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# Digital Transformation Strategy and Environmental Performance: A Case Study

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## Abstract

Digital technology has drastically transformed businesses' activities, operations, and processes. Today, digital efficiencies have inspired companies to take initiatives to leverage the firm's environmental performance. The study's primary purpose was to examine how a digital transformation strategy affects environmental performance under the mediating role of innovation capabilities and moderating role of digital organizational culture. The data was obtained from manufacturing industry employees in Pakistan. The results reveal that digital transformation strategy (DTS) positively and significantly affects innovation capabilities and environmental performance. The link between digital transformation and environmental performance is mediated by innovation capabilities, while digital organizational culture moderates the relationship between innovation capabilities and environmental performance.

**Keywords:** Organization Culture; Business Sustainability; Environmental Performance; Digitalization

# 1 Introduction

With changing our everyday lives to business practices, climate change and digitalization have emerged as the most defining features of the digital era. In recent years, digital technologies speeding up firms' activities have shunned global companies with modern advancements and substantial innovations [1]. The innovative strategies deeply configuring into the firms' practices are the core elements of digital transformation. In this regard, firms from all industries have recognized digital strategies as a central concept to digital integration and transformation implementation. The digital transformation strategy (DTS) directs the firms' vision, process, and activities toward digitalization [2]. A digital transformation strategy creates value for the organization [3] and encourages companies to go beyond their boundaries, substantially making digital transformations purposeful. At the beginning of the 21st century, when information and technological interventions, such as automated systems, cloud computing, blockchain, and big data) have taken over the creative and cultural sectors, the growth of digital transformation has not only gained new worth but also has become a strategic resource for preserving the world's environment. For example, in the Romains creative industries, digital technologies have increased organizational efficiency and innovativeness through information flows [4]. These profound interventions triggering the industrial environmental performance are the prime agenda for an innovative environment. Further, taking the considerate influx of these modern advancements in other fields, the cultural sectors have also benefited from these tools, where these digital configurations have enhanced the market value of the cultural heritage. The new digital products (e.g., 2D, 3D scanning, virtual reality, Metadata) have reduced the degree of environmental degradation [5]. Similarly, the digital transformation process in healthcare and public administration has empowered ecological sustainability. Altogether, the sensitive nature of these sectors has made the deployment of suitable IT influence the organization's environmental performance [6], [7]. Indeed, owing to the far-reaching consequences of digital transformation, the profound innovations taking over the world's major industries have made businesses adopt digital transformation strategies to achieve the goals. As a result, DTS, influencing environmental performance, has become the top agenda for manufacturing companies. Pakistan's textile industry is a dominant manufacturing sector that is the significant cornerstone of the economy. However, being the largest exporter of textiles, Pakistan today is still in the rising stage of technological breakthroughs [8]. In particular, Pakistan's textile enterprises are slowing down, thus significantly bringing negative environmental consequences. Transformational strategies provide with new directions and novel paths to innovations, thus improving the environmental performance [9]. In this regard, Ali [10] states that Pakistan's textile enterprises digitally need to grow to improve their environmental performance. Hence, in this regard, today, the Pakistan textile firms profoundly call for DTS implementation to gain superior ecological performance. Thus, addressing the growing concerns, Pakistan textile companies should channel their potential for positive environmental performance with novel capabilities. Given the Pakistan textile enterprises, Pakistan's current situation reveals that firms' can fill the gap through the demonstration of innovation capabilities [11]. Indeed, this succession deficiency of the DTS makes organizational innovation capabilities the prime reason for an organization's survival. Nasir et al. [12] suggest that organizations need to attain innovation capabilities to develop transformational strategies toward environmental improvement. Since the beginning of the 21st century, the accelerated recognition of digital development has made firms embrace innovation capabilities as a necessity. However, considering today's need, emerging countries should encourage firms to use innovation capabilities as the main thrust of ecological performance. Innovation capability (IC) refers to the firm's ability to integrate innovation [13]. IC has gradually become the pathway to environmental performance with the growth of digital transformation technologies in recent years [14]. Undoubtedly, today, the blurring of the traditional boundaries of the various industries and the novel digital technologies have compelled companies, worldwide sectors, industries, and organizations to transform digitally. Hence, in the established pattern of ICT innovation, the adoption of the innovation capabilities has enabled the firms to fulfil the ecological agenda of the organization through the development of digital transformation culture [15]. The organization's digital culture (ODC) alludes to a set of shared beliefs that the new business models and process increases the readiness for digital innovation [16]. The organizational digital culture is an integral part of the firm's structure that radically makes the organization respond to advanced market changes [17]. Given

