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ORGANISATIONAL SUPPORT TO DEVELOP KNOWLEDGE WORKER COMPETENCIES

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Purpose: There is a significant gap in understanding how organisations can effectively support the development of competencies that are crucial for effective knowledge work.
Design/methodology/approach: The research used a survey method to gather quantitative data on organisational strategies, initiatives and tools to support the effective knowledge work. Statistica, Microsoft Excel, and Forms were used as tools for data collection and analysis. It also served as the primary software for conducting the statistical analyses. A total of 183 knowledge workers were surveyed, representing the Service and IT sectors, Silicon Mountain, located in Buea, in the South-West Region of Cameroon.
Findings: The findings reveal a clear preference for interactive, experiential, and personalised learning approaches, with mentorship, coaching, professional seminars, and on-the-job training emerging as the most frequently utilised strategies. These methods, which together account for over 60% of responses, underscore the critical role of applied learning and interpersonal guidance in fostering professional growth. The organisational support extends beyond formal training to include motivational and financial support, as well as opportunities for continuous and digital learning. This suggests a holistic approach to competency development that aligns with contemporary theoretical frameworks, such as situated learning theory and absorptive capacity.
Research limitations/implications: The relatively small sample size and the geographic concentration on Silicon Mountain may limit the generalisability of the findings to other regions or industries.
Practical implications: The study provides a nuanced understanding of the activities necessary for effective performance in knowledge-intensive roles.
Social implications: The study has highlighted the transformative impact of digital transformation on the nature of work, underscoring the critical importance of intellectual capital and the integration of advanced technologies.
Originality/value: This study provides valuable insights into organisational support to develop knowledge worker competencies in the context of digital transformation. It is addressed to top managers and HR specialists.
Keywords: expanded learning space, knowledge workers, competencies development.
Category of the paper: Research paper.

1. Introduction

Many studies show that we live in the age of digital transformation. Digital transformation refers to the comprehensive integration of digital technologies into all aspects of business operations, fundamentally altering how organisations operate and deliver value (Brynjolfsson, McAfee, 2014). This transformation involves adopting digital tools and platforms, automating processes, and leveraging data analytics and artificial intelligence for strategic decision-making (Evangelista et al., 2014; Rainnie, Dean, 2020; Tapscott, 1996). The goal is to improve efficiency, enhance customer experiences, and foster innovation. The traditional organisational structures are giving way to dynamic, networked entities that seamlessly integrate with the external environment, fostering fluidity and adaptability (Ruostela et al., 2015; Schreurs et al., 2019). The development of new business models and the integration of the external environment into organisational structures are essential for success.

According to Hernandez-de-Menendez et al. (2020), the waves of emerging technologies are changing the labour market, especially in the competencies and abilities an individual must possess to meet the new environment's demands. The skills and competencies that were once valuable are becoming obsolete, thereby necessitating a continuous process of learning and adaptation for knowledge workers (Bughin et al., 2018; Davenport, 2011a; Illanes et al., 2018a). The competencies needed in this new landscape extend beyond traditional technical skills to include transversal competencies such as problem-solving, critical thinking, and collaboration (Hernandez-de-Menendez et al., 2020). The emphasis on continuous learning and adaptability becomes so crucial, as employees must continuously update their knowledge and skills to remain effective in the face of rapid technological change (Eisler, 2015; Reese, 2021). The development of these competencies is not solely dependent on formal education; individuals can also acquire them through experience, on-the-job, and informal learning (Faller et al., 2022a; Kittel et al., 2021).

However, while much has been written on knowledge workers competencies necessary to effectively perform their tasks, a significant gap remains in understanding how the organisations can support them in developing competences to thrive in this evolving landscape.

The main goal of this paper is to explore how organisations can effectively support the development of competencies that are crucial for effective knowledge work in service and IT-sector.

