

## REMOTE WORKING IN METAVERSE: IMPACT ON ORGANISATIONS

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**Purpose:** The research aim of the article was to analyze the impact of remote working at metaverse on organizations, with a particular focus on the aspect of human relations, and team management skills.

**Design/methodology/approach:** The study employed the CAWI (Computer Assisted Web Interview) method. Data collection was conducted in February 2024 through a survey of working individuals across diverse industry sectors. Participants were invited to respond to questionnaire items on a 5-point Likert scale. A total of 111 individuals completed the survey.

**Findings:** The survey found that metaverse impacts remote work positively by enhancing employee engagement, reducing isolation, and offering better training opportunities. However, challenges include implementing meta-work, maintaining work-life balance, and data protection. Managers must adapt with flexibility, embrace change, and trust employees to succeed.

**Research limitations/implications:** The most important limitation of the study is the research sample. The sample size was relatively small, the majority of whom fell within the 18-to-25-year age bracket. In the future, the study should be expanded to a larger and more diverse age range.

**Practical implications:** The findings of our study offer practical implications for managers who must adapt their management style of remote teams to the evolving metaverse context to ensure flexibility, resilience, and trust in their employees' abilities to accomplish their tasks.

**Social implications:** The paper indicates that the metaverse has the potential to reshape interactions among remote workers and transform the future of collaboration and meetings in virtual offices.

**Originality/value:** The study on the impact of the metaverse on the remote work of employees was believed to be the first of its kind to be conducted in Poland.

**Keywords:** remote working, metaverse, organization, virtual reality.

**Category of the paper:** research paper.

## Introduction

The development of information and communication technologies has led to a growing interest in virtual realities, with a broader view of the potential application areas. The application of virtual reality is expanding, and as a result, the concept of the metaverse has gained significant attention. The metaverse is the concept of virtual reality where people create avatars that exist in a three-dimensional virtual world. As the use of virtual reality expands into new forms of work, it is essential to consider the attitudes of users towards these technological advancements, as their perceptions can either enhance the benefits of working from home or further highlight the negative aspects.

Some researchers conclude that the metaverse is merely an incremental advancement of augmented (mixed) reality, a phenomenon observed in the evolution of social media (Stefan, 2022; Park et al., 2023), gaming (Tul-Krzyszczuk, 2022), and entertainment (Kommareddy et al., 2024; Swami, 2024). They contend that it lacks the defining characteristics of a revolutionary innovation. Others have identified qualitative changes in the Internet environment as a factor influencing the penetration of the metaverse by corporations and the emergence of new business models (Szpringer, 2023). Although the metaverse is still in its early stages of development, its potential can already be observed in some areas, including education (Hawkins, 2022; Hollensen et al., 2023), training (Hawkins, 2022; Khatib et al., 2023; Villamil, King, 2024), gaming, wellness (Ullah et al., 2023) and trade (Ball, 2022; Hollensen et al., 2023; Sherman, 2023). As metaverse technology becomes more widely adopted, a greater number of economic opportunities will emerge. These include the opening of new markets and business models, the creation of superior methods of working (Babu et al., 2020), and the transformation of training (Hawkins, 2022; Hollensen et al., 2023) and development (Sherman, 2023). This new series of studies examines the economic potential of the metaverse for different countries and regions around the world (Babu et al., 2020; Sherman, 2023).

The technological advancements being witnessed, combined with the rapid development of the metaverse, present new challenges for many businesses seeking to remain efficient and competitive in the era of remote working. The conducted research aims to answer the question of how remote working in the metaverse will revolutionise existing known working practices. This paper focuses on understanding what changes the metaverse brings to an organisation's structure and what new challenges and opportunities arise in the context of remote working.

By analysing the impact of the metaverse on interpersonal relationships in organisations, the study aims to uncover new forms of interpersonal communication and assess whether the metaverse will contribute to strengthening bonds between employees. In addition, it will focus on the practical aspects of remote working, exploring innovative metaverse tools and technologies and identifying the benefits and potential challenges for employees performing tasks from outside the traditional office.

The analysis of how to manage remote teams in the new reality of the metaverse aims to provide insights into the need to adapt managerial competencies to the changing work environment. The work will consider what skills will be key to effective management in a metaverse context and what strategies may be effective in maintaining the high performance of remote teams. The main research issue is the analysis of the impact of remote working in the metaverse on organizations managers, and employees to help them better understand and adapt to the changing realities of metaverse work. The research questions to support this analysis are:

RQ1: How will the metaverse affect interpersonal relationships in organizations?

RQ2: How will the metaverse impact employee engagement and motivation for work?

RQ3: How will the metaverse influence the well-being of employees?

RQ4: How will managers deal with the new reality of the metaverse when managing remote teams?

## **1. Metaverse environment for remote working**

The phenomenon of remote work presents many unique challenges, as evidenced by the experiences of fully distributed teams, who have reported greater difficulty with regard to team cohesion, remote communication, and productive collaboration. While office-based employees are less likely to experience difficulties with these issues, they also report higher levels of distraction and lower productivity than their remote colleagues. Consequently, the metaverse has the potential to revolutionise the modern workplace, offering a novel alternative that seamlessly integrates the advantages of both traditional office environments and remote work.

### **1.1. Remote working- challenges and benefits**

Remote working is a term that has become familiar to most people since mid-March 2021. That was the start of the COVID-19 pandemic. A large number of employers decided to move work into people's homes wherever possible (Chądrzyński et al., 2022; Marzec et al., 2023). During the pandemic, remote working was carried out by almost 9 % of individuals in Poland, compared to around 6% between 2010 and 2019 (*Statistics Eurostat*, 2024). However, few people had experienced remote working at the time and had to deal with the new reality (Wang et al., 2021). Today, despite the end of the pandemic, remote working is common and normal (Ng et al., 2022). Many companies, schools and public sector organisations have adopted remote working as a permanent feature of the organisation's work (De-la-Calle-Durán, Rodríguez-Sánchez, 2021; Ziomek, 2022b) and most countries have adapted employment law to the conditions of remote working (Kowal, Alicja, 2023). Remote working is “the practice of

an employee working at their home, or in some other place that is not an organisation's usual place of business"<sup>1</sup>.

The development of remote working would not have been possible without the development of ICT technologies and high-speed internet. Król (2022) emphasises that the technological revolution gave rise to remote working (Król, 2022). Mączyńska, on the other hand, stresses that remote work has become more popular among employees precisely because of their use in remote work (Mączyńska, 2021).

