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Research paper

Examining The Effect of Digital Transformative Leadership on Employee Performance: Evidence from SMEs in Jordan on The Moderating Role of Knowledge Management

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Abstract

The study aims to fill the gap by investigating the effects of Digital Transformative Leadership on employee performance. It used a quantitative approach to examine how knowledge management moderates the relations among digital transformative leadership variables, employee performance within small to medium enterprises (SMEs) working in the IT sector, and those located in Jordan. Evidence indicated that digital transformative leadership positively and significantly impacts employee performance and knowledge management, and statistically moderates this relationship. The results also reveal that the digital transformative leadership will exert a stronger impact on performance outcomes as knowledge management is increased. The results of this study contribute to practical implications for organizations that want to improve their performance with these kinds of digital leadership styles and place a focus on strategic decisions, because without robust knowledge management practices, it is difficult to use effective digital leadership. The study suggests going beyond regional and sectoral boundaries as well as the limitations of cross-country, cross-sector research and longitudinal aspects for further understanding of this issue.

Keywords: *Creativity; Curiosity; Collaboration; Employee Performance; Knowledge Management.*

1. Introduction

Nowadays, companies tend to use several technologies to grow sustainably, increase performance, and remain competitive (Sharabati et al., 2024). In this regard, digital transformative leadership is now recognized as a significant aspect of leading and organizing organizations in the new age of technological change (Ahyat et al., 2022). In other words, in reaching a view of the mostly stable measures to investigate the relationship, understanding the mediating function of knowledge management on this relation shows how we may draw upon organization linkage systems to sustain success, which are strongly associated with holding up strategic performance (Ardi et al., 2020). Organizational adaptation to technological advancement is imperative, and organizations are pressured to increase productivity and stay ahead of competition in fast-changing environments (Chang 2016). This certainly helps amplify the impact of Leadership as a dominant factor for corporate success (Atta et al., 2023). As Cai et al. (2024) note, Digital Transformative Leadership is an extension of Transformational Leadership with a focus on the specific challenges and opportunities that digital technologies offer. There is a focus on inspiring and motivating human resources to adapt to innovative change in order to perform better and remain valuable members of the organization, creating a culture that successfully develops both adaptability and sustainable growth in the digital era (Sharabati et al., 2024b). It is generally agreed that digital transformation leaders are a change agent who drives the organizational metamorphosis to highly mature levels by articulating the vision and rationale for change, challenging the status quo with an innovative and pragmatic attitude, and balancing strategic shifts with tactical solutions, judiciously using cutting-edge technologies (James et al., 2023). They can help employees to develop and allow them to broaden their horizons, increase engagement to boost productivity, and connect individual objectives with strategic organization goals (Aljabari et al., 2024). Digital transformative leadership practices had a significant impact on organizational outcomes, and especially on employee performance (Bataineh et al., 2023). Employee performance is an important factor for the development and

success of the organization which implies the efficiency of individuals with their tasks and responsibilities (Majumdar et al., 2024). Traditional job requirements aside, employees are expected to master complex tools for their digital creations and navigate endless digital workflow systems (Sharabati et al., 2023). As leadership is an essential element to work well in such a turbulent business environment (Matsunaga, 2024). Successful digital transformation makes leaders who can create motivation, satisfaction, and creativity amongst the employees, which goes a long way in boosting organizational performance (Daoud et al., 2024). Digital transformation requirements have made knowledge management a strategic organizational capability for growth and long-term competitiveness (Purba et al., 2023). Knowledge management refers to how an organization captures, stores, shares, and utilizes knowledge in support of business objectives (Shao et al., 2019). By managing knowledge effectively, companies can gain insights into their existing and upcoming competition, allowing organizations to learn from experiences, thus challenging competitors on a global basis, creating efficiencies around both incremental innovations and disruptive innovations, resulting in process optimizations enabling the business to adapt to rapidly changing market conditions better (Bani Ahmad et al., 2024). Proper knowledge management means that employees and teams have access to the right information and procedures, which are essentially required by them to deliver in their respective roles (Aftab et al., 2022). It simply works to make learning, collaboration, and problem-solving more systematic so that leadership can have a much stronger influence on performance Outcomes (Ahmad et al., 2024). The literature on types of leadership and the effect they have on organizational productivity has been extensive; however, a more nuanced analysis of how digital transformational leadership influences employee performance is necessary (Mansour et al., 2025). To close this research gap, the present study delaminates the effect of digital transformative leadership and employee performance by focusing on the moderator role of knowledge management in augmenting such practices (Abu-Alhaija et al., 2025). The results are designed to help enterprises better understand the real-world implications of utilizing digital leadership styles within a high-quality knowledge management framework, leading to greater performance, and therefore contribute to broader theory on how leadership fits in digital frames (Alawneh et al., 2025).