The knowledge workers survey included 183 knowledge professionals from Silicon Mountain, Cameroon. By capturing first-hand perspectives on strategies, methods and tools implemented by organisations to support knowledge work, this survey method ensures that the findings reflect the lived realities and context-specific demands faced by knowledge workers within Silicon Mountain. Many studies show (Cacciattolo, 2015) that although the nature of knowledge work may vary across industries, the competencies that support knowledge work

are the same or very similar. Hence, we believe that the obtained results can be generalised to most knowledge workers.

This paper is structured as follows: After the introduction, we discuss the theoretic foundation of knowledge work and knowledge workers in the context of the progressing digitalisation. Then, we analyse the organisational factors influencing knowledge worker performance emphasising the expansion of traditional learning space as a result of the emergence of advanced communication and collaboration tools, as well as the rise of social networks. We then present the applied research methodology and the research results. This provides a platform to interpret and discuss the research results before indicating the limitations of our study and making suggestions for further research.

2. The Knowledge Work and Knowledge Workers in the Digital Age

Today, knowledge is not merely considered a collection of facts or information but a dynamic and strategic resource that underpins innovation, decision-making, and competitive advantage. According to Hernandez-de-Menendez et al. (2020), integrating emerging technologies has further amplified the importance of knowledge in organisations. Knowledge becomes a crucial factor in adapting to the rapid changes and complexities of the digital age. The concept of knowledge in modern organisations is thus diverse, encompassing both explicit knowledge (codified information) and tacit knowledge (personal experience and expertise) (Nonaka, Konno, 1998; Zhang et al., 2013). It is not confined to individuals but embedded within organisational processes, routines, and social interactions. Engeström and Sannino (2020) posit that "Knowledge is to be understood in its constant development and transformations, making learning a central aspect of work. This highlights the dynamic nature of knowledge and the need for continuous learning and adaptation to remain competitive in the knowledge economy".

Knowledge work and traditional work represent distinct approaches to work organisation design, each with its own set of competencies, tools, and work environments (see table 1). Knowledge work is defined by tasks that primarily involve cognitive processes, such as analysis, synthesis, and problem-solving, which require specialised knowledge, creativity, and critical thinking. Unlike traditional work, knowledge work is characterised by its non-routine nature, requiring continuous learning and adaptation. It is often project-based, with outcomes focused on innovation and the generation of innovative ideas or solutions (Davenport, 2008).

Knowledge workers are the driving force behind the knowledge economy, utilising and creating knowledge to propel innovation and growth (Jayasingam, Yong, 2013). They are characterised by their cognitive abilities, problem-solving skills, and adaptability to

technological advancements (Mele et al., 2023; van Laar et al., 2020). The OECD (2001) defines knowledge workers as those "employed in occupations considered to be white-collar, high-skilled and perform a set of tasks that revolve around creating and processing information". However, this definition extends beyond formal qualifications, acknowledging that knowledge workers can acquire the necessary skills through experience, training, or informal learning.

Table 1.
Fundamental differences between Knowledge work and Traditional Work

Feature	Knowledge Work	Traditional Work
Nature of Tasks	Knowledge work involves abstract, cognitive tasks requiring creativity and judgment	Whereas traditional work involves more concrete, repetitive tasks
Skills and Expertise	Deep and Specialized knowledge, skills, and expertise, often with diffuse peripheral focus	Physical skills and manual dexterity. Skills set narrow
Tools and Technology	Heavy reliance on technology tools and digital resources	Specialized tools and equipment
Work Environment	Flexible settings, collaborative workspaces	Factories, workshops, industrial settings
Creativity and Innovation	Emphasizes creativity and innovation	May have opportunities for creativity within specific roles
Problem-Solving and Decision-Making	Responsible for identifying and solving complex problems	Handles routine problems and follows established procedures
Education and Training	Higher levels of education and training often require specialised degrees or certifications	Vocational training or on-the-job experience
Skill Requirements	Knowledge workers typically require higher levels of education and continuous skill development in specialised areas	Traditional roles might require specific technical skills but not necessarily at the level of formal higher education
Outcome Measurement:	Measuring the outcomes of knowledge work can be challenging due to its intangible outputs, such as ideas, innovations, and decisions	Traditional work, however, often has tangible outputs that can be more easily quantified
Work Environment	Knowledge workers often benefit from flexible work arrangements, including remote work, due to the cerebral nature of their tasks	Traditional workers might operate in more structured environments, such as factories or offices, with fixed schedules

Source: own elaboration.