Remote working, characterized by employees operating outside traditional office environments, offers a mixed landscape of challenges and benefits that significantly impact both employees and employers. Król (2022), Morrison-Smith and Ruiz (2020) and Roberto et al., (2023) elucidate the multifaceted nature of remote work. Geographical dispersion among employees and their distance from company headquarters profoundly influence the dynamics of remote work. One primary advantage is the elimination of commuting time (Król, 2022; Morrison-Smith, Ruiz, 2020; Roberto et al., 2023). For instance, an employee who typically spends over an hour commuting saves significant time daily when working remotely. This time can be redirected to personal activities or additional rest, which can enhance productivity later in the day. Moreover, reduced commuting decreases the likelihood of traffic accidents and cuts down expenses related to fuel or public transport fares. Roberto et al., (2023) point out that remote working also has a positive effect on the environment, reducing the amount of emissions caused by workers' daily commutes.

Remote work also affords employees the flexibility to live anywhere, liberating them from the constraints of proximity to the office. This flexibility can enhance psychological well-being and allow employees to immerse themselves in different cultures if they choose to work from various global locations. However, this geographical freedom can also introduce challenges, such as limited access to reliable internet in certain areas, which can impede work efficiency.

The psycho-physical impact of remote working varies among individuals (Zdonek, Król, 2021; Zdonek et al., 2017). Some employees thrive in remote settings, enjoying autonomy and flexibility, while others struggle with motivation and the absence of direct social interaction (Mączyńska, 2021; Wang et al., 2021). For those who prefer face-to-face communication, remote work can be less effective due to the reduced richness of non-verbal cues. Furthermore, the flexibility in working hours, often promoted in remote job advertisements, can lead to issues in time management and work-life balance, potentially fostering workaholism.

Distractions at home, such as family, pets, or household chores, can detract from productivity. Conversely, office environments also have their distractions, such as social interactions and noise from shared spaces. The isolation from colleagues can lead to feelings of loneliness and hinder collaborative problem-solving, as virtual communication lacks the

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<sup>1</sup> <https://dictionary.cambridge.org/dictionary/english/remote-working>, 21.01.2024.

immediacy and clarity of in-person interactions (Brenner, Hartl, 2021; Farivar, Richardson, 2021, 2021; Kahtani, 2022).

From an employer's perspective, remote work offers several advantages. The most notable is the reduction in overhead costs associated with maintaining physical office spaces. Employers can also benefit from higher employee availability, as remote workers are more likely to work through minor illnesses that would otherwise necessitate sick leave (Zdonek et al., 2017).

Remote working enables the recruitment of a diverse talent pool from various geographical locations, enhancing the company's competitive edge. However, managing remote employees poses significant challenges, including ensuring productivity and maintaining trust. The difficulty in monitoring remote workers can strain employer-employee relationships, potentially lowering job satisfaction and productivity (Mączyńska, 2021; Ziomek, 2022b).

Additionally, equipping employees with the necessary tools and ensuring data security are crucial concerns. Employers must invest in secure communication tools and establish robust security policies to protect sensitive information, particularly when employees access company resources from potentially insecure public networks (Farivar, Richardson, 2021; Korzynski, Protsiuk, 2022).

As advances in remote work technology have enabled the practice of working from home to gain widespread acceptance, virtual reality (VR) and augmented reality (AR) are facilitating the transition of the metaverse into the mainstream. Poland's metaverse market could grow to a value of between EUR 5 billion and EUR 10 billion by 2035 (Cyfrowa Polska & Komitet Metaversum, 2024)

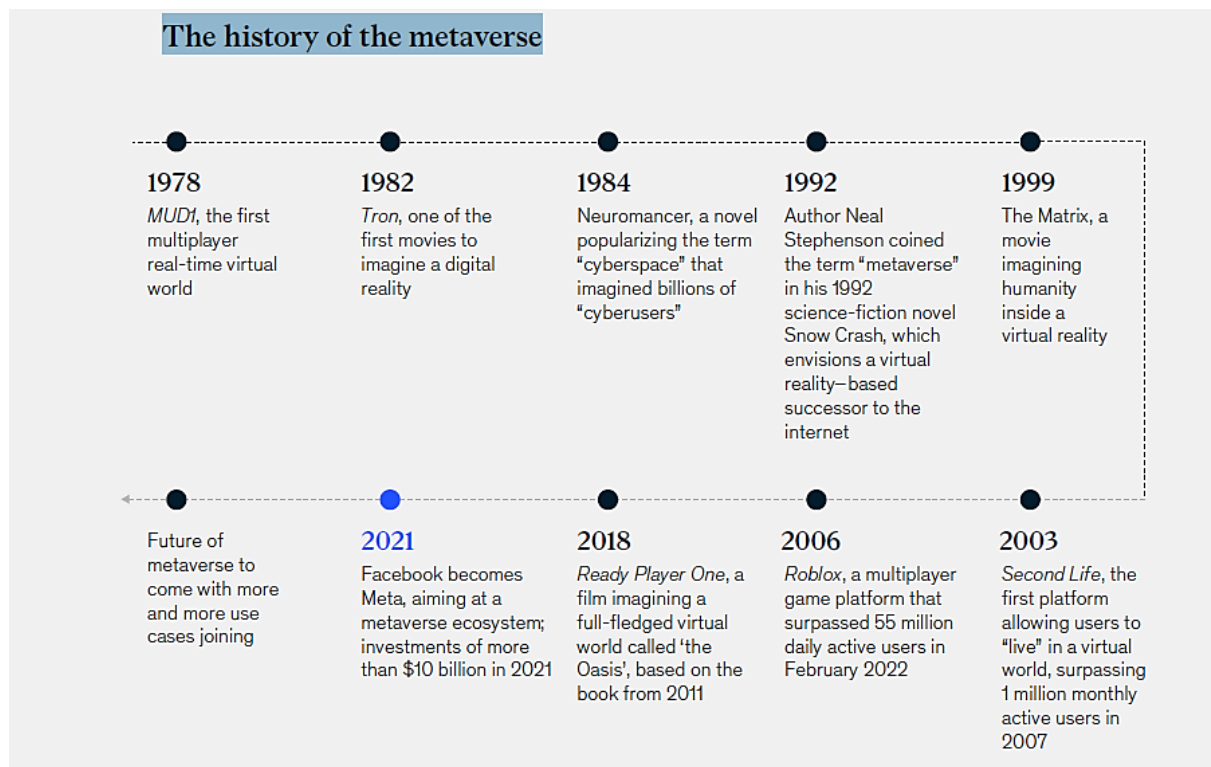
## 1.2. Definitions and history of metaverse

The definition of the metaverse varies, depending on point of view and purpose. The literature on the metaverse draws upon many sources to inform its definitions. These include past research (Park et al., 2023; Park, Kim, 2022), visions from science fiction, and social media (Stefan, 2022; Szpringer, 2023). The most comprehensive review of the definitions of the metaverse is that conducted by Park and Kim (2022), which considers 54 definitions developed between 2000 and 2022. In their analysis, the metaverse is primarily defined in terms of its physical dimension, as a place, a space, or a world.