its role, it helps firms adopt technological resources and innovation processes. It speeds up the firms' innovation process and ecological performance [18]. Hence, today, the need for improved environmental performance appears to be accelerated around in terms of the digital transformation strategy, innovative capabilities, and organization's digital culture. The study shows that Pakistan's textile enterprises still lag in digitization and innovation besides the increasing role of DTS, IC, and ODC [19]. The lack of a digital transformation strategy has expected to bring a toll on the environmental performance [20]. Indeed, the digital technologies disrupting one sector after another have actively called Pakistan's textile enterprises to embrace the DTS on account of ecological performance. Therefore, DTS needs to be developed and implemented to urge the country from ills. Given Pakistani's manufacturing era, this study presents an innovative conceptual framework providing a clear understanding of the current issue. The study investigates the influence of digital transformation strategy on the environmental performance of businesses. In addition, this study contributes to the existing body of knowledge by determining the mediation and moderation of the innovation capabilities and organizational digital culture on the firms' environmental performance. The DTS transforming the environmental performance lacks considerable understanding today. Hence, this paper addresses the need for a more comprehensive study of the environmental performance. This study significantly contributes to the previous literature in the following ways: First, previous studies have mainly focused on the methods of reducing the country's pollution [21], but this is an important topic that has called the literature on the mechanism of digital transformation strategy influencing environmental performance. Secondly, rare literature examines ecological performance in the context of digital transformation strategies in emerging markets. Therefore, this study adds value in investigating the effect of DTS on Pakistan's emerging market. Thirdly, to the best of our knowledge, no research has been performed illuminating the impact of DTS on ecological performance in the context of IC and ODC. In particular, this is a novel study that incorporates both the mediating and moderating roles of IC and ODC in explaining the effect of DTS on EP. As a result, research findings will greatly value all stakeholders. It will play a vital role in improving the understating of the impact of DTS, IC, and ODC on firms' environmental performance. Altogether, this study will motivate all organizations in the context of digital transformations and innovations.

## 2 Literature Review

In recent years, digital transformation has configured technologies to support firms' environmental performance. Indeed, today, Pakistan's textile enterprises steadily demand the development of high-speed transformational strategies and innovation capabilities to intensify their ecological performance. In this regard, the following section complicates the role of the digital transformation strategy in environmental performance. It presents a unique theoretical model that helps firms grow their innovation capabilities, thus building an organizational digital culture influencing eco-performance. The inherent section illustrates different notions, which are discussed in the following sequences: Digital transformation Strategy (DTS), Environmental performance (EP), Innovation Capabilities (IC), and Organizational Digital Culture (ODC).

### 2.1 Digital Transformation Strategy, Innovation Capabilities, and Environmental Performance

Over the past years, globalization has compelled worldwide firms to evolve with changing digital technologies. Digital technologies play a fundamental role in improving the dynamics of the business environment [22]. Companies are increasingly focusing on embedding the corporates' ecological thinking into their strategies. The digital transformation and innovation strategy, viewed as mutually exclusive, are the prime drivers of the environmental performance. Compared to traditional organizational practices, digital transformation strategy provides a strategic advantage to firms in the shape of superior ecological outcomes [23], [24]. A digital transformation strategy is a profound phenomenon that enables firms to run conventional organizational assets with digital innovation. It led firms' to strategically utilize digitalization to achieve their ecological objective. Today the growing awareness for environmental protection has expanded, thus making the digitalization gain momentum in the context

