*Article*

# Hey Leaders, It's Time to Train the Workforce: Critical Skills in the Digital Workplace

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**Abstract:** Businesses are confronted with digital challenges and require skilled employees to work effectively in the digital workplace. Drawing on the theoretical background of digital workplace transformation and the conceptual learning framework, we conducted a qualitative study. With the help of a cross-case analysis of nine multinational corporations, we provide a skillset for leaders on how to train the workforce in the digital workplace. The insights showed that an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data analytic skills, and web development skills are critical in the digital workplace. These findings contribute to the literature by offering an exploratory understanding of essential skills for the digital workplace. Furthermore, we provide a theoretical foundation for future empirical investigations of cognitive and metacognitive, social-emotional, and practical skills. The study also offers practical implications for businesses and leaders on how to upskill the workforce and what kind of employees to recruit in the future workplace.

**Keywords:** skills; digital workplace; future workforce; leader; digital transformation; case study

## 1. Introduction

In recent years, digital transformation has affected a variety of business decisions, processes, and activities across organizations (Vial 2019). Digital transformation is a very present terminology as technologies redefine businesses (Böllmann et al. 2022). During these changing processes, firms are making use of technologies to effectively manage the future of work (Wessel et al. 2021). However, in addition to digital disruptions, the competitiveness in the labor market has also increased, and new demands from the younger generations are revolutionizing the landscape of the digital workplace (Attaran et al. 2019).

A digital workplace design is a commitment to new ways of working (Mićić et al. 2022). It also facilitates organizations to rethink their workforce development with the aim of succeeding in the future to handle interruptions in the workplace (Sykes 2011). More precisely, the nature of shifting skills and demands in the workplace are environmental, economic, and social challenges that need to be addressed (Martin 2018; Zimmer et al. 2020). Businesses and their leaders are confronted with digital challenges but lack employees with the essential skills to combat these barriers (Buvat et al. 2017). Employees are a critical resource in the digital economy (Araújo and Pestana 2017). Hence, organizations and employees need the understanding to adjust their skillset, as in the future, workplace abilities could be made redundant or even obsolete (Buvat et al. 2017; Merchel et al. 2021; Selimović et al. 2021). At the same time, new roles can arise (e.g., chief metaverse officer) (Buvat et al. 2017; Diaz and Halkias 2021; Kane et al. 2017). For example, artificial intelligence and people will work together in the future, and there must be a way for them to complement one another. Still, technologies might not replace jobs, so employees' skillsets must shift and adapt accordingly (Martin 2018). Thus, there is a need to reveal these critical skills for the digital workplace and explore what businesses are facing with.

The current literature is still limited to exploring how technologies change the organizational level, and individual behavior is only slightly developed (Colbert et al. 2016).

However, recent research has highlighted the potential of workplace design (Chatterjee et al. 2021; McDonald 2014) and the role of employees and workforce management when working with technologies (Wong et al. 2022). At the same time, organizations must meet the employee's interests to work in a hybrid setting, which might also require the acquisition of new skills by the employees to balance different workplace arrangements. Intending to broaden the scope of future work, the purpose of this research was to explore what skills are essential in the digital workplace. As this is leading to a gap in the current scholarly literature, we are answering the call for future research in the field of digital transformation initiatives (Tomičić Furjan et al. 2020). However, there is a lack of understanding regarding the relevant literature on how to train and adapt employees for the digital workplace. Digital workplace transformation is a challenging process, and human resource practices must be integrated and considered in the digital era (George and Bajbair 2021). As there is a lack of comprehensive understanding of critical skills, this study aimed to explore a set of abilities essential in the digital workplace by finding an answer to the following research question: What are the critical future skills of employees in the digital workplace?

Drawing on digital workplace transformation and the conceptual learning framework, we revealed nine essential skills to perform in the digital workplace effectively. Considering the constantly changing environment that organizations and employees are confronted with (Kane et al. 2021), there is an urgent need for guidelines for skill transformations and findings on how to ensure effective workforce management in the future. By exploring the skills of multinational corporations perceived as critical in the future workplace, this study contributed to practical implications for businesses on how to conquer the digital challenges of employee training. In addition to the managerial contribution, this paper also created a theoretical linkage by identifying a list of nine critical skills that could help future research to design the nature of employees' abilities. Finally, we increased the understanding of future skills in the digital workplace using insights from multinational corporations and different perspectives.

