The Future Digital Workplace: A Review

Masliza Mohd Razali[1], *Khalijah Mohd Nor[2] & Siti Norashikin Bashirun[3]

[1,2,3] Faculty of Business and Management, Universiti Teknologi MARA Cawangan Melaka, Kampus Alor Gajah, 78000 Alor Gajah, Melaka, Malaysia
khalijah904@uitm.edu.my
*Corresponding Author

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Abstract: As a dynamic and transformative idea in the field of work and organisational administration, the "digital workplace" has attracted growing interest. This review integrates findings from a substantial body of research published between 2014 and 2023, gathered from reliable databases like SCOPUS, to provide a thorough overview of the development, essential elements, technological underpinnings, advantages, challenges, and adaptation of the digital workplace. This study explores how the digital workplace evolved into not only a strategic option but also a requirement for business continuity in light of the global COVID-19 that developed throughout the review period. It offers useful insights for organisations and researchers looking to leverage the digital workplace to improve agility, productivity, and resilience in an ever-changing digital context.

Keywords: Digital skills, digital transformation, future workplace, hybrid workplace

Introduction

The idea of the workplace has significantly changed in the dynamic environment of modern business. Physical barriers and conventional office architectures are becoming less relevant as a result of the digital revolution, which is being fuelled by quick technical improvements. The digital workplace is redefining how we work, communicate, and cooperate. A dynamic and effective work environment is produced by the intersection of people, technology, and culture in this extensive ecosystem. Employees may easily interact, share information, and complete tasks in this digital world regardless of geographic limitations, allowing organisations to adapt and grow in a time of rapid change. Many organisations recognise the importance of workplace transformation, which reflects modern work patterns, employee preferences, and the technologies used, which will affect the way people work in the future (Trenerry, 2021).

Accordingly, the adoption and use of artificial intelligence (AI) play a significant role in shaping and enhancing the digital workplace. It is expected that as AI develops, it will play a bigger part in defining the digital workplace, resulting in even greater gains in productivity and user experience, specifically among employees (Marikyan et al., 2022; Gkinko L. and Elbanna A., 2023). The overall productivity of the digital workplace may increase dramatically because of the greater efficiency of AI. Additionally, the speed and scale of current technological progress, collectively referred to as the Fourth Industrial Revolution or Industry 4.0 (IR4.0), raises concerns about the extent to which new technologies may dramatically reshape workplaces or completely remove workers. It is allowing employees to work anywhere and access company resources remotely (Hidalgo et al., 2020).

Following the COVID-19 pandemic's emergence and global spread, daily life, the economy, and civilizations saw never-before-seen changes. It results in the rapid acceleration of digitization in numerous facets of human existence that are increasingly visible. As governments began enforcing lockdowns and social segregation measures, businesses were forced to quickly adjust to maintain commercial continuity. The digital boom that was seen at this time included online learning,

telemedicine, e-commerce, remote work, and many other areas (López-Carril et al., 2022). The digital workplace and increasing adoption of remote work have not only changed the way the industry functions, but they have also had an impact on the educational landscape. For instance, the COVID-19 epidemic has hastened the adoption of digital workplace and work-from-home (WFH) practices in Malaysia, which has consequences for students and the industrial sector (Latib, F. W. M. et al., 2021). Moreover, the epidemic has accelerated the evolution of digital workers' jobs. However, due to a lack of resources and competent digital usage, the pandemic has aggravated the problem, with those who are not adequately linked to the internet facing marginalisation and other disadvantages (Pandey, and Pal., 2020). This phenomenon would also create a digital labour workforce as an opportunity for those in the gig economy (Abdul Rahim A. F. et al., 2021).

As the digital workplace has received increasing attention within most academics, questions concerning the main factors that induce its adoption have increasingly occupied researchers' interests. Several studies on this topic have been conducted with several different theoretical frameworks and developed models. In light of these considerations, a review of the literature was conducted to shed light on the following questions:

Research Question 1: What is the volume of publication over the years?
Research Question 2: Which are the most productive countries?
Research Question 3: Which are the most productive journals?
Research Question 4: Which publications are the most cited in the research period?
Research Question 5: What are the most important research topics studied and potential research gap opportunities?