2. Literature Review and Hypotheses Development

2.1. Digital transformative leadership

As an evolving leadership paradigm, digital transformative leadership refers to a contemporary style that integrates the principles of transformational leadership with a concentrated focus on the opportunities and challenges presented by digital technologies (Juvika & Ardi, 2023). Transformative leaders are recognized for their ability to inspire and motivate employees, thereby fostering creativity, commitment, and high performance (Restuputri et al., 2023). In the era of technological advancement, digital transformative leaders are not only visionary and supportive but also adept at utilizing various digital tools to enhance communication, collaboration, and innovation within their organizations and teams (Ly, 2024).

The literature highlights key attributes of digital transformative leadership. Visionary leadership enables leaders to articulate a compelling vision for the digital future, motivating subordinates to embrace technology-driven change (Putra & Syahrul, 2023). Inspirational motivation engages employees by instilling enthusiasm for digital initiatives, encouraging innovation, and supporting risk-taking (Susilawati, 2021). Through intellectual stimulation, leaders foster a workplace where employees are encouraged to think critically, challenge the status quo, and drive transformation through digital solutions (Topcuoglu et al., 2023). Furthermore, individualized consideration ensures that leaders address employee needs, providing opportunities for growth and development, especially in areas linked to emerging technologies (Alkhazaleh et al., 2023).

2.2. The impact on employee performance

The influence of digital transformative leadership on employee performance is multidimensional (Alrjoub et al., 2021). Leadership styles that empower, inspire innovation, and encourage autonomy tend to positively influence performance outcomes (Kartoyo et al., 2023). In digital transformation contexts, this impact is amplified as employees are motivated to adopt advanced technologies, enhance digital competencies, and adapt to evolving workplace environments. By establishing a shared vision and aligning individual objectives with organizational goals, digital transformative leaders can increase intrinsic motivation and improve performance levels (Kozcu & Özmen, 2021).

Literature suggests that such leadership fosters creativity by promoting intellectual stimulation, enabling employees to explore new digital tools, systems, and strategies that enhance innovation (Liu et al., 2019). Furthermore, supportive leadership relationships, developmental opportunities, and a strong sense of purpose in digital projects contribute significantly to performance improvements (Trieu et al., 2024). Leaders who effectively manage digital transformation also cultivate higher levels of employee commitment and loyalty, which ultimately lead to superior performance outcomes (Yamin et al., 2023).

2.3. The role of knowledge management

Knowledge management refers to an organization's systematic approach to capturing, storing, sharing, and applying knowledge to achieve strategic objectives (Nonaka & Takeuchi, 1995). In the digital era, it serves as a vital capability that enables firms to leverage collective expertise, drive innovation, and optimize operations (Shao et al., 2019). Effective knowledge management fosters a culture of collaboration, supports informed decision-making, and ensures that employees have access to the resources needed to excel in their roles (Aftab et al., 2022). As organizations navigate digital transformation, knowledge management enhances adaptability by facilitating learning and supporting the adoption of advanced technologies (Purba et al., 2023). It plays a critical role in bridging gaps between leadership vision and employee execution, ensuring that strategic initiatives are underpinned by accurate, timely, and actionable information. Strong knowledge management practices also enable organizations to retain institutional expertise, prevent knowledge loss, and encourage continuous improvement in performance outcomes.

