



**VIRTUAL MANAGEMENT OF FLUID WORKFORCE IN A
HYBRID WORK ENVIRONMENT: LEADERSHIP ROLE IN
DIGITAL TRANSFORMATION**

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Abstract

This conceptual study examines the virtual management of a fluid workforce in hybrid work environments with specific emphasis on the leadership role in digital transformation. Hybrid work has transformed organizational structures by enabling employees to operate across flexible locations, digital platforms, changing roles, and diverse work arrangements. While such flexibility improves agility, productivity, and access to talent, it also creates challenges related to coordination, employee engagement, communication, performance monitoring, digital fatigue, trust, and organizational cohesion. Drawing on literature from human resource management, organizational behavior, leadership studies, business information systems, and digital transformation, the study adopts a thematic synthesis approach to develop a conceptual framework linking leadership competencies, digital transformation enablement, and workforce and organizational outcomes. The findings indicate that leadership competencies such as digital fluency, virtual communication, emotional intelligence, trust-building, ethical governance, and change management are essential for managing hybrid and fluid workforces. Digital transformation acts as an enabling mechanism by supporting collaboration, knowledge sharing, performance tracking, data-driven decision-making, and employee engagement. The study further identifies employee engagement, productivity, innovation, employee well-being, and organizational resilience as key outcomes of leadership-driven digital transformation. Industry-specific analysis shows that hybrid workforce management varies across IT, healthcare, manufacturing, education, banking, financial services, and consulting sectors. The study contributes to business and management literature by presenting leadership as a central driver of digital transformation and effective virtual workforce management.

Keywords: Hybrid Work; Fluid Workforce; Digital Transformation; Virtual Leadership; Organizational Resilience

1. Introduction

Today's workplace is in a state of transformation as technology advances at a rapid rate, the world has gone global, employee expectations and attitudes have shifted, and hybrid and remote work are the norm. Hybrid working projects, where staff split their time between the office and working remotely or virtually, have gained in significance throughout the industry. The COVID-19 pandemic has spurred an increase in hybrid and remote work, and these arrangements are now seen not as a short-term solution to a crisis, but as a way to enhance flexibility and productivity, increase employee satisfaction and improve the adaptability of the organization (Gratton, 2021; Kniffin et al., 2021). This transformation has impacted the way organisations are managed, with emphasis on people, processes, communication, performance and workplace culture.

With the coming of “work from home” arrangements, the need to manage a fluid workforce is also growing. The fluid workforce is the workers and teams that work across flexible working places, roles, projects, digital platforms and employment arrangements. This team can consist of permanent staff, contractors, consultants, freelancers, remote workers and cross-functional teams. The rising acceptance of the work from anywhere arrangements proves that a geo-location approach can affect productivity and organisational performance, provided that the systems and management approach are right (Choudhury et al., 2021). But workforce fluidity also presents some managerial issues of coordination, accountability, employee engagement, organizational identity, performance measurement and team cohesion.

Digital transformation is a key enabler to virtual management of a fluid workforce. Organizations rely on digital tools, like video conferencing platforms, project management systems, digital HR platforms, cloud-based systems, data analytics tools and communication applications, to aid with the work processes in hybrid work environments. Digital transformation goes beyond the adoption of technology; it's about transforming organizational culture, changing leadership, developing employee skills, how people make decisions, and even how things work in the business. The challenge in digital transformation is to create digital strategies, map technology to business goals and build capability for long-term transformation (Hess et al., 2016; Kane et al., 2019). Leaders who are aligned, have a clear sense of governance and are flexible and agile within the organization also play an important role in achieving successful outcomes for digital transformation in large organizations (Sebastian et al., 2020).

One of the key elements of managing a hybrid and fluid workforce is leadership. In digitally mediated work settings where employees can be located at various sites, time zones, jobs, and organizational units, traditional command-and-control leadership models and practices frequently fail. Digital fluency, virtual communication, emotional intelligence, adaptability, trust-building, ethical governance and change management are just a few new skills that leaders will need to acquire in a hybrid environment. The literature of digital transformation in the face of crisis indicates the importance of leadership in guiding staff, keeping the quality of services and maintaining the performance of the organization in times of uncertainty (Bartsch et al., 2021). Likewise, e-leadership has been gaining relevance as leaders must implement a form of influence, motivation, and coordination on their employees using digital communication technologies instead of just face-to-face communication (Contreras et al., 2020).

Research in the field of remote and hybrid work indicates that leadership has the potential to impact key employee and organizational outcomes, including engagement, productivity, innovation, employee well-being/health, and employee resiliency. Organizations are still interested in work engagement because engaged staff are more committed, motivated and willing to help the organization become successful (Bakker & Albrecht, 2018). Research carried out during the COVID-19 pandemic suggests that remote work can impact employee productivity, engagement and stress, depending on the nature of the work, managerial support and communication within the organization (Galanti et al., 2021). Leaders must therefore ensure that leaders and employees feel supported to engage, have low stress and have meaningful relationships within their team in a virtual setting.

