



## Research Article

# Digital Transformation Strategies and SME Performance: The Role of Innovations

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## Citation

Khan, M.J., Hasnain, A., & Parveen, S. (2025). Digital transformation strategies and sme performance: The role of innovations. *Administrative and Management Sciences Journal*, 3(2). 157-164

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## ABSTRACT

This research aims to investigate the empirical relationships between digital facilitators, digital transformation strategies, and the overall performance of SMEs. Additionally, it examines the influence of innovation on these relationships by exploring its moderating role between digital facilitators and overall SME performance, as well as between digital transformation strategies and overall SME performance. To achieve this, data was collected through a questionnaire survey targeting manufacturing SMEs in the Pakistan. The study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed hypotheses, and found positive relationship between digital facilitators and overall performance of SMEs which implies that digital facilitators empower SMEs to approach to the online renting services or available outsourcing. It provides the access to different digital technologies such as digital communication, digital transportation, intellectual systems and data analysts which help the firms to perform better. Secondly, the research identifies a positive relationship between digital transformation strategies and the overall performance of SMEs, indicating that such strategies contribute to streamlining business processes through the adoption of advanced technologies. Thirdly, the study reveals that innovation significantly moderates the relationships between digital facilitators and SME performance, as well as between digital transformation strategies and SME performance. This finding highlights that innovation is a key prerequisite for digitalization, as digital products continue to evolve through the integration and refinement of digital components driven by innovation.

## KEYWORDS

Digital Transformation, Digital Facilitators, SMEs Performance, Innovation.

## 1 | INTRODUCTION

During the last decade, researchers have shown their great interest in the area of digital technologies (DTs). A significant amount of research has been found that is concerned with this area. The beginning of DTs has significantly reshaped organizational culture and business operations, particularly through innovation processes and changing marketing models. Digitalization has increasingly become a disruptive power within business activities (Tekic & Koroteev, 2019). A growing body of research has examined the impact of digitalization on organizational performance, suggesting that businesses unable to adapt to the digital setting may fall victim to "Digital Darwinism," ultimately facing negative consequences on their overall performance (Schwartz, 2002). Improving the performance of firm is one of the most fundamental objectives of organizations and digitalization is regarded as one of the important factors which have significant effects on the firm performance. The findings of previous research conclude that digitalization generate prospects for the innovative models. It is a resilient dynamism of change that is changing the business practices, and firm competencies (Downes & Nunes, 2013). Firms are continuously facing the transformational effects of DTs on their internal or external environment. For instance, DTs affect the economic dynamics or the competitiveness of the firm and changes their decisive business operations. Bharadwaj et al. (2013) suggest that the in order to take advantage from the digitalization, companies have to incorporate the digital transformation strategies (DTS) in their organization. Many corporations have tried to adapt

DTS but they are failed or unable to do so. Therefore, the adaptation of DTS are very challenging for small and medium enterprises (SMEs) due to the lack of the resources. However, DTS provides new prospectus to the SMEs in order to remain competitive and perform better. With the help of these strategies, SMEs can get access to the knowledge system, innovativeness, and probability of global trade. It also helps the SMEs in the better understanding of customer needs, internal processes, and overall business environment. It also helps to get approach to digital facilitators (DFs), which empowers SMEs to approach to the online renting services or available outsourcing. But sometimes, many SMEs are unable to get advantage from DTs, DFs, or DTS because of the regulations imposed on the adaptation of DTs. In many nations, the differences in acquiring the DTs in corporations are small. This is so because most of the corporations are connected with each other on internet through the application of business resource planning (BRP) and therefore, they can be able to know that what their competitors are doing, and how their competitors are promoting their products. But SMEs do not have the sufficient access to this application. According to a survey report, 78% of the corporations and only 27% of the SMEs have the access to BRP application and there exist a massive gap in the cloud of computing (OECD, 2018). This gap can be reduced by innovations in SMEs. Innovations not only enhance the performance of firms but also provide the means of digitalization. It helps in producing new products or upgrading the existing products. Moreover, digital products continue to grow through the innovative recombination of digital components. Innovativeness also help the firm in making sound strategies of digital transformation by taking into account the needs of today's society. Therefore, by considering the importance of innovativeness on the relationship between digitalization and the performance of business organization. Present study assumes that innovation intensifies the relationship between digital facilitators, digital transformational strategies and the overall performance of SMEs. As far as we know, literature do not reveal any study in which the innovation is taken as a moderating variable on the association between digitalization and business performance, specifically in the context of Pakistani manufacturing SMEs.

