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Contextualizing the Links Between Digital Leadership, Creative Self-Efficacy and Innovation Performance

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Abstract

Innovation has become a critical aspect of organisational success, and understanding the factors that influence it is paramount. Leaders are crucial within organisations because they are responsible for selecting, providing for, and influencing one or more followers. Different leadership styles, starting with the traditional one that is centred on controlling, competitive, and aggressive concepts, are brought out by the always-changing period. Digital leadership has a significant impact on prompting and shaping innovation and performance within organisations. The sample was drawn from a population of employees working in a manufacturing company in Turkey. Convenience sampling techniques were utilised. SPSS was used for data analysis. Descriptive, correlation and regression analyses were conducted. The variables employed in this study were digital leadership, creative self-efficacy, and innovation performance. The result indicates that digital leadership has a significant positive effect on creative self-efficacy and innovation performance. Creative self-efficacy was found to have a significant positive effect on innovation performance. Creative self-efficacy has a significant mediation effect on the link between digital leadership and innovation performance. Leaders must embrace digital leadership qualities to create an environment that empowers individuals with creative self-efficacy, thereby fostering a culture of innovation. As organisations navigate the complexities of the digital frontier, understanding and harnessing these interconnected elements will be instrumental in ensuring sustained success and competitiveness in an ever-evolving business landscape.

Keywords: digital leadership, creative self-efficacy, innovation performance, organizational management, organizational success

1. Introduction

1.1 Background of the Study

Innovation has emerged as a crucial component of organisational success, so it is essential to comprehend the factors that influence it. This study aims to provide a thorough analysis of the relationship between digital leadership, creative self-efficacy, and innovation performance, in line with existing research. It identifies a causal relationship between creative self-efficacy and digital leadership, both of which have a significant impact on innovation performance. Shehadeh et al. (2023) suggested that these shifts are prompting organisations to modernise their resources to gain a competitive advantage. A new wave of economic and industrial revolution is being propelled by the emergence of digital technology, which includes innovations such as artificial intelligence, blockchain technology, cloud computing, big data, edge computing, and 5G. This revolution fundamentally alters organisational management. Digital transformation encompasses efforts to harmonise organisational efficacy, people, structure, and tasks; it extends beyond merely installing better technology in a rapidly evolving digital landscape. For instance, projections indicated that by 2022, 47% of organisations would achieve technological advancement, 20% would adopt digital leadership, and 53% would shift from traditional systems to public cloud-based solutions. However, numerous organisations still require substantial progress before fully embracing digital transformation.

1.2 The Importance of the Problem

Leaders are crucial within organisations because they are responsible for selecting, providing for, and influencing one or

more followers (Onan et al., 2025). Additionally, followers who respect and feel a connection to their leaders are more motivated and prepared to work enthusiastically than those doing so under forced compliance. The ever-changing period brings out different leadership styles, starting with the traditional one that centres on controlling, competitive, and aggressive concepts. Digital leadership has a significant impact on prompting and shaping innovation and performance within organisations. According to Zhang et al. (2023), the interplay between creative self-efficacy, digital leadership, and innovative performance forms a dynamic nexus within organisational dynamics. Creative self-efficacy, defined as the belief in one's ability to produce novel and valuable ideas, serves as the foundational bedrock for nurturing innovative thinking. When paired with effective digital leadership—marked by the ability to leverage technological advancements and empower teams—it fosters an environment that is conducive to ideation and experimentation. This synergy enhances innovation performance by fostering a culture that not only accepts change but also flourishes in it. Digital leaders, by instilling confidence in individuals' creative potential and employing digital tools to promote collaboration and the implementation of ideas, strengthen the link between creative self-efficacy and concrete innovation outcomes. Consequently, the interdependent relationship among these concepts creates a robust framework in which the empowerment of creative capabilities through digital leadership is vital for achieving sustained innovation and organisational success (Zhang et al., 2023).

1.3 Description of Relevant Scholarship

1.3.1 The Concept of Digital Leadership

Digital leadership is a modern management approach that highlights the importance of utilising digital technologies, innovative strategies, and visionary guidance to navigate and thrive in the digital era (Cetinkaya & Sürücü, 2025). It involves a set of competencies and behaviours demonstrated by leaders, enabling them to effectively guide organisations through digital transformation, harness technological advancements, and seize digital opportunities to drive success. At its essence, digital leadership centres on the utilisation of digital tools and technology to achieve strategic objectives and foster organisational growth. This approach not only requires an understanding of technological trends but also necessitates the promotion of a culture of innovation and adaptability within the organisation. Digital leaders serve as catalysts for change, advocating for the integration of technology across various aspects of the business to enhance efficiency, productivity, and overall performance. According to Tigre et al (2023), digital leadership includes several key aspects, including:

