant gap in research on digital companies in Indonesia implementing remote work during the pandemic. The research gap regarding remote work in oil and gas companies presents an important area for further investigation. Existing literature focuses primarily on remote work in sectors such as manufacturing, information technology, financial institutions, and education, with limited attention to the oil and gas industry. This gap highlights the need for studies that specifically examine the implications of remote work practices in oil and gas companies, given the unique operational and environmental challenges facing this industry. The aim of this paper is to identify the possibility of employees and oil and gas companies implementing remote work and also to identify whether remote work has an impact on well-being and productivity. This study investigates a type of remote work that oil and gas companies can adopt, which involves working from home or any other location at any time. This study examines the potential impact of remote work on productivity and well-being. This study reviews existing research on this topic to achieve its aim. Using a systematic literature review (SLR), this study examines the literature on remote work and digital capabilities in oil and gas companies. This study contributes to a deeper understanding of the dynamics of remote work and provides practical insights for improving employee well-being and productivity in oil and gas companies.*

KEYWORDS - *New works models, remote work, digital skill, oil and gas, productivity, well-being*

I. INTRODUCTION

Nowadays, numerous businesses have studied remote work in excellent detail and it's now a standard work arrangement. For example, in 2024, Intuition, a well-known American global knowledge solutions organization, carried out a survey and released data on remote work. Prior to the epidemic, thirty percent of workers worked remotely and following the outbreak, forty-eight did so. During the pandemic, forty-eight percent of workers carried on with their distant work. A modern worker will opt to work from home forty percent of the time. Sixty-two percent of employees believe their employer will allow them to work from home in the future. Eighty-three percent of workers claim that working from home increases their productivity. According to seventy-seven percent of workers, working remotely will result in decreased operating expenses for their organization. Seventy-eight percent of remote workers share the desire to work without interruptions. Twenty-seven percent of business owners said their company's productivity had increased. Work has become more flexible as a result of the transition to remote work has made work more flexible; according to a poll, forty-three percent of CEOs offered their staff flex days.

Furthermore, citing a report from the work trend index, Microsoft reported that sixty-six percent of workers in Indonesia are reluctant to return to work full time from the office (WFO) and tend to consider remote work. Then, Earnst and Young (EY) reported that eighty-five percent of workers want flexibility in work hours and locations. Conversely, if their demands for flexibility are not satisfied, fifty-four percent of workers will leave.

Remote working has become a common practice, especially during the COVID-19 pandemic. Despite the existence of research on remote work, there are still gaps that need to be addressed. There is a significant gap in research on oil and gas companies implementing remote work during the pandemic. The research gap regarding remote work in oil and gas companies presents an important area for further investigation. Existing literature focuses primarily on remote work in sectors such as manufacturing, information technology, financial institutions, and education, with limited attention to the oil and gas industry. This gap highlights the need for studies that specifically examine the implications of remote work practices in oil and gas companies, given the unique operational and environmental challenges facing this industry.

Furthermore, despite the wealth of research on resilience, work engagement, job satisfaction, well-being, and productivity across sectors, there is a significant gap in understanding these constructs in the context of the oil and gas industry. Addressing this gap is critical to developing strategies to improve employee well-being, productivity, and job satisfaction in remote work environments at oil and gas companies. Additionally, the impact of remote work on job satisfaction, work-life balance, well-being, and productivity in the oil and gas industry remains unexplored.

The concept of remote work has evolved significantly over the years, especially with advances in information and communications technology (ICT) and the impact of the COVID-19 pandemic (Beckel & Fisher, 2022). ICT advances such as faster internet speeds, secure cloud storage, and portable computers have facilitated the evolution of remote work leading to increased productivity in various industries (Grawitch, 2023).

The COVID-19 pandemic accelerated the adoption of remote work arrangements, leading to the emergence of remote work travel experiences (Walentek, 2020; Chevtaeva et al., 2023). Companies have transformed and implemented IT-based remote work initiatives during the pandemic (Benitez et al., 2023). Alternative work arrangements, such as remote work are becoming more prevalent and represent a significant transformation in workplace organizations (Soroui, 2023). The shift to remote work has created new challenges for IT security professionals (Ozer, 2023), especially during a pandemic that has emphasized the need for the well-being of individuals working remotely (Roman et al., 2022).