## 2 | THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

### 2.1 | Digitalization and SMEs Performance

Numerous researchers have used the term of “digitalization” in order to prompt the organizational changes that are affected by the digital technologies (DTs). Burki (2018) indicated that DTs promote the fundamental changes in a business organization. Lucas et al. (2013) investigated the influence of DTs on the business organizations and showed the significant effects of DTs on business organizations. The study concluded that DT regulates the business process, modifies the organization-customer relationship, adjust the user knowledge and generates new opportunities for employees. The study further concluded that the development in DT promotes innovation, creates new corporate models, and changes the business environment for all businessmen, employees and customers. As a result, business organizations have begun exploring new ways to empower DTs. According to Pagni and Pardo (2017), various components such as digital infrastructures, communication systems, transportation technologies, connected devices, intelligent systems, and data analytics serve as key facilitators of digital transformation, supporting a wide range of organizational activities. Similarly, Subramaniam, Iyer, and Venkatraman (2019) examined the link between digitalization and business performance, highlighting its positive impact on organizational outcomes. The study concluded that the organizations who adapted the DTs are more competitive and perform better as compare to those organizations who do not adapt the DTs. Nwankpa & Roumani (2016) studied the relationship between digital transformation strategies (DTS) and the performance of business organization by using a resource-based framework. Results of the study showed that DTS positively contributes in the business performance. Nwankpa & Roumani (2016) examined the relationship between digital technology and the firm performance. The study further tested the moderating role of digital transformation strategies on the association between digital technology and firm performance. For this purpose, the study gathered the data from the CEOs of US firms. The author worked under the context of resource-based view (RBV) framework and showed the positive association between digital technology and firm performance. Results of the study further showed that this positive relationship is strengthen by the digital transformation strategies. Joensuu-Salo et al. (2018) investigated the influence of market orientation, market interplay and digitalization on the performance of SMEs. For this purpose, the study collected the data form 172 SMEs. Study applied SEM for examining the empirical results. Results of the study showed the positive influence of market orientation, market interplay and digitalization on the performance of SMEs. Kohli & Grover (2018) argued that the performance of business organization is highly affected by the strategies and development of DTs. The study concluded that the strategies of DTs tend to increase the efficiency of business operations. However,

considering the importance of DTs, many business organizations, especially SMEs, attempted to engage in a comprehensible process of DT. Therefore, researchers start investigating the influence of DTs on SMEs. For instance, Dutot, Bergeron & Raymond (2014) examined the impact of DT on the performance of SMEs and revealed the positive relationship between DT and the performance of SMEs. The study concluded that the adaptation of DTs in SMEs enhances their ability to compete with corporations. Similarly, Dethine, Enjolras, & Monticolo (2020) also showed the positive association between the digitalization and the performance of SMEs. Chen, Jaw & Wu (2016) studied the influence of digital transformation strategies on the organizational performance of SMEs. In order to accomplish the research objective, authors collected the data from the SMEs of Taiwan. Data were collected from the web portal of the selected SMEs. Results of the study showed the digital transformation strategies had a positive influence on the organizational performance of SMEs. Therefore, it is proposed that:

H1: There is a significant relationship between digital facilitators and the performance of SMEs.

H2: There is a significant relationship between digital transformational strategies and performance of SMEs.