i. Vision and strategy: Effective digital leaders have a well-defined vision for harnessing digital technologies to advance organisations. They formulate thorough strategies that are in harmony with this vision, pinpointing how digital initiatives can generate value, foster innovation, and achieve business objectives.
ii. Technological acumen: A strong understanding of emerging technologies and their potential impact on the industry is crucial for digital leaders. They stay abreast of technological advancements and are proactive about adopting and implementing relevant innovations within the organisation.
iii. Cultural transformation: Digital leadership entails cultivating a culture that welcomes change, promotes experimentation, and values continuous learning. Leaders inspire collaboration, encourage risk-taking, and foster an agile mindset to navigate the swiftly changing digital landscape.
iv. Empowerment and collaboration: Digital leaders empower their teams by providing the necessary resources, training, and support to leverage digital tools effectively. They encourage cross-functional collaboration and create an environment conducive to innovation and knowledge sharing.
v. Customer-centric approach: Digital leadership strongly emphasises the importance of understanding and addressing the evolving needs of customers in today's digital landscape. Leaders use data and digital channels to improve customer experiences and implement customer-centric strategies.
vi. Ethical and Responsible Use of Technology: Digital leaders emphasise the significance of ethical considerations and the responsible implementation of technology. They advocate for ensuring data privacy, security, and adherence to ethical practices across all digital initiatives.

Ultimately, digital leadership comprises more than merely the implementation of technology; it also involves fostering a mindset that embraces digital transformation as a means of driving organisational growth, agility, and competitive advantage. It requires a blend of strategic thinking, technological expertise, cultural adaptation, and a forward-looking approach to navigate the complexities of the digital landscape (Tigre et al., 2023).

1.3.2 The Concept of Creative Self-Efficacy

Creative efficacy, also known as creative self-efficacy, is a psychological construct that refers to an individual's belief in their capability to generate novel and valuable ideas or solutions in their creative endeavours. It is grounded in

Bandura's (1999) social cognitive theory, which emphasises the role of self-belief in shaping behaviour. In the context of creativity, the term means that individuals with high creative efficacy are more likely to engage in creative activities, persevere through challenges, and produce innovative outcomes. Moreover, creative self-efficacy has been found to positively correlate with an individual's willingness to take risks and explore new ideas, both of which are crucial in the innovation process (Maslakçı et al., 2022).

Studies by Magenes et al. (2022) and Zhang, et al. (2023) have highlighted a positive correlation between high levels of creative self-efficacy and increased individual creativity across various domains. Building on this, the influence of creative self-efficacy extends to the realm of digital leadership; leaders who hold strong beliefs about their creative capabilities are more likely to foster innovative cultures within their organisations. Visionaries such as Steve Jobs at Apple and Satya Nadella at Microsoft exemplify this, underscoring the essential role of digital innovation through their transformative leadership styles. Furthermore, creative self-efficacy has a significant impact on innovation performance within companies. Empirical evidence from research conducted by Stofberg et al. (2021) indicates that employees with elevated creative self-efficacy are more likely to engage in idea generation and problem-solving, especially when using digital tools and technologies. Prominent companies like Google, 3M, Amazon, Airbnb, and Netflix illustrate how nurturing creative self-efficacy among employees can result in a wealth of innovative products, adaptive solutions, and sustained market success.

The synthesis of the literature underscores the interplay between creative self-efficacy, digital leadership, and innovation performance. Leaders who foster creative self-efficacy through supportive environments and the strategic use of digital tools create cultures that promote innovation. While these insights offer valuable perspectives, challenges persist in accurately measuring creative self-efficacy and establishing direct correlations with innovation performance. As creative self-efficacy stands as a cornerstone in driving digital leadership initiatives and innovation performance within organisations, this research aims to develop a more refined and more profound understanding of the impact of creative self-efficacy on digital leadership and innovation performance. Leadership plays a crucial role in cultivating innovative cultures within organisations; however, leaders who exhibit strong creative self-efficacy foster environments where creativity can flourish by encouraging team members to explore novel ideas, experiment with digital tools, and set the stage for groundbreaking advancements within their respective industries (Wang & Shao, 2024).

1.3.3 The Concept of Innovation Performance

Innovation performance refers to an organization's ability to effectively generate, implement, and manage innovative ideas and practices to achieve strategic goals, improve competitiveness, and create value (Toros et al., 2021). It involves measuring the success and outcomes of innovation initiatives within an organisation and assessing how it contributes to growth, profitability, and overall success. According to Usai et al. (2021), innovation performance refers to the quantitative and qualitative assessment of an organisation's innovation activities and outcomes. It comprises the measurement of innovation-related metrics, such as the number of patents filed, revenue generated from new products or services, market share growth, customer satisfaction scores, and the overall impact of innovation on the organisation's market positioning and competitive advantage. It reflects the effectiveness and efficiency of an organization's innovation strategies in creating value, driving growth, and adapting to changing market demands and technological advancements. The key aspects of innovation performance include:

i. Idea generation,
ii. Implementation and execution,
iii. Adaptability and flexibility,
iv. Market impact,
v. Customer value creation,
vi. Return on investment (ROI) from innovation,
vii. Organisational learning and knowledge sharing: Innovation performance also encompasses the organisation's capacity to learn from both successes and failures, fostering a culture of continuous improvement and knowledge sharing (Usai et al., 2021).