Remote work known as the new work model has undergone a significant evolution, especially in the context of Industry 4.0 companies. Organizations are leveraging technological advances to facilitate collaboration, communication, and remote work management (Włodarkiewicz-Klimek, 2021). The implementation of a hybrid work model where employees alternate between working from home and at the workplace has become a common approach that offers flexibility and increases work productivity (Castaneda et al., 2022). The shift towards remote and hybrid work practices has emphasized the need for effective leadership to navigate these evolving work dynamics (Murphy, 2023). This concept evolved through various terms such as e-homework, remote work, and flexible work, ultimately leading to modern terminology such as telework, remote work, or outdoor work (Anggraeny et al., 2021). At the end of the 20th century, the start of remote work was in line with technological advances (Putra et al., 2023). The concept of remote work began to be developed in the 1970 (Sretenović et al., 2022).

Research shows that remote work can have both positive and negative impacts. Although this is associated with higher job satisfaction, organizational commitment, and well-being, it can also lead to challenges in leaving work (Felstead & Henseke, 2017). In addition, remote work can create challenges because the boundaries between work and personal life become blurred, impacting work-family balance (Eddleston & Mulki, 2015). Remote work has been associated with improved employee well-being, reduced stress levels, and increased job satisfaction (Miglioretti et al., 2022; Szulc et al., 2021). Additionally, research shows that remote work can result in higher levels of productivity (Gajendran & Harrison, 2007). Remote work has a significant impact on well-being. Wang et al. (2020) research revealed a correlation between the characteristics of remote work and the performance and well-being of workers. Furthermore, remote work can reduce stress, work-home conflict, and increase work engagement and job satisfaction (Ferrara et al., 2022). Remote work can also pose challenges such as overwork and a lack of time to recover, resulting in a negative impact on well-being (Grant et al., 2013).

Research shows that remote work can increase productivity if it aligns with employee preferences, thereby reducing distractions commonly found in office environments (Wang et al., 2020). Remote work's flexibility to work during the most productive hours is due to avoiding interruptions from colleagues (Sandoval-Reyes et al., 2021). Furthermore, research indicates that trust-based work time management and receiving output evaluations have a positive impact on worker productivity (Al-Dmour, 2023).

Several companies have implemented remote work systems, such as those operating in the real economy sector (Baryshnikova et al., 2021), IT companies (Santhanam, 2023), and insurance companies (Peiris & Jayathilake, 2022). Remote work allows companies to recruit the best talent (Peiris & Jayathilake, 2022), encourages organizations to supervise remote teams effectively and ensure productivity (Jamal et al., 2021), anticipates an increase in the number of employees working remotely (Graves & Karabayeva, 2020), develops new HR practices, guidelines, and policies to support an effective remote work environment (Adikaram & Naotunna, 2023), manages customer relationships, and improves manufacturing business performance in the digital era (Hao et al., 2019). In this case, can oil and gas company employees do remote work?

Oil and gas companies are key players in the energy sector, responsible for the exploration, extraction, refining, and distribution of oil and gas resources. Oil and gas company operations involve various aspects such as supply chain management, geopolitical risk management, decarbonization strategies, and sustainability initiatives (Vahdati et al., 2020; Gamso et al., 2023; Hastings & Smith, 2020). These companies are investing in digital technologies to optimize operations, increase efficiency, and adapt to evolving market dynamics (Volkodavova & Tomazova, 2019; Asikhia, 2022; Ziyadin et al., 2019). The implementation of remote work in oil and gas companies can address psychosocial problems in the workplace, resulting in better safety outcomes (Naji et al., 2021). In addition, the use of wireless sensor networks in remote monitoring can enable real-time monitoring of pipelines, equipment conditions, and reservoir status, thereby increasing operational efficiency and safety in the oil and gas industry (Akhondi et al., 2010). Remote sensing tools can play an important role in petroleum exploration and environmental monitoring, providing valuable insights into seepage detection and environmental implications (Meer et al., 2002).

II. METODOLOGY

In order to fully comprehend research findings, literature review studies want extensive and dependable literature samples (Sauer & Seuring, 2023). A literature review's main objective is to assess the literature currently available on a subject in order to pinpoint any research gaps (Grisar & Meyer, 2016). Traditionally, it has divided literature reviews into four categories: scoping reviews, narrative reviews, systematic reviews, and meta-analyses. These categories are based on how the authors of the reviews gathered their respective literature samples (Hochrein & Glock, 2012). Narrative reviews often fail to document the methodical literature search process and explain the development of their literature samples, making it challenging to replicate their results. This is particularly problematic when choosing articles evaluated in a specific field of study (Massaro et al., 2016). A scoping review examines the research, analysis, and identification of potential knowledge gaps in a specific topic or field (Munn et al., 2018). A systematic literature review seeks to present an organized, thorough, and objective image of the situation as it stands right now. Therefore, people consider systematic reviews to be the most objective form of literature evaluation. The foundational framework for performing a meta-analysis utilized data from the systematic review (Hägele et al., 2023). Finally, meta-analysis is quantitative in character because it primarily employs statistical methods to assess samples of the literature that already exist (Snyder, 2019). The goal of this approach is to methodically determine the "possibilities of remote work implemented in oil and gas companies." In order to do this, it used the PRISMA approach to perform a systematic literature search (Moher et al., 2009). This strategy consists of five steps that show the process of systematically selecting literature samples.