Accordingly, the paper is organized as follows. First, there is an overview of this study's theoretical background. Afterward, we explain the methodological approach of this research, and in the next section, the results are presented. Finally, we conclude with a discussion of the findings, contributions, and suggestions for further research.

## 2. Theoretical Background

This paper was theoretically framed within the concept of digital workplace transformation (Dery et al. 2017; Zimmer et al. 2020). The perspective argues that technologies enable workplace transformation, leading to changes and competitive pressure (Zimmer et al. 2020). To address the digital challenges, this study further built on the conceptual learning framework. This concept draws on the creation of skills to shape the future and achieve desired outcomes of success in the digital workplace (Martin 2018). To explore critical skills for the future workplace, we integrated the conceptual learning framework into the theory of digital workplace transformation.

### 2.1. Digital Workplace Transformation

Transforming traditional working environments into digital workplaces is a topic that has increasingly interested academics and practitioners (e.g., Dery et al. 2017; Meske 2019; Selimović et al. 2021; Zimmer et al. 2020). A digital workplace transformation is a strategic management tool related to digital transformation and a commitment to new ways of working (Baumgartner et al. 2021; Mićić et al. 2022). In the digital workplace, businesses are making use of technologies and tools to accomplish tasks in an efficient and effective way (Attaran et al. 2019). Therefore, the productivity and satisfaction of the workforce can be increased (Attaran et al. 2019). Further benefits from a digital workplace transformation can include increased access to digital talents and higher employee retention (Haddud and McAllen 2018). Additionally, digital workplaces enable communication and collaboration (Baumgartner et al. 2021; Colbert et al. 2016; Dery et al. 2017) and enhance

the exchange of data, information, and knowledge in a flexible way (Mićić et al. 2022). The digital workplace transformation also comprises the use of technologies; for instance, digital platforms (Colbert et al. 2016; Williams and Schubert 2018) and enterprise resource planning software (Rossi et al. 2020). However, technologies revolutionize the workforce, and organizations must respond by training the workforce and addressing the challenges.

To conclude, digital workplace transformation not only regards technological resources, but also contains a cultural change and a consideration of the employees (Attaran et al. 2019; Baumgartner et al. 2021). Hence, the field of digital workplace transformation brings a micro perspective into the framework of digital transformation (Meske 2019) and provides opportunities to redesign the workplace to operate effectively in the future of work (Selimović et al. 2021).

*2.2. Conceptual Learning Framework*

The conceptual learning framework explains how competencies (i.e., knowledge, skills, attitudes, and values) have a positive impact on shaping the future. It explains the need for a broad skill set to meet the demands in the future workplace and to create value (Martin 2018). In particular, conceptualization enabled this research to explore the critical skills for the digital workplace within the framework of cognitive and metacognitive, social-emotional, and practical skills (Martin 2018). Within this conceptualization, skills are the individual ability to carry out processes, and were previously described and distinguished into the following three categories. Moral and intellectual maturity is implied throughout these three dimensions of skills (Martin 2018).

First, cognitive skills ensure the ability to process language and numbers, and involve logical, intuitive, and creative thinking. They are divided into three categories: verbal, nonverbal, and higher-order skills (Martin 2018). The ability to learn how to learn and to recognize individual knowledge, skills, attitudes, and values are examples of metacognitive skills (Jaiswal et al. 2022). For example, digital technologies impact how individuals think and behave, but specific tasks also can be done by machines (Jaiswal et al. 2022). Yet, nonroutine and analytical tasks are strongly demanded, and skills must be built accordingly. Higher-order skills, for instance, include critical thinking and problem-solving in the workplace. Second, abilities that create thoughts, feelings, and behaviors that enable individuals to develop themselves, build relationships and act as a human in society are referred to as social-emotional skills (Chernyshenko et al. 2018). For instance, this means knowing how to express and understand thoughts and feelings, and being able to relate to others. These types of skills are defined as relationship management and social awareness, and facilitate socially appropriate behavior. Third, practical skills are the collection of abilities to apply specific tools, procedures, and functions (Martin 2018). With the help of these skills, individuals can make use of technologies, methods, and instruments to achieve specific goals (Lissitsa et al. 2017). Previous literature, for example, found a demand for artificial intelligence skills in the labor market (Alekseeva et al. 2021) or knowledge of how to work with robotics (Kane et al. 2017).