Lorenzo et al. (2021), it was noted that measuring innovation performance requires the use of various metrics and key performance indicators (KPIs) that are tailored to the specific goals and context of the organisation. These metrics may encompass research and development expenditure, the number of patents or new products developed, revenue generated from new products or services, customer satisfaction scores, and employee involvement in innovation activities. Effective innovation performance is not merely about the volume of innovative ideas; it also encompasses their quality, impact, and alignment with the organization's strategic objectives. In an ever-evolving business environment,

organisations that adeptly manage their innovation performance can secure a competitive advantage, respond to market changes, and foster sustainable growth. Based on the above argument, the following hypothesis is postulated:

1.3.4 Hypothesis Development

1.3.4.1 Role of Digital Leadership in Cultivating Creative Self-Efficacy

An environment that fosters experimentation with digital tools, rewards creative thinking, and supports the implementation of digital solutions that improve efficiency, customer experience, and overall organisational performance can greatly facilitate innovative work behaviours in the context of digital culture and leadership. As leaders set the tone for the adoption of technology and the stimulation of creativity throughout the organisation, digital leadership plays a critical role in promoting and modelling such behaviour. According to Phakamach et al. (2023) digital leadership entails directing and motivating teams or organisations amidst the rapidly evolving landscape of digital technologies. A leader plays a crucial role in an organisation because they are responsible for choosing, preparing, training, and influencing one or more followers.

Furthermore, a leader in the digital age is someone who appreciates the potential of digital tools and trends, successfully exploits them to promote innovation and efficiency, and cultivates a culture of continuous learning and adaptation. To navigate the digital world and guide their teams through the process of digital transformation, digital leaders must be more than mere technological specialists; they also require strong interpersonal and strategic skills. In the context of rapidly evolving digital technology, digital leadership involves directing and motivating teams or organisations. According to Wang and Shao (2024), it is essential to explore the relationship between digital leadership and organisational culture. However, managing teams remotely presents new challenges for leaders; for instance, collaborating physically with employees can be relatively difficult. This study specifically examines how digital culture influences creative behaviours in the workplace.

It is crucial to understand the influence of digitisation on organisational leadership practices and worker attitudes. Recent research has investigated the impact of digital leadership on innovative behaviour, uncovering key insights that enhance our comprehension of digitisation, the digitalisation of labour, and the notion of digital leadership itself. Research by Günther et al. (2022) illustrates the importance of leadership in human resource management, notably with the impact of the Covid-19 epidemic on employee well-being. The research focusses on the use of digital platforms in e-recruitment processes and highlights the transition in management studies from traditional leadership to digital leadership (Erhan et al., 2022). Therefore, proficient digital leadership is essential for enabling a successful change within businesses.

Hypothesis 1: Digital Leadership has a positive significant effect on Creative Self-Efficacy

1.3.4.2 Impact of Digital leadership on Innovation Performance

In the digital age, digital leadership entails directing and motivating teams. An individual who successfully negotiates the complexity of technology and exploits it to promote innovation, growth, and organisational transformation is referred to as a “digital leader”. Digital leaders are flexible, open to change, and adept at using digital tools to improve customer or client experiences, streamline operations, and promote a culture of lifelong learning. They frequently place a strong emphasis on teamwork, data-driven insights, and the advancement of digital competencies within their teams. In the contemporary business landscape, the role of digital leadership in driving innovation performance has garnered significant attention. Digital leadership plays a significant role in shaping innovative cultures within organisations.

Avolio et al. (2009) emphasise the crucial role of digital leaders in creating environments that promote innovation. Notable figures, such as Jeff Bezos, through his leadership at Amazon, have spearheaded digital transformation initiatives that prioritise experimentation and create environments that encourage disruptive thinking among employees. The influence of digital leadership on innovation performance is multifaceted. For instance, research by Benitez et al (2022) highlighted the importance of digital leadership in enhancing both idea generation and execution. Companies like Google, recognised for initiatives such as Google Workspace, offer digital platforms that facilitate collaborative ideation, thereby positively impacting innovation performance metrics. Moreover, effective digital leadership improves an organisation’s problem-solving abilities by harnessing digital technologies.

Innovative work behaviour measures an organization's ability to transform innovative ideas into practical results. High innovation performance within the organisations means it has likely created a culture that values experimentation, creativity, and the adoption of fresh ideas. Such behaviour may result in improved services, greater operational effectiveness, and a more powerful position in the market. Organisations may benefit from understanding the connections between digital culture, digital leadership, and innovative work behaviour. It could inform training initiatives, leadership development programs, and strategies for promoting an innovative culture in the digital era (Muchiri et al., 2020).

Considering that the research model could be more intricate and subtle than this simplified overview, investigating the relationships and interactions between these three concepts would pave the way toward understanding the influence of digital leadership in today's business environment. To demonstrate the interplay between leadership styles, creative self-efficacy, and innovation performance, Khan et al. (2020) noted that the following assumptions describe how the model functions:

1. Digital culture fosters the development of digital leadership. Leaders who possess confidence in their creative skills are more inclined to employ digital leadership strategies that inspire creativity and innovation within their teams.
2. Effective use of digital technologies and methods by leaders can help foster an environment that is conducive to innovation, which in turn improves the organisation's innovation performance.
3. Both digital culture and digital leadership have a favourable impact on self-efficacy and innovation performance. Individuals who have higher levels of creative innovation are more likely to contribute original ideas and advance innovative work practices within organisations.
4. Digital leadership plays a crucial role in mediating the relationship between creative self-efficacy and innovation performance. Digital leadership can serve as a link between a person's creative self-efficacy and an organization's innovative performance.