1. The first step is developing research questions that will guide the systematic literature review. Researchers achieved this by focusing on research objectives related to the potential application of remote work in oil and gas companies. Therefore, the following questions are asked:

   RQ1: Is it possible that the concept of remote work can be applied in oil and gas companies?

   RQ2: If applicable, does the concept of remote work contribute to well-being and productivity?

2. The next step is searching and retrieving the database. It does so by systematically searching the current academic literature for relevant papers. Researchers identify keywords that align with the research topic, such as "remote AND work AND digital AND skills", "remote AND work AND productivity AND well-being", "remote AND work AND in AND oil AND gas AND companies", and "digital AND skill AND in AND oil AND gas AND companies". Scientific databases like Scopus. The search was conducted in June 2024 and included all publications.

3. The next step is screening and selection. In this step, researchers systematically review the literature using the PRISMA approach to align it with the research objectives (Rethlefsen et al., 2021), as illustrated in Figure 1. For each paper suggested by the search database, the first step is to check whether it is already part of the literature samples. This step is to assess its suitability for answering the research questions. After reviewing the database results, the system assessed the appropriateness of the cited literature. The system selected 61 articles as the literature sample for review after reading the 78 identified articles.

4. The next step is to conduct a critical review of the selected articles to capture important information to answer the research questions. During the review process, the paper enabled a systematic analysis of the relationship between digital skills, productivity, and well-being in oil and gas companies.

5. The final stage is the reporting and critical assessment of research findings. We collect and summarize findings to ensure clarity. Information across research questions. The visual presentation of the findings is concise yet informative.

Over the last five years, remote work has been the main focus of a large number of studies. Various studies have addressed different aspects of the problem affecting remote work. Remote work is one research factor that has addressed a variety of issues affecting employees and companies during the COVID-19 pandemic.
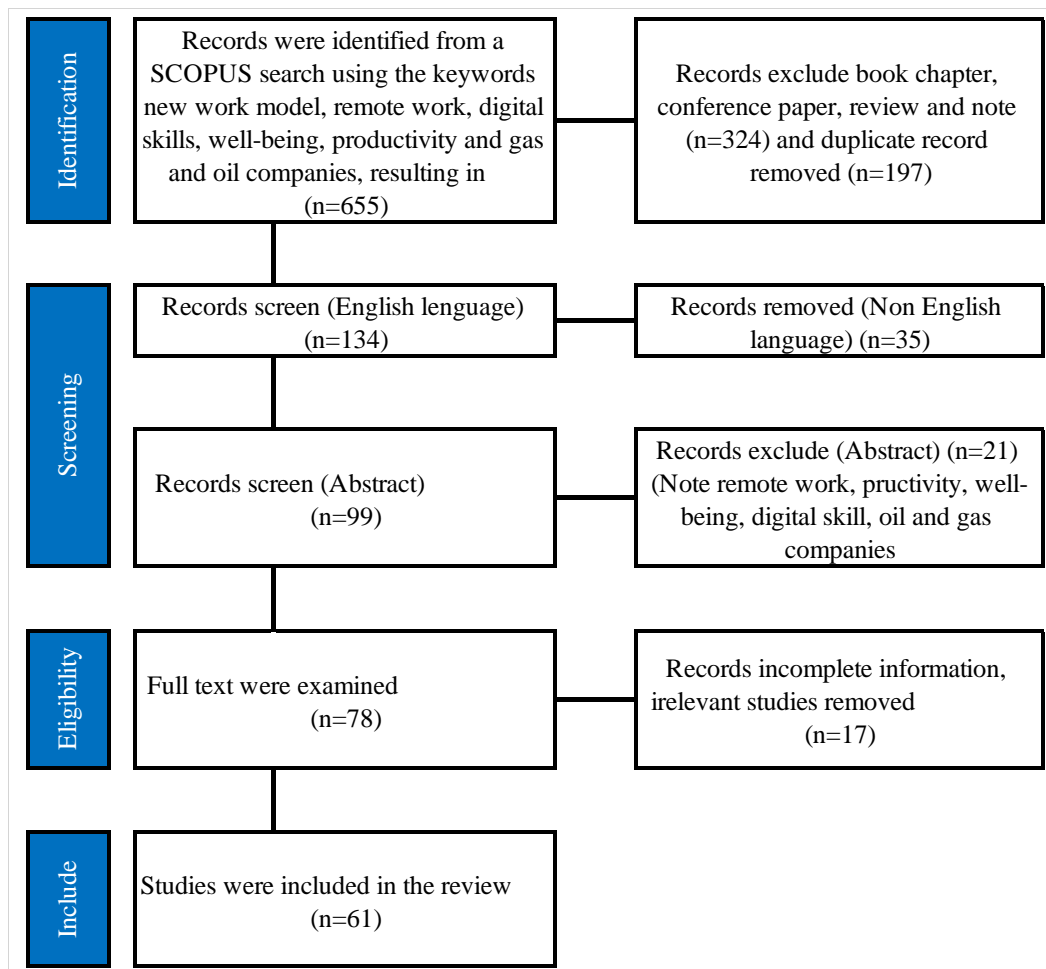
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│              │  │ Records were identified   │      │ Records exclude book      │
│ Identification│  │ from a SCOPUS search     │      │ chapter, conference paper,│
│              │  │ using the keywords new    │──────│ review and note (n=324)   │
│              │  │ work model, remote work,  │      │ and duplicate record      │
│              │  │ digital skills, well-being│      │ removed (n=197)           │
│              │  │ productivity and gas and  │      └──────────────────────────┘
│              │  │ oil companies, resulting  │
│              │  │ in (n=655)                │
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Records were identified from a SCOPUS search using the keywords new work model, remote work, digital skills, well-being, productivity and gas and oil companies, resulting in (n=655)