Park and Kim define the metaverse as *a three-dimensional virtual world where avatars engage in political, economic, social, and cultural activities* (Park, Kim, 2022, p. 4211). Mystakidis (2022) presents the concept of the metaverse as a perpetual and persistent multi-user environment that is unfolding around VR and AR (Mystakidis, 2022). Consequently, some researchers have concluded that it is not possible to provide a precise definition of the metaverse (Dolata, Schwabe, 2023). Additionally, the literature on the subject presents conflicting views on the fundamental elements and attributes of the metaverse (Dolata, Schwabe, 2023; Lee, Lee, 2020; Park, Kim, 2022).

The term metaverse first appeared in a book by Neal Stephens called *Snow Crash*. It was published in 1992. It is a science fiction novel and tells the story of Hiro Protagonist, who is a hacker and pizza delivery man. In the metaverse, he gets a file called *Snow Crash*, and after opening which, his friend suffers brain damage. Hiro launches an investigation to find out from whom he got the infected file (Ball, 2022).

Mathhew Ball mentions in his book (Ball, 2022) that, thanks to Stephen's story, well-known businesspeople such as Jeff Bezos and the founders of Google Earth were inspired to create the solutions described in the book. Following Ball, he points out that Stephen was not the first person to refer to virtual space as a kind of universe. He mentions several authors, including Weinbaum, Bradbury, Gibson, and Wachowski. Each of them described something that contributed to later perceptions of virtual reality. They used terms such as cyberspace, and virtual reality. The history of the metaverse is presented in Figure 1.



**Figure 1.** The history of the metaverse.

Source: (McKinsey&Company, 2022).

With the development of technology also came the development of games. One of the first and more well-known is *Dungeons&Dragons*, which allows the user to delve into a virtual world full of adventure. In the game, the participant has an avatar that can communicate with other players. The next step forward was the development of the playable computer in the 1990s, and with it, games also advanced. Ball describes that the first such fully playable game was *Habitat*. Its users had their avatars, and could explore the virtual world, and interact with other players, but also with the characters that were embedded in it. In addition, players had to obey the laws of the world and exchange resources with other gamers. Other games mentioned

by the author were Pacman and Super Mario Bros. In both, players took on the role of a character who had various obstacles to overcome and had to search for various things to survive.

Another huge step in the development of the virtual era, characterizes *the second wave of the metaverse*, was the creation of 3D games. One of the more popular game series is The Sims. Its first part was created in 2000 and has since gained billions of fans worldwide. By 2022 alone, users played the latest version of the game, The Sims 4, 1.4 billion hours and created 436.5 million Sims which are playable characters. The game is about replicating real life. The characters created are directed by the players. They have character traits, a favourite music or colour. They can move around the world, interact with other characters, work, have to eat, drink, and take care of themselves. They have a needs bar that the player must control. What is more, they can have pets that can also interact, they can go on holidays and rest. It is a life simulator game.

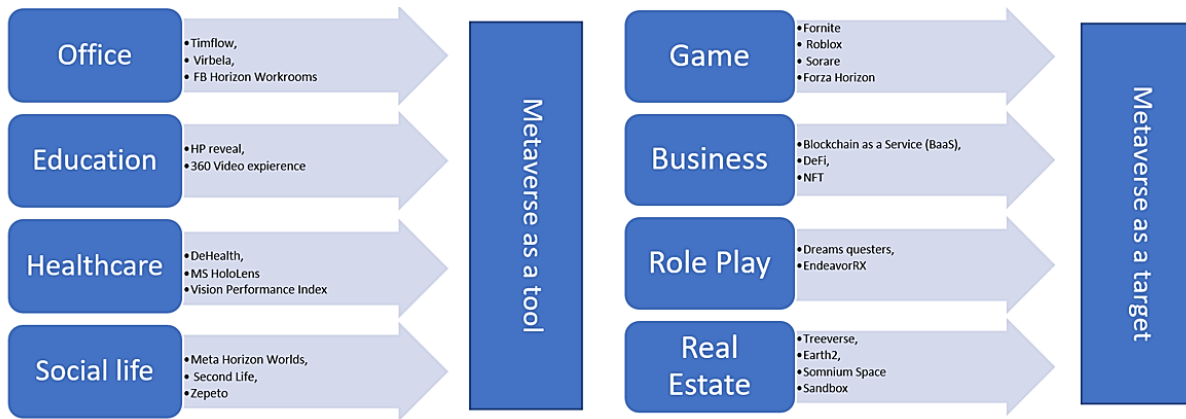
Further examples are games like Minecraft or Fortnite, Playerunknown's Battleground. According to the data: "200 million monthly users spend an average of 2.5 hours a day on Fortnite and Roblox". These unite people from all over the world who create virtual characters and, controlling them, delve into the realm of the cyber world. There are thousands if not more such games, but those listed are the most recognisable and have the most fans.

The *current—third—wave of the metaverse* relates to various technological and economic trends. Since the late 2000s, technological progress has accelerated and new technologies have revolutionised business and leisure. The most radical innovations relate to mobile computing, AI and decentralization. At the same time, new consumer hardware became available, including VR/AR devices. These technologies were applied in metaverses. Cryptocurrency communities used non-fungible tokens (NFTs) to represent and trade virtual property, while Facebook, Inc. rebranded itself as Meta Platforms, Inc. and announced new hardware for the metaverse (McKinsey&Company, 2022).

The following features of the metaverse can be distinguished: 1. persistence, or the ability to remember the user and their environment between sessions, connecting to the real world via IoT or similar technologies, 2. immersion, which provides users with a sense of presence, 3. collaboration and social interactions, through which users can cooperate, socialize, and communicate in digital spaces. 4. interoperability, which allows users to move freely between virtual worlds and transfer their data and resources (e.g. avatars) from one platform to another. This freedom also enables the purchase and sale of resources in emerging markets (Cyfrowa Polska & Komitet Metaversum, 2024).

### **1.3. Metaverse in the organisation- the bright and dark side**

The reason why the current metaverse has attracted more attention than the previous ones is its greater social utility. The applications of the metaverse are classified as *metaverse as a tool* and *metaverse as a target* (Figure 2) (Dwivedi et al., 2022; Li et al., 2024).



**Figure 2.** Applications of the metaverse as a tool and as a target.

Source: Own work based (Dwivedi et al., 2022; Li et al., 2024).

The metaverse, when used as a tool, can be used in conjunction with the real world to perform various tasks that would otherwise be difficult to complete in the physical environment. These tasks may involve exploring remote areas, providing psychological therapy, or training recruits for war zones, for instance. The metaverse replaces familiar environments (e.g., offices, social networking sites, face-to-face classes, and medical treatment) and enables tasks that cannot be easily performed in reality due to issues such as cost. Furthermore, the metaverse simplifies difficult tasks (e.g., aerospace engineering) and increases coherence from a multimodal perspective as a tool (Mahindru et al., 2024).