Moreover, Akram et al. (2020) explained that the relationships within the model could be further influenced by various mediating factors. For instance, the impact of digital leadership on innovation performance may be moderated by elements such as organisational culture, technology infrastructure, and team dynamics. Consequently, researchers have the opportunity to collect information through methods such as surveys, interviews, and potentially organisational observations to evaluate the effectiveness of this model. The strength and significance of the correlations proposed in the model can be assessed statistically employing techniques like regression analysis or structural equation modelling.

The integration of these concepts highlights the complex interrelationships between digital leadership, creative self-efficacy and innovation performance. Employers who deploy digital leadership within their work environment are more likely to produce a workforce that is receptive to the use of new technologies and methods of operation. Digital leaders who foster a culture of trust and welcome experimentation can increase workers' confidence in their own creative abilities. Consequently, employees who are confident in their creative abilities are more likely to contribute novel ideas and participate in innovative projects, which in turn can have a positive effect on innovation performance. In today's digitally driven environment, it is crucial that a holistic approach is adopted that takes into account organisational dynamics, leadership styles, and individual self-efficacy to enhance an innovative culture and achieve exceptional innovation performance (Khan et al., 2020).

Hypothesis 2: Digital leadership has a positive effect on innovation performance

1.3.4.3 Impact of Creative self-efficacy on Innovation Performance

Creative self-efficacy, as grounded in Albert Bandura's social cognitive theory, serves as a fundamental psychological driver that significantly influences behaviour and achievement, particularly in the realms of creativity and innovation. Bandura's theory posits that an individual's belief in their ability to perform specific tasks is a key determinant of their actions. In the context of creativity, this theory suggests that individuals with high creative self-efficacy are more likely to approach challenges and problem-solving with a sense of confidence and competence. This confidence is a catalyst for engaging in creative endeavours, exploring novel ideas, and contributing meaningfully to the innovation process.

Teresa Amabile's Componential Model of Creativity further enriches our understanding by emphasising the role of intrinsic motivation and task-relevant skills. Creative self-efficacy aligns with the intrinsic motivator in Amabile's model, driving individuals to pursue creative activities because they locate them inherently rewarding. Moreover, high levels of creative self-efficacy can be considered indicative that the individual possesses the task-relevant skills crucial for effective creative problem-solving. As innovation is often a multifaceted and collaborative process, the significance of creative self-efficacy becomes even more pronounced. Recognising innovation as a product of diverse perspectives and ideas, individuals with high levels of creative self-efficacy are more likely to contribute their unique insights and approaches. The belief in one's own creative capabilities fosters a collaborative environment where individuals feel empowered to share and integrate their creative contributions, ultimately enriching the innovation landscape.

Moreover, the positive impact of creative self-efficacy extends to the willingness to take risks and engage in experimentation, both of which are critical components of the innovation process. Individuals who believe in their own creative abilities are more likely to step out of their comfort zones, explore unconventional ideas, and push the boundaries of traditional thinking. Empirical evidence supports this conceptual argument, with numerous studies showcasing positive correlations between high levels of creative self-efficacy and various facets of innovation. Whether

in the context of idea generation, problem solving, or product development, individuals with a strong sense of creative self-efficacy consistently demonstrate a propensity for contributing innovative solutions (Javed et al., 2021). See Figure 1. Thus, the following hypothesis:

Hypothesis 3: Creative self-efficacy has a positive significant effect on innovation performance

1.3.4.4 Creative Self-efficacy as a Mediating Factor Between Digital Leadership and Innovation Performance

Self-efficacy is correlated with people's capacity and confidence to face obstacles. An essential prerequisite for devising original and creative ideas is creative self-efficacy. It has been argued in previous research that individuals with higher levels of creative self-efficacy are better able to use creativity and innovation to enhance their work-related activities, whereas individuals with lower levels of creative self-efficacy perform less creatively and innovatively.

The creative and inventive minds within the workplace transform goods and services by harnessing fresh concepts and assisting businesses in meeting consumer and customer demands. However, it has also been observed that innovation cannot occur without employee initiative. Such initiatives may arise when organisations empower their personnel to generate and explore new and original ideas. The concept of digital leadership enhances individuals' confidence levels, enabling them to embrace challenges and convert them into opportunities through empowerment, information sharing, and collaboration. Employees who are eager to learn and work in an environment that prioritises learning are more likely to propose creative and valuable suggestions for enhancing service processes (Khan et al., 2020).

During the change process, digital leadership enhances assurance by fostering creative self-efficacy within a culture of learning. This approach mitigates the perceived threats associated with changes in policies and procedures, which could otherwise lead to the failure of the change implementation process. Numerous studies have shown a positive correlation between creative self-efficacy and creative work behaviour.