Finally, the theoretical background of this exploratory study implied that the future skills of employees are critical to respond to the transformation of the digital workplace.

**3. Methodology**

*3.1. Research Setting and Data Collection*

The goal of this research was to gain an understanding of the essential future skills that are expected from the digital workforce. While following an exploratory approach, we conducted an in-depth investigation of multiple cases, building on nine interviews with insights from multinational corporations. Following a grounded theory approach (Strauss and Corbin 1998), we performed nine semistructured interviews with a protocol that included open questions on: (1) the respondents' personal expertise, (2) experiences with digital transformation processes, and (3) critical employees' skills for the digital workplace. In addition, we asked for specific examples to explain the statements. The data collection of

the nine semistructured interviews took place with the respondents via Zoom in February and March 2020. A single researcher conducted the interviews, which lasted about 50 min on average. The interview languages were German and English, and the audio files were recorded and afterward automatically transcribed using AmberScript.

### 3.2. Sample Overview

We primarily targeted IT and business executives from large multinational corporations, as they are the most knowledgeable regarding the resources (e.g., technologies and human factors) allocated to digital transformation procedures (Benitez et al. 2022). On average, the respondents had about 20 years of experience in similar management functions. The industries of the represented cases were automotive, technology, machinery, beverages, e-commerce, manufacturing, and aerospace, with headquarters in the United States, Spain, Germany, and Japan. The broad insights from the cross-cases ensured a generalizable perspective. To grant confidentiality to the companies, the names were coded using the following abbreviations: SNACK, AUTO, OPER, TECHNO, ECOM, AERO, ENGINE, MANU, and MACHINE. Table 1 displays further sample characteristics.

**Table 1.** Sample characteristics.

| Company | Firm Size | Revenue [1] | Headquarters | Position |
|---------|-----------|-------------|--------------|----------|
| SNACK | 309.000 | 79.47 | United States | IT Director |
| AUTO | 155.000 | 127.000 | United States | CIO |
| OPER | 37.000 | 1.12 | United States | CIO |
| TECHNO | 24.500 | 1.19 | Spain | CEO |
| ECOM | 450 | 0.72 | Spain | CIO |
| AERO | 138.000 | 17.830 | Germany | CIO |
| ENGINE | 100.000 | 5.433 | Germany | IT Director |
| MANU | 35.500 | 32.15 | Germany | CIO |
| MACHINE | 6.600 | 2.418 | Japan | CIO |

[1] Revenue is stated in billions of US dollars for the fiscal year 2021.

### 3.3. Data Analysis

The exploratory nature of this study enabled an inductive way to conceptualize the findings within the conceptual learning framework. For the data analysis, we followed the methodology of grounded theory (Gioia et al. 2013; Strauss and Corbin 1998). As Gioia et al. (2013) stated, this approach has three successive steps (i.e., development of first-order codes, processing into second-order themes, and creating aggregated dimensions).

We initially analyzed the transcripts with the software MAXQDA to obtain a comprehensive understanding of the data. While we worked through the interviews, the findings were allocated toward situational code phrases. To orderly gather the key findings, we also checked for interrelations. This step resulted in 42 first-order codes. For example, the initial code for the statement "ability to focus on the personal strengths and goals and priorities in the workplace" was allocated in the first-order code "self-management". Next, we interpreted the data and grouped the codes into second-order themes to describe the phenomenon on a theoretical level. We gathered the descriptive first-order statements to obtain a higher level of abstraction and discover the first concepts. For instance, we gathered several codes related to personal development skills (e.g., passion for learning, intrinsic motivation, fast learning, knowledge management, and self-management) and clustered them into one second-order theme. Thus, we created nine second-order themes.