Literature Review

With the advent of the digital age, the idea of the digital workplace has also developed. The development of the digital workplace has been aided by a number of significant turning points, such as the introduction of the internet, the proliferation of mobile devices, and the rise of cloud computing (Hidalgo et al., 2020). This will significantly enhance employees' productivity and improve their efficiency. Therefore, organisations are required to implement and maximise digital workplace initiatives due to the rapid growth of technology and optimise various skills. Moreover, by minimising the demand for physical office space, supporting eco-friendly technologies, and tracking environmental impact, digital workplaces will include sustainability practices (Yalina & Rozas, 2020). This would also align the environmental goals with business organisation.

Scholars have highlighted numerous key components that comprise a digital workplace. These consist of mobility solutions, knowledge management programmes, communication platforms, and collaborative tools (Sánchez et al., 2022; Ujwary-Gil, A., & Godlewska-Dzioboń, B., 2022; Snow et al., 2017). The integration of these components is critical for creating a productive digital work environment that crosses geographical and temporal boundaries. According to Attaran et al. (2020), the digital workplace includes technologies that connect people, information, and processes while removing obstacles.

The entire working environment is changed by the digital workplace, which also affects how tasks and processes are carried out and how social interactions are conducted within the organization. It would also offer flexibility and accessibility among employees and make them more productive. Flexibility in the workplace is currently highly valued by employees, and the majority of job seekers demand it from their future employers (Aloisi & De Stefano, 2022). Moreover, digital workplaces leverage workplace technologies that offer greater flexibility, ultimately enhancing their work-life balance and job satisfaction (Baptista et al., 2020). Additionally, research demonstrates that flexible working hours and a digital workplace have a positive impact on employees' absences, including a decrease in absences from illness and a lower rate of depression.

Methodology

The initial sample consisted of 91 documents from the main collection of SCOPUS from 2014 to 2023. The documents regarding the digital workplace have been compiled through a search in the topic field in titles, abstracts, and keywords (Zheng & Kouwenberg, 2019) by the expression "digital workplace" and limited to the subject area in business, management, and accounting. The documents are also restricted to studies that contain the terms "digital transformation" or "work-life balance" or "digitalization workplace" or "industrial revolution" or "digital skills." Additionally, only journal articles that have been published were analysed for this review. 14 documents were eliminated because they did not fulfil the predefined criteria. Finally, a total of 77 remaining articles are ready to be analysed.

The digital workplace has become an essential component of modern business operations. It has an impact on organizations, management practices, and accounting procedures by encouraging efficiency, data integration, collaboration, and adaptation in a digital and data-driven business landscape. For example, implementing information technology in costing activities results in quick sharing as well as enhanced costing efficiency and effectiveness (Gonçalves et al., 2022). Moreover, the digital workplace provides a safe and centralised platform for storing and retrieving financial data, lowering the risk of data loss and ensuring data integrity (Vărzaru, 2022). Table 1 presents the results in selected subject areas in recent years.

Table 1. Results in selected subject areas

No	Year	Title
1	2023	Critical exploration of AI-driven HRM to build up organizational capabilities
2	2023	Digital transformation: Inevitable change or sizable opportunity? The strategic role of HR management in Industry 4.0
3	2023	Digital gifts at the workplace: An exploratory study on the impact of e-hongbao
4	2023	Designing trust: The formation of employees ʾtrust in conversational AI in the digital workplace
5	2023	Digital workplace and organization performance: Moderating role of digital leadership capability
6	2023	Digital Taylorism in China's e-commerce industry: A case study of internet professionals
7	2023	Digital workplace transformation: Subtraction logic as deinstitutionalising the taken-for-granted
8	2023	Defining digital wellbeing literacy in remote work integrated learning
9	2023	Dynamics of flexible work and digital platforms: Task and spatial flexibility in the platform economy
10	2023	When companies make your day: Happiness management and digital workplace transformation
11	2023	Future of digital work: Challenges for sustainable human resources management
12	2023	New work—new interventions: Digital occupational health interventions and the co-creation of a human-centered future of work

13	2023	Digital onboarding and employee outcomes: empirical evidence from the UK
14	2023	Stress-inducing or performance-enhancing? Safety measure or cause of mistrust? The paradox of digital surveillance in the workplace