The evolution of the metaverse represents a substantial advancement in digital technology, integrating virtual and physical reality to generate immersive environments with a diverse array of potential applications. However, the utilisation of the metaverse is not without its advantages and disadvantages.

The metaverse offers unprecedented opportunities for education, particularly for students with disabilities, illnesses, or those living in remote areas (Ball, 2022; Cyfrowa Polska & Komitet Metaversum, 2024). Virtual classrooms can facilitate learning anywhere, such as in hospitals or at home, enabling students to engage with lessons more interactively and dynamically. The use of digital twins, like Metacampus, has shown increased student engagement and participation compared to traditional platforms (Chawinga, 2017; Godber, Atkins, 2021; Villamil, King, 2024).

In the industrial sector, the integration of blockchain and artificial intelligence within the metaverse can streamline decision-making processes and enhance production efficiency by reducing errors (Bataev, 2021; Szpringer, 2023). Machine learning algorithms continuously improve, optimizing production and customer service by analyzing comprehensive data throughout the customer journey (Rojek et al., 2023; Steele, 2023). This capability extends to virtual shopping experiences, where avatars can try on clothes, offering a realistic sense of fit and appearance.



The metaverse revolutionizes human resource management by enabling virtual interviews, job fairs, and company tours. This accelerates the recruitment process and standardizes testing for psychological, knowledge, and skill assessments across various industries, including services, commerce, and civil services. Virtual training sessions, such as those implemented by Bank of America, enhance the quality and efficiency of employee training, contributing to improved customer service and employee development (Hawkins, 2022; Park, Kim, 2022).

Remote working, significantly propelled by the COVID-19 pandemic, is further enhanced by the metaverse. It offers better employee control and integration, reduced commuting time and costs, and improved work-life balance. A healthier work-life balance may be achieved by remote workers experiencing greater difficulty in disconnecting and *switching off* at the end of the day. However, the act of saying goodbye to colleagues in the metaverse and physically removing one's VR headset can facilitate a clear boundary between work and home. This has a similar effect to that of leaving one's office building and embarking on an evening or weekend of relaxation. Employees can also work in simulated environments that foster team collaboration and productivity, even from different locations (Ziomek, 2022b).

Despite its benefits, the metaverse poses risks to physical, social, and emotional health (Szpringer, 2023; Ullah et al., 2023). Excessive time spent in virtual spaces may lead some individuals to prefer the virtual world over the real one, potentially causing social isolation and decreased creativity and innovation among employees (Mączyńska, 2021). The lack of interpersonal interaction can also deteriorate mental health.

The extensive data collection required for personalized experiences in the metaverse raises significant privacy issues. Ensuring the security of this data is crucial to prevent cyber-attacks and data leaks, which could have severe repercussions. Companies must develop robust policies to protect employees' and users' data within this vast virtual space (Mystakidis, 2022).

Managing digital identities in the metaverse is complex, as users can create multiple avatars, complicating identity verification and increasing the risk of identity theft or misuse. Standardized and advanced verification methods will be necessary to manage these virtual identities effectively and ensure security and inclusivity.

The metaverse's technological complexity requires significant investment and adaptation from businesses across different industries. Firms must align their products, services, and marketing strategies with various platforms, adding to operational complexity and costs. Additionally, ethical concerns, such as defining acceptable behavior within the metaverse and addressing issues like virtual crime, data theft, and identity fraud, need to be thoroughly addressed (Chen, 2023).

The presented analysis of the literature indicates the need for further analysis of the use of the metaverse in organisations, especially in the context of remote work. The conducted research in the area of interpersonal relations, productivity and remote team management skills fills a gap in the existing literature on this topic.

## 2. Methodology

The aim of this article is to explore and understand the impact of remote working in the metaverse on organisations, with a particular focus on the human relations aspect, remote working, and team management skills. The technological advancements being witnessed, combined with the rapid development of the metaverse, present new challenges for many businesses seeking to remain efficient and competitive in the era of remote working. The conducted research aims to answer the question of how remote working in the metaverse will revolutionise existing known working practices. This paper focuses on understanding what changes the metaverse brings to an organisation's structure and what new challenges and opportunities arise in the context of remote working.

### 2.1. Collecting data

The research was conducted in February 2024 using the CAVI (Computer-Assisted Web Interview) method with a questionnaire. The selection of the sample was carried out consciously to obtain the highest possible response rate. To increase the percentage of completed surveys, a non-random purposive sampling technique was used.

The survey consists of two sections, a demographic question section and a research problem question section. The demographic questions concern gender, age, education, and the industry in which the respondents work. At the beginning of the second section of questions, there was a brief description of what the metaverse is and how it is used. The second section included 12 questions related to remote work in the metaverse in four research areas (Table 1), namely: relationship, productivity (linked to engagement, motivation and skills), social and psychological aspects, and management and organisation. Respondents were asked to respond to these questions on a 5-point Likert scale.

**Table 1.**  
*Questionnaire structure*

<b>Questionnaire questions</b>	
<b>Relationship</b>	Do you think that using Metaverse for team communication will increase the effectiveness of communication between employees?
	Do you think that using Metaverse on a daily basis will help build stronger relationships between employees working remotely?
	Do you think that the use of Metaverse on a daily basis will have a negative impact on relationships between co-workers?
	Do you think that using metaverse will negatively affect the way managers build and maintain relationships with team members?
<b>Engagement and motivation</b>	Do you think that using Metaverse on a daily basis will increase employees' commitment to their assigned projects and tasks?
	Do you think that the use of Metaverse in day-to-day duties will help to increase the engagement and motivation of employees working remotely?
	Do you think that the use of Metaverse in the context of employee training and skills development will have a positive impact?

Cont. table 1.

<b>Social and well-being aspects</b>	Do you think that using Metaverse during work will reduce feelings of isolation among employees working remotely?
	Do you think that using Metaverse while working will negatively affect the work-life balance of people working remotely?
<b>Management and organization</b>	Do you think that using Metaverse will cause data protection and data security issues?
	Do you think that managing employees in the Metaverse requires different methods of managing employees than those currently used?
	Do you think that the use of Metaverse will facilitate the monitoring of team progress and the evaluation of team performance?

Likert scale: I strongly disagree (1), I rather disagree (2), I have no opinion (3), I rather agree (4), I strongly agree (5).

Source: own study.

## 2.2. Research sample

The research was carried out among working people in different industries, students as well as those who are not employed at the moment. The questionnaire was shared with people associated with different industries to gain the best understanding of the impact of the metaverse on different sectors. 111 people responded to the survey. The structure of respondents is presented in Table 2.