In the context of digital economy, Hernandez-de-Menendez et al. (2020) highlight the need for knowledge workers to possess diverse competencies, including technical skills, data analysis capabilities, and soft skills such as communication and collaboration. These workers are expected to be "active learners, be flexible, and be trained in digital emerging technologies". The authors further highlight that the key competency for knowledge workers is the "ability to apply the knowledge that adds value collaboratively in various disciplinary

domains". It supports the view by (Pyrko et al., 2019), thus depicting the importance of interdisciplinary collaboration and the ability to integrate knowledge from different fields to solve complex problems.

The characteristics of knowledge workers themselves are also evolving. While formal education remains very crucial, the study by OECD (2001) notes that "skills and competencies acquired through means other than formal education can be important". This suggests that knowledge workers are not solely defined by their academic credentials but also by their ability to acquire and apply knowledge through experience, training, and informal learning (Surawski, 2019).

In essence, knowledge work and knowledge workers are characterised by their adaptability, continuous learning, and ability to leverage knowledge for innovation and problem-solving. They are not confined to traditional boundaries of expertise but are increasingly expected to collaborate across disciplines and leverage technology to create value in the knowledge economy (De Sordi et al., 2021a; Dewhurst et al., 2013). As the nature of work continues to evolve, the characteristics of knowledge work and knowledge workers will likely continue to adapt, requiring ongoing learning and development to remain competitive in the ever-changing landscape of the digital age.

3. Organisational Factors Influencing Knowledge Workers Performance

Studies show that organisational factors significantly shape knowledge worker performance (Do et al., 2022; Lau et al., 2018). There are three groups of organisational factors that have the strongest impact on knowledge worker performance:

- Supportive Infrastructure.
- Learning environment.
- Innovative culture, leadership styles and the availability of educational resources.

Access to advanced technological resources, cooperative platforms, and ongoing educational prospects not only improves individual capabilities or competencies but also fosters an environment conducive to extensive learning. In this environment, knowledge workers collectively broaden their perspectives and collaboratively generate new knowledge and practices (Engeström, 2001). Creating a supportive infrastructure is of utmost importance. This involves granting individuals the ability to utilise cutting-edge technologies, work together on shared platforms, and engage in ongoing learning opportunities.

Modern professionals seek a more engaging, intuitive, and dynamic learning experience that reflects and incorporates more interactive features, such as videos, games, podcasts, and augmented and virtual reality (Tratar, 2022). They want to quickly identify what they need and use on the job. Corporations, on the other hand, face the challenge of personalising their

employees' learning experiences, even though they might be meeting customer expectations. The number and variety of workplace scenarios are driving the demand for and use of digital platforms that bring learning to employees wherever they are so that they can receive the training they require and use that knowledge immediately on the job. Fayad (2022) shows how an organisation can leverage technology platforms such as TikTok to engage in learning. A recent Harvard research by Deslauriers et al. (2019) has revealed that learners learn when they are able to actively engage in the learning processes. These technologies platforms such as LinkedIn, Twitter, YouTube, etc. serve as the basis for such interactions. It allows learners to engage through a variety of interactive mediums, and learners can find ways to reach out to different communities, cooperation, and connectivity in person with computers, tablets, phones, and various degrees of internet connectivity (Reuell, 2019).