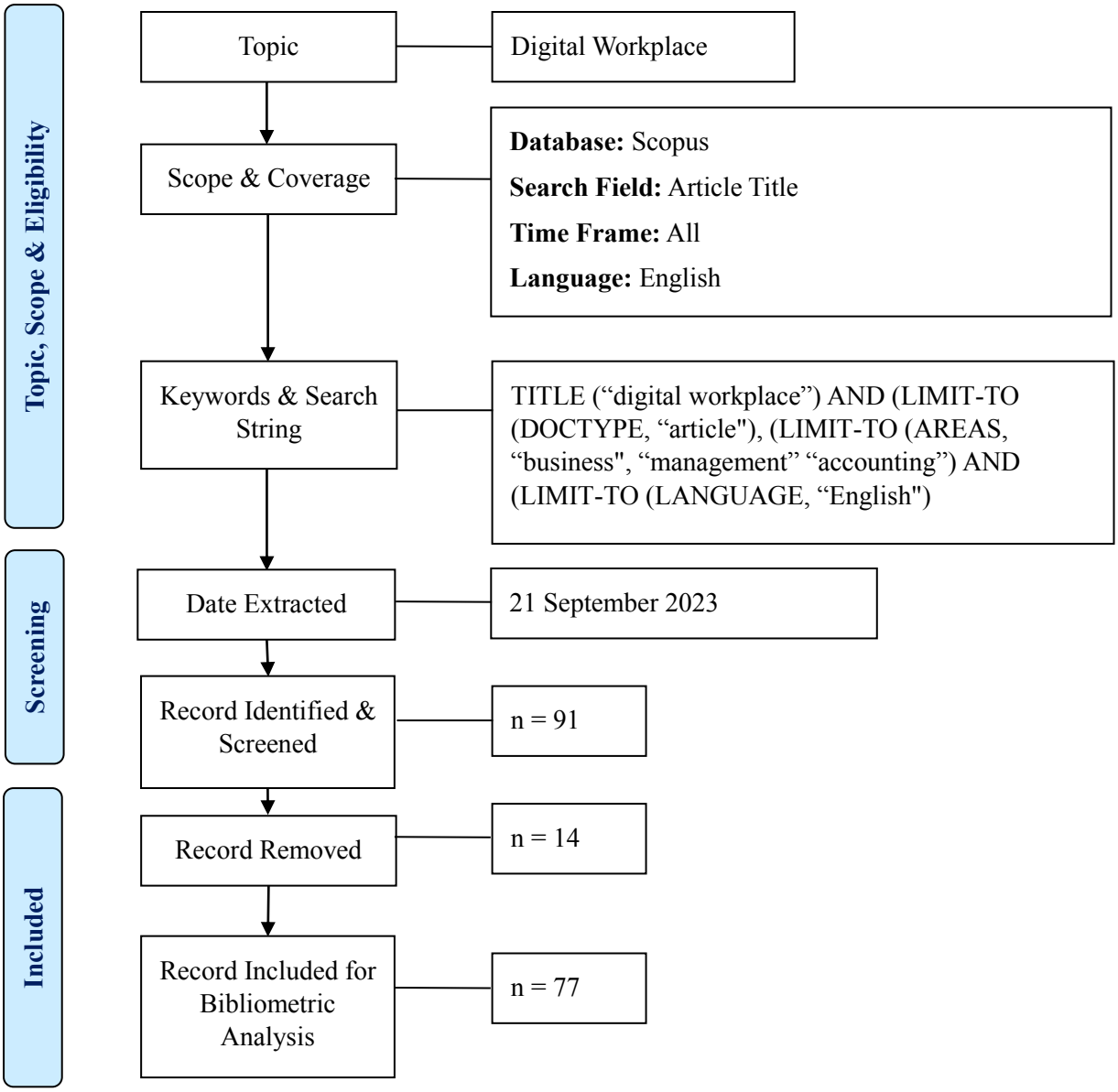

Fig. 1: Flow Diagram for the Review Process

Result and Discussion

Publication by year

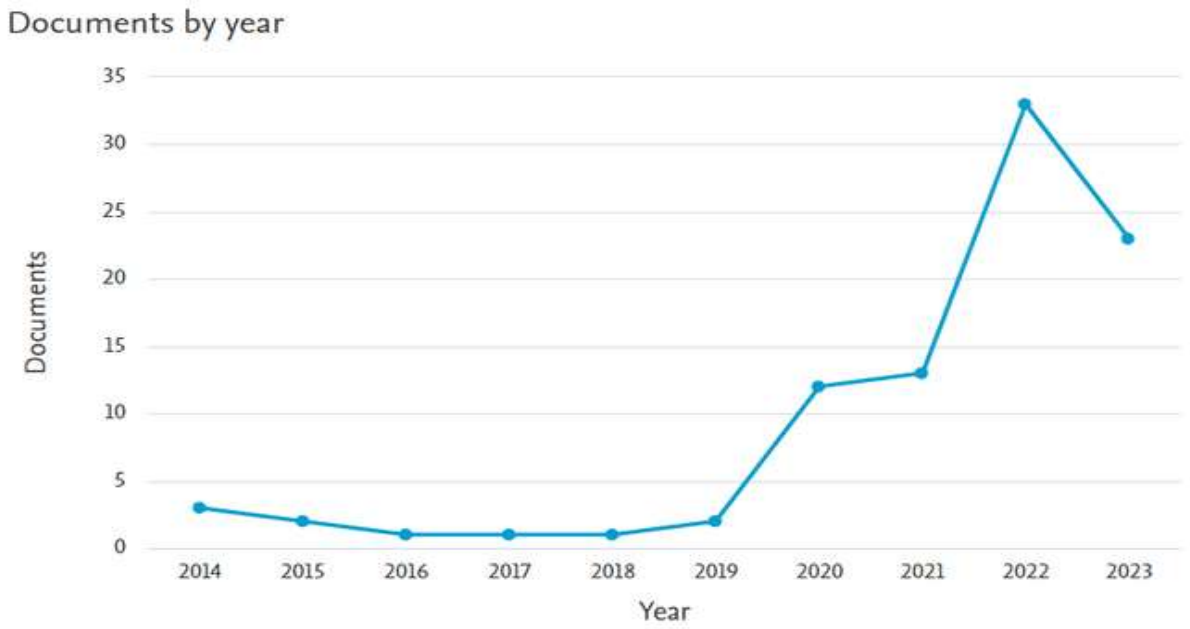

Fig. 2: Publications by Year (Source SCOPUS)

Figure 2 shows the evolution of research activity in the digital workplace from 2014 to 2023, and several stages can be detected where the effect of digitalization on this specific research area is clearly visible. The findings reflect research question 1, in which it is shown that digital workplace research has been drastically increasing for the past nine years. It is expected that the trend will continuously increase for the year 2023, as it will be the future practice of work. As digital workplaces became more prevalent in practice, academic institutions and researchers became more interested in studying and contributing to the topic, resulting in an increase in publications and research projects. This significant increase is due to a number of trends and issues in business, technology, and societal change. For example, Trenerry et al. (2021) highlighted that the nature of work is fundamentally changing because of the quick development of new digital technologies, including smart technology, AI and automation, robotics, cloud computing, and the Internet of Things (IoT), which is also raising concerns about the future of organisations and jobs. Furthermore, organisations may benefit from these technologies in a variety of ways. Given that the digital workforce is likely to be at ease with technology-based training (Kraiger & Ford, 2006), organisations now have a low-cost, reproducible option for assisting workers in acquiring the necessary skills. Due to the COVID-19 epidemic, which caused a rapid move to remote work and digital solutions, there is an emerging trend in the digital workplace. The pandemic's effects and how businesses responded were brought home by this disaster, which also highlighted the value of digital workplace technology. Hence, organisations have continuously embarked on this digital transformation to develop robust business continuity strategies. Because of the widespread lockdown and social conventions of social distancing, the pandemic has inevitably resulted in a rise in the usage of digital technologies. Organisations and individuals from all over the world have had to adapt to new methods of working and living (Pandey, N., & Pal, A, 2020). It is expected that the rising trend will also be due to government rules and regulations, such as data protection legislation and remote work requirements, that have influenced research goals and practices (Van Laar et al., 2022). Additionally, the growing popularity of the digital workplace would be influenced by the increased worry over cybersecurity and data privacy (Nayak & Chandiramani, 2022).