The nature of teamwork and communication of leadership is also evolving with hybrid working. To be effective, virtual teams need to have clear expectations, structured communications, trust and consistent feedback. Newman and Ford (2021) stressed the need for conscious management efforts to facilitate communication, performance, and employee connection in leading virtual teams. Likewise, in the future, team leaders will increasingly have to deal with multimodal communication and interactions—both physical and virtual—in various forms of work (Hooijberg & Watkins, 2021). In this context, leadership isn't just about managing people; it's also about managing people to work collaboratively, maintain trust, support digital readiness, and ensure the organization's culture in hybrid workspaces.

Another key factor in a hybrid and digitally enabled workplace is organizational resilience. Resilience is the ability of an organisation to prepare, take, adapt to and emerge from disruption. In the context of uncertainty and technology, the organisations need to build up skills to stay stable and adjust to the changing circumstances (Duchek, 2020). Combined, hybrid work, digital transformation, and virtual leadership can augment resilience for organizations to be able to keep operating, rearrange resources and support staff when they are disrupted. But leaders must be able to connect the dots between people, systems and organisational objectives.

The COVID-19 pandemic further developed the significance of global HRM, adaptable work frameworks, and leadership practices that can support employees in various settings. In the context of organizations in a global and distributed environment, HRM policies should take into consideration issues related to workforce mobility, digital collaboration, employee wellbeing and cross-border coordination (Caligiuri et al., 2022). This also showed that organisations should rethink how they work, how they communicate and how they use technology to allow for continuity and employee performance during lockdown periods (Richter, 2020).

While there is a lot of research on hybrid work, digital transformation and leadership, the majority of the literature is focused on one of these aspects. Few studies have focused on the interdependent relationship between leadership competencies, digital transformation enablement and virtual management of a fluid workforce. A foundational understanding of the concept of how leadership can contribute and how leadership and digital transformation work together to impact the productivity of the workforce and the organization in a hybrid world is needed. This is especially pertinent to business and management studies as organisations in the modern world need to be intrinsically and practically guided in managing flexible, technology-driven and geographically dispersed workforces.

The present article aims to complete this gap by creating a conceptual understanding of leadership in a fluid workforce in the mixed work model. It looks at the role that leadership capabilities play in the context of digital transformation and how digital transformation can enhance employee engagement, productivity, innovation, well-being and organizational resilience. The article is related to the field of business and management science, combining the vision of human resource management, organizational management, business information systems, digital transformation and performance management. It also offers managers, leaders, policymakers and organizations good ideas on how to improve workforce management in digitally enabled work settings.

This research aims to investigate the leadership role in managing a fluid workforce in a hybrid working model, to explore the impact of digital transformation on the management of virtual workforces, to create a conceptual model that connects leadership competencies with the impacts of digital transformation on the organization, and to highlight the managerial implications for companies that are considering digital transformation and the adoption of a fluid working model. In doing so, the study adds to the academic discourse and practice by identifying leadership as a critical factor in the success of digital transformation and in creating effective management of the hybrid workforce.

2. Methodology

2.1 Research Design

The study is a conceptual research design that aims to investigate the role of leadership in the virtual management of a fluid workforce in hybrid work settings. The study is not empirical in nature but instead is conceptual as it seeks to develop a theoretical understanding. The paper presents a review, interpretation and synthesis of the existing scholarly literature regarding hybrid work, fluid workforce management, digital transformation, virtual leadership, employee engagement, productivity, innovation, and organizational resilience.

2.2 Sources of Literature

This study involved literature from major fields of business and management studies, such as human resource management, organizational behavior, leadership studies, business information systems and digital transformation. To gain insight into the effect of hybrid working on workforce management and the role of leadership skills in digital transformation, relevant journal articles, books, review papers and conceptual studies that have been published in recent years were explored. Studies focusing on remote working, e-leadership, work-from-anywhere, digital strategy, employee engagement and organizational resilience were given special attention.

2.3 Selection Criteria

Literature was selected according to the relevance of the materials towards the main themes of the study. The central aspects that were taken into account were: hybrid work environment, adaptable workforce, digital transformation, leadership skills, virtual communication, trust-based management, employee engagement, productivity, innovation, well-being and resilience. Theoretical insights, empirical findings, or managerial implications were sought and reviewed from studies to incorporate in the conceptual discussion.

2.4 Method of Review and Synthesis

A thematic synthesis analysis was used as a methodology. The existing literature on hybrid work was studied to understand the evolving nature of work and the key challenges encountered by the organizations. Second, relevant literature was reviewed to gain insights into the role digital tools, platforms, and systems play in the context of virtual workforce management. Third, leadership-related literature was reviewed to determine the important competencies needed to lead staff through a hybrid and digitally mediated environment. Lastly, the themes identified were combined to create a conceptual framework connecting the themes of leadership competencies, digital transformation enablement and workforce and organizational outcomes.

2.5 Development of Conceptual Framework

This study proposes a conceptual framework, which assumes that the competencies of leadership play an important role as an antecedent of effective digital transformation. Digital transformation, in turn, can facilitate virtual management of a fluid workforce, which involves sharing knowledge, engaging employees, monitoring performance, collaboration and communication. The framework also suggests that digital transformation, when led by the organization's leadership, has a positive impact on the organization's outcomes, including productivity, innovation, employee well-being, and organizational resilience.