Records exclude book chapter, conference paper, review and note (n=324) and duplicate record removed (n=197)

Records screen (English lenguage) (n=134)

Records removed (Non English language) (n=35)

Records screen (Abstract) (n=99)

Records exclude (Abstract) (n=21) (Note remote work, pructivity, well-being, digital skill, oil and gas companies

Full text were examined (n=78)

Records incomplete information, irelevant studies removed (n=17)

Studies were included in the review (n=61)

Identification

Screening

Eligibility

Include

Figure 1 The steps for selecting literature using the PRISMA approach are based on Rethlefsen et al. (2021) and Hägele et al. (2023)

Figure 2 shows the movement in the number of published papers exploring this relationship. Figure 2 shows the movement in the number of papers published between 2013 and 2024. Between 2019 and 2023, paper publications increased. Research interest in studying the importance of remote work for employees and companies has increased. Figure 2 also reveals that many authors publish their papers through leading publishers such as Emerald, MDPI, SAGE, Wiley, Taylor & Francis, and ScienceDirect.

Figure 2 Number of Document by Years and Publishers

Many countries have explored the concepts of social capital and food security. Out of the 61 papers reviewed, researchers identified 34 countries. Some countries have conducted multiple studies on remote work, demonstrating the significance of this concept in their respective contexts. As highlighted in Figure 3 and Figure 4, these articles are more concentrated in some countries than others. The blue colour represents the United States, which has the highest number of publications with 35 authors. The green colour represents Indonesia, which has five authors. The United States and the United Kingdom are the countries with the largest number of authors who are most interested in this topic.
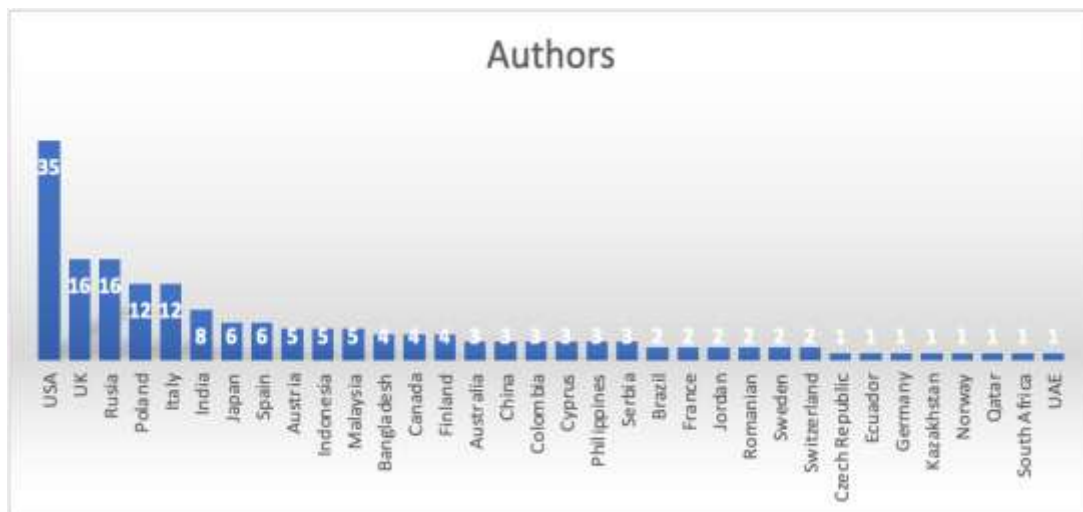
Figure 3 Chart of Authors by Countries