Publication by country

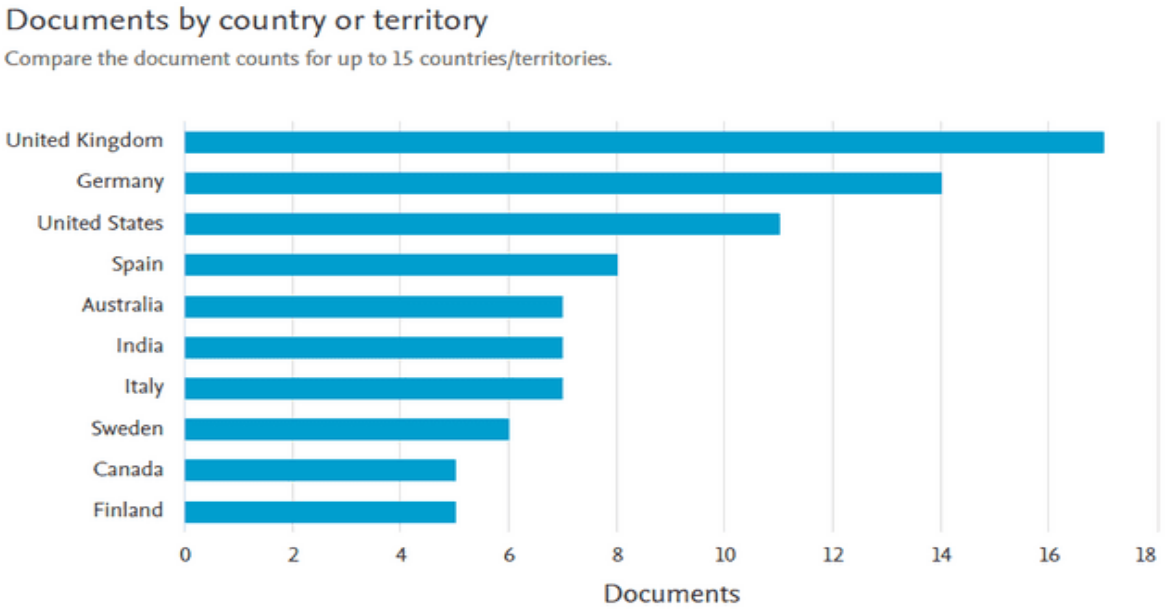

Fig. 3: Publications by Country (Source SCOPUS)

The analysis of the number of publications by country, which is shown in Figure 3, to answer research question 2, is based on the current affiliation of the authors of the paper. This study highlights several important discoveries. To begin, research on the digital workplace is dispersed across countries. Our review indicates that a total of 10 countries have contributed to the knowledge of this area. Following that, the majority of the publications have ties to the United Kingdom (17), Germany (14), and the United States (11). With its advanced technological infrastructure and high interest among scholars, the United Kingdom has the highest number of publications. As reported by Dubey, P et. al (2023) advanced digital skills, such as cloud architecture and software development, alone could increase annual gross domestic product (GDP) in the UK by an estimated £67.8 billion each year by boosting the income and productivity of workers. Digital skills generate income and revenue premiums for both individuals and industries in the UK. In addition, the finding revealed that digitally competent workers are not only better compensated, but they are also happier, more efficient, and believe they have a higher opportunity for advancement. With only five publications, Canada and Finland have few digital workplace publications. This can be influenced by their priorities and focus areas in other fields during specific periods.

Publication by Journal

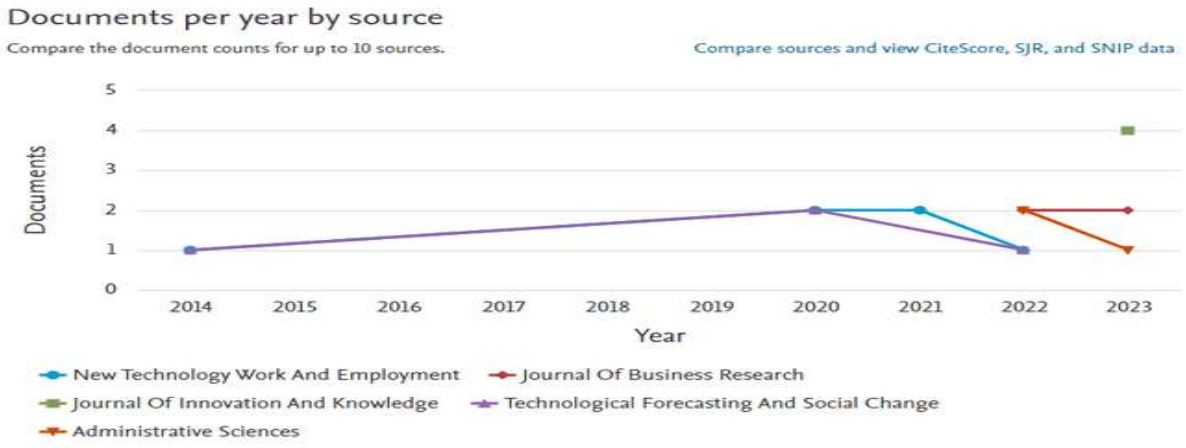

Fig. 4: Publications by Journal (Source SCOPUS)