Due to technological advances the traditional learning landscape transforms into a new type of learning environment that is characterised by enhanced collaboration and productivity, i.e. expansive learning (Cantrell, Commisso, 2024). This expansive learning environment comprises three partly overlapping components:

- work teams,
- communities of practice,
- and networks.

Work teams operate within hierarchical, formal structures that emphasise single-loop learning. Learning is formalised, controlled, and focused on efficiency through mechanisms like corporate training and e-courses. Strong ties foster trust and facilitate tacit knowledge transfer (Nonaka, Takeuchi, 1995), supporting stability and uniformity in knowledge practices (Senge, 1990). The intermediate component (weak/strong ties,) shows examples of structures such as Communities of Practice (Pyrko et al., 2019) or knowledge communities (Korczynski, Wittel, 2020). These practices emerge, which blend weak and strong ties to foster collaborative learning and cross-functional engagement (Wenger et al., 2002). This setting enables knowledge workers to actively challenge existing frameworks and co-create knowledge. Knowledge workers here transition from passive learning to active participation, leveraging strong and weak ties for trust and continuity and weak ties for accessing new, diverse perspectives. The flexibility facilitates learning that is responsive to context, characterised by a balance of stable knowledge from strong ties and innovative insights from weak ties. Thus, this enables professionals to engage in problem-solving beyond conventional roles and fosters innovation within their practices. The final component depicts private and professional social networks as described above. Weak ties enable broad access to diverse knowledge sources, promoting exploratory learning (McGrath, 2017) essential for addressing novel challenges. This environment indicates complex adaptive systems, where learning emerges as individuals interact and adapt in fluid, self-organising networks. The weak ties prevalent in these settings are crucial for accessing diverse information sources and facilitating boundary-crossing activities that expand organisational knowledge (Powell et al., 2005).

It is essential to simultaneously cultivate a culture that consistently strives for improvement and innovation. By fostering a culture of experimentation, can lead to creating an effective, efficient, and interactive learning culture. This could involve creating a safe space for employees to try new thing (Martin, 2013). By encouraging experimentation, organisations can identify new opportunities and approaches that might not have been explored. An organisation's learning activities are heavily influenced by its organisational culture. Organisational culture has a significant impact on how knowledge is disseminated within an organisation (Oh, Han, 2018). Culture shapes organisational members' perceptions as to whether knowledge is useful, valuable, and valid within the organisation. It also serves as a bridge between individual or group knowledge and organisational knowledge. It shapes the context in which new information is processed, developed, institutionalised, and disseminated.

Promoting experimentation, sharing of knowledge, and exchange of ideas can enhance both individual and corporate performance (Kane et al., 2021). These factors include corporate culture, leadership styles, and the presence of resources and support systems (Nonaka, Takeuchi, 1995). An organisational culture that places a high importance on learning, creativity, and the exchange of knowledge has the potential to cultivate a workforce that is more productive and actively involved (Tsoukas, 2009). Likewise, a leadership style that offers support and enables individuals to make their own decisions can boost their drive and innovation (Edmondson, 1999). Furthermore, the availability of resources like as educational programs, guidance from mentors, and platforms for collaboration can have a substantial influence on the effectiveness of a knowledge worker. Organisational considerations are crucial in determining how effective knowledge workers are, especially in creating an atmosphere that promotes expansive learning and the development of successful communities of practice (Engeström, 2019; Wenger et al., 2002).

4. Research Methods

The objective of the empirical study was to explore how organisations can effectively support the development of competencies that are crucial for effective knowledge work.

The research used a survey method to gather quantitative data on organisational strategies, initiatives and tools to support the effective knowledge work. Statistica, Microsoft Excel, and Forms were used as tools for data collection and analysis. It also served as the primary software for conducting the statistical analyses.