## **2.2 | Innovation as Moderator**

Innovation is an important factor in the literature of business performance. It is defined as the formation and detection of novel ideas, products and services (Daft, 1978). Several researchers have explored the connection between innovation and business performance, consistently stressing its positive impact. For example, Georgellis, Joyce, and Woods (2000) examined 300 small independent firms in central London and found a strong positive relationship between innovation and business performance. Similarly, Hughes (2001) demonstrated that innovation positively influences the performance of small entrepreneurial firms in the UK. Cantwell (2005) argued that the innovation promotes the firm competitiveness. Innovations are the prerequisite of the current digitalized era. It does not only contribute in the business performance of the firms, but also provides the means of digitalization. O'Cass & Weerawardena (2009) investigated the influence of innovativeness on the overall performance of SMEs. For this purpose, the study collected the data from 302 managers of SMEs. Data were collected through a questionnaire survey. Finding of the study showed that innovativeness positively contributes in the overall performance of the SMEs. Rachinge et al. (2019) indicated the significant influence of business digitalization on the business activities and specified that innovation is having a significant influence on the relationship between digitalization and business activities. Therefore, the authors directed qualitative study and conducted the interviews from 12 key informants of media and locomotive industry. Researchers examining business innovation models have emphasized the significant and positive role of innovation in strengthening the link between digitalization and business operations. Yoo et al. (2010) also identified a positive relationship between innovation and digital technologies (DTs), concluding that innovation serves as a driving force behind digitalization. The study further concluded that the firms involving in innovative activities promotes the strategies of digitalization transformation in order to gain comparative advantage. Therefore, it is proposed that:

H3: Innovation significantly influences SMEs performance.

H4: Innovation significantly moderates between digital facilitators and SMEs performance.

H5: Innovation significantly moderates between digital transformation strategies and SMEs performance.

## **3 | METHODS**

### **3.1 | Variables**

**SMEs Performance (SMEP):** The study considers the overall performance of SMEs as the dependent variable. In general, performance refers to the observable success of an organization within a specific area of activity (Kaplan & Norton, 2001). It is defined as “the extent to which an individual or group achieves a desired outcome, reflecting the total objectively measurable accomplishments within a particular domain”. To assess SMEP, six measurement items are utilized. **Digital Facilitators (DGF):** The study uses DGF as an independent variable. It refers to the use of digital technologies by the large group of people in order to accomplish a common goal (Nambisan, 2017). Study uses 5 items of DGF. **Digital Transformation Strategies (DTS):** DTS is also used as independent variable of the study. Digital transformation requires a strategy in order to create a new and modified version of the existing products (Singh & Hess, 2017). Therefore, all the techniques that are used to modify an existing product or to create a new product are known as digital transformation strategies. It is measured using 5 items. **Innovation (INV):** Innovation is used as a moderating variable of the study. It is defined as the formation and detection of novel ideas, products and services (Möller & Svahn, 2006). It comprises of 5 items of measurement.

### 3.2 | Data

To achieve the research objectives, data were collected from manufacturing SMEs in the Pakistan. A total of 300 responses were obtained through a structured questionnaire survey. The items used to measure each variable were adapted from established studies. This study utilizes PLS-SEM to derive empirical findings. PLS-SEM is widely applied due to its ability to simultaneously perform multiple regression and correlation analyses within a single model (Kline, 2015). SEM consists of two key components: the measurement model and the structural model. The measurement model evaluates confirmatory factor analysis (CFA), reliability, and different types of validity (convergent, discriminant, and construct validity), while the structural model assesses collinearity, model fit, and the statistical significance of the hypothesized relationships.

## 4 | RESULTS

### 4.1 | Assessment of Measurement Model

In the field of primary research, the reliability and validity of the data are the essential conditions to get the authentic and accurate results. Assessment of the measurement model is therefore the necessary condition for path modeling which tests the reliability, internal consistency, and validity of the data. The results of measurement model are presented in Table 1. Factor loadings are used to assess the convergent validity of each item within the constructs, while  $CA(\alpha)$  and CR evaluate the reliability and internal consistency of each construct. The AVE also serves as a measure of convergent validity at the construct level. According to Hair et al. (2011), item loadings should exceed 0.4 to confirm convergent validity. In this study, all loading values meet this criterion. For example, the highest loading is 0.976 (INV1), and the lowest is 0.675 (DGF5), indicating that convergent validity is established for all items within their respective constructs. The upper threshold level of  $CA(\alpha)$  is 0.5. However, if the value of  $CA(\alpha)$  exceeds from 0.7, then it indicates that the data for the selected sample are highly reliable (Hair et al., 2011). For the present case, the values of  $CA(\alpha)$  vary from 0.786 to 0.878, i.e., the value of  $CA(\alpha)$  for DGF, DTS, INV, and SMEP is 0.786, 0.877, 0.795, and 0.878 respectively. This states that the data of each multi-item construct possess higher reliability. The coefficient of CR should exceed from 0.7 to satisfy the necessary condition of reliability and internal consistency of the data (Hair et al., 2011). For the present case, the values of CR (DGF=0.795), (DTS=0.799), (INV=0.705), (SMEP=0.835) are well above the required minimum level of 0.50. Thus, it concludes that the data of each construct is highly reliable and internally consistent. The results of discriminant validity (HTMT ratio) are presented in Tables 2. The HTMT ratio serves as an estimate of factor correlation. According to Voorhees et al. (2016), a clear distinction between two constructs is established when the HTMT value is significantly below 0.85. As shown in Table 2, all HTMT ratios fall below this threshold, with the highest being 0.430 and the lowest at 0.244. These results confirm the presence of discriminant validity in the data.