3. Results

3.1 Leadership Competencies for Hybrid Work

According to conceptual analysis, competencies in leadership are key to the successful management of a fluid workforce in hybrid work environments. In such environments, staff might work in various places, have flexible working hours, undertake a variety of jobs and rely extensively on digital tools to communicate and coordinate. The skills of leaders must, therefore, go beyond the skills of usual supervision.

The essential leadership skills for a hybrid workplace are digital, virtual communication, trust building, emotional intelligence, change management, and ethical governance, as illustrated in Figure 1. These skills enable leaders to bring together a dispersed workforce, promote

workers' health and wellbeing, foster accountability, and promote responsible digital working practices.

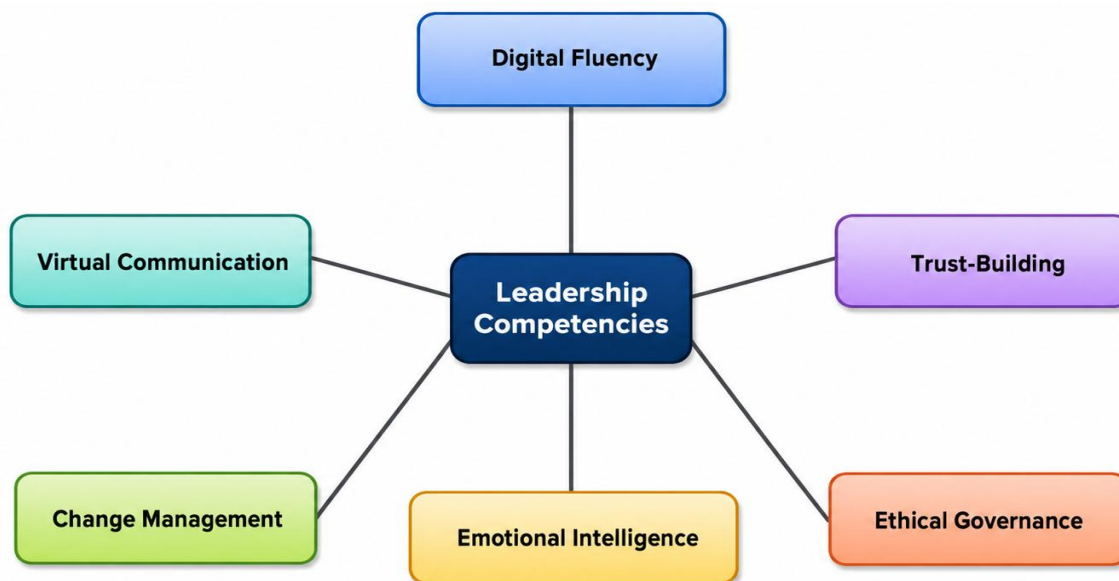


Figure 1. Leadership Competencies Required for Hybrid Work

These competencies are further detailed in Table 1 and in relation to their specific role in hybrid working environments. Digital skills enable leaders to operate effectively with digital tools, and virtual communication enables clarity and coordination. Trust-building is the basis for autonomy and outcome-based performance management. Emotional intelligence is an important factor to help leaders grasp employee concerns, reduce stress and keep employees motivated. Change management facilitates the uptake of new work models and technologies, and ethical governance provides for fairness, data privacy, cybersecurity and responsible use of technology.

Table 1. Leadership Competencies and Their Role in Hybrid Work

Leadership Competency	Meaning	Role in Hybrid Work
Digital Fluency	Ability to understand and use digital tools effectively	Helps leaders manage communication, collaboration, and performance through digital platforms
Virtual Communication	Ability to communicate clearly through online channels	Reduces confusion and improves coordination among remote and hybrid employees
Trust-Building	Ability to create confidence and accountability	Supports autonomy and outcome-based performance management
Emotional Intelligence	Ability to understand and manage employee emotions	Helps reduce stress, isolation, and uncertainty in hybrid work
Change Management	Ability to guide employees through organizational change	Supports adoption of new digital tools and hybrid work practices
Ethical Governance	Ability to ensure fairness, privacy, and responsible technology use	Helps manage cybersecurity, data privacy, and ethical issues in digital work

The overall findings indicate that successful leaders in hybrid working environments have the role of a facilitator, coordinator, motivator and change agent. They do not rely on direct

control, but instead support staff on a shared agenda, technology for collaboration, with clear expectations and performance-based systems.

3.2 Role of Digital Transformation in Virtual Workforce Management

The study concludes that digital transformation serves as an enabler for effectively managing a fluid workforce. Digital transformation is the answer to hybrid working with tools and systems that enable workers to communicate, collaborate, share knowledge, track tasks, and stay productive in both physical and virtual environments.

Digital transformation enablers such as digital infrastructure, virtual collaboration tools, digital HR systems, data-driven decision making, cyber security systems and digital culture are highlighted as presented in Table 2. The enablers enable the management of the employees beyond the traditional working space in the office. Virtual collaboration tools can enable team meetings and file sharing, for instance, and digital HR systems can help with attendance, training, performance review, and employee records. Likewise, cybersecurity systems keep the data safe in the organization and create confidence in hybrid working.