A total of 183 knowledge workers were surveyed, representing the Service and IT sectors, Silicon Mountain, located in Buea, in the South-West Region of Cameroon. Silicon Mountain thrives on local developer communities. This location is the third largest with a growing number of startups in Cameroon. These vibrant groups actively promote computer science,

programming, and startup culture. This region is home to a dynamic community of knowledge workers, including tech startups, developers, designers, and business professionals.

The participants represented a diverse cross-section of demographics. Most of them were under the age of 34 years. Over half identify as male, and most hold bachelor's degrees. Their experience within knowledge work varies, with roughly half falling within the 0-2-year range and the remainder spread across longer durations. The majority work in IT-related fields like software development and consulting, followed by FinTech, e-commerce, and education. Notably, a more minor portion work in healthcare and logistics.

The respondents responded to the question: How can the organisation support the development of knowledge worker competencies that are crucial for the effective knowledge work?

4.1. Research Results

The research results are presented in table 2.

The top 5 organisational support methods, based on frequency, are:

- mentorship, coaching, motivation internship, tutorial (31 responses, 16.9%),
- professional seminars, workshop capacity building (29 responses, 15.8%),
- on the job training and taking on challenging tasks, collaborative projects, problem-solving challenges, or real-time simulations (28 responses, 15.3%),
- providing financial support, support from authorities, motivation, encouragements (17 responses, 9.3%),
- continuous learning, digital learning, research, creativity (14 responses, 7.6%).

Less frequent, but notable methods, are:

- access to research and information (3.8%),
- personal and professional development in soft skills (3.8%),
- technological advancements and material resources (3.8%),
- networking opportunities (2.7%),
- access to fast internet connection (2.7%).

The data on organisational support for developing knowledge worker competencies reveals a strong emphasis on practical, interactive, and personalised learning methods. The most common support strategies include mentorship and coaching (16.9%), professional seminars and workshops (15.8%), and on-the-job training with challenging tasks (15.3%). These methods, which account for over 60% of the responses, indicate that organisations prioritise hands-on experiences and real-world applications of skills alongside guidance from experienced professionals.

Table 2.
Organisational Support to develop Knowledge Worker Competencies

Variable	F	RF	%	CF
On the Job training and taking on challenging task, collaborative projects, problem-solving challenges, or real-time simulations	28	0.153	15.3	15.3
Providing financial support, Support from authorities, Motivation, Encouragements	17	0.093	9.3	24.6
Professional seminars, workshop Capacity building	29	0.158	15.8	40.4
Online training, More hands on training	9	0.049	4.9	45.3
Mentorship, Coaching, Motivation internship, Tutorial	31	0.169	16.9	62.2
Access to the latest research and information in my field (journals, newsletters, or conferences)	7	0.038	3.8	66
Continuous learning, Digital learning, Research, Creativity	14	0.076	7.6	73.6
Access to fast unlimited internet connection	5	0.027	2.7	76.3
Follow up and corrective actions, partnerships, exposure	9	0.049	4.9	81.2
Personal and Professional Development (communication skills, leadership abilities, critical thinking)	7	0.038	3.8	85
Availability of unrestricted practical tools and samples from past experiences	8	0.043	4.3	89.3
Networking opportunities, collaborations	5	0.027	2.7	92
Technological advancement and improvements, Material resources	7	0.038	3.8	95.8
Communication, Organisational awareness, Career Advancement and Goal Setting, innovation	7	0.038	3.8	100

F (Frequency), RF (Relative Frequency), %, and CF (Cumulative Frequency). The total number of responses is 183.

Source: own elaboration.