In the last step, we evaluated the second-order themes with the help of the conceptual learning framework and allocated them into the aggregated dimensions. Within this coding paradigm, we iterated the findings and combined them with the theory from the conceptual learning framework. For instance, (1) entrepreneurial mindset, (2) digital responsible thinking, and (3) digital literacy were grouped into cognitive and metacognitive skills; (4) transformative skills, (5) communication skills, and (6) personal development skills were

allocated to social-emotional skills; and lastly, (7) community management skills, (8) web developments skills, and (9) data analytic skills were summarized as practical skills in the digital workplace. As previously described, we finally interpreted the results from the cross-case exploration based on the three dimensions of the conceptual learning framework. Figure 1 shows a visual representation of the coding scheme.
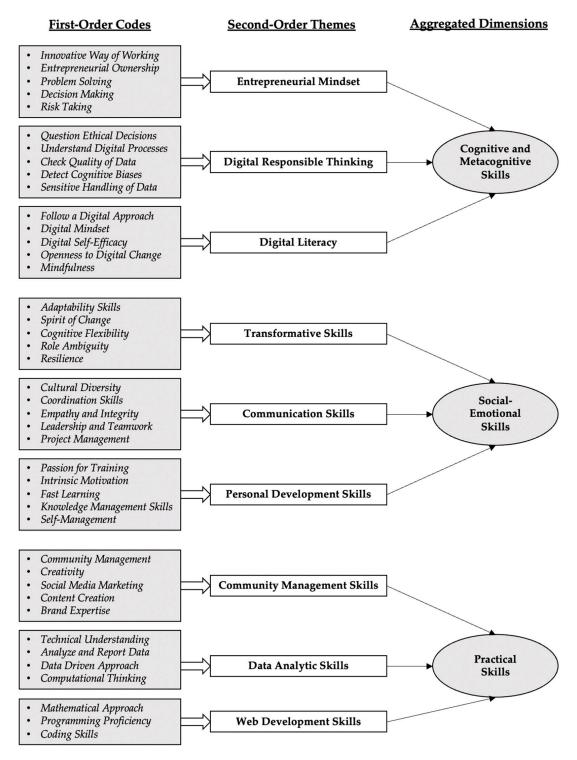


**Figure 1.** Overview of the coding scheme.

## 4. Results

The findings of the interviews showed the necessity of nine critical skills in the digital workplace. First, the results evidenced the relevance of an entrepreneurial mindset, digital responsible thinking, and digital literacy. Second, the findings suggested that transformative skills, communication skills, and personal development skills are critical to respond to the digital workplace's needs. Third, the respondents pointed out the necessity of community management skills, data analytic skills, and web development skills. In the following, the results are described according to the dimensions of the conceptual learning framework.

### 4.1. Cognitive and Metacognitive Skills

#### 4.1.1. Entrepreneurial Mindset

The results showed that employees in the cases should know how to take risks when working with digital innovations toward organizational goals. For instance, AUTO described that organizations "need a group of people that don't fear to make mistakes. They have to be open-minded and challenge themselves in a smart way where they feel intrinsically motivated". This is also related to an innovative way of working, as AERO mentioned. The results pointed out that employees have to be able "to not only think about the past but more the future". This was supported by an example by AUTO, in which "employees have to believe in the departments, absorb information, filter everything, think about it, and create new ideas". ENGINE also described the need for entrepreneurial ownership when creating new value: "We will never be a start-up, and we will never get the same mentality. But we need employees that have these entrepreneurial thoughts, that are not scared to ask something, that is giving us the mix between start-up and multinational company". Overall, the interviewees AUTO, AERO, and ENGINE described that employees must be able to make critical decisions and solve problems with an entrepreneurial mindset.