Table 2. Digital Transformation Enablers in Virtual Workforce Management

Digital Transformation Enabler	Function in Hybrid Work	Expected Result
Digital Infrastructure	Provides the technological base for remote and hybrid work	Smooth communication and workflow continuity
Virtual Collaboration Tools	Supports meetings, file sharing, and teamwork	Better coordination among distributed employees
Digital HR Systems	Supports attendance, performance, training, and employee records	Improved HR efficiency and employee tracking
Data-Driven Decision-Making	Uses analytics for planning and performance review	More informed managerial decisions
Cybersecurity Systems	Protects organizational data and digital communication	Greater trust and security in hybrid work
Digital Culture	Encourages openness to technology and continuous learning	Higher employee acceptance of digital transformation

The results also reveal that digital transformation is not just a technological process, however. Also, it's a managerial and cultural process, which involves readiness of employees, leadership support, and organizational alignment. You can't guarantee successful hybrid working with technology alone. The effectiveness of this will rely on the way leaders introduce, communicate, govern and incorporate digital systems into their everyday working practices.

3.3 Proposed Conceptual Framework

After synthesizing the literature, a conceptual framework is proposed that connects the leadership competencies, digital transformation enablement, and workforce and organizational outcomes. The model depicted in Figure 2 indicates that leadership abilities serve as a foundation for successful digital change in a hybrid working context.



Figure 2. Proposed Conceptual Framework

Leaders who have digital, emotional, ethical, and strategic skills are more likely to be able to lead digital transformation processes and to help their staff members navigate the shift to hybrid work. This model suggests that digital transformation enablement is affected by leadership competencies and that digital transformation enablement has an impact on positive workforce & organizational outcomes.

Within this context, the elements of the leadership competency are defined as the ability to use information technology, the ability to trust management, communication effectiveness, change orientation, emotional intelligence, and ethics governance. Digital transformation enablement involves digital infrastructure, virtual collaborative tools, digital HR systems, data-driven decision making, cybersecurity systems and digital culture. Employee engagement, productivity, innovation, employee health, and organizational resiliency are some workforce and organizational outcomes.

The conceptual framework outcome is that a digital transformation is a process between leadership and organisational outcomes. That is, the effectiveness of digital transformation depends on leadership, and digital transformation depends on the effectiveness of a workforce management and organizational performance.

3.4 Industry-Specific Results

The findings demonstrate that the leadership role for managing a fluid workforce varies by industry, as various industries have varying work demands, digital maturity, regulatory pressures, and employee expectations. The results of hybrid workforce management are summarized in Table 3 for each industry.

Table 3. Industry-Specific Results of Hybrid Workforce Management

Industry	Nature of Hybrid Work	Main Leadership Requirement	Key Outcome
IT and Software	High remote flexibility and project-based work	Trust-based and empowering leadership	Higher innovation and productivity
Healthcare	Limited hybrid work with telemedicine and remote administration	Ethical and situational leadership	Better compliance and service continuity
Manufacturing	Mostly on-site work with remote planning and administration	Coordinating and operational leadership	Improved workflow coordination
Education and	Online teaching, digital	Facilitative and	Better digital

EdTech	learning, and academic administration	coaching-oriented leadership	learning and engagement
Banking and Financial Services	Hybrid work with strong data security needs	Governance-oriented leadership	Improved security and accountability
Consulting	Flexible, client-based, and knowledge-intensive work	Strategic and collaborative leadership	Better client service and knowledge sharing

Table 3 reveals that the IT and software industry is suitable for hybrid work, as most of the work is knowledge-based and is digitally enabled. The leaders of this area must pay attention to independence, creativity, teamwork and results. Some of the key issues are digital fatigue, over-communication, time zone differences and keeping the team connected.

Healthcare is more restrictive in the hybrid work market as it has more in-person needs. But administrative, telemedicine, digital consultation and remote coordination have risen. Finding the right balance between flexibility and patient care, compliance, data privacy, and employee well-being is a challenge for leaders in healthcare.

Hybrid working is predominantly used in the manufacturing industry for planning, administration, design, supply chain and managerial roles, but not as much in production. Leaders need to ensure coordination between the remote teams and teams on site in terms of safety and productivity, and continuity of workflow.

The learning, teaching, managing and collaborating aspects of education and EdTech have been revolutionized by hybrid and virtual models. The implementation of digital pedagogy, engagement, teacher training and effective learning management system (LMS) usage is supported by the leaders.

Digital security, client engagement, regulatory adherence, and knowledge management are all critical elements in the banking, financial services, and consulting industries. Client engagement, regulatory adherence, knowledge management, and digital security are all highly dependent factors in hybrid working for the banking, financial services and consulting sectors. Leaders need to ensure the confidentiality, data protection, quality of service and the accountability of employees.

The results overall show that hybrid leadership is not across the board. Leaders need to be flexible in their approach to leadership, based on the nature of work, the composition of the workforce, technological dependency and the environment in which they operate, for each industry.

3.5 Key Outcomes of Leadership-Driven Digital Transformation

This conceptual analysis reveals five key outcomes that lead to digital transformation in the context of hybrid work: Employee engagement, Productivity, Innovation, Employee well-being, and Organizational resilience. The results of these are listed in Figure 3.