2.4. Digital transformative leadership and knowledge management

Leadership is widely regarded as a driver of effective knowledge management practices. Digital transformative leaders actively promote environments where knowledge is openly shared, encouraging employees to collaborate, experiment, and integrate innovative solutions into workflows (Baškarada et al., 2016). By embedding knowledge-sharing mechanisms into organizational processes, leaders facilitate both the acquisition of new knowledge and the refinement of existing capabilities. In digital environments, leaders who prioritize

knowledge management ensure that emerging technological opportunities are aligned with strategic objectives (Feng et al., 2024). They also create systems to document best practices, capture lessons learned, and disseminate insights across departments. This not only strengthens organizational learning but also enhances the ability to adapt to market changes and sustain competitive advantage (Siachou & Gkorezis, 2018). Moreover, effective knowledge management amplifies the positive influence of digital transformative leadership on employee performance. When knowledge resources are readily accessible and strategically applied, employees are better equipped to innovate, solve complex problems, and deliver high-quality outcomes (Veiga et al., 2024). In this way, knowledge management acts as a moderating factor, strengthening the link between leadership behavior and performance results (Wu et al., 2021).

2.5. Hypotheses development

Drawing on the literature, the following hypotheses are proposed:

- H1: Digital transformative leadership has a significant positive impact on employee performance.
- H2: Digital transformative leadership has a significant positive impact on knowledge management.
- H3: Knowledge management has a significant positive impact on employee performance.
- H4: Knowledge management significantly moderates the relationship between digital transformative leadership and employee performance.

3. Methodology

3.1. Participants and procedures

Based on a quantitative research design, this study develops testable hypotheses from the Lens Model and then applies Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS to test direct and indirect causal relationships among digital transformative leadership, knowledge management, and employee performance. This study is conducted in Jordan, with a focus on SMEs within the information technology (IT) sector. The population is comprised of the founding/management team and those working for these organizations. We used a simple random sampling procedure to obtain an equivalent sample across organizational levels. We are talking about 2,528 registered IT companies in Jordan as of March 2021, surging year by year (a sample range within the last two years: 2021–2023), as a direct result of rapid digitization and technology penetration into all business sectors. The target sample (N = 99) achieved a representative balance amongst all three types of positions, as it included an adequate statistical power for PLS-SEM analysis with a range of founders, senior managers, and operational employees (n = 33 each). A structured, self-administered questionnaire in both electronic and printed formats served as the tool for data collection.

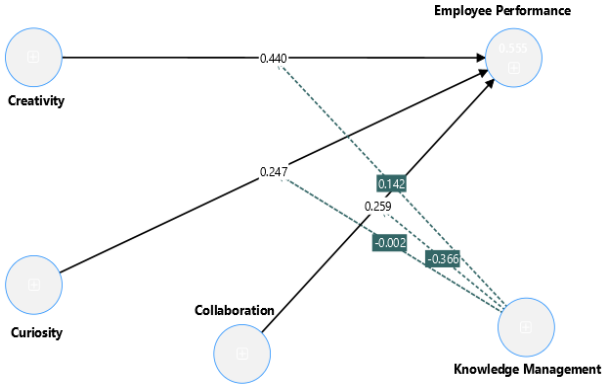

Fig. 1: Research Model.