of environmental performance. In manufacturing, digital transformation strategy is a trending topic that improves the ecological parameters [25]. It strengthens the corporates' ecological value by facilitating business performance [26]–[28]. Also, DTS modifies the production processes in response to the customers' need for environmentally-friendly products. It reduces the manufacturing cost of the business, causing them to scale up the firms' environmental outcomes. Indeed, DTS is a critical trend for manufacturing firms that helps firms fight ecological vulnerabilities [29]. Altogether, digital transformation is a strategic response that helps the organization to answer the technical question concerning better environmental performance. The digital transformation strategy bringing a strategic change in the scope inspires the firms to revamp the traditional organizations' system with innovative technologies, applications, and processes [30]. With this trend towards IT-influenced transformations, today, organizations have upturned their business structures, thus radically transforming the environmental status. The ecological conditions of the company change rapidly. Indeed, this evolution has called for firms' digitalization transformation strategy to become the utmost priority of today's firms. [31]. It has facilitated the organization's ecosystem by replacing traditional methods with new eco-friendly procedures. Digital technology has leveraged the firm's environmental performance with flexible IT operations. In particular, IT integration has made the firm standardize its efficiency, thus increasing its responsiveness to the environment [32]. In the same vein, the IT-changing process enhancing the traditional way of doing business creates innovation capabilities to foster the firms' offerings [33]. The effective use of digital technologies helps the company streamline business processes, which is critical for executing the digital strategy. This controlled access to technology speeds up the firms' system of innovativeness. The innovation capabilities supported by the DTS develop, integrate, and configure resources that connect the enterprise's innovative strategy to compete in the fast-growing environment [34]. The DT phenomenon encourages firms to break away from the old structures, thus strategically bringing structural changes to the organizations [35]. It provides a competitive advantage to the firms by adopting essential digital competencies and resources. Altogether, from the practical perspective, the DTS improves the business models and customer experiences, thereby improving the firms' environment [36]. Hence, the literature concludes that digital transformation strategy is the most profound development influencing eco-performance [37] and innovation capabilities. Therefore, in line with this argument, the hypothesis formed states: **H1:** Digital transformation strategy positively and significantly impacts environmental performance. **H2:** Digital transformation strategy has a positive and significant effect on innovation capabilities.

## 2.2 The Mediating Role of Innovation Capability

Since the beginning of the 21st century, rapid technological developments have accelerated the phenomenon of innovation capability in the world's major countries. Digital innovation promoting digital transformation is the prime driver of the company's ecological performance. The innovation capability consolidated by digital transformation is a fundamental phenomenon [38] that accelerates the firms' ecological goals. Its dynamic capabilities widely configure the firms' activities, processes, and procedures, thus exhibiting improved environmental performance. The innovation capabilities allowing digital transformation are the most profound construct scaling up environmental performance [39]. Digital transformation shifts the firms' value proposition to digital resources. The innovation capabilities facilitate the transformations and environmental performance [40]. Therefore, in today's era of novel developments, innovation capabilities are the prime contributor that balances the firms' economic performance with ecological performance [41]. Ardito and Dangelico [42] state that firms' digital transformation strategy fosters innovation capabilities and environmental performance. The firms' digital transformation strategy dynamically creates capabilities that make the businesses quickly respond to the changing needs of the environment. The firms' innovation resources are critical to firms' performance. The innovation capabilities are a strategic source that fosters the firms to integrate the novel capabilities, thus boosting the firms' ecological performance. The innovation capacity improves the digital transformation processes of manufacturing enterprises [43], thus exhibiting superior environmental performance [44]. However, in this regard, the notion of the ecosystem has gained considerable prominence in manufacturing. Technological advancements guide the firm's ecosystem. ICT drives organizations' digital transformations, indeed, their ecosystem [45]. Today,

operating under ecological uncertainties, the innovation capabilities adjusting in the firms' strategies had believed to bring fruitful results. ICT innovation enhances the transformative capacities of the firms, thus strategically influencing their eco performance. The innovative capabilities translated into the DTS are a profound construct that provides powerful support to the firms' operations [46]. Its digital characteristics encourage firms to develop and integrate novel technological applications into firms capabilities. Altogether, the academic discussion on innovation capability in the light of DTS and EP has gained success. Significantly, this new normal has become a great accelerator of global innovation capabilities, work patterns, and strategies [47], [48]. In the last years, the firms have begun optimizing their processes and routines by developing strategies [49] that ensure the achievement of their environmental goal. Indeed, digital orientation is an efficient predictor of high ecological performance. Ecological performance is a global issue. Altogether, innovation capabilities have become the fundamental driving force ensuring the firms' performance. Consequently, based on this prior literature, our hypothesis is as follows: **H3**: Innovation capabilities positively affect environmental performance **H3(a)**: Innovation capability mediates the relationship between digital transformation strategy and environmental performance.