Figure 4 Map of Authors by Countrries

Conceptual Framework Development

The aim of developing this conceptual framework is to systematically capture concepts related to new work models, remote work, digital skills, oil and gas, productivity, and well-being. To

achieve this, the first step is to build a basic understanding of new work models, remote work, digital skills, oil and gas, productivity, and well-being. Therefore, we begin by mentioning all the definitions of new work models, remote work, digital skills, oil and gas, productivity, and well-being that are present in the research keywords.

New Works Models

A new work model is a framework that encompasses the design and organization of work tasks, roles, and responsibilities within an organization to optimize employee performance, motivation, and job satisfaction. This model aims to create a work environment that is conducive to productivity, engagement, and the overall well-being of employees. A new work model can be defined as a framework that encompasses various motivational, social, and contextual design features aimed at enhancing job characteristics and work outcomes (Humphrey et al., 2007). As the work environment evolves, researchers are exploring new work characteristics and changing work dynamics (Xie et al., 2018). The introduction of new technologies and organizational management models has caused a shift in work paradigms (Cordeiro, 2024). The development of computational models is important in understanding work systems (Laubenbacher et al., 2009). As organizations navigate shifts in technology, industry demands, and management practices, there is a growing recognition of the need for new paradigms in health and work to align with changing economic and social landscapes (Cordeiro, 2024).

Remote Work

A comprehensive definition of remote work involves employees carrying out their work responsibilities outside the traditional central workplace, often utilizing technology to interact with colleagues and perform job tasks. Remote work also known as telecommuting, refers to a variety of work arrangements in which individuals substitute a portion of their typical work hours to work away from the office, with the home being a common remote work location (Allen et al., 2015). This practice allows employees to conduct their tasks outside the physical premises of the organization relying on communication technology to facilitate work interactions (Jämsen et al., 2022). In the context of the COVID-19 pandemic, remote work has gained prominence as organizations have adopted remote working policies to ensure business continuity and employee safety. The shift to remote work during the pandemic has highlighted the importance of effective work design in supporting remote worker outcomes, emphasizing the role of perceived work characteristics in moderating the impact of remote work intensity on employee well-being and performance (Wang et al., 2020). From a regulatory perspective, remote work or teleworking is defined as a form of work that takes place outside the employer's office enabled by information technology and allows employees to collaborate with colleagues and fulfill employer requirements from a location convenient for the employee (Kocot et al., 2021). The concept of remote work extends beyond physical location to encompass the use of technology to replace the need for commuting to a central workplace, emphasizing the role of communication tools in facilitating remote work interactions (Park, 2023).

Digital Skill in The Realm of Remote Work

In the realm of remote work, digital skills encompass the competencies and abilities that individuals possess to effectively navigate and utilize digital technologies to perform their job responsibilities in a remote or virtual work environment. These skills are crucial for remote workers to communicate, collaborate and complete tasks using various digital tools and platforms (Charalampous et al., 2018). Digital skills encompass a variety of proficiencies, including operational digital skills in

media and social spheres, productivity control, self-efficacy, and the ability to interact and communicate effectively in a digital environment (Tsareva & Omelyanenko, 2020). These skills empower remote workers to participate in virtual meetings, utilize collaborative software, manage digital documents and adapt to different digital communication channels to maintain productivity and connectivity with their teams (Tramontano et al., 2021). The COVID-19 pandemic which accelerated the adoption of remote work practices and highlighted the necessity for employees to be proficient in digital tools and technologies, has emphasized the significance of digital skills in remote work (König & Seifert, 2022). Organizations have conducted skills audits to identify new competencies and enhance digital resilience among employees to effectively support remote work arrangements (McGuire et al., 2022). Digital Wellbeing Literacy (DWL) emerges as a critical component of digital skills in remote settings (An et al., 2023). DWL involves maintaining digital well-being, navigating remote work practices, effectively using digital tools (e.g., virtual conferencing), and balancing digital engagement with personal well-being.