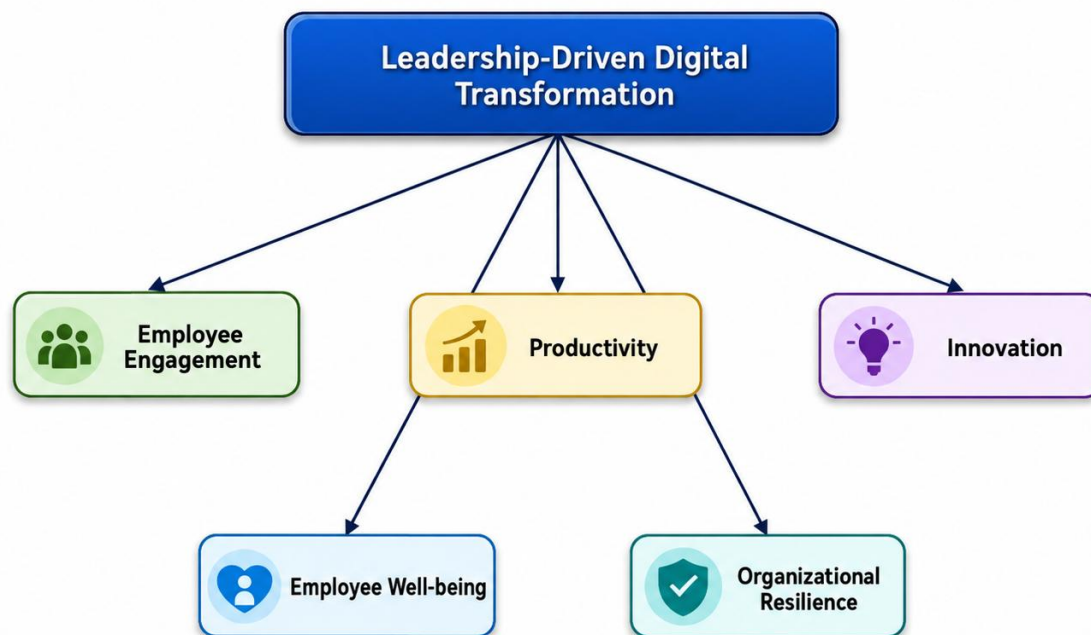


Figure 3. Outcomes of Leadership-Driven Digital Transformation

Leaders' digital transformation enables several different workforce and organizational outcomes, as illustrated in Figure 3. First up, good leadership increases employee engagement by establishing trust, clarity, participation and psychological safety. Clear communication, support, and recognition of employees' efforts in digital environments foster greater employee commitment and motivation.

Secondly, digital transformation made possible by leadership extends productivity gains by providing for better coordination, automation, transparency of workflows and better outcome management. Digital tools, if used effectively, can help employees to improve their efficiency and enable them to work together across locations.

Third, hybrid leadership helps innovation through sharing knowledge, experimentation, multi-functional teamwork and creative problem solving. Digital platforms enable cooperation between employees from various functions and locations and can be used to communicate and participate in innovation processes.

Fourth, leadership has an impact on employee well-being through workload management, mitigating digital fatigue, work-life balance and building a digital culture. Well-being becomes a significant concern for the manager in hybrid working environments, as some employees might feel isolated, stressed out, feel over-communicated or find a lack of boundaries between work and home.

Last but not least, digital transformation with leadership resilience improves organizational resilience. Organizations that have digital systems in place that are effective and have strong leadership are better placed to continue functioning during a crisis, to adapt to disruptions and to reconfigure resources based on the evolving nature of their business needs.

The study concludes that leadership is a key factor for a fluid workforce in a hybrid work environment to be successful. The overall conceptual link between leadership competencies, the enablers of digital transformation, and the outcomes of digital transformation is summarized in Figure 2. The key leadership competencies required for hybrid working are identified in Figure 1, and the key outcomes of leadership-driven digital transformation are shown in Figure 3.

The role of leadership competencies in hybrid work is explained in Table 1, the enablers of digital transformation are presented in Table 2, and the differences in hybrid workforce management are presented in Table 3 between different industries.

The leadership competencies that support digital transformation are key, as are positive workforce and organizational outcomes that are supported by digital transformation. Thus, it is important that organisations commit to developing their leadership, digital culture, employee support systems and outcome-based management – as well as digital tools – to manage fluid workforces effectively.

4. Discussion

This conceptual study points to a strong relationship between leadership capability and enablement of digital transformation to effective virtual management of a fluid workforce in hybrid working environments. The nature of work and the relationship between employees, managers, teams and workplaces have been transformed by hybrid working. The workplace has become digital, flexible, changing and diverse. In the literature, there is a growing interest in understanding what virtual work implies in terms of new ways of coordinating, communicating and interacting with each other in the organization (Raghuram et al., 2019; Schwarzmüller et al., 2018).

The results indicate that digital transformation is a key enabling technology for hybrid working, but leadership is the key to making it a reality. Communication and coordination can be facilitated and supported using digital tools and technologies, including virtual meeting platforms, project management software, HR information systems, cloud applications and analytics systems. These tools, however, are not automatically going to develop trust, motivation, accountability, and organizational commitment. It is not only about implementing the technology, but also about strategic and organizational change, and needs to be led, culturally ready, and aligned with the organization (Hanelt et al., 2021; Kraus et al., 2021; Mergel et al., 2019).