This study highlights the intricate interplay between creative self-efficacy, digital leadership, and innovation performance. Creative self-efficacy serves as a critical driver of innovation, and effective digital leadership plays a crucial role in shaping employees' belief in their creative abilities. Moreover, creative self-efficacy acts as a mediator in the relationship between digital leadership and innovation performance. Understanding these relationships is essential for organisations aiming to cultivate a culture of innovation and leverage digital technologies for competitive advantage. Moreover, creative self-efficacy is not a static phenomenon; it can be nurtured and developed. For instance, organisations can implement training programs and workshops that provide employees with tools and techniques to enhance their creative problem-solving skills. By fostering an environment that recognises and celebrates creative efforts, organisations can further boost employees' confidence in their creative abilities. Empirical studies have shown that individuals with elevated creative self-efficacy are more likely to engage in divergent thinking, a critical cognitive process in the ideation phase of innovation. This kind of thinking allows individuals to generate multiple, diverse solutions to a problem, increasing the likelihood that novel and effective approaches will be identified (Puozzo & Audrin, 2021).

Hypothesis 4: Creative self-efficacy has a positive significant mediation effect on the link between digital leadership and innovation performance

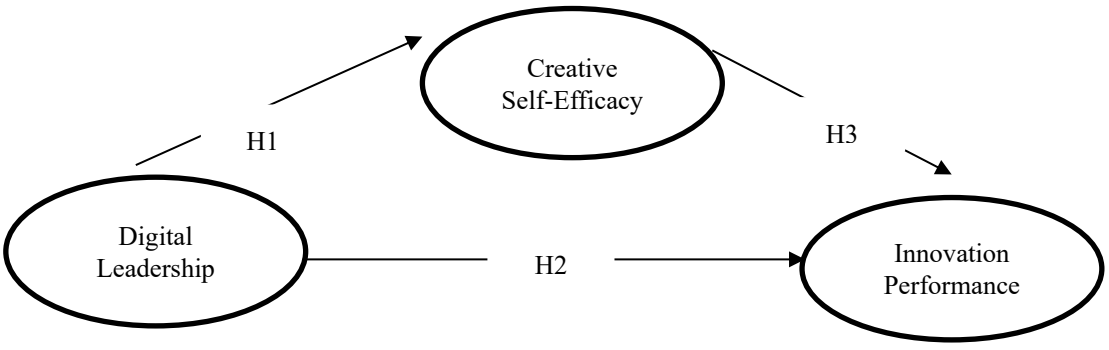

Figure 1. Conceptual Model

2. Method

2.1 Participants Characteristics

The research population comprises employees currently working at a company that holds a significant position in Türkiye's smart home products market. Permission to conduct the research was granted by the manager after the researchers sought the manager's approval. The researchers further emphasise the practicality of the study, highlighting

the potential benefits of the findings for managers and policymakers in making informed decisions. The participants were then informed about the purpose of the research and assured that their anonymity would be maintained. Written informed consent was obtained from all participants before the questionnaire was administered.

2.2 Sampling Procedure

The questionnaires were distributed to the participants using the convenience sampling method. Convenience sampling, also known as haphazard sampling or accidental sampling, is a type of nonprobability sampling in which participants from the target population are selected based on specific practical criteria (Nuhu et al., 2025). This method involves selecting study subjects who are readily accessible to the researcher.

2.3 Sample Size

The researchers distributed a total of 550 questionnaires, of which 489 were returned within three days. Among these, 101 were returned blank, while 24 contained missing values or were filled out incorrectly, yielding a response rate of 66%. After the data cleaning and filtering process, 364 responses were considered valid for analysis. Prior to data collection, the authors conducted a pilot study with thirty consenting volunteers. The findings demonstrated strong validity and reliability metrics, signifying that the research instrument is highly dependable and consistent, rendering it appropriate for the study (i.e., Cronbach's alpha > 0.70; AVE > 0.50).

Nuhu et al. (2025) determined that an increased sample size enhances result reliability and observed that measurement theory typically overlooks significant sampling errors, thus recommending a minimum of 300 participants. Furthermore, Sürücü et al., 2023 suggest that a sample size of 300 or above is adequate and appropriate for factor analysis. These studies indicate a robust reliability of the questionnaire, as evidenced by the inclusion of 364 participants. The research by authors indicates that a sample size of 300 or greater is adequate and impartial for factor analysis (Sürücü et al. 2023). The aforementioned research confidently affirms that the study's sample size of 364 maintains the reliability of this questionnaire.

The results of the demographic analysis indicate that there were 160 female participants and 204 male participants. Additionally, 261 participants were married, while 103 were single. Regarding education, 49 participants had a high school diploma or below, 118 held an associate degree, 192 had a bachelor’s degree or higher, and 5 had postgraduate degrees. In terms of work experience, 37 participants had been in the workforce for less than one year, 166 for 1 to 5 years, 97 for 6 to 10 years, 45 for 11 to 15 years, and 18 for more than 15 years. The average age of the participants was 35.81 years.

2.4 Data Analysis

IBM SPSS v.27 program was used to analyze the research data. First, descriptive statistical analyses were conducted in the research and then the validity and reliability of the structures used in the research were determined. Process Macro, developed as an add-on to SPSS, was used to test the research hypotheses. The PROCESS macro developed by Andrew Hayes is extensively utilised for mediation, moderation, and conditional process analysis in statistical research. A key benefit of this program is its ability to automate complex statistical processes, thereby reducing the need for manual coding in SPSS. The upper and lower confidence intervals generated by the PROCESS macro provide accurate estimates of indirect effects, helping researchers determine the importance of mediation or moderation interactions. Additionally, it employs bootstrapping, enhancing the dependability of results by reducing bias in small sample numbers. The macro enhances the analysis of interaction effects, aiding in the interpretation of conditional relationships among variables.