Technologies widely used for remote work include video conferencing tools for attending and organizing meetings, collaboration platforms for task fulfillment, electronic registers for documentation, and various digital tools for preparing reports and presentations (Nemțeanu & Dabija, 2021). Additionally, the integration of augmented reality/mixed reality (AR/MR) technology into remote work support technologies has been beneficial in guiding workers in the field from remote locations (Oyama et al., 2021). Furthermore, remote work often relies on information and communication technologies (ICTs) to enable employees to perform their duties from the safety of their homes (Buonomo et al., 2023). Remote work technologies encompass a range of tools, such as the internet, telephone, cell phones, laptops, and other ICTs, to support flexible working practices (Ugar, 2023). Various sectors such as agriculture, meteorology, hydrology, environmental protection, and military investigations have widely utilized remote sensing technology (Zhao, 2019). The integration of technology into the audit process, known as remote auditing, has enabled the collection of audit evidence, communication with clients and colleagues, and reporting linked to the audit process (Lorentzon, 2023).

Well-being in the context of remote work

Well-being in the context of remote work encompasses various dimensions, including affective, social, cognitive, professional, and psychosomatic aspects. Remote work can have both positive and negative effects on well-being, influenced by factors such as job control, loneliness, autonomy, and work-life balance. Studies have shown that remote work arrangements can impact employees' emotional stability, autonomy, and resilience, influencing their levels of well-being during remote work. Factors such as resource availability, self-leadership strategies, and psychological safety play crucial roles in shaping remote workers' well-being outcomes. Factors such as job engagement, loneliness, work engagement, and career development opportunities also influence well-being in remote work settings. Research by Charalampous et al. (2018) emphasizes a multidimensional approach to understanding remote e-workers' well-being at work, considering affective, social, cognitive, professional, and psychosomatic dimensions. Furthermore, Jaiswal (2023) explores the impact of employee well-being on performance in crisis-induced remote work contexts, highlighting the moderating roles of boundary control and professional isolation. The study underscores the significance of managing professional boundaries and mitigating feelings of isolation to strengthen the relationship between well-being and performance in remote work settings, emphasizing the importance of organizational support and flexible work policies. Moreover, Gross-Gołacka et al. (2022) and Park et al. (2021) emphasize the importance of well-being programs and organizational

support in maintaining high levels of well-being among remote workers, particularly in dimensions such as mental, social, and physical well-being.

Productivity in the context of remote work

Productivity in remote work is defined as the efficiency and effectiveness with which individuals perform their job responsibilities while working in a remote or virtual environment. Several studies have investigated the factors influencing productivity in remote work settings, as well as the implications for individual performance and organizational outcomes. Wang et al. (2020) highlight that age, gender, caring responsibilities, and remote working experience can impact remote workers' productivity and well-being. This suggests that personal characteristics and prior remote work experiences play a role in shaping productivity levels in remote work environments. Toscano & Zappalà (2020) investigate the relationship between social isolation, stress, perceived remote work productivity, and remote work satisfaction during the COVID-19 pandemic. The study underscores the importance of managing stress and social isolation to enhance productivity perception and satisfaction in remote work settings, especially considering the moderating role of concerns about the new coronavirus. Prodanova & Kocarev (2021) argue that remote work tasks and the work environment significantly influence employees' productivity and satisfaction, which, in turn, impact their intention to continue working from home. This highlights the critical role of work design and organizational support in shaping remote work productivity and employee engagement. Choudhury (2020) emphasizes the potential productivity gains associated with remote work, such as reduced commute time, fewer work breaks, and a quieter work environment. Understanding the mechanisms that enhance productivity in remote work, such as geographic flexibility, can help organizations optimize remote work arrangements for improved performance. According to Morikawa (2023), remote work productivity dynamics varied during the COVID-19 pandemic, with some experiencing a decline in productivity.

This study underscores the need to address challenges related to remote work dynamics to maintain productivity levels and ensure organizational effectiveness during crisis-induced remote work scenarios. Anderson & Kelliher (2020) link remote working to enhanced productivity, suggesting that remote work arrangements can positively influence individuals' ability to deliver results and achieve their work objectives. This perspective underscores the potential benefits of remote work in fostering productivity and performance outcomes, highlighting the importance of examining the work-life interface in remote work contexts.

Moreover, Al-Dmour (2023) emphasizes the productivity factor as a key driver of remote work adoption, leading to increased focus, motivation, job satisfaction, employee commitment, and work energy. This study underscores the positive impact of remote work on various aspects of productivity, including employee engagement, satisfaction, and overall work performance. Grant et al. (2019) discuss the positive effects of remote e-working on productivity, flexible work approaches, work-life balance, and job satisfaction. These findings suggest that remote work arrangements can contribute to improved productivity levels, reduced work-life conflict, and enhanced job satisfaction, particularly through reduced commute time and a better balance between work and personal life.