According to the proposed conceptual framework, the role of leadership competencies is influencing the enablement of digital transformation, which in turn, can affect the outcomes of the workplace and organizational. Digital leaders who have the skills and competencies to lead in a digital world – those who are skilled in virtual communication, emotionally intelligent and with the capacity to build trust, change management and ethical awareness – can be more effective in their work with employees in hybrid settings. Research on digital leadership and e-leadership also highlights the new skills needed in digitally mediated leadership roles in the areas of communication, coordination, leadership of employees, and maintaining productive performance (Cortellazzo et al., 2019; Khaw et al., 2022; Chamakiotis et al., 2021).

Leadership is a key ingredient to the success of digital transformation. It involves a change to organizational culture, employee behaviour, communication, decision making and performance management. Leaders need to shift their perspective to no longer rely on traditional leadership through face-to-face and on-the-job supervision in hybrid environments. Instead, they need to employ trust-based and outcome-oriented leadership behaviours, as remote/hybrid work makes direct observation of their leadership less possible and relies more on digital communication and self-regulation (Carillo et al., 2021; Waizenegger et al., 2020). The competencies of digital fluency are a necessary leadership skill. Leaders should be able to see how digital tools can be used to facilitate communication and collaboration, data-driven decision-making and tracking of performance. But digital fluency is not technical skill—leaders should choose digital tools and tools to use and ensure that digital tools are used to achieve their human and organisational goals. Technology is not the only component required for managing digital work; managers also need to have practices that focus on the human aspects of work. (Cortellazzo et al., 2019; Schwarzmüller et al., 2018).

Meanwhile, leadership has to maintain human sensitivity while at the same time ensuring technological efficiency. Digital transformation can increase productivity and flexibility, but also lead to digital fatigue, work overload, isolation, surveillance fears and work-life boundaries. Research on remote working and telework reveals evidence of potential negative impacts on employee health due to isolation, technostress, communication overload and also less social interaction (Charalampous et al., 2019; Efimov et al., 2022; Taser et al., 2022). So, digital transformation should be employee-centric and ethical, and leaders need to ensure it is.

One of the leading effects of digital transformation led by employees is employee engagement. Hybrid working environments can impact motivation, commitment, and belonging due to decreased face-to-face social connections and informal learning. Leaders need to make space and time for communication, participation, recognition and team connection to occur. Supportive virtual leadership correlates well with mental health, job satisfaction and feelings of being isolated by employees (Efimov et al., 2022).

Communication is a key component of employee engagement that is facilitated by virtual communication. Leaders should make their objectives clear, give frequent feedback, promote open discussion and make people feel welcome no matter where they are working. Several studies about reconfigured virtual teams indicate that communication, shared understanding, and a sense of team are key components for e-leadership when work is mediated by digital platforms (Chamakiotis et al., 2021). In the same way, digital affordances enable collaboration, and the effectiveness of this collaborative use of the technology relies on how teams and leaders utilize it (Waizenegger et al., 2020).

For productivity to thrive in a hybrid workplace, it's not just about the digital systems, but also leadership practices. With the right priorities and communication culture, digital tools can enhance the transparency of processes, tracking tasks and collaboration. If these are not, they may face numerous meetings, duplicated work and information overload with employees. Research on remote work indicates that there are specific advantages of working remotely, including flexibility and concentration, but also disadvantages, namely with regard to communication, social isolation and border management issues (Carillo et al., 2021; Ipsen et al., 2021).

Performance management is a crucial element for a fluid workforce, especially with regard to outcomes. The level of performance could be judged by outputs, quality of contribution, innovation, teamwork and value to the stakeholders and not just by the employee's face-to-face presence. Studies on telework indicate that job characteristics, autonomy, communication, and managerial support are all crucial factors influencing telework performance and well-being (Ferrara et al., 2022). Hence, managers should be concerned about outcomes and employees' well-being instead of being constantly occupied with watching employees or with digital surveillance.

The results also reveal that there are variations across industries in the implementation of hybrid workforce management. The ways of leading must be adjusted to work with digital, regulatory and workforce characteristics. Digital transformation literature also stresses that digital transformation depends on the context of the organization, as it needs strategy changes, structural changes, changes in culture and changes in the way work is done (Hanelt et al., 2021; Kraus et al., 2021). This reflects the notion that hybrid leadership is not something that is suitable for all organizations and industries, but needs to be tailored to the context.

Hybrid working is simpler in the IT and software industry, where work is knowledge-based and digitally facilitated. There is a need to pay attention to autonomy, innovation, agile collaboration and employee well-being. Healthcare is a different use case, as patient care tends to be more face-to-face, but telemedicine, digital administrative, and remote consultation have increased the hybrid nature of the healthcare sector. Hybrid work in manufacturing primarily works for planning, administration, designing, coordinating supply chains and managerial work, and production continues to be mainly on-site. Raghuram et al. (2019) and Schwarzmüller et al. (2018) have demonstrated these differences, which mean that digital and hybrid work arrangements need to be tailored to the nature of the task, technology available and employee needs.