3.2. Data collection

A structured questionnaire was designed for data collection through which responses were gathered from the main research constructs, including digital transformative leadership, employee performance, and knowledge management. This questionnaire had several statements that reflected every indicator of constructs, items for measures adapted from studies where it has previously been validated. The Likert-type scale of 5 points was practiced in the questionnaire, and its values range from 1 = Strongly Disagree to 5 = Strongly Agree. The instrument was administered via a closed-ended questionnaire to maintain uniformity and simplicity of response. We selected visionary leadership, inspirational motivation, intellectual stimulation, and individualized consideration as the criteria for digital transformative leadership assessments. The most relevant performance items employees were evaluated on included getting the job done, quality of work, and flexibility. Knowledge was addressed by defining the knowledge acquisition, knowledge sharing, storage, and application indicators. Third, the participants were electronically contacted by email and some IT-related online survey sources to present them with the questionnaire, which then allowed for targeting a variety of SMEs in the IT sector across various regions within Amman. The data collection process spanned over multiple weeks to determine the respondent's rate. We created an Excel file to save those answers after all the responses were received and converted every answer into a numeric value to implement for a better analysis (Ali et al., 2024). After finalizing the dataset, it was processed and analyzed through Smart-PLS 4 software. We began by evaluating the measurement model for reliability and validity before we tested the hypothesized relationships between the variables in the structural model.

3.3. Data analysis

Upon completion of the questionnaire data collection, data analysis was conducted, implemented using the Smart-PLS software, version 4, for analysis of the outer model elements, inner model elements, and hypothesis testing in Structural Equation Modeling. As specified, the primary aim of the study is to examine the influence of digital transformative leadership on member performance, with KM serving as

a moderating factor. In this case, the Partial Least Squares approach in SEM was implemented to optimize the amount of variability of the endogenous variables. The analysis process involved a result, such as the data quality assessment in relation to the characteristics of the measurement model and structural model. Descriptive statistics to present the demographic profile of respondents and transform identity data into numerical form. Test the relationships between the research variables and the moderating role of KM as proposed in the conceptual structural model. Outer model assessment to examine the relationship between each indicator and its corresponding latent construct includes two stages, confirmatory validity using indicator loadings and require that values above 0.6 and p-value lower 0.05 demonstrate the validity testing as AVE should be higher than 0.5 for each construct; and – discriminant validity using Fornell–Larcker criterion and cross-loading analysis where each indicator should load higher on its latent variable than individual loadings. Inner model assessment to assess the stable structure between the constructs includes determination coefficient R^2, which should have a value of 0.67, exhibits substantial explanatory power, 0.33 represents moderate, and 0.19 represents low explanatory power. Other measures are employed to review the model's robustness and predictive accuracy. Hypothesis testing using a bootstrapping procedure with 5,000 resamples was conducted to obtain t-statistics and hypothesis p-value. Thus, hypotheses assumed statistical significance at a 5% level of significance, with a 1.96 t-stat value.

4. Results

This study has the necessary data on all participants, and descriptive information was used to summarize the demographic aspects of the sample. Results: A total of 62% participants self-identified as male and 38% as female (Table 1). The most common age group was the 31–40-year-olds, who accounted for 28% of all, followed by the 41–50-year-olds and the 21–30-year-olds, accounting for 26% and 24%, respectively. Seventy percent of participants had a bachelor's degree as the highest educational qualification, 22% were Master's degree holder, and another 8% had a diploma or other qualifications. Professionally, 38% had between 11–15 years of work experience, with 26% having 6–10 years of experience, and the remaining 20% more than 15 years. These demographic distributions are balanced in gender and concentrated in mid-career professionals. and skewed towards IT sector SMEs with strong academic backgrounds doing business in Amman, Jordan. It is therefore appropriate that this composition would be well-suited to the purpose of the study on digital transformational leadership, employee performance, and the moderating role of knowledge management.