### 2.3 The Moderating Role of Organizational Digital Culture

Digital transformation is a complex phenomenon that makes organizations swiftly respond to high market demand. In recent years, the unpredictable changes in the market have made companies develop ODC to increase the business process, practices, and environmental performance. The organizational digital culture enables organizations to radially accepts values and norm that fosters their performance [50]. Today, global environmental challenges have emerged as one of the most significant issues in manufacturing. In manufacturing, the ODC enables companies to adopt the ICT implications that support ecological performance. The ODC makes the firms learn about the environmental needs of the customers, thereby swiftly adjusting the business process with innovation. Organizational digital culture leveraging innovative landscape adds to the firms' emerging capabilities. The digital culture formed by the firms' innovation capabilities allows the organization and its people to grow in the era of digitalization [51]. The ODC suggested as a factor influencing the firms' performance is the most crucial element that shapes the organizations' performance and behaviors towards the environment. The firms' ODC reduces the impact of environmental damage by rigorously embracing digital tools, products, processes, and activities that achieve high environmental performance. It creates a culture of digital transformation and innovation [52]. The innovation capabilities integrated into the organizational culture facilitate the firms' environmental performance [53]. It fosters the firm's operations, thus raising the value of environmental protection. It encourages firms to manage their resources, assets, and processes toward achieving superior eco-performance [54]. Undoubtedly, the organization's digital culture facilitating the firms' innovative capabilities is an urgent topic in the digital ecosystem. In recent years, the increasing pressure to innovate has made the business face difficulty. As a result, today, organizations have embraced novel innovation capabilities to stay competitive. Successful implementation of the organization's digital culture ensures the firm's ecological performance. The digital organizational culture influences the firm's environmental performance via innovation capabilities. The digital culture enhances the transformational capabilities and models [55], thus enhancing environmental performance [56]. The IC is a critical factor in the firm's environmental performance [57]. The organization benefiting from this concept increases its performance by achieving ecological goals. Because it has gained significant importance in recent years, organizations have supported establishing a digital culture to improve environmental performance. Therefore, based on past research, we have formulated the following hypothesis: **H4**: Organization digital culture moderates the relationship between innovation capability and environmental performance.

Figure 1 shows study variables, including one independent variable (digital transformation strategy), one dependent variable (environmental performance), one mediator (innovation capabilities), and one moderator (digital organization culture).

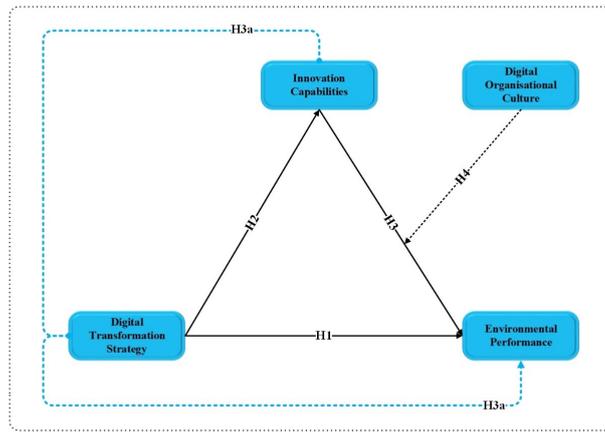


Figure 1: Conceptual Framework

### 3 Methodology

The survey method was utilized to collect primary first-hand data from the selected sample through well-structured, validated, self-administered questionnaires. The data was collected from the senior position-level employees working in the textile firms of Pakistan from March 2022 to June 2022. The researcher contacted the potential respondents and assured them of the confidentiality, anonymity, and voluntary nature of participating in the study. They were informed about the ethical considerations adopted in the study. Two waves of data were obtained with a time lag from the same sample. Two-three weeks’ temporal gap was used between data collection in 1st and 2nd waves. It was made sure that the temporal gap was enough that it was improbable that substantial organizational events could have happened and influenced the research propositions. Every response included a unique ID to match the respondent’s answers between the two times to reduce the common method bias in the current study [58], [59].