The hybrid and digital learning models have transformed the ways we teach, learn, assess, and manage learning in education and EdTech. Hybrid working is very reliant on the basics of cybersecurity, client service, confidentiality and regulatory compliance in banking, financial services, and consulting. Leaders need to make sure that data is secure, accountable and communicated professionally in flexible locations. The examples illustrate that digital transformation needs to be perceived as a technology, governance, strategy and organisational change. (Hanelt et al., 2021; Mergel et al., 2019).

The study has a number of management implications for companies implementing hybrid working and fluid workforces. Digital leadership development, such as digital fluency, virtual communication, emotional intelligence, ethical governance, cyber security awareness and change management, should all be part of the leadership agenda for organisations. Digital leadership capability can impact sustainable performance and readiness of an organization in a digitally transformed environment (Khaw et al., 2022). Leadership development, then, must be considered a strategic need.

Additionally, organizations should implement a system of performance management that is based on outcomes and is founded on a trust-building philosophy. Assessments of employee performance shouldn't be based largely on how much they can be seen or heard online, or on being physically present. Managers are instead expected to be result-oriented, quality-driven, innovative, cooperative and timely in fulfilling responsibilities. Research on telework and remote work indicates that autonomy, clarity of expectations and management support are key factors to a successful remote experience and adjustment of workers (Carillo et al., 2021; Ferrara et al., 2022).

Digital norms should be set by managers to let staff know which platforms to use, when to hold a digital meeting, what to record and how, and how long they can expect for answers. These guidelines can help to cut down on confusion, over-communication and digital fatigue. As work from home became the norm, the way teams collaborate was affected, and leaders need to be mindful of setting up communication protocols that enable collaboration without adding to workloads (Waizenegger et al., 2020). Another area of study that is relevant to remote e-working is the management of technostress and loneliness (Taser et al., 2022).

It's crucial to employee wellness, and organizations must be proactive in providing support. Whilst the hybrid working model can offer better work-life balance for employees, it can also be a stressor when they are constantly connected, without clear limits, or even isolated. Managers should promote good working practices and respect work-life balance, keep an eye on workload and provide opportunities for social and psychological support. Well-being of remote workers is a multi-dimensional phenomenon, which is affected by social, psychological, physical and organizational factors (Charalampous et al., 2019; Ferrara et al., 2022).

Also, there is a management concern about using digital technologies ethically and safely. Hybrid working brings many issues around data privacy, cybersecurity, ethics, monitoring employees, and equitable access to digital resources to the fore. Organizations should develop policies to secure organizational information and honour employee privacy and dignity. They should also develop hybrid cultures that are inclusive to remote workers, ensuring that they have equal access to information, recognition, learning opportunities and promotion. Ethical and human-centred leadership is critical in the context of digital transformation as it involves leadership, control, work design and employee experience (Cortellazzo et al., 2019; Schwarzmüller et al., 2018).

Last but not least, digital transformation should go hand-in-hand with business strategy. Digital tools should enable organisations to achieve their aims, streamline their working processes, enrich their employee experience and add to their overall competitiveness. To succeed with transformation, it is necessary to have a strategy, organizational change, leadership, and integration of digital skills in value creation processes (Hanelt et al., 2021; Kraus et al., 2021; Mergel et al., 2019). Overall, technology alone will not be enough to achieve successful hybrid workforce management. It demands digital leaders to be digitally competent, morally accountable, emotionally intelligent, and adaptable. They can assist organizations to effectively manage workforce fluidity, enhance performance, build resilience, and build sustainable hybrid work environments.

5. Conclusion

The study concludes that the virtual management of a fluid workforce in hybrid work environments requires a strong integration of leadership capability, digital transformation, and employee-centred management practices. Hybrid work has changed the traditional structure of organizations by allowing employees to work across flexible locations, digital platforms,

changing roles, and diverse work arrangements. In this context, leadership plays a critical role in maintaining coordination, trust, engagement, productivity, and organizational continuity. The study highlights that digital transformation is not only a technological process but also a strategic and human-centred change process that depends on effective leadership. Leaders with digital fluency, virtual communication skills, emotional intelligence, ethical awareness, trust-building ability, and change management capability are better positioned to guide employees in hybrid work settings. The proposed conceptual framework shows that leadership competencies enable digital transformation, which in turn supports positive outcomes such as employee engagement, productivity, innovation, well-being, and organizational resilience. The study also emphasizes that hybrid workforce management differs across industries and therefore requires context-specific leadership approaches. For managers, the findings suggest the need to develop digital leadership competencies, adopt outcome-based performance systems, support employee well-being, ensure ethical use of technology, and align digital initiatives with organizational strategy. Future research may empirically test the proposed framework using quantitative, qualitative, or mixed method approaches across different industries and cultural contexts. Further studies may also examine the role of artificial intelligence, algorithmic management, digital fatigue, cybersecurity, and employee well-being in hybrid work environments. Overall, the study contributes to business and management literature by presenting leadership as a central driver of successful digital transformation and effective virtual workforce management.