Table 1: Profile of Respondents' Demographics

Variable	Category	Frequency	%
Gender	Male	60	60
	Female	39	39
Age	20-30	13	13
	31-40	26	26
	41-50	30	30
	51-60	22	22
	>60	8	8
Education level	A diploma and less	15	15
	Bachelor	69	69
	Master	13	13
	Ph.d	2	2
Experience	<5 years	17	17
	6-10 years	23	23
	11-15 years	40	40
	16-20	12	12
	>20	7	7

The demographic profile of the respondents is seen in Table 1 below, with 60% male and 39% female. Age distribution: 30% of people were aged between 41–50 years, that is, the largest proportion; followed by those aged between 31–40 years (26%), between 51–60 years (22%), younger than 30 (13%), and over sixty users (8%). On education level, 69% of the participants held a bachelor's degree, while 15% held a diploma or less, 13% held a master's degree, and 2% held a D. (Professional Experience) 40% with >11 years, 23% with 6-10 years, 17 % with 20 yrs. This distribution is consistent with the mid-career professionals with higher education backgrounds that this study targeted in relation to digital transformative leadership, employee performance, and knowledge management.

Table 2: Cross-Loading Analysis

Constructs	Items	Factor loadings	Cronbach's Alpha	CR	(AVE)
Collaboration	CO1	0.865	0.885	0.916	0.686
	CO2	0.838			
	CO3	0.748			
	CO4	0.848			
	CO5	0.838			
Creativity	CR1	0.862	0.93	0.944	0.738
	CR2	0.851			
	CR3	0.843			
	CR4	0.806			
	CR5	0.907			
	CR6	0.882			
Curiosity	CR1	0.862	0.867	0.904	0.653
	CR2	0.851			
	CR3	0.843			
	CR4	0.806			
	CR5	0.907			
	CR6	0.882			
Employee Performance	EP1	0.808	0.898	0.925	0.711
	EP2	0.851			
	EP3	0.851			
	EP4	0.833			
	EP5	0.87			

	KM1	0.839			
	KM2	0.866			
Knowledge Managemen	KM3	0.908	0.912	0.934	0.739
	KM4	0.822			
	KM5	0.862			

Table 1 shows the outcome of the cross-loading analysis, which confirms that all constructs have good measurement properties. In the case of Collaboration, correct loading ranges between 0.748 and 0.865 (α = 0.885; ωc= 0.916; AVE = 0.686). The Creativity and Curiosity constructs had loadings ranging from 0.806 to 0.907, a reliability value of Alpha = 0.930, CR = 0.944, and AVE = 0.738 (Creativity), loadings from 0.806 to 0.907, Alpha.867, CR=.904 and AVE=.653 (Curiosity). Employee Performance had loading value within 0.808 and 0.870, Alpha score at 0.898, CR of 0.925, while the AVE was reported to be at an overall loading of 0.711 as well Knowledge Management which ranged 0.822 to 0.908, Alpha=0.912, CR=0.934 and AVE= 0.739; With all constructs exceeding the recommended thresholds for factor loadings, Cronbach's Alpha, AVE and CR [30] of 0.70 and 0.50 respectively (Table 1), this demonstrates high internal consistency reliability and convergent validity across the measurement model, making them suitable for further structural model assessment.

Table 3: Discriminant Validity HTMT

	Collaboration	Creativity	Curiosity	Employee Performance
Collaboration				
Creativity	0.302			
Curiosity	0.5	0.389		
Employee Performance	0.561	0.366	0.642	
Knowledge Management	0.399	0.456	0.427	0.382

Table 2 shows that HTMT results are lower than the generally accepted heuristic level of 0.85 (Henseler et al., 2015), which implies good discriminant validity of the constructs. The values for HTMT ratios fall between 0.302 (Collaboration with Creativity) and 0.642 (Curiosity with Employee Performance), which indicates that every construct is distinct from the others empirically. The results indicate that Collaboration, Creativity, Curiosity, Employee Performance, and Knowledge Management load on distinct conceptual domains within the study framework; thus, support for discriminant validity of the measurement model and the rigidity of subsequent structural model analysis.