**Table 2.**

*Structure of the survey sample*

	<b>Item</b>	<b>%</b>
<b>Gender</b>	male	51
	female	49
<b>Age</b>	18 – 25	67
	26 – 35	15
	36 – 45	10
	46 – 55	4
	56 – 65	2
	above 65	2
	<b>Education</b>	primary
secondary		42
higher		58
<b>Workplace sector</b>	IT sector	27
	public sector	19
	commercial services sector	14
	financial sector	10
	educational sector	11
	industrial sector	12
	entertainment sector	3
	non-workers	4

N = 111.

Source: own study.

The gender distribution of respondents was as follows: 51% were women, 57 in number, while 49% were men, 54 in number. Concerning the age of the respondents, there was considerable diversity. The majority of respondents (67%) were within the 18-25 age group,

while 15% were between 26 and 35 years old, 10% were in the 36-45 age group, 4% were between 46 and 55 years old, and 2% were in the 56-65 age group and over 65 years old.

Concerning the educational background of the people participating in the questionnaire 42% of people declared that their education level was secondary, and 58% of individuals stated that their education level was higher. None of the respondents had only a primary level of education.

The survey responses identified the following sectors: IT sector (27%), public sector (19%), commercial services sector (14%), financial sector (10%), educational sector (11%), industrial sector (12%), entertainment sector (3%) and non-workers (4%).

### 3. Results and discussion

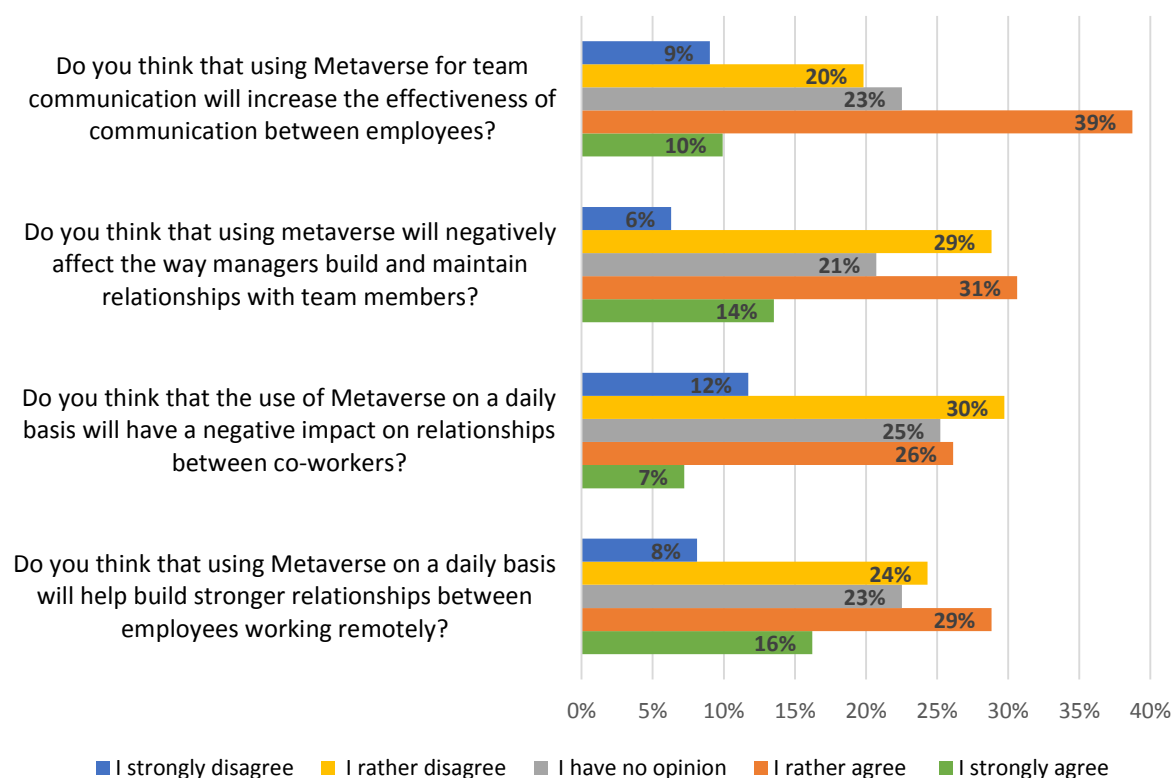
The diversity in the age groups of respondents and the fact that the largest number of people (67%) are in the 18-25 age group suggests that the younger generation is intensely interested and open to exploring the metaverse. This may reflect the dynamic attitude of younger workers towards modern forms of work. The noticeable age diversity in the study provides insight into the diversification of generational knowledge in the context of the metaverse. The younger generation can bring a fresh perspective, while older people can provide valuable experience. The fact that different age groups took part in the survey indicates that different generations are open to innovative technologies such as metaverse. This, in turn, suggests that innovative approaches to remote working are meeting with acceptance among different age groups. Responses from those in the 46-55, 56-65 and over 65 age groups can provide valuable insights into the challenges of introducing metaverse in a remote working context, particularly for those with more seniority. The proportion of men (51%) and women (49%) in the age groups were remarkably close to each other, so it can be suggested that both genders are equally interested. A clear conclusion from the survey results is the dominance of the IT sector, where as many as 30 respondents work. This may indicate the growing role of IT in today's working environment and remote forms of employment. This is similar to Mahindru et al. (2024) (Ewing et al., 2019; Hawkins, 2022; Mahindru et al., 2024; Villamil, King, 2024) study. Also noteworthy is the fact that quite a substantial number (19%) of people are characterised by the public services sector, which also indicates the immense potential of metaverse in remote working in this field.

#### 3.1. Metaverse and interpersonal relationships

Answering the first research question, *RQ1: How will the metaverse affect interpersonal relationships in organisations?* the responses to four survey questions were analysed (Figure 3).

The first supporting question that was raised referred to the use of the metaverse in team communication and whether this communication would increase as a result of it. The largest group (39%) was composed of those who indicated a tendency to agree with the statement that the metaverse will have a positive impact on communication between employees. The next largest group, comprising 23% of respondents, indicates no opinion on this issue. Another 20% express disagreement. The next group, representing 10% of respondents, indicates strong agreement. The smallest group, representing 9% of respondents, indicates strong disagreement that the metaverse will improve communication effectiveness.

In terms of the gender-specific responses of those taking part in the survey, they are interesting. More men strongly agree with the statement that the metaverse will make communication easier. In addition, a smaller number of men have no opinion on the subject, only 8 men, compared to 17 women. Perhaps this is related to the industries they work in or their level of knowledge of the metaverse. Looking at the answers of the respondents and their age, nothing surprising shows up. Just as can be suspected, the younger generation believes that the metaverse will have a positive impact on the facilitation of communication. The results confirm many other studies (Babu et al., 2020; Ball, 2022; Park et al., 2023).



**Figure 3.** The Metaverse and interpersonal relationships in organizations.

Source: own study.