#### 3.1 Participants

The frequency analysis was conducted to analyze the gender, age, education, and material status statistical frequencies and valid percentages against the total sample size collected in this study. Table 1 shows 149 male and 118 female respondents participated in the current study—the valid percentage of 55.8 for male and 44.2 for female respondents measured in SPSS statistical software. The frequencies and valid percentages show that most employees were single and had a bachelor’s degree.

Table 1: Participants’ Demographic Profile

Items	Frequency (N=267)	Percentage
Gender		
Male	149	55.8
Female	118	44.2
Age		
21-30	46	17.2
31-40	81	30.3
41-50	97	36.3
51-60	43	16.1
Education		
Intermediate	40	15
Bachelor	108	40.4
Master	76	28.5
M.Phil/Others	43	16.1
Marital Status		
Single	144	53.9
Married	123	46.1

### 3.2 Measurement Scale

To assess digital transformation strategy, Li et al. [60] four-item scale was utilized. The scale is a five-point Likert scale, and the responses ranged from 1 (strongly disagree) to 5 (strongly agree). Innovation capabilities were assessed by utilizing the scale developed by Borah et al. [61], and the scale consists of five items, responded on a five-point Likert scale. Based on Martínez-Caro et al. [62], digital organizational culture was evaluated on the 4-items. Environmental performance was measured on the four items adopted from the study of Su et al. [63].

### 3.3 Statistical Analyses

A vital step for effective and rigorous research is selecting appropriate analysis strategies and techniques following the research philosophy and paradigm. Partial least squares structural equation modeling (PLS-SEM) was utilized to examine the data and verify the research hypothesis. The direct hypotheses without any mediator or moderator were checked using regression analysis.

## 4 Results

Table 2 presents the results for Cronbach’s Alpha, factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE). Results analysis shows all variables consistently reliable and close to standardized reliability level 1. The Pearson correlation analysis was conducted to find whether a positive or negative relationship exists between the digital transformation strategy, environmental performance, innovation capabilities, and digital organization culture. All the variables have a positive relationship with each other. Innovation capabilities have the highest Cronbach’s Alpha value (0.867), while digital transformation strategy has the highest AVE value (0.701). Figure 2 is a graphical illustration of measurement model results.

Table 2: Validity and Reliability Analysis

Construct	Items	Loading	$\alpha$	CR	AVE
Digital Transformation strategy	DT-1	0.832	0.858	0.904	0.701
	DT-2	0.831			
	DT-3	0.838			
	DT-4	0.850			
Innovation Capabilities	ICP-1	0.799	0.867	0.904	0.653
	ICP-2	0.792			
	ICP-3	0.823			
	ICP-4	0.812			
	ICP-5	0.813			
Digital organizational culture	DOC-1	0.795	0.837	0.890	0.670
	DOC-2	0.825			
	DOC-3	0.822			
	DOC-4	0.833			
Environmental performance	EVP-1	0.846	0.854	0.902	0.696
	EVP-2	0.806			
	EVP-3	0.833			
	EVP-4	0.851			

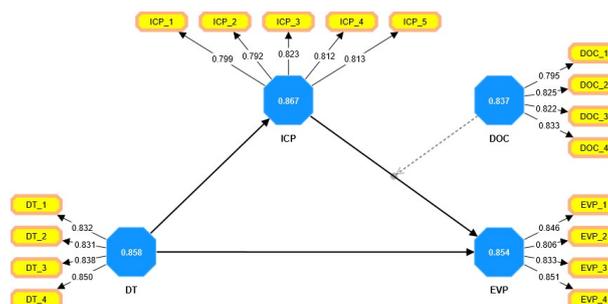


Figure 2: Measurement Model

Table 3 shows the results of discriminant validity using Fornel Larcker & HTMT. In the current study, HTMT values were also lower than the recommended threshold of 0.90 [64].