Table 4: Discriminant Validity Fornell-Larcker's

	Collaboration	Creativity	Curiosity	Employee Performance
Collaboration	0.828			
Creativity	0.275	0.859		
Curiosity	0.44	0.362	0.808	
Employee Performance	0.498	0.348	0.579	0.843
Knowledge Management	0.367	0.917	0.394	0.351

Table 3 displays the results of the Fornell–Larcker criterion testing, where the square root of the Average Variance Extracted (AVE) for each construct in the diagonal is higher than any other correlation, supporting discriminant validity (Fornell & Larcker, 1981). To illustrate, Collaboration has a diagonal value of 0.828, well above its correlation with Creativity (0.275), Curiosity (0.440), Employee Performance (0.498), and Knowledge Management (0.367). Also, diagonal values for Creativity(0.859), Curiosity(0.808), Employee Performance (0.843), and Knowledge Management (0.917) are higher than any off-diagonal correlations in their row and column positions. These data show an empirical distinctiveness of each construct, i.e., meeting the discriminant validity, hence support the measurement model as applicable for further structural analysis

5. Hypothesis Testing

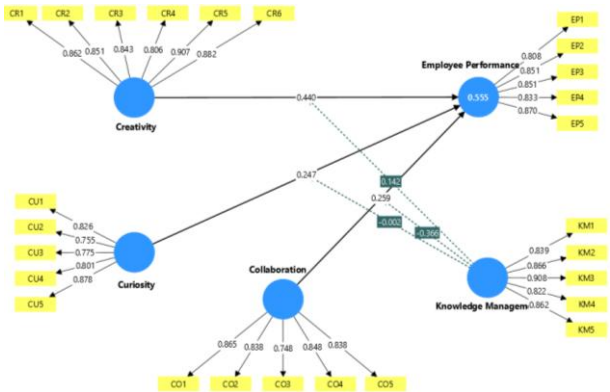

Fig. 2: Structural Model Results Using PLS-SEM.

Figure 2: Structural model results with PLS-SEM: The path relationships among digital transformative leadership, employee performance, and the moderating role of knowledge management. The model shows the standardised path coefficients and their levels of significance, which indicates the direction and strength of each proposed relationship. Table 3 displays the R^2 scores for the endogenous constructs, which indicate the amount of explained variance in each endogenous variable by the exogenous structures. This outcome completely proves that digital transformative leadership influences the performance of employees with a positive and significant impact, although knowledge management not only has a direct positive effect on the performance but also can strengthen the relationship between leadership and performance through its moderating role. The visual representation corroborates that the constructs are all interlinked (and consistent with expected hypotheses), validating the underlying theory and providing data to support our conceptual model for the paper.

Table 5: Structural Model Estimates (Path Coefficients)

Hypo	Relationships	Std. Beta	Std. Error	T-Value	P-Values	Decision
H1	Collaboration -> Employee Performance	0.259	0.057	4.554	0	Supported
H2	Creativity -> Employee Performance	0.44	0.12	3.682	0	Supported
H3	Curiosity -> Employee Performance	0.247	0.066	3.764	0	Supported
H4	Knowledge Management -> Employee Performance	-0.211	0.125	1.688	0.092	Unsupported
H5	Knowledge Management x Collaboration -> Employee Performance	-0.366	0.069	5.328	0	Supported
H6	Knowledge Management x Creativity -> Employee Performance	0.142	0.054	2.637	0.008	Supported
H7	Knowledge Management x Curiosity -> Employee Performance	-0.002	0.072	0.034	0.973	Unsupported