2.5 Measures

The second section comprises three variables, each encompassing unique items. To ensure the validity and reliability of the scales, the measures employed in this study were adapted from prior research. To assess digital leadership, a one-dimensional construct, the authors used a 6-item scale developed by Zeike et al. (2019). This scale aimed to gauge participants’ perceptions of their manager’s digital leadership. Participants’ levels of agreement with the statements were measured using a Likert scale, ranging from 1 (disagree completely) to 5 (agree completely). Sample items from the scale are as follows: “When it comes to digital knowledge, my manager is always up to date” and “My manager drives the digital transformation forward proactively in our unit.”

To measure the participants’ creative self-efficacy, the creative self-efficacy scale developed by Tierney and Farmer (2002) was adopted. The scale consists of three items. Sample items include “I have confidence in my ability to solve problems creatively” and “I feel that I am good at generating novel ideas.”

To assess the innovation performance of the participants, the authors conducted the scale developed by Cheng and Shiu, (2015). This scale comprises six items. For instance, one of the items states, “Our firm introduces new products that offer more incremental features.” Participants’ levels of agreement with the statements were measured using a Likert scale, ranging from 1 (disagree completely) to 5 (agree completely).

2.6 Research Desing

Focussing on the collecting and analysis of numerical data to investigate correlations between variables and assess hypotheses, the study used a quantitative design. This approach guarantees objective and methodical data collecting by using organised procedures including statistical models, polls, and experiments (Bloomfield & Fisher, 2019). Measured variables are emphasised in a quantitative design so that researchers may use statistical techniques including inferential testing, correlation studies, and regression analysis to generate conclusions from empirical data. This design increases replicability, thereby allowing other researchers to confirm results by means of successive studies. For discriminating patterns, trends, and causal links—qualities for which quantitative research is quite successful—it is appropriate for investigations needing substantial data analysis and generalisability to broader populations (Fischer et al., 2023).

3. Result

3.1 Validity and Reliability

The validity and reliability of the constructs were evaluated using the following metrics. McDonald's omega (ω), combined reliability (Cr), and Cronbach's alpha (α). McDonald's Omega (ω) is a reliability coefficient employed in psychometrics and statistical analysis to evaluate the internal consistency of a test or scale (Sürücü & Maslakci, 2020). It provides a more adaptable and precise estimation, accounting for hierarchical component structures and disparate item contributions. A reliability level of 0.8 is advised for the majority of investigations, whereas 0.7 signifies moderate reliability. The results of the reliability analyses show that the McDonald's omega coefficients range from 0.828 to 0.925, the combined reliability coefficients range from 0.830 to 0.932, and the Cronbach's Alpha coefficients range from 0.815 to 0.908. In addition, the results of the combined reliability analysis indicate that the values, which range from 0.830 to 0.932, have surpassed the required threshold. All these values exceed the reference threshold of 0.70, as noted in the literature, thereby confirming the reliability of the measures.

AVE measures how much of the variation in a hidden factor is explained by its indicators compared to the variation caused by measurement errors. A construct exhibits satisfactory convergent validity when the Average Variance Extracted (AVE) is equal to or greater than 0.50. The validity analysis shows that the AVE values surpass the acceptable threshold, ranging from 0.539 to 0.700. Therefore, convergent validity is not an issue (Hair et al., 2019; Sürücü & Maslakci, 2020). The results are presented in Table 1.

Table 1. Validity and Reliability

Variables	Factor Loading	AVE	α	ω	Cr
Digital Leadership		0.539	0.867	0.873	0.874
My manager thinks using digital tools is fun	0.625				
I would say my manager is a digital expert	0.792				
When it comes to digital knowledge, my manager is always up to date	0.738				
My manager is driving the digital transformation forward proactively in our unit	0.715				
My manager can make others enthusiastic about the digital transformation	0.801				
My manager has a clear idea of the structures and processes that are needed for the digital transformation	0.719				
Creative Self-Efficacy		0.621	0.815	0.828	0.830
I have confidence in my ability to solve problems creatively	0.738				
I feel that I am good at generating novel ideas	0.822				
I have a knack for further developing the ideas of others	0.801				
Innovation Performance		0.700	0.908	0.925	0.932
Our firm introduces new products….					
that more belong to incremental improvement in existing products	0.825				
that offer more incremental features	0.938				
that require more incremental changes in customers' way of using them	0.911				
that are more radically new to the market	0.840				
that offer more radical features	0.788				
that require more radical changes in customers' way of using them	0.697				

AVE: Average Variance Extracted. α: Cronbach's Alpha, ώ: McDonald's Omega Coefficient,

Cr: Composite Reliability.

The Fornell and Larcker criterion was taken into consideration when checking the discriminant validity of the

constructs. Accordingly, the AVE square root value of each construct was found to be greater than the correlation coefficients with other constructs (Table 2). These findings provided evidence for discriminant validity (Fornell & Larcker, 1981).