Table 3: Discriminant Validity Analysis (Fornel Larcker & HTMT)

	1	2	3	4
1. Digital Organizational culture	0.819	0.282	0.310	0.606
2. Digital transformation strategy	0.241	0.837	0.699	0.677
3. Environmental performance	0.265	0.599	0.834	0.645
4. Innovation capabilities	0.513	0.586	0.557	0.808

The research model of this study consists of three kinds of associations, i.e., direct, mediating, and moderating relations. SmartPLS software was utilized to analyze the hypothesis relationship.

Table 4: Direct Hypothesis

	Direct Hypothesis	Beta	SE	T-Value	P-Value
H1	DT → EVP	0.389	0.072	5.429	***
H2	DT → ICP	0.586	0.056	10.549	***
H3	ICP → EVP	0.420	0.087	4.801	***

DT= Digital transformation strategy; ICP= Innovation Capability; EVP= Environmental Performance; \*Indicates significant paths: \*\*\*p<0.001

Table 4 shows the results of the direct hypothesis. The study’s first hypothesis proposed that digital transformation strategy positively affects environmental performance. The H1 was approved with a beta of 0.389 and a t-value of 5.429. H2 states that a digital transformation strategy positively and significantly affects innovation capabilities. The H2 was accepted at the beta value of 0.586 and the t-value of 10.549. H3 demonstrates that innovative capabilities positively impact environmental performance. In this study, H3 was accepted at the beta value of 0.420 and the t-value of 4.801. Figure 3 shows the graphical representation of structural model outcomes.

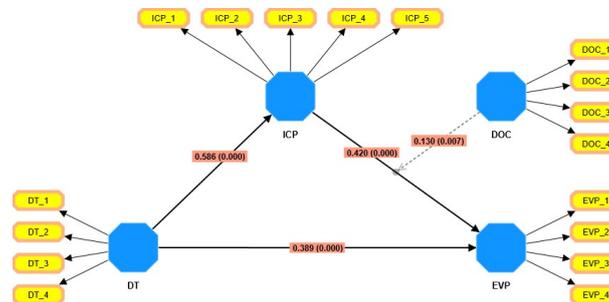


Figure 3: Structural Model Graphical Representation

DT= Digital transformation strategy; ICP= Innovation Capability; EVP= Environmental Performance; \*Indicates significant paths: \*\*\*p<0.001

The results of mediating hypothesis H3(a) are presented in table 5. Innovation capabilities mediate the link between digital transformation and environmental performance, as indicated by H3(a). H3 was approved in this study with a beta value of 0.246 and a t-value of 4.760.

The conditional effects in Table 5 show that the innovation capabilities and environmental performance ( $\beta = 0.874$  and  $p < 0.001$ ) strengthen when the digital organization culture is high, which is illustrated in Figure 4.

Table 5: Mediation Hypothesis Testing

	Mediating Hypothesis	Beta	SE	T-Value	P-Value
H3(a)	DT → ICP → EVP	0.246	0.052	4.760	***

Table 6: Moderating Effect

Interaction Effects		Beta	SE	T-Value	P-Value
H4	Interaction DOC*ICP → EVP	0.130	0.048	2.711	**
Conditional Effects		Effects	Boot SE	LLCI	ULCI
H4	+1 Std Dev	0.874***	0.099	0.678	1.069
	Mean	0.697***	0.067	0.565	0.829
	-1 Std Dev	0.520***	0.059	0.402	0.637