The results for the hypothesized relationships are shown in Table 5. The results of the study suggest that Collaboration significantly and positively influences employee performance ($\beta = 0.259$, $t = 4.554$, $p < .001$) and thus supports H1(a). Creativity also has a strong and positive effect on employee performance ($\beta = 0.440$, $t = 3.682$,$p < 0.001$), which again supports H2. Similarly, Hypothesis H3 is supported by our data; Curiosity shows a strong positive relationship with employee performance ($\beta = 0.247$, $t = 3.764$,t=.assis00 regression work <0001). H4 is rejected because KM alone does not have a significant effect on employee performance ($\beta = -0.211$, $t = 1.688$, $p = 0.092$). As for the moderation effects, Knowledge Management ~ Collaboration significantly negatively moderates employee performance ($\beta = -0.366$, $t = 5.328$, $p < 0.001$, supports H5), and Knowledge Management × Creativity significantly positively moderates employee performance ($\beta = 0.142$, $t = 2.637$, $p = 0.008$, supports H6). Contrary to this, Knowledge Management × Curiosity is insignificant ($\beta = -0.002$, $t = 0.034$), $p = 0.973$), which leads to the non-acceptance of(rejection) H7. These results indicate that the primary effects on employee performance for collaboration, creativity, and curiosity are positive, but that the moderating role of knowledge management is highly contingent, augmenting some relationships while negating others.

6. Discussion

The findings of this research contribute to the body of knowledge on four axes: The antecedents (collaboration, creativity, and curiosity as key digital transformative leadership dimensions) to employee performance in terms of SMEs within the Jordan IT sector; the moderator role played by knowledge management. Results - The findings supported H1, H2, and H3 – all three dimensions have significant and positive effects on employee performance. Leaders who foster collaboration allow for more innovation, creativity, and imagination to occur in the workplace, which results in higher employee engagement, flexibility, and service quality. From the three factors, creativity came up as a significant one, which means higher performance in a technology-driven business environment needs to be promoted by innovative thinking and problem-solving. This supports the belief that digital transformation is best served by leaders who encourage playing with new tech to design and build performance-driving solutions. On the other hand, a direct unmediated relationship between knowledge management and employee performance (H4) was not confirmed as well. This is consistent with the idea that knowledge management capability, as such, does not directly influence individual performance, and it must be cohesive with leadership behavior and operational practices. Though knowledge systems that are not well integrated with daily workflows will never really have a noticeable effect on bettering performance outcomes. The moderation outcomes also offer more perspective. H5: Knowledge management has a significant negative moderating effect on collaboration and employee performance. This implies that knowledge processes with considerable formalisation may limit the flexibility and spontaneity fundamental for collaboration to be effective, which may impact the agility of idea generation and decision making. However, the interaction between creativity and knowledge management on employee performance was significant in a positive way (H6), indicating that organized processes to capture and disseminate knowledge can amplify the power of creativity by ensuring innovative ideas are molded and diffused through all levels of an organization. The influence of knowledge management on the relationship between curiosity and employee performance (H7) was not significant, suggesting that when it comes to its impact on job outcomes, curiosity activity may be based more on self-activity and tends not to rely as much on formal systems built around knowledge. In general, the results suggest that the effect of digital transformational leadership on employee performance may be enhanced or attenuated depending on how knowledge management is executed. The RSV holds that sustainable performance advantages can be generated by the tight bundling of valuable leadership capabilities and organizational resources. Second, the more negative moderation effect found with collaboration suggests that over-formalization in a knowledge system can inhibit processes that rely on adaptability and fluid communication as well. Finally, to ensure the most efficient digital transformative leadership, organizations should monitor that knowledge management practices do not inhibit but enhance work collaboration with a focus on effective knowledge sharing from the managerial perspective. The ways of sharing the knowledge must leverage the supporting system and not replace leadership in-house or creative initiative. Solutions should support broader applications across teams. Second, managers should understand that curiosity-based exploration is most strongly fostered by providing employees with autonomy and choice rather than over-standardizing system constraints. Originality: In introducing the curve-linearity relationship between curiosity and either positive or negative slack resource, in all of its logical-empirical details. Future studies also may look at other moderators such as digital maturity, industry characteristics, or leadership experience, which are theoretically grounded in the individual perspective, and adopt a longitudinal approach to explore how the interaction effect between digital transformative leadership, knowledge management, and employee performance gets shaped over time.