**Table 1**  
Assessment of Measurement Model

Variable	Items	Loadings	$CA(\alpha)$	CR	AVE	VIF
Digital Facilitators	DGF1	0.756	0.786	0.795	0.856	1.667
	DGF2	0.743				1.684
	DGF3	0.758				2.578
	DGF4	0.964				3.567
	DGF5	0.675				2.764
Digital Transformation Strategies	DTS1	0.867	0.877	0.799	0.769	1.477
	DTS2	0.678				2.457
	DTS3	0.696				3.758
	DTS4	0.899				2.696
	DTS5	0.876				1.758
Innovation	INV1	0.976	0.795	0.705	0.734	2.884
	INV2	0.967				2.356
	INV3	0.688				3.547
	INV4	0.896				3.575
	INV5	0.689				2.366
Overall Performance of	SMEP1	0.790	0.878	0.835	0.697	2.595
	SMEP2	0.899				1.685
	SMEP3	0.866				3.648
	SMEP4	0.776				4.587

SMEs	SMEP5	0.789	3.585
	SMEP6	0.875	2.345

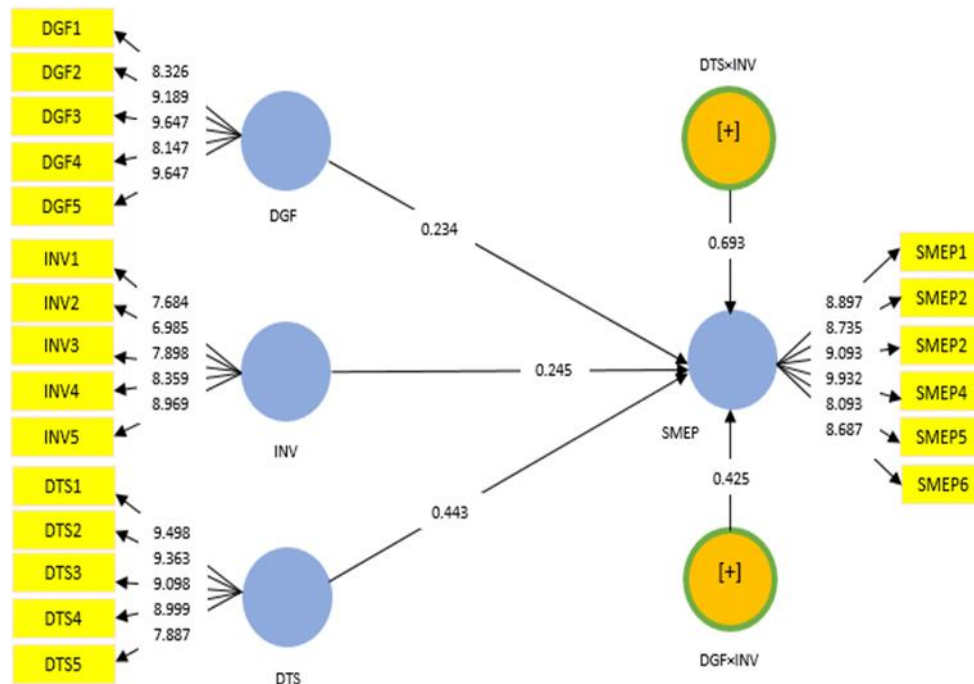
Note: "CA: Cronbach's Alpha, CR: Composite Reliability, AVE: Average Variance Extracted, VIF: Variance Inflation Factor."

**Table 2**  
Discriminate Validity HTMT Ratio

Variables	DGF	DTS	INV	SMEP
DGF				