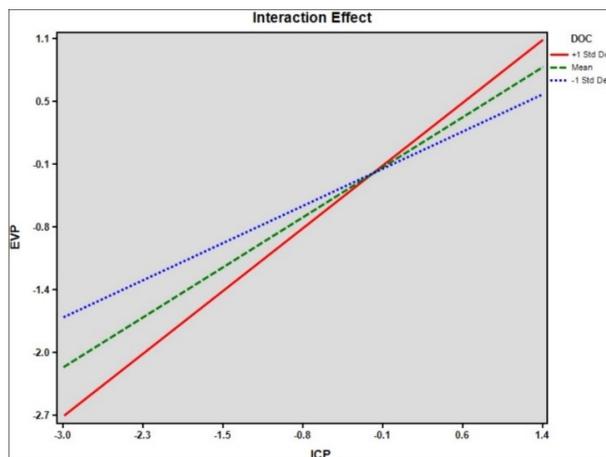


Figure 4: Moderating Effect

## 5 Discussion

With the development of economic globalization, environmental challenges have made the enterprise encounter the progressing issue of ecological degradation. As enterprises' traditional management strategies are seriously damaging the external environment, today, understanding the meaning of digital transformation has become imperative for most organizations. In recent years, the progressing environmental degradation has compelled businesses to transform. ICT plays the most influential role in firms' eco-performance. In this regard, today, the collaborated digital tools have raised the importance of digital transformation. According to Isaksson et al. [32], a digital transformation strategy is a process that exploits the business process to improve environmental performance. In today's complex environment, a defensible digital transformation strategy provides a series of advantages to firms. Among these, the firm's innovation capabilities also bring significant results for the organization. ICT is a tool that rigorously scales enterprises' computing power, thus increasing the flexibility of firms' business models. As a result, the innovative developments in today's era are the most significant source of business model transformation. The DTS plays a strategic role in managing firms' transformation processes [65]. IT innovative capabilities integrated into the firms' strategy are a strategic asset to the firms' transformation. Digital transformation influencing IT capabilities inspires companies to survive in the high-paced environment by radically innovating their practices. Indeed, our study also sees this integrated value system of information and communication technologies as a new life to the organization ecosystem. Digital technologies such as big data, advanced algorithms, augmented reality, and multi-functional computing systems have revolutionized business ecological performance [66]. Our study also confirms that digital technologies transforming companies' capabilities and applications improve firm environmental performance [3]. Indeed, it is validated that information technology reduces organizational efficiencies [67] in improving the firms' environmental performance. However, in handling the ecological uncertainties, our study has also identified the organization's digital culture to bring changes in the firms' capabilities. The organization's digital culture developing the firm's innovative capabilities facilitates the firm's ecological process and learning. It provides a sense of environment to the firms by supporting the abilities and skills that enhance firms' innovation process [56]. Altogether, based on our results and the previous data, we accept the hypotheses in Section 2 (i.e., H1, H2, H3, H3a, H4).

## 6 Conclusion

In recent years, an organization realizing the value of digital transformation has adopted digital strategies for improving environmental performance. The high degree of digital transformation strategy enhances the firms' environmental performance. The digital transformation strategy significantly revises the firms' innovation capabilities and shapes the firm's business culture, thus making the firms achieve beneficial ecological results. A digital transformation strategy provides a more in-depth assessment of the firm's environmental performance in digital transformation. The study results show that digital transformation strategy significantly and positively impacts environmental performance. Also, it reveals a positive mediating role of the innovation capabilities nexus to the digital transformation strategy and environmental performance. Similarly, the study findings also conclude a positive moderating role of the organization's digital culture between innovation capabilities and environmental performance. Significantly, these research findings imply that digital transformation strategy plays a significant role in upgrading environmental performance. The study implications set the baseline for future studies where it helps organizations to achieve superior environmental performance through the digital transformation strategy, innovation capabilities, and organizational digital culture.

### 6.1 Study Implications

This research contributes to the existing body of knowledge by offering unique practical implications. Firstly, the study findings help companies design digital strategies to achieve environmental goals. In this regard, the current study findings can help the firms develop and implement DTS, thus creating a win-win situation for stakeholders. Indeed, the current study offers unique opportunities to

firms regarding the digital transformation models influencing environmental performance. This fundamental study can be the starting point for future researchers, organizations, and policymakers. It can assist stakeholders in grasping the digital change in manufacturing. However, the results showed that a systematic digital transformation strategy seeks to offer valuable resources to the firms. Its explicit consideration enhances the firms' innovation capabilities, thereby making the firms achieve ecological performance. Hence, in this regard, the positive mediating impact of innovation capabilities enables manufacturing enterprises to promote their concerns for environmental performance. It encourages the management to foster the firms' innovation capabilities, thus improving environmental performance. Moreover, unlike the previous studies, this study focuses on the benefit of an organization's digital culture from the perspective of innovation capabilities and environmental performance.

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## Author contributions

The authors contributed equally to this work.

## Conflict of interest

The authors declare no conflict of interest.

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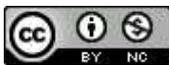
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