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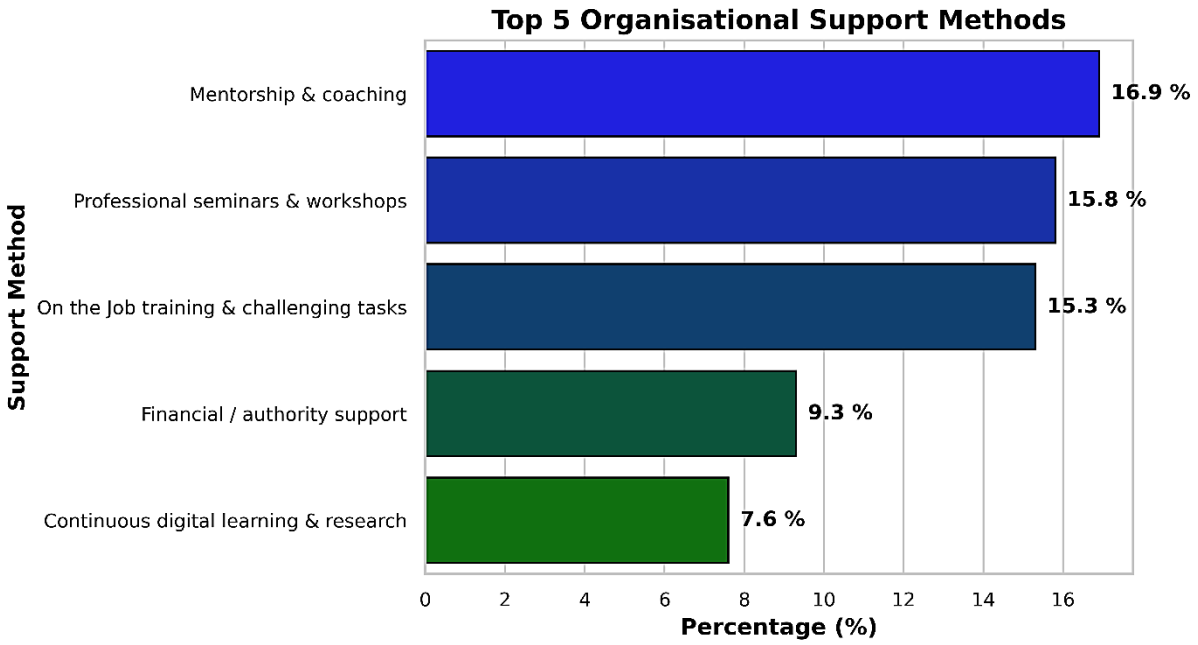
Financial support and motivational encouragement, accounting for 9.3% of responses, also play a significant role, reflecting the importance of both material resources and motivational factors in competency development. Continuous learning, digital learning, and creativity are emphasised at 7.6%, suggesting that organisations are adapting to the evolving nature of work and technology. This holistic approach combines various strategies to address different aspects of professional growth, aiming to create a well-rounded and adaptable knowledge workforce.

Below is a bar plot showing the top 5 organisational support methods for developing knowledge worker competencies:



X-axis: Percentage of total responses.
Y-axis: Organisational support methods.

Figure 1. The top 5 organisational support methods for developing knowledge worker competencies.

Source: own elaboration.

The cumulative frequency (CF) shows that the top 5 methods account for 62.2% of all responses, indicating that these core strategies form the backbone of organisational support for knowledge worker competencies.

4.2. Discussion

The study explored how organisations can effectively support knowledge workers in developing essential competencies. Organisational structures embodying the characteristics of learning organisations and network organisations emerge as key enablers of competency development. As conceptualised by Senge (1990), learning organisations continuously transform by facilitating their members' learning and fostering a culture of continuous improvement. Providing access to continuous learning platforms, such as Learning Management Systems (LMS) and Enterprise Social Media (ESM), enables knowledge workers to acquire and refine the competencies required in the digital era.

Survey participants emphasised the significance of organisational flexibility and support for informal learning opportunities. This emphasis aligns with situated learning theory, which posits that learning is most effective in authentic contexts and through social participation (Lave, Wenger, 1991). Organisations promoting autonomy, experiential learning, and collaborative environments provide fertile ground for knowledge workers to develop critical competencies such as problem-solving and adaptability.