References

1. Bakker, A. B., & Albrecht, S. (2018). Work engagement: current trends. *Career development international*, 23(1), 4-11.
2. Bartsch, S., Weber, E., Büttgen, M., & Huber, A. (2021). Leadership matters in crisis-induced digital transformation: how to lead service employees effectively during the COVID-19 pandemic. *Journal of service management*, 32(1), 71-85.
3. Caligiuri, P., De Cieri, H., Minbaeva, D., Verbeke, A., & Zimmermann, A. (2022). International HRM insights for navigating the COVID-19 pandemic: Implications for future research and practice. In *Crises and disruptions in international business: How multinational enterprises respond to crises* (pp. 417-454). Cham: Springer International Publishing.
4. Carillo, K., Cachat-Rosset, G., Marsan, J., Saba, T., & Klarsfeld, A. (2021). Adjusting to epidemic-induced telework: Empirical insights from teleworkers in France. *European Journal of Information Systems*, 30(1), 69-88.
5. Chamakiotis, P., Panteli, N., & Davison, R. M. (2021). Reimagining e-leadership for reconfigured virtual teams due to Covid-19. *International Journal of Information Management*, 60, 102381.
6. Charalampous, M., Grant, C. A., Tramontano, C., & Michailidis, E. (2019). Systematically reviewing remote e-workers' well-being at work: A multidimensional approach. *European journal of work and organizational psychology*, 28(1), 51-73.
7. Choudhury, P., Foroughi, C., & Larson, B. (2021). Work-from-anywhere: The productivity effects of geographic flexibility. *Strategic Management Journal*, 42(4), 655-683.
8. Contreras, F., Baykal, E., & Abid, G. (2020). E-leadership and teleworking in times of COVID-19 and beyond: What we know and where do we go. *Frontiers in psychology*, 11, 590271.
9. Cortellazzo, L., Bruni, E., & Zampieri, R. (2019). The role of leadership in a digitalized world: A review. *Frontiers in psychology*, 10, 456340.
10. Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Business research*, 13(1), 215-246.
11. Efimov, I., Rohwer, E., Harth, V., & Mache, S. (2022). Virtual leadership in relation to employees' mental health, job satisfaction and perceptions of isolation: A scoping review. *Frontiers in psychology*, 13, 960955.

12. Ferrara, B., Pansini, M., De Vincenzi, C., Buonomo, I., & Benevene, P. (2022). Investigating the role of remote working on employees' performance and well-being: an evidence-based systematic review. *International Journal of Environmental Research and Public Health*, 19(19), 12373.
13. Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work from home during the COVID-19 outbreak: The impact on employees' remote work productivity, engagement, and stress. *Journal of occupational and environmental medicine*, 63(7), e426-e432.
14. Gratton, L. (2021). How to do hybrid right. *Harvard Business Review*, 99(3), 65-74.
15. Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of management studies*, 58(5), 1159-1197.
16. Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *Mis quarterly executive*, 15(2).
17. Hooijberg, R., & Watkins, M. (2021). The future of team leadership is multimodal. *MIT sloan management review*, 62(3), 2-5.
18. Ipsen, C., Van Veldhoven, M., Kirchner, K., & Hansen, J. P. (2021). Six key advantages and disadvantages of working from home in Europe during COVID-19. *International journal of environmental research and public health*, 18(4), 1826.
19. Kane, G. C., Palmer, D., & Phillips, A. N. (2019). *Accelerating digital innovation inside and out*. MIT Sloan Management Review.
20. Khaw, T. Y., Teoh, A. P., Abdul Khalid, S. N., & Letchmunan, S. (2022). The impact of digital leadership on sustainable performance: a systematic literature review. *Journal of Management Development*, 41(9-10), 514-534.
21. Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., ... & Vugt, M. V. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American psychologist*, 76(1), 63.
22. Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *Sage Open*, 11(3), 21582440211047576.
23. Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government information quarterly*, 36(4), 101385.
24. Newman, S. A., & Ford, R. C. (2021). Five steps to leading your team in the virtual COVID-19 workplace. *Organizational Dynamics*, 50(1), 100802.
25. Raghuram, S., Hill, N. S., Gibbs, J. L., & Maruping, L. M. (2019). Virtual work: Bridging research clusters. *Academy of Management Annals*, 13(1), 308-341.
26. Richter, A. (2020). Locked-down digital work. *International journal of information management*, 55, 102157.
27. Schwarzmüller, T., Brosi, P., Duman, D., & Welpel, I. M. (2018). How does the digital transformation affect organizations? Key themes of change in work design and leadership. *Management Revue*, 29(2), 114-138.
28. Sebastian, I. M., Ross, J. W., Beath, C., Mockler, M., Moloney, K. G., & Fonstad, N. O. (2020). How big old companies navigate digital transformation. In *Strategic information management* (pp. 133-150). Routledge.
29. Taser, D., Aydin, E., Torgaloz, A. O., & Rofcanin, Y. (2022). An examination of remote e-working and flow experience: The role of technostress and loneliness. *Computers in Human Behavior*, 127, 107020.
30. Waizenegger, L., McKenna, B., Cai, W., & Bendz, T. (2020). An affordance perspective of team collaboration and enforced working from home during COVID-19. *European journal of information systems*, 29(4), 429-442.