#### 4.1.2. Digital Responsible Thinking

The interviewees SNACK and ENGINE described the importance of digital responsible thinking in the digital workplace. Employees must question the ethical decisions of organizations, the environment, and society related to technologies. This includes understanding digital processes, checking the quality of data, and detecting potential problems that could harm any parties (SNACK). Employees must consider data ethics, which means understanding norms and codes of conduct related to data management. For example, employees must have the ability to "detect potential biases from artificial intelligence or machine learning" (ENGINE). In the future, digital workplace employees must detect cognitive biases and identify a "lack of complete data". Further, digital responsible thinking refers to the sensitive handling of data (ENGINE). In addition to work with data, employees will also need to explore how humans and machines can responsibly work together.

#### 4.1.3. Digital Literacy

The respondents also revealed the importance of digital literacy. Given the examples, this means to "follow a digital approach" when implementing work tasks (AERO). This was also supported by introducing the term "digital mindset". Specifically, the belief that digital technologies improve all working-related processes effectively is critical to understanding operating in the digital era (ECOM). In addition, the findings showed that organizations expect the "ability to work with technology" (OPER). This implies a high level of digital self-efficacy, which is the employees' belief in being able to successfully complete work tasks with digital technologies. As the workplace changes, the companies stated that they are going through digital transformations. Thus, employees must be open to digital change and navigate an uncertain environment (MANU). Above all, for the firms, it was critical that employees engage in mindful use of technology, finding the right balance, for example, when working in a remote setting. They must be able to take breaks and set limits and boundaries in technology use to avoid addiction and over-use (MACHINE).

### 4.2. *Social-Emotional Skills*

### 4.2.1. Transformative Skills

As employees are confronted with a continuously changing digital environment, the interviews revealed that organizations expect transformative skills in the future workplace. In particular, the respondents showed that employees must possess adaptability skills to remain successful in their jobs. MACHINE stated, "Due to my background, I have a lot of contact with banks and the people that make decisions. They knew nothing about technology in the past. And now those same profiles either are getting trained, so they get knowledge on technology and know the possibilities that technology is giving them as an additional benefit to their jobs. Or they are getting substituted by people who have more experience with technology. I think that understanding technology and knowing the possibilities that technology can bring you to the job is key". This proves the need for a "spirit of change" (TECHNO). Moreover, employees must contribute to a dynamic working culture with cognitive flexibility. This describes the ability to actively change individual perceptions, such as what employees think about. Furthermore, as part of transformative skills, we found that role ambiguity will be critical in the future workplace. Employees must be capable of fulfilling different responsibilities, work at the interface of adjacent positions, and "understand that their role has a wider view and not just one function" (OPER). For example, AUTO stated that "robotics and artificial intelligence can also be relevant for a lawyer or an architect, so people have to be continually open to transform themself". Finally, employees must also show resilience (TECHNO), which can be proven by their ability to overcome barriers and disappointments, because digital businesses and ideas can fail, and employees must confidently cope with this.

### 4.2.2. Communication Skills

Above all, employees must communicate and collaborate with colleagues, different departments, other branches, industry partners, suppliers, and research institutions (ECOM). This also includes awareness about "cultural diversity" and the inclusion of all employees in the workplace (ECOM). Related to that, empathy and integrity are not only expected among employees, but also among customers. As AERO states, "selling products or services is still a business from people for people, with an emotional component, and you cannot digitalize this". Therefore, emotional intelligence will be an important skill in the future because technologies cannot do this (AERO). Additionally, leadership and teamwork skills will be critical to managing the workforce with clear and active talking, listening, and delegating to meet the employer's expectations. Finally, project management skills and agile coordination will be essential to respond to the latter (MANU).

### 4.2.3. Personal Development Skills

The findings led to personal development skills as the final social-emotional skill. Specifically, the respondents addressed the willingness to learn from employees (SNACK). They should be intrinsically motivated, quick, passionate about learning, and empowered to challenge themselves (MANU). In addition, by having social-emotional skills, "employees can be more aware and understand the environment, which enables them to acquire the practical skills necessary to be successful" (OPER). This also implies that employees train themselves and gain critical knowledge to effectively perform their job and "know the industry" (MANU). This also leads to general "knowledge management skills", which can be seen as the ability to find and apply information in new contexts (SNACK). Finally, as part of personal development skills, the respondent TECHNO highlighted the relevance of self-management, which is described as a "focus on the personal strengths and goals and priorities in the workplace".