Table 2. Discriminant Validity (Fornell & Larcker)

Variables	1.	2.	3.
1. Digital Leadership	0.734[a]		
2. Creative Self-Efficacy	0.211**	0.788[a]	
3. Innovation Performance	0.327**	0.261**	0.837[a]

** p<0.05, a=$\sqrt{AVE}$

The authors compared the research model with two different models (one factor and two factors). In the one-factor model, digital leadership, creative self-efficacy, and innovation performance were blended as a single factor, while in the two-factor model, innovation performance and creative self-efficacy were combined as a single hidden factor (Table 3). The confirmatory factor analysis results indicate that the model fit indices of the research model are above the acceptable reference values (Byrne, 2013).

Table 3. Results of confirmatory factor analysis.

Model	CMIN/Df	CFI	IFI	TLI	RMSEA
One-factor mode Digital leadership, creative self-efficacy and innovation performance were blended)	12.151	0.563	0.610	0.542	0.198
Two-factor model (Innovation performance and creative self-efficacy were blended)	9.234	0.714	0.715	0.662	0.170
Three-factor model (Research Model)	1.907	0.969	0.969	0.963	0.047

The authors conducted Harman's single-factor test to examine potential common method bias within the research. Consequently, digital leadership, creative self-efficacy, and innovation performance were analysed as a single factor. The results indicated that the first factor accounted for 31.29% of the variance, suggesting that common method bias was not a significant issue in this study (Fuller et al., 2016). Furthermore, variance inflation factor (VIF) values were assessed to check for multicollinearity (Tablo 4).

Table 4. Discriminant Validity (Fornell & Larcker)

Variables	t	Sig.	Collinearity Statistics	
			Tolerance	VIF
Digital Leadership	7.445	<0.001	0.961	1.239
Creative Self-Efficacy	2.956	<0.001	0.961	1.452

The VIF values, which ranged from 1.239 to 1.452, indicate that multicollinearity is not a concern in this research (Kalnins & Praitis Hill, 2025).

3.2 Correlation

Table 4 presents the mean and standard deviation values for all the constructs utilised in the study, along with the correlations between them. Prior to conducting the correlation analysis, the skewness and kurtosis values were examined to evaluate the data distribution. The skewness and kurtosis values fell within the range of ±2, suggesting that the data are normally distributed (Sürücü et al., 2023). Given this normal distribution, the Pearson correlation coefficient was employed for the correlation analysis.

The results of the correlation analysis indicate that digital leadership is positively and significantly correlated with both creative self-efficacy (r=0.201, p<0.05) and innovation performance (r=0.320, p<0.05). Additionally, there is a positive and significant correlation between creative self-efficacy and innovation performance (r=0.259, p<0.05).

Table 5. Correlations, means and standard deviations

Variables	Mean	Sd.	1.	2.	3.
Digital Leadership	3.22	0.825	1		
Creative Self-Efficacy	4.01	0.529	0.201**	1	
Innovation Performance	3.44	0.788	0.320**	0.259**	1
Kurtosis			0.892	0.458	-0.957
Skewness			0.210	0.811	0.359

** *p<0.05*

3.3 Hypothesis Testing

After determining the correlation between the research constructs, hypothesis testing was conducted. Process Macro (Model 4), developed as an add-on to SPSS, was used to test the hypotheses in the study. Process Macro has frequently been used in recent studies in models for simple mediator/regulator variables (Sürücü et al., 2023). In Process Macro, the lower and upper confidence intervals are taken into account instead of the "p" significance value when evaluating the significance of the effect. The results of the analyses with a 95% confidence interval and 5000 bootstrap samples are presented in Table 5.

Table 6. Hypothesis Tests

Hypothesis	Regression Paths	Coeff	Se	t	LLCI	ULCI	Decision
H1	Digital Leadership → Creative Self-Efficacy	0.145	0.035	3.148	0.242	0.431	Supported
H2	Digital Leadership → Innovation Performance	0.219	0.074	4.344	0.325	0.588	Supported
H4	Creative Self-Efficacy → Innovation Performance	0.303	0.062	6.297	0.401	0.649	Supported
	Mediation Effect						
H4	Digital Leadership → Creative Self-Efficacy → Innovation Performance	0.092	0.029	-	0.055	0.149	Supported

Hypothesis 1 investigates the impact of digital leadership on creative self-efficacy. The results indicate that digital leadership has a significant positive effect on creative self-efficacy (ß=0.145, CI [0.242, 0.431], $p<0.05$). Thus, hypothesis 1 is supported.

Hypothesis 2 assesses the impact of digital leadership on innovation performance (ß=0.219, CI [0.325, 0.588], $p<0.05$). The findings indicate that digital leadership exerts a significant positive effect on innovation performance. Consequently, hypothesis 2 is supported.

Hypothesis 3 assesses the effect of creative self-efficacy on innovation performance. The result indicates that creative self-efficacy has a positive significant effect on innovation performance (ß=0.303, CI [0.401, 0.649], $p<0.05$). Consequently, hypothesis 3 is supported.

The authors proposed Hypothesis 4 to investigate the mediating effect of creative self-efficacy on the relationship between digital leadership and innovation performance. The results suggest that creative self-efficacy has a positive influence on this relationship (ß=0.092, CI [0.055, 0.149], $p<0.05$), as the confidence intervals do not include zero (0).