7. Conclusion

6.1. Empirical results

This study investigates how digital transformative leadership affects the performance of employees, covering knowledge management as a moderating effect. Using data collected from the IT sector of SMEs in Jordan and adopting the PLS-SEM technique, we established that digital transformative leadership enhances employee performance through its three dimensions: collaboration, creativity, and curiosity (Fig.). The previous method shows that knowledge management enhances the relationship between creativity and performance (strengthens)and might attenuate the one related to collaboration-performance (weakens) when excessive formalization occurs, while curiosity has no significant effect. These results suggest that addressing and designing KM practices based on leadership-promoted performance initiatives are necessary for organizations.

6.2. Theoretical implication

These findings support leadership and provide empirical evidence of the role that digital transformative leadership plays in employee performance in technology-based SMEs. It builds on earlier empirical studies by showing that leadership impacts might be increased or decreased by the manner in which knowledge management systems are designed and implemented. Authors of the study stress that ideal leadership requires more than just a particular set of leader traits; it also demands that leadership behaviour is matched with organizational resources(Shehadeh et al., 2024). This research will enhance the theoretical understanding of how leadership influences sustainable performance outcomes by weaving knowledge management into the leadership–performance framework. The insights we developed enable scholars to engage with even better specified considerations of leadership styles and resource configurations, supporting them in a more theoretical way as well as better decision support for digital leaders.

6.3. Practical implication

This is complemented by an examination of the moderating role played by knowledge management in the relationship between digital transformative leadership and employee performance. These tactical takeaways create a blueprint not only for SMEs, but also for other businesses in tech-heavy, rapidly evolving industries. Key takeaway: SMEs who promote leadership that fosters collaboration, creativity, and curiosity can improve employee performance, provided these behaviors are supported by knowledge management practices rather than hindered by them. The results underscore the importance of having effective leaders in these digital transformation efforts who can operationalize sharing knowledge systems to expedite digital progress and gain a competitive advantage in a digital-dominated world. This can guide how the leadership and knowledge management approach in SMEs could be taken for enabling innovation, learning, and flexibility with respect to SMEs in Jordan. This is where a better leadership capacity, in conjunction with skillfully selected knowledge management systems, can allow their resource allocation to be more efficient, problem-solving capabilities to be higher, and workforce productivity to be well sustained. The findings also have implications for the importance of addressing challenges related to limited access to state-of-the-art digital infrastructure, financial constraints, and focused training in terms of employees. Taking these challenges head-on can lead to better implementation of digital leadership approaches, wider knowledge utilization, and better performance implications for SMEs.

6.4. Research limitations

The modest maturity of digital transformative leadership practices among SMEs in Jordan was one downside that this study faced, as some firms were not willing to share detailed information and were more open to engage in research tasks (Morshed et al., 2024). Greater organizational data access might have improved methodological rigor and served as a broader base for analyzing the moderating nature of knowledge management, especially when looking at the model across other levels of the organization. Despite these limitations, the study provides valuable contributions regarding how collaboration, creativity, and curiosity, individual dimensions of DTL, influence employee performance, with significant insights into the roles KM plays in reshaping these relationships. In sum, these findings offer a more detailed theory about when and how digital leadership impacts performance and extend the emerging understanding of digital leadership.

6.5. Future research directions

While this study contributes with a quantitative approach and focuses on SMEs in the Jordanian IT industry to be able to give meaningful results, we suggest in future research that qualitative methods can offer additional insight by going deeper into the understanding of how digital transformational leadership influences employee performance and how knowledge management is playing a role. It is recommended that future research should consider other independent variables like digital skills development, technological readiness, and organizational learning capacity, and even extend to external forces of competitive intensity and regulatory frameworks, thus providing a more comprehensive insight into the managerial practice of digital leadership. Extending beyond the regional and sectoral context, research in this field in the future may gain insights into the broader patterns and contextual variances by comparing countries to one another as well as different types of industries. Also, by using longitudinal designs, researchers can track changes in relationships between leadership behaviors and knowledge management practices on employee performance over time and monitor the dynamics of digital environments that drive sustaining change.

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