### *4.3. Practical Skills*

### 4.3.1. Community Management Skills

In addition to having cognitive, metacognitive, and social-emotional skills, the findings revealed practical skills that will be relevant in the future digital workplace. First, the respondents mentioned the relevance of community management skills. Firms expect their employees to be creative and to have knowledge about social media marketing. Moreover, the use of social media has become more relevant for firms as a marketing tool. Employees might also act as corporate influencers, and should consider how to represent the firm online (ECOM). This can either be internal (e.g., on the intranet) to advocate for existing employees or external platforms such as LinkedIn, which address potential employees or customers (ENGINE). Having knowledge and skills for social media and digital platforms is also aligned with the ability to create digital content. The latter can include being a brand expert on the one hand and text content creation on the other hand, a "set of editing skills, compared with SEO skills and content promotion" (ECOM).

### 4.3.2. Data Analytic Skills

Second, the respondents highlighted that data analytic skills will be critical for employees in the future workplace. For example, this means that employees will need to have the technical understanding to analyze and report data (OPER). ENGINE pinpointed these analytical skills as the central focus. Additionally, "visualizations for colleagues" and data cleaning will be critical, so that everyone has the same understanding of how to work with the data (SNACK). A "data-driven approach from the employee" can thereby strengthen their understanding to make use of data and understand customer demands (OPER).

### 4.3.3. Web Development Skills

Finally, the interviews with SNACK and ENGINE also revealed that possessing web development skills will also be a vital ability in the future workforce. Employees must be able to conduct their work with a logical approach in terms of technical and mathematical matters (SNACK). This is related to proficiency with programming languages and coding skills in "usual languages such as Java or Phyton", as the findings showed (ENGINE).

## 5. Discussion

### *5.1. Summary of the Main Findings*

The present paper took stock of current knowledge on skills that are crucial in the digital workplace and found an answer to the research question regarding the essential skills of employees in the future. The exploratory study identified nine critical skills in the three categories: (1) cognitive and metacognitive, (2) social-emotional, and (3) practical skills. In relation to the skill map displayed in Figure 2, we will explain the key insights of the cases in the following. Thereby, we joined the skills based on their occurrence in the interviews.

First, the highest importance was exposed for digital literacy (five cases), transformative skills (five cases), and personal development skills (four cases). Digital literacy means that employees are open to digital change, have a digital mindset, and work with a digital approach, but still in a mindful way (Reddy et al. 2020). Moreover, transformative skills; that is, employees being adaptable, having the cognitive flexibility to see different roles within the organization, and possessing resilience, were found to be critical in the digital workplace. Furthermore, the insights showed that personal development skills with an intrinsic motivation to learn, self-develop, and self-management can be beneficial.

The second-highest relevance to finding the way in the digital workplace was highlighted as an entrepreneurial mindset (three cases), communication skills (three cases), and data analytic skills (three cases). Employees with an entrepreneurial mindset are open to risks and innovation, and are able to solve problems and make decisions (Daspit et al. 2021). Next, the results showed that communication and collaboration skills are critical in the digital workplace, which means involvement with other employees or external stakehold-

ers in terms of teamwork and empathy, coordination skills, and the emotional intelligence to work with culturally diverse teams (van Laar et al. 2020). Further, employees must have data analytic skills, become familiar with different analysis methods, and hence gain the know-how to work with data (e.g., in the same manner as a beginning data scientist) (Mikalef et al. 2018).