The second question posed was whether the use of the metaverse in remote work would have a negative affect on the relationship building between managers and employees. The majority of respondents (31%) stated that they believe that the use of the metaverse would have a negative impact on the relationship between management and employees. However, almost as many respondents (29%) disagreed with this statement. The existence of such divided opinions may indicate a lack of certainty among respondents regarding the potential impact of the metaverse on the dynamics between employees and managers. The next largest group of respondents (21%) stated that they had no opinion on the subject. The smallest group of respondents (6%) stated that they strongly disagreed with the statement.

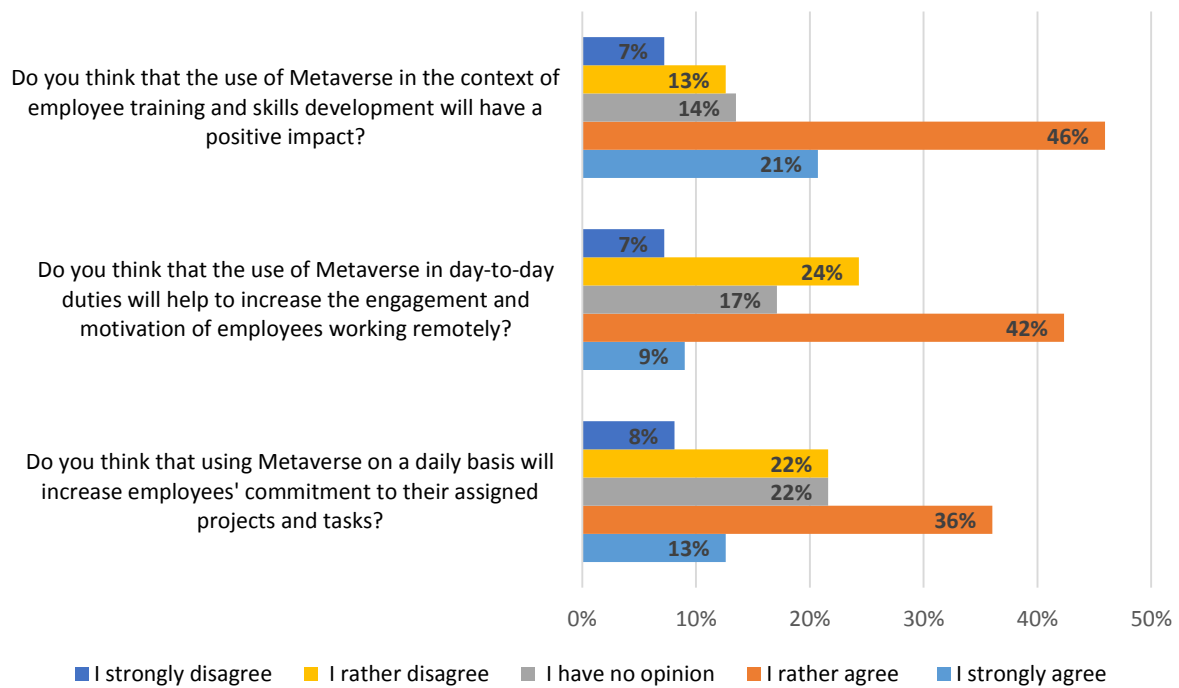
The third question also concerned interpersonal relationships, but this time between colleagues. The respondents were asked whether the use of the metaverse daily would have a negative impact on the relationships between co-workers. An examination of the graph containing the answers to this question (Figure 3) indicates that the results are relatively equal, with 30% of respondents disagreeing with the statement and 26% rather agreeing. It should be noted that a quarter of respondents had no opinion on this matter.

The fourth question addressed the frequency of use of the metaverse in daily life and its potential to facilitate the formation of stronger interpersonal connections among employees who work remotely. The largest group of respondents indicated that they agreed with the statement (29%). However, a significant proportion of respondents indicated that they either disagree (24%) or have no opinion on the subject (23%). The smallest proportion of respondents indicated that they strongly disagreed with the statement (8%). Additionally, a notable number of respondents indicated that they strongly agreed that using the metaverse would help build relationships (16%).

A comprehensive analysis of the total responses received leads to the conclusion that the majority of respondents believe that the metaverse will have a positive impact on the quality of interpersonal relationships within organisations. This is of significant consequence for managers and organisations, as it will facilitate the attainment of high performance. Unsurprisingly, younger generations are more inclined to utilise the metaverse. This may be attributed to their proclivity towards adopting novel technologies and the flexibility afforded by remote work in the metaverse. Furthermore, they may also be curious about the potential of the metaverse in the future and the developments it may bring about. Older generations may be less interested, as they tend to be content with their current lifestyle and work, and are less willing to change. However, the responses of the oldest generation are noteworthy, as in many cases they are in favour of using the metaverse. This demonstrates the importance of considering the opinions of this demographic in the implementation of this tool in different companies.

### 3.2. Metaverse and engagement and motivation of employee

Answering the second research question, *RQ2: How will the metaverse impact employee engagement and motivation for work?* the responses to three survey questions were analysed (Figure 4).



**Figure 4.** The Metaverse and engagement and motivation.

Source: own study.

The first question in this group aimed to explore whether respondents believe that using metaverse as a training and skills development aid for employees would have a positive impact on them. As can be observed (figure 4), the large majority agrees with the statement both rather (46%), and strongly (21%). This is important because, as Hawkins (2022) points out, developing skills using virtual reality can significantly increase employee engagement and productivity (Hawkins, 2022).

The next question was designed to explore the views of the participants in the survey on the use of metaverse in everyday work and whether it would increase the engagement of employees who perform remote work. Most people were in favour of the fact that the use of the metaverse would have a rather positive effect on employee engagement (42%) as indicated in their research Chawinga (2017), Godber & Atkins (2021), Villamil & King (2024). However, opinions were divided, as the next group was formed by those who rather disagreed with this statement (24%). The following group was made up of those who did not have an opinion (17%). The smallest group were those who strongly disagreed (7%), and a little more were those who strongly agreed (9%).

The third question that was asked focused on whether the use of metaverse would contribute to increased dedication to projects and tasks at work. Similar to the first two questions and the responses analysed, it can be seen that the majority of people rather agreed with the statement that using metaverse at work will lead to increased employee commitment (36%). An equal number of people answered that they rather disagreed with the statement (22%) or that they had no opinion (22%). A significant minority denied the question that was posed. A significantly larger percentage of respondents in the youngest age group (26-35) agreed with the statement that the use of metaverse would have a favourable effect on daily routines and commitment (52%). In the 36-45 and 46-55 groups, there was only one person who strongly agreed. In the 46-55 group there was an objection to the statement made. In the group 36-45, most people didn't have an opinion on the subject. In analysing the sectors in which respondents work the metaverse had the greatest support in the IT sector. There, most people believe that the use of the metaverse will support attachment to assigned tasks. In the public sector, it is noticeable that a lot of people do not have an opinion on this topic. In the commercial services sector, on the other hand, it is observable that more people oppose than support this statement.