With an impact factor of 10.884, the Journal of Technology Forecasting and Social Changes recorded the highest published study of the digital workplace. The journal may have a particular specialty or reputation for publishing research on technology assessment, workplace transformation, and societal effects. Given that the digital workplace covers both technology and social changes, academics in this field may find the journal very relevant to their study. As a peer-reviewed academic journal published by Elsevier with a strong impact factor, this will maximise the visibility and impact of the researcher on this study. Consequently, this finding aims to address Research Question 3 by highlighting the significance and worth of the digital workplace and its potential implementation.

Table 2. The Top 5 Journals

Journal	Impact Factor	Quartile
Technological Forecasting and Social Change	10.884	Q1
New Technology Work and Employment	4.182	Q1
Journal of Business Research	10.969	Q1
Administrative Sciences	3.38	Q2
Journal of Innovation and Knowledge	20.31	Q1

Citation Analysis

Citation analysis shows the influence of publications in the literature. Specifically, the analysis focuses on showing global citations, verifying the impact on the publications studied in this research (Baker, H. K. et al., 2020). Table 3 shows the five most cited documents in this review, which is to answer research question 4. The impact factor and quartile for each journal were accessed from Scimago Journal & Country Rank, as it is a well-known database that offers data on academic publications and the scientific research output of various nations. The results show that the top five journals are ranked as Q1 and Q2. Since they are more likely to be read widely and have a significant impact on the field, journals in the Q1 quartile are often regarded as prominent and frequently chosen for publishing research articles. This recognised publication demonstrates the significance of the growing trend in the study of the digital workplace.

The term digital workplace might also refer to digital transformation and digitalization of the of the workforce; therefore, the citation of the term is high. The highest citation is shown by Pandey, N., & Pal, A (2020), with 439 citations, published by the International Journal of Information Management. With the title "Impact of digital surge during the COVID-19 pandemic: A viewpoint on research and practice," the study showed the most influential publications in our review. It is considerably expected that, with the expanding trend following COVID-19, the study of the digital workplace will be used as a resource by other scholars and academics.

Table 3. Top 5 Documents and Authors Most Cited

Publication	Authors	Total citation	Journal
Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice	Pandey, N., & Pal, A. (2020)	439	International Journal of Information Management
Digital work and organizational transformation: Emergent Digital/Human work configurations in modern organisations	Snow C.C.; Fjeldstad Ø.D.; Langer A.M. (2020)	81	Journal of Strategic Information Systems
The digital divide in light of sustainable development: An approach through advanced machine learning techniques	Hidalgo A.; Gabaly S.; Morales-Alonso G.; Urueña A. (2020)	52	Technological Forecasting and Social Change
Designing the digital organization	Sani K.F.; Adisa T.A.; Adekoya O.D.; Oruh E.S. (2017)	51	Journal of Organization Design
Controlling space, controlling labour? Contested space in food delivery gig work	Heiland H. (2021)	49	New Technology, Work and Employment