Finally, the results showed the newly emerging importance of digital responsible thinking (two cases), community management skills (two cases), and web development skills (two cases) in the digital workplace. Employees in the future workplace must be able to think in a digitally responsible manner (Mueller 2022) so that they operate with data and digital technologies while consciously keeping ethical aspects in mind. In addition, community management skills are critical and include abilities such as content creation, social media activities, and being creative with new forms of communication. Finally, we identified web development skills as a critical variable in the future workplace, which presumes that employees have the ability to code and work with programming tools (Vuorikari et al. 2016).
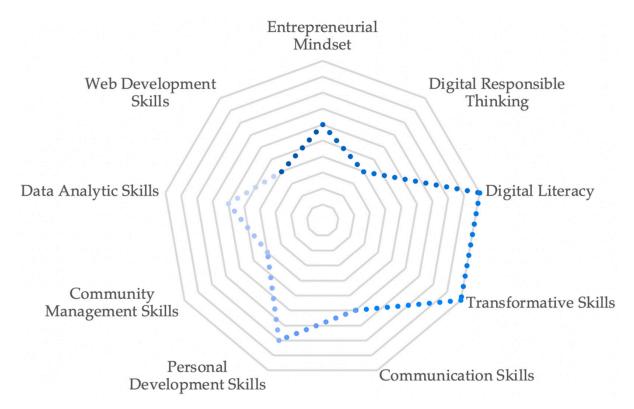


**Figure 2.** Skill map.[1]

### 5.2. Theoretical Contribution

This study had several implications for research and led to theoretical contributions. The findings provided insights into the critical skills needed in the digital workplace and revealed the relevance of developments expected from the employees. The results of this study were differentiated from previous results by highlighting the importance of cognitive, metacognitive, and social-emotional skills while still considering the urgency of practical skills in the digital environment. In the following, we explain the contributions of this exploratory study. Moreover, the findings are one initial paper highlighting the relevance of these essential skills to balance remote and in-office workplace arrangements (i.e., hybrid).

The results suggested that an entrepreneurial mindset, digital responsible thinking, and digital literacy will be critical in the future workplace as cognitive and metacognitive skills. This finding was aligned with previous research in the past that emphasized the importance of digital literacy in the future workplace (Kozanoglu and Abedin 2020). More-

over, the found importance of risk affinity in the digital workplace that was discovered previously (Tuukkanen et al. 2022) was supported in our study. The findings also found academic support in the workplace context, as the previous literature showed that information literacy enhanced innovation (Ahmad et al. 2020). We further found that transformative skills, personal development skills, and communication skills are crucial in the digital era, and thus were grouped as social-emotional skills. This can advance previous explanations by Kane et al. (2017) in highlighting the relevance of intrinsic self-management of the employees. Related to that, a recent work found that skills management is crucial for social well-being (Araújo and Pestana 2017). The results showed that communication skills are critical to navigating the digital workplace. A previous work found that communication issues can occur between IS professionals and IS users (Wang et al. 2005), and that such a communication gap must be covered. Thus, collaboration, but also interruptions, will be critical in the future workplace (Sykes 2011; Tuukkanen et al. 2022).

The final and most substantial theoretical contribution was the identification of three practical skills that are essential in the digital workplace. The findings revealed community management, data analytic skills, and web development skills as critical. Few examples in the academic literature focused on these skills, primarily due to the value of data in the digital workplace being crucial to achieving business success. In addition, the emphasis on social media marketing skills was aligned with earlier findings regarding marketing skills (Di Gregorio et al. 2019). Overall, our results had several similarities to the digital competence framework that covers information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Vuorikari et al. 2016), as well as to the competency model for the information technology workforce (Ho and Frampton 2010). Still, we extended these findings with the cluster within the conceptual learning framework.

*5.3. Implications for Practice*

The results of the interviews and the following case study analysis also facilitated a set of practical implications for businesses. These managerial suggestions can guide firms in searching for highly skilled employees and, at the same time, act as a direction on how to train the existing workforce accordingly. They can also be seen as advice to learn what leaders expect in the future workplace in the areas of cognitive and metacognitive, social-emotional, and practical skills. The finding that organizations will expect specific skills in the future also engaged the discussion of a transparent system of career advancement aligned with the goal of digital transformation success. In the following, we describe the implications for practice for businesses and leaders on how to develop the workforce by identifying the current skills, the gap, and training and development.