The participants reinforce the necessity for organisational cultures valuing experimentation, innovation, and knowledge sharing. Such cultures encourage employees to engage in self-directed learning and apply new skills in practice, thereby enhancing both individual competencies and organisational capabilities. This approach is consistent with absorptive capacity, referring to an organisation's ability to recognise the value of new information, assimilate it, and apply it to commercial ends (Chang et al., 2012). By fostering environments that support both formal and informal learning, organisations can enhance their dynamic capabilities and better position themselves to respond to the challenges and opportunities presented by digital transformation (Fuller, Unwin, 2010).

The data generally reveals that organisations are committed to fostering a skilled and innovative workforce by integrating diverse support methods. By focusing on both formal and informal learning opportunities and providing necessary resources and encouragement, organisations aim to equip knowledge workers with the competencies needed to thrive in modern work environments.

4.3. Limitations and Future Research Directions

While this study provides valuable insights into organisational support to develop knowledge worker competencies in the context of digital transformation, it is not without limitations. The relatively small sample size and the geographic concentration on Silicon Mountain may limit the generalisability of the findings to other regions or industries. Silicon Mountain's unique status as a tech hub with advanced digital infrastructure may not reflect conditions in less technologically developed areas, potentially constraining the applicability of the competency framework developed.

Future research should consider expanding the scope to include a more diverse range of geographical locations and industries. Comparative studies across different sectors and regions would enhance understanding of how contextual factors influence required competencies and the effectiveness of development strategies.

Moreover, given the rapid evolution of digital technologies, the organisational support identified may require revision over time. This dynamic nature suggests the need for ongoing research to monitor changes in required fields and refine organisational measures accordingly. Longitudinal studies could provide insights into how organisational support evolves in response to technological shifts. Additionally, future research could explore the effectiveness of various organisational strategies and educational interventions in developing identified competencies. Investigating the role of policy interventions in bridging the digital skills gap and promoting equitable access to development opportunities would also be a valuable avenue of inquiry.

5. Recommendations – Practice implications

The research has made several significant contributions to the fields of knowledge management and talent management. By identifying the key organisational support initiatives essential for development of knowledge worker competencies, the study provides a nuanced understanding of the activities necessary for effective performance in knowledge-intensive roles. It has highlighted the transformative impact of digital transformation on the nature of work, underscoring the critical importance of intellectual capital and the integration of advanced technologies.

The awareness of the key factors that support networked learning can lead to enhanced organisational outcomes by aligning employee skills with organisational needs, fostering innovation, and improving agility. This alignment supports better decision-making, efficiency, and responsiveness to market changes.

6. Conclusions

This study provides important insights into how organisations support the development of knowledge worker competencies in the context of digital transformation. The findings reveal a clear preference for interactive, experiential, and personalised learning approaches, with mentorship, coaching, professional seminars, and on-the-job training emerging as the most frequently utilised strategies. These methods, which together account for over 60% of responses, underscore the critical role of applied learning and interpersonal guidance in fostering professional growth.

The results further indicate that organisational support extends beyond formal training to include motivational and financial support, as well as opportunities for continuous and digital learning. This suggests a holistic approach to competency development that aligns with contemporary theoretical frameworks, such as situated learning theory and absorptive capacity. Organisations that cultivate flexible, collaborative, and innovation-driven cultures are better positioned to enable knowledge workers to acquire, apply, and expand essential competencies in response to rapidly changing technological environments.

Nonetheless, the study's limitations must be acknowledged. The concentration of respondents within the Silicon Mountain region, a well-developed tech ecosystem, may limit the generalisability of the findings to other geographic or industrial contexts. Future research should therefore aim to examine a broader and more diverse set of cases, incorporating longitudinal and comparative designs to better understand how organisational support mechanisms evolve over time and across sectors. Further investigation into the efficacy of

specific support methods, as well as the role of policy in enhancing equitable access to development opportunities, would significantly contribute to the literature on workforce development in the digital age.

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