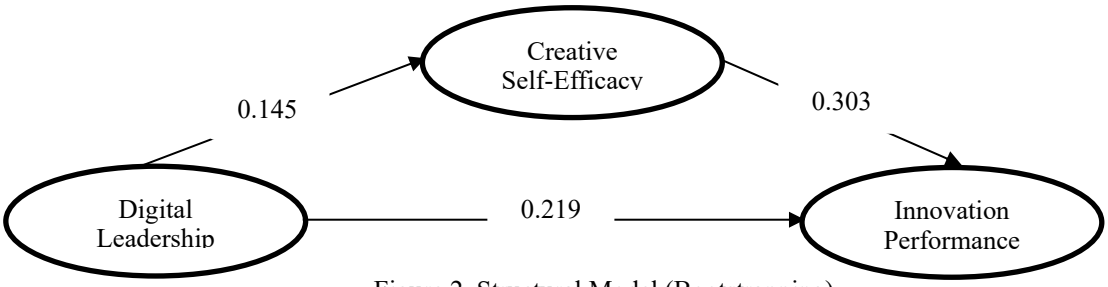

Figure 2. Structural Model (Bootstrapping)

4. Discussion

The study investigated the influence of digital leadership on innovation performance while focusing on the mediation of creative self-efficacy on this relationship. All hypotheses showed significant effects. The study's findings are highly valuable for researchers, lawmakers, and private organizations seeking to enhance innovation performance.

The result of Hypothesis 1 indicates that digital leadership significantly increases creative self-efficacy. This result corresponds with extensive studies on leadership and creativity, indicating that effective digital leadership fosters technological progress while enhancing individual creative capacity, rendering organisations more dynamic and adaptive in competitive markets. Digital leaders possessing technological skill, strategic foresight, and agility (Jasim et al., 2024), cultivate environments that promote creativity through the encouragement of experimentation, digital partnership, and knowledge exchange. By utilising digital tools and innovation-focused initiatives, these leaders enable individuals to participate in creative problem-solving and confidently seek novel solutions.

The result of hypothesis 2 shows that digital leadership significantly increases innovation performance. The finding is consistent with those of Benitez et al. (2022). The study highlighted that digital, market, business, and strategic leadership are critical skills that digital leaders should acquire to improve innovation performance. Furthermore, Phakamach et al. (2023) stated that digital leadership integrates technological proficiency, strategic foresight, and agility, empowering leaders to provide innovative problem-solving, digital transformation, and an edge over rivals. Leaders who adeptly utilise digital tools and cultivate an innovative culture can markedly enhance organisational performance,

making businesses more robust in fluctuating marketplaces. By incorporating these leadership qualities, organisations can expedite technical progress, enhance operational efficiency, and foster an atmosphere conducive to creativity.

The findings of hypothesis 3 indicate that creative self-efficacy significantly enhances innovation performance. The finding aligns with Teng et al. (2020), who emphasise that self-efficacy significantly improves innovation performance. Individuals with Creative Self-Efficacy (CSE) exhibit increased confidence in utilising their knowledge and skills to generate ideas, since CSE is characterised by curiosity, a propensity for risk-taking, and creativity (Delahanty & Silverman, 2021). These attributes inspire individuals to be involved in innovation. Moreover, as self-efficacy affects an individual's perception of their capabilities, the correlation between core self-evaluations and innovative behaviour might further promote innovation within organisations (Zhang et al., 2023).

The findings of hypothesis 4 indicate that creative self-efficacy significantly mediates the link between digital leadership and innovation performance. The result corresponds with those of Akbari et al. (2021) the study found that self-efficacy increases the effect of digital leadership on innovation performance. Digital leadership cultivates a culture that promotes experimentation, collaboration, and digital transformation, thereby enhancing employees' confidence in their capacity to develop innovative solutions. Individuals with high levels of creative self-efficacy are more likely to take initiative, tackle complex problems, and implement innovative ideas, which in turn improves innovation performance within organizations (Akbari et al., 2021). This mediation suggests that digital leaders must actively nurture creativity by offering essential tools, motivation, and an organizational culture that enables individuals to translate their digital skills into tangible ideas.

Digital leadership qualities are essential for creating an environment that empowers individuals with creative self-efficacy and fosters innovation. This understanding and harnessing of these interconnected elements is crucial for organizations to maintain competitiveness in the digital era. The relationship between digital leadership, creative self-efficacy, and innovation performance is not just theoretical but also practical. The success of this framework depends on adaptability and understanding that different industries, structures, and leadership styles may require tailored approaches. Mastering this intricate dance will enable organizations to thrive in an era of perpetual transformation, recognizing the importance of embracing the digital future and empowering individuals to unleash their creative potential.

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Authors Contributions

Asst.Dr. Bülent Çetinkaya were responsible for study design and revising. Assoc.Prof.Dr. Lütfi Sürücü was responsible for data collection. Assoc.Prof.Dr. Lütfi Sürücü drafted the manuscript and Asst.Dr. Bülent Çetinkaya revised it. All authors read and approved the final manuscript. Both of authors contributed equally to the study.

Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

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The Publication Ethics Committee of the Redfame Publishing.

The journal’s policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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