First, we recommend that firms seek employees with an entrepreneurial mindset that think and act digitally responsible and are open to digital change (i.e., digital literacy). For the social-emotional skill base, employees should be flexible in this changing environment (i.e., transformative skills). They must possess personal development skills and an intrinsic passion for self-management, and must be able to communicate and collaborate with other colleagues and partners. Finally, organizations should look for employees that are aware of practical skills. Searching for employees with community management and social media marketing skills, the ability to work with data (i.e., data analytic skills), and programming and coding skills (i.e., web development skills) is also relevant. This set of skills contributes to a digital workplace transformation by enabling employees to flexibly react to changing resources by adjusting their work tasks and coordinating with others.

Second, in order to manage the skills in the digital workplace, it is recommended that companies analyze the current status quo of skills and make it transparent between departments (Marler and Boudreau 2017). This can be done by auditing the available resources of the employees (e.g., HR analytics). Recording the existing conditions is a foundation for further improvements, and these insights can be used to re- or upskill the

employees toward a digital workplace (Marler and Boudreau 2017). In sum, the recent implication can help businesses assess their current resources transparently.

Third, organizations might identify the workforce's current gaps in future skills. To embrace the demands of a digital workplace, the employees must be ready to discover potential for training and development. For example, the results can be compared to the skill map provided in this paper (Figure 2). Finally, after identifying the skill gaps that the workforce shows, firms must enable a continuous learning environment in which employees can develop themselves and have opportunities to grow.

Overall, it is recommended that organizations enable skill transformation as part of a digital workplace transformation. If employees do not own an entrepreneurial mindset, they can be trained by spending time with entrepreneurs, practicing to break the rules, and exchanging with the start-up ecosystem to understand the spirit. Organizations can also teach employees how to analyze situations, evaluate, and reflect on ethical decisions to gain digital responsible thinking. With the aim of persuading digital literacy, leaders should provide an authentic example by being a role model and guiding learning on the job. Transformative skills can be encouraged by trying new roles and training on the job. Thereby, employees will change their perspectives and gain new knowledge that helps them to be cognitively flexible. Organizations should encourage and practice active listening and speaking guidelines to train communication skills for conversation and negotiation situations. Regular workshops on the organizational culture (e.g., diversity and inclusion) can also increase the understanding and ability to collaborate. To facilitate striving for personal development, organizations can inform employees about options on how to educate themselves (e.g., digital platforms). Lastly, for practical skills, organizations and leaders can teach and train their employees for the skills in workshops and training programs.

*5.4. Limitations and Future Research*

This study also had some limitations that offer avenues for future research. We examined multinational corporations that had efficient resources to manage a digital workplace transformation in training their employees accordingly. However, it would also be interesting to check the critical abilities of small enterprises. We had the chance to conduct the interviews at the beginning of the pandemic. By now, some skills might have changed, as digital transformation progressed very quickly. Future research could also include the recent metaverse thematic and investigate if and to what extent the skills in the digital workplace changed if the business operates in the metaverse. Moreover, as we followed an exploratory qualitative approach, further quantitative studies could be conducted to confirm the findings empirically. As a recent study introduced a measure for workplace information literacy (Ahmad et al. 2020), additional connecting points can be developed and found. Additionally, future research on essential skills in the digital workplace might focus on the different importance of cognitive, metacognitive, and social-emotional versus practical skills. Finally, although care was taken during the data analysis, the work was done by one single researcher. We encourage further research to explore the thematic to confirm the findings of this study.

**6. Conclusions**

To conclude, this exploratory study identified nine critical skills of employees for the digital workplace. The findings had a significant relevance due to the technological progress that accelerated transformational processes, with a particular lens on multinational corporations. Hence, the paper carries substantial practical value and business relevance, as it dealt with a problem related to digital transformation, and can bring enormous benefits for rapid advancement in the digital era. We highlighted that organizations should monitor the abilities of their employees and offer opportunities for individuals to develop their skills. We finally answered the research question by providing a skillset consisting of an entrepreneurial mindset, digital responsible thinking, digital literacy, transformative skills, personal development skills, communication skills, community management skills, data

analytic skills, and web development skills. Based on that, this study derived theoretical and practical implications, and offered a diversity of ideas to address future research on this relevant topic.

## Note

[1]    We thank the reviewers for the recommendation to add a skill map to the manuscript.

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