Analysing all these answers given, several conclusions can be drawn. The main and obvious one is that the metaverse will have an impact on remote working and the various aspects related to it. The use of the metaverse and what it offers will have a positive impact on the commitment of employees to their tasks. This is not surprising, as through the metaverse, various enrichments and facilities can be introduced that will help employees in interesting ways. The aforementioned virtual offices will be equipped with a number of tools which can make work more structured and organised.

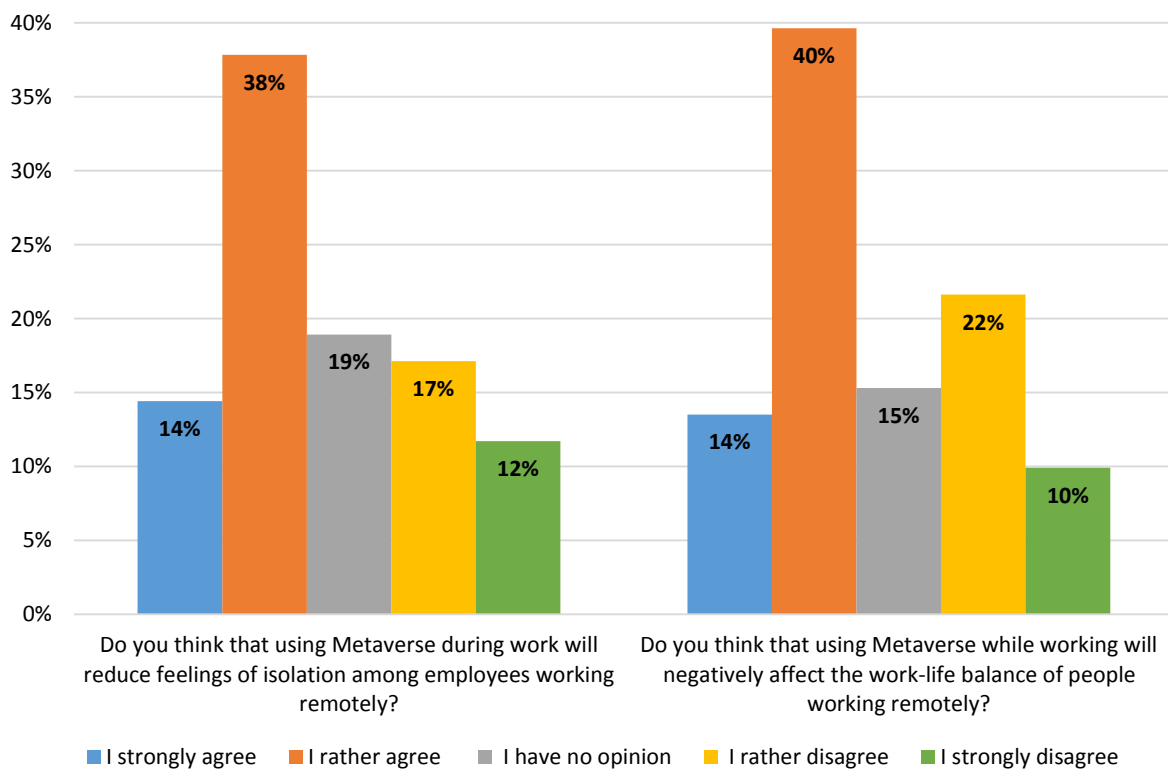
### **3.3. Metaverse and social and well-being aspect**

Answering the next research question, *RQ3: How will the metaverse influence the well-being of employees?* the respondents were asked 2 questions. Analyses of these questions indicate that the metaverse can have both a positive and negative impact on the health and well-being of employees the responses to four survey questions were analysed (Figure 5).

On the one hand, the majority of people *rather agreed* (38%) and *strongly agreed* (14%) with the statement that using metaverse would reduce feelings of isolation among employees who work remotely. On the other hand, a large number of people believed that the use of the metaverse has a negative impact on employees' work-life balance. In the case of this question, the answers were remarkably interesting. The majority of people *rather agreed* (40%) and *strongly agreed* (14%) with the statement that the use of the metaverse has a negative impact on the reconciliation of work and personal life. The next group were those who *rather disagree* (22%). They are followed by respondents who have no opinion on the subject (15%). The least numerous group are those who *strongly disagree* (10%).



By analyzing the above questions, the following conclusions can be drawn. Virtual offices in the metaverse contribute to decreasing feelings of isolation among remote workers. Similarly, Szpringer (2023) and Ullah et al. (2023) point out that the metaverse poses threats to physical, social and emotional health, causing social isolation, decreased creativity and worsening mental health. Thanks to the face-to-face avatar interactions, employees may feel part of a community and perhaps be accompanied by a sense of togetherness. A negative aspect of using the metaverse, according to the respondents, is the problem of maintaining a work-life balance. Respondents agree with this statement regardless of the industry they work in. Indeed, balancing work and personal life in this case can be challenging, as the virtual offices, trips or training courses it offers can be very absorbing.



**Figure 5.** The Metaverse and social and psychological aspect.

Source: own study.

### 3.4. Metaverse and management of employee

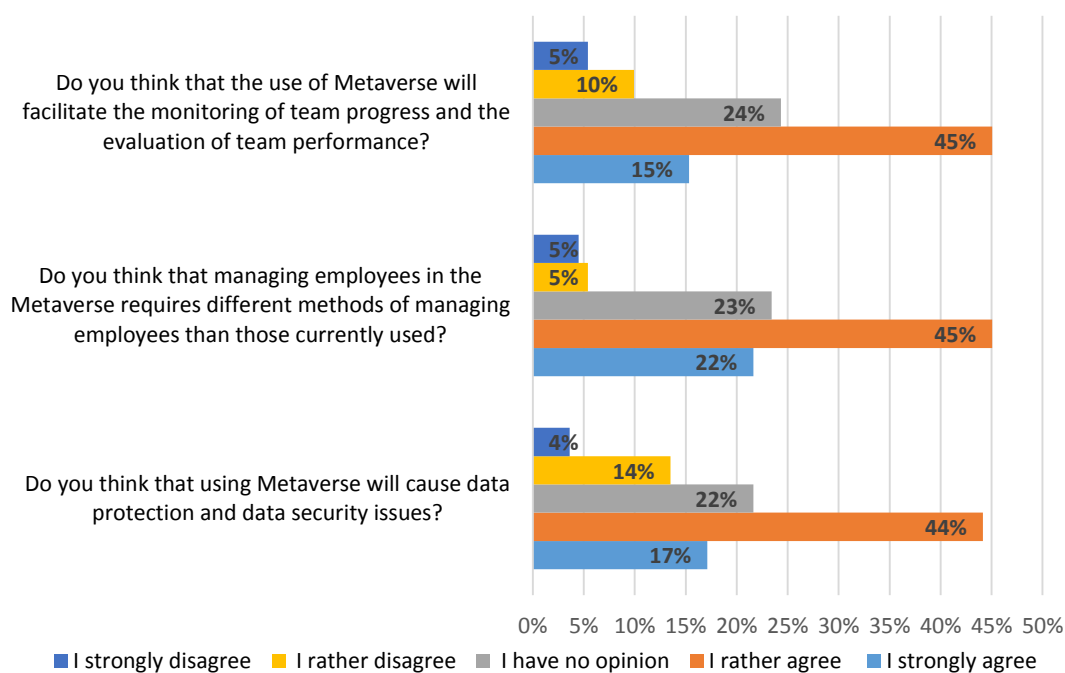
Answering the last research question, *RQ4: How will managers deal with the new reality of the metaverse when managing remote teams?* the responses to three survey questions were analysed (Figure 6).