Overlay Visualization Analysis

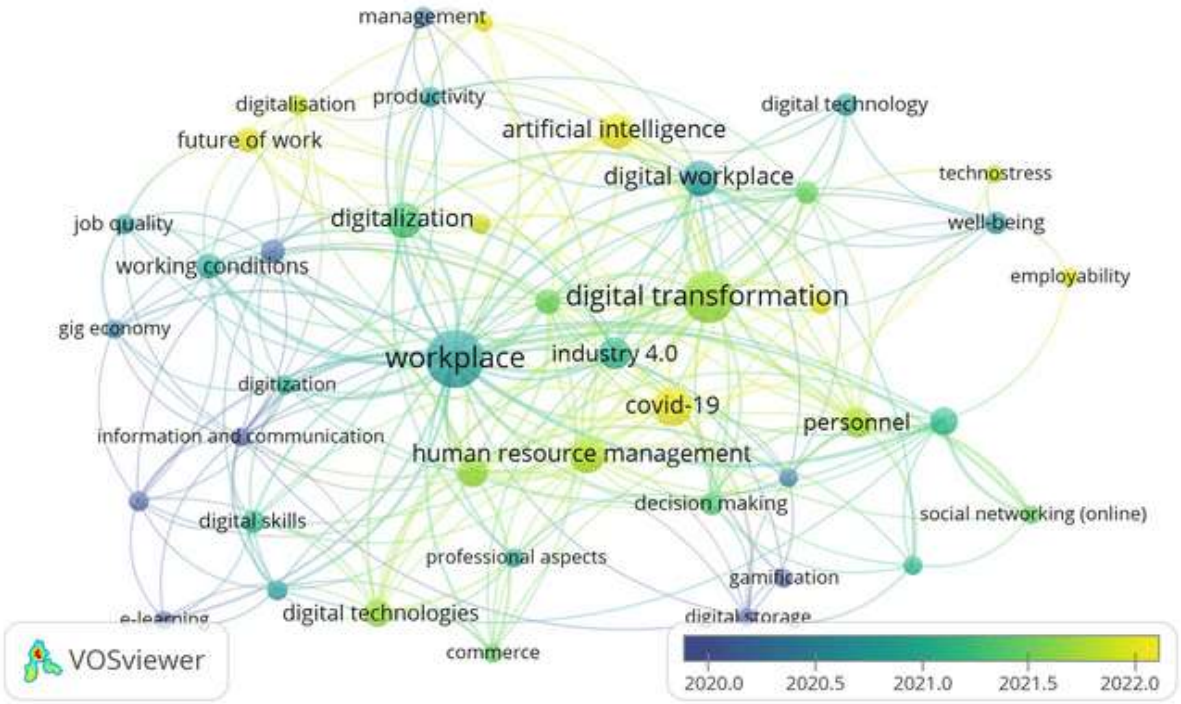

Fig. 5: Temporal Overlay on Keyword Co-occurrence Map

In an overlay visualisation analysis, the keyword co-occurrence map was generated in VOSviewer, as shown in Figure 5. These keywords were generated by comprising each cluster, which represents different colours, also referred to as themes used in the literature. The size of each node in this analysis refers to the frequency of occurrence, and the proximity of nodes is determined by trends in co-occurrence, while the clustering of nodes by colour is based on patterns of co-occurrence among various keywords in the review articles.

The temporal overlay connects keywords to the publication date. Analysis of temporal overlays identifies the period during which a given topic was most frequently discussed. The temporal keyword co-occurrence map suggests that the current literature is focused on "workplace," "digital transformation," and "artificial intelligence." The keyword also focused on "Covid-19" as the new norm of working occurred. Remarkably, the leading edge of this literature lies in exploring the "digital workplace" in the "digital transformation." The large number of yellow nodes on the middle side of the map clearly demonstrates this theme's supremacy.

In response to Research Question 5, based on the preceding findings, the most important study issue in this area is largely discussing digital transformation and artificial intelligence as a future working trend. Digital workplace transformation is a strategic management tool associated with digital transformation and a commitment to new methods of working that consider the labour market demand for artificial intelligence skills (Mićić et al. 2022). In addition, the results of this review shed light on the research gaps that are related to employee well-being, gig economy, and job quality. Rakovic, L., et al. (2022) stated that as remote work is an option, it improves employees' work-life balance, and such flexibility affects stress levels, job satisfaction, and overall well-being. Hence, future research might investigate the role of digital well-being programmes, which aim to enhance employees' mental and physical health within the context of the digital workplace. Future research may explore the impact of digitalization on the gig economy, as it has created new avenues for creating job opportunities. It should be emphasised that the analysis of gaps and trends for future research in general needs to be developed based on current publications.

Conclusion

The digital workplace represents a pivotal milestone in the evolution of work, offering organisations a powerful toolkit to navigate the challenges of the digital age. The integration of technology, culture, and strategy inside the workplace is not only a trend but a prerequisite for long-term success. The digital competencies of the workforce, as well as the ways in which technology is employed in the workplace, will continue to evolve and change. Research is required to study the consequences of the rising usage of technology by a digital workforce as well as to offer recommendations on how to employ technology to its fullest potential in support of organisational objectives. Organisations need to optimise their digital workplaces to successfully support this flexible work arrangement. Therefore, we encourage future research to extend their understanding of the digital workplace and its future implementations.

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