Remote work can be applied in oil and gas companies

Many people perceive working offshore on an oil rig as a challenge. Having to live and work at the same site, a shift-work schedule with long working hours, high risks, and a remote work environment are some common features of an offshore job. In the realm of remote work, oil and gas companies are organizations within the petroleum industry that engage in activities such as

exploration, extraction, refining, and distribution of oil and gas resources while integrating remote work practices into their operations. Remote work in oil and gas companies entails employees carrying out their job responsibilities from locations outside the traditional office environment, utilizing digital technologies for communication, collaboration, and task management related to the exploration and production of oil and gas resources.

The impact of remote work on productivity in oil and gas companies has garnered attention, particularly in examining how factors like employee engagement, workload, and personality traits affect work-life balance and performance outcomes (Wahab et al., 2022). The transition to remote work, especially during events like the COVID-19 pandemic, has altered work dynamics, leading to heightened pressures and difficulties for employees in maintaining productivity, especially in operational and technical support departments (Wahab et al., 2022). Moreover, a study by Khairudin & Aziz (2020) investigates the relationship between telecommuting and work-life balance in the oil and gas industry, seeking to understand how telecommuting practices among employees in the East Coast Region of the oil and gas industry, encompassing Kelantan, Pahang, and Terengganu, influence work-life balance. This research sheds light on the effects of telecommuting practices on employee well-being and work-life balance within oil and gas companies, emphasizing the importance of comprehending the dynamics of remote work in this sector.

Research by Faleev et al. (2021) explain that Rosneft, a Russian company has transitioned to remote work for its employees, a shift that requires a balanced assessment. The company adheres to information security policies, assuming employees' workplaces should be within the network's protected perimeter. However, the COVID-19 pandemic has forced remote work to become a necessary condition for the continuation of its activities. The Tyumen Petroleum Research Center, a Rosneft corporate institute, has experienced the effects of IT infrastructure changes and remote workplaces on IT budgets and service activities. The center plans to continue using remote and mixed workplaces for its employees.

Furthermore, Silva et al. (2021) in his research highlights remotely operated vehicles (ROV) operations are becoming increasingly common in oil and gas companies, allowing for better decision-making by subject matter experts worldwide. Remote technology enables onshore workers to perform functions once performed by offshore personnel, reducing the number of personnel required offshore. A recent project successfully applied remote ROV piloting operations for the first time commercially in the Gulf of Mexico (GoM). A communication link connects real-time data from the offshore asset to the onshore remote operations center, allowing specialized roles to be transferred to a land-based team. This approach reduces HSE exposure and overall personnel costs by over 30% for 24 hours of operations. The potential for further cost reductions is also evident if additional staff are directed to work remotely from shore.

Research by Enikeev et al. (2022) explain that augmented reality (AR) is revolutionizing the oil and gas industry by enhancing efficiency and enhancing work processes. AR technology, which combines real-world objects with computer-generated virtual objects, is being used for inspections, equipment maintenance, and personnel training. It is being used for remote assistance, quality control, and access to expert advice. AR is being implemented in interactive simulators, mobile applications, and computer models, with the increasing use of smartphones and tablets. The combination of AR with other technologies like the Internet of Things, big data, and artificial intelligence offers holistic technical solutions.

Additionaly, Clarke et al. (2019) explain that the oil and gas E&P sector is adopting augmented reality (AR) and virtual reality (VR) technologies to drive operational efficiency and cost

savings. AR and VR create immersive environments where digital and physical objects coexist, enhancing user experience. Operators and service providers are implementing AR/VR applications for collaborative problem-solving, planning, and design tools, such as oilfield applications and remote refinery inspections. Smart glasses and wearable technologies are also being used to improve remote work and collaboration, increasing safety and reducing downtime. One major service provider is developing AR/VR applications to create digital representations of physical oilfield assets on the Microsoft HoloLens device.

Digital technologies are pivotal in facilitating remote work implementation in oil and gas companies. The following are key digital technologies that support remote work in this sector:

1. Machine learning, cloud computing, and artificial intelligence (AI) technologies are crucial for digital integration in the upstream oil and gas sector. These technologies enable data analysis, predictive maintenance, and operational optimization (Progoulakis et al., 2021).
2. Digital twin technology provides a virtual representation of physical assets and processes in the oil and gas industry. By integrating data analytics and domain expertise, digital twins enhance asset management, operational control, and optimization throughout the asset life cycle (Shen et al., 2021).
3. Artificial intelligence technologies have rapidly advanced, helping petroleum enterprises with digital transformation and intelligent upgrading. AI applications in the oil and gas industry encompass predictive maintenance, reservoir modeling, and operational optimization (Wang, 2024).
4. In the oil and gas industry, wireless sensor networks are essential for remote monitoring and data collection. These networks enable real-time monitoring of pipelines, equipment conditions, and reservoir status, thereby enhancing operational efficiency and safety (Akhondi et al., 2010).
5. Implementing a blockchain-based Internet of Things (IoT) framework enables remote monitoring and control of oil field operations. Blockchain technology ensures decentralized, transparent, and secure control environments for industrial operations (Zuo & Qi, 2022).
6. Combining digital twin technology with IoT solutions improves remote monitoring and control of oil field operations. This integration offers real-time insights, predictive maintenance, and operational efficiency in the oil and gas sector (Sepasgozar et al., 2023).
7. In the oil and gas industry, virtual reality (VR) technology presents opportunities for product development and training. VR applications reduce costs, mitigate risks, increase production efficiency, and ensure long-term economic viability (Dias et al., 2023).

Remote work contributes to employee well-being and productivity

Remote work in the oil and gas industry has demonstrated significant potential to enhance both well-being and productivity. Oil and gas companies have confirmed the viability and advantage of adopting work-from-home practices, particularly in response to events like the COVID-19 crisis (Dewi & Adiarsi, 2020). The adoption of work-from-home practices, especially during the COVID-19 crisis, has been shown to enhance employee well-being by reducing stress levels and improving work-life balance (Dewi & Adiarsi, 2020).

Researchers have correlated this transition towards remote work with decreased costs, increased employee productivity, and enhanced organizational flexibility. Additionally, studies have highlighted the connection between remote work and job satisfaction, highlighting the importance of factors like perceived autonomy in enhancing job satisfaction within the industry (Jamaludin, 2023). This shift towards remote work has also been associated with increased job satisfaction, as employees perceive greater autonomy in their work, leading to higher levels of contentment (Jamaludin, 2023).

Studies have indicated that positive leadership behaviors, effective organizational communication, and a supportive work environment are associated with improved worker well-being and can assist

employees in managing stress (Naji et al., 2022). Furthermore, Wahab et al. (2021) have recognized the mediating role of friend support as a factor that can positively impact employee well-being, particularly in the context of high workload demands and ineffective leadership in the oil and gas sector. Asad et al. (2019) have acknowledged the implementation of safety and health educational management information systems as a method to enhance decision-making skills and accident prevention strategies among oil and gas production crews, thereby contributing to employee well-being.

From a productivity perspective, advanced technologies such as IoT frameworks, wireless sensor networks, and AI applications have played a crucial role in optimizing plant safety, production processes, and maintenance activities within the oil and gas industry (Zuo & Qi, 2022; Akhondi et al., 2010). The use of advanced technologies such as IoT frameworks and wireless sensor networks in remote monitoring and control of oil fields has not only increased productivity but also improved safety measures, thereby contributing to the well-being of workers (Zuo & Qi, 2022).

Leadership, organizational communication, and work environment factors have also been found to significantly influence employees' psychosocial hazards in the oil and gas industry, with good leadership behaviors like support, trust, and feedback being linked to higher worker well-being (Naji et al., 2022). Moreover, the mediating role of friend support has been identified as a crucial factor in mitigating the negative effects of workload demands and ineffective leadership on employee well-being in the oil and gas sector (Wahab et al., 2021). By fostering a supportive work environment and effective communication channels, companies can enhance employee well-being and, in turn, boost productivity levels.

III.   CONCLUSION

Remote work is a new work model that impacts employee productivity and well-being in oil and gas organizations. Digital technology makes this work model possible. This paper reviews the existing literature on this phenomenon in great detail. After determining definitions and keywords, it methodically created a conceptual framework and supplemented it with pertinent concepts to support this endeavour. This analysis shows that the systematic literature review covers a wide range of current research, with significant examples and conceptual contributions from several nations. This collection of research papers emphasizes the topic's present relevance and offers a range of perspectives on the area. A secondary study reveals that the implementation of new technologies and organizational management models has led to a shift in work paradigms within oil and gas companies, particularly with regard to remote work as a new modality. Understanding work systems necessitates a grasp of digital transformation. There is a growing recognition in the oil and gas business that a new paradigm is required as organizations negotiate shifting technology, industry demands, and management methods. In this particular scenario, developing a thorough definition offers a solid basis for additional investigation. The latest study trends extend beyond creating remote work features to boost productivity and well-being in oil and gas company. This study contributes to a deeper understanding of the dynamics of remote work and provides practical insights for improving employee well-being and productivity in oil and gas companies.

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