The first question concerned using metaverse to enable easier team progress and evaluation monitoring. The vast majority of people (45%), agreed that the use of metaverse would make it simpler to monitor and assess the progress of employees. However, a significant number of

people, as many as one-fourth (24%), had no opinion on this subject. This may be due to the lack of experience of managers in this area.

In the second question, similarly to the previous one, most respondents agreed that managing employees in the metaverse requires using different management methods (45%). Again, similarly to the previous question, a quarter of people (25%) had no opinion on the subject (23%).

A significant consideration when implementing remote work within the metaverse is the protection of sensitive data. The majority of respondents indicated that working in the metaverse could potentially lead to challenges in maintaining the security of digital information (44%). Again, a surprisingly large number of people had no opinion on the matter (22%).



**Figure 6.** The Metaverse and management of employee.

Source: own study.

Considering all the responses, it is possible to notice several findings that emerge. The most interesting one is that a lot of people think that the use of the metaverse requires different methods of managing employees. New ways of managing and new tools will absolutely be needed. All this will have to evolve as the metaverse and the work in it develops. Another thing to note is that most people believe that the use of the metaverse will make it easier to assess and monitor corporate processes. This is quite likely to be the case because of the tools that working in the metaverse offers. This will be particularly feasible in industries that are already familiar with the remote working model, as they will not require an extended period of adjustment. It is also essential to emphasise the importance of data protection in the metaverse, as security issues will have to be addressed (Chen, 2023; Mystakidis, 2022).

## 4. Conclusion

The metaverse promises substantial benefits, from revolutionizing education and industrial processes to enhancing remote working and human resource management. However, these advantages are counterbalanced by significant challenges, including health risks, privacy and data security concerns, identity management issues, and ethical dilemmas. Effective utilization of the metaverse will require careful management and innovative solutions to mitigate its risks while maximizing its potential.

The emergence of the metaverse has unquestionably revolutionised many spheres in the corporate environment, both internal and external. It has placed many obstacles in their path as well as assisted in many aspects. It can be described as a definite beginning of an emerging era. It is difficult to say conclusively in which direction it will lead all concerned.

The article reveals that the transition to remote working presents both opportunities and challenges. The benefits, such as increased flexibility, reduced commuting time, and lower operational costs, are balanced by drawbacks like potential isolation, motivation issues, and security concerns. Effective remote work requires clear communication and collaboration between employees and employers to navigate these complexities successfully. As the workplace evolves, continued adaptation and refinement of remote work policies will be essential to maximize its potential while mitigating its risks.

Managers will have to make changes to the organisation that will involve the entire system of its operations. Technological developments will force them to change the way they delegate tasks, evaluate their performance, or assess the progress of employees. How employees are trained will also change, with some training moving entirely into the meta-workspace, others only partially and still others remaining for the time being only in the real space. Research has shown that remote working in the metaverse can lead to an increase in employee efficiency and productivity. The virtual working environment will eliminate commuting problems, allow for better time management, and enable working conditions to be more easily adapted to individual employees' needs.

In addition, the use of metaverse will also introduce several concerns to companies. The first relates to the lack of advanced technology and the fact that it will have to be introduced as soon as possible if companies want to use the metaverse. This is combined with huge sums of money and training of staff who need to have a basic knowledge of how to use the technology. Traditional methods of managing teams may prove ineffective, forcing managers to develop new motivational strategies and communication methods. Building a sense of belonging and commitment among employees who do not meet in person will also be crucial. Another problem is related to being cautious in the use of metaverse. As it is not yet thoroughly legislated, its use may be associated with data leaks or other related problems.

Based on the research, it can be seen that the metaverse will affect interpersonal relationships in organisations. Contacts between colleagues will take place in an unusual way than before. The use of the metaverse will influence the efficiency of communication, making it easier in some cases. In addition, the relationships established by employees will be stronger, through communication that will be more indirect than that which takes place when using the various virtual platforms. Employees will also be more engaged in their tasks, as their performance will be more interesting, and more varied. They will also feel less isolated, due to the possibility of meetings in the metaverse. In conclusion, using the metaverse will not have a negative impact when it comes to the relationships of employees working remotely, quite the contrary.

The results of the study also have practical implications for managers. First of all, the metaverse will change their managing style and reveal new skills. Managers will need to ensure that they maintain contact with employees and that information flows very quickly. From the answers given by the respondents, it seems that this could be a major problem for managers. They will have to become more flexible in their decision-making as the metaverse will require this. How training is delivered will also change. Evaluating employee progress and monitoring them will be easier in the metaverse, according to the research. This is due to the range of new tools that will be available and the fact that what will take place in the metaverse will leave its 'mark.'

The results of the survey indicate that a relatively large number of individuals are already willing to utilise or intend to utilise the metaverse in a professional environment. However, some respondents expressed reservations about the use of the metaverse in their work. This is an understandable result, particularly given the diverse range of questions posed to respondents.

An interesting finding can be drawn after analysing the responses of those in the IT industry because it is most likely that this is where the metaverse will happen the fastest. They were very divided on many issues, which just demonstrates that it is most likely that more education is needed in this area to help employees understand the subject. On the other hand, it may be that IT employees are the most knowledgeable about the metaverse at the moment, and that may be where the big divide comes from. A similar case can be found in the analysis of the responses of different people according to their age. It is most likely that the difference in responses is due to their knowledge. Young people are more sceptical about the use of metaverse at work on some issues and older people on others.

There is one conclusion that can be made after analysing the entirety of all the responses, further research into this topic is needed, as it will definitely grow increasingly and perhaps become everyone's day-to-day reality in the future. Especially that the limitation of the study was the relatively small sample size. In future studies, it would be beneficial to expand the sample to include a larger and more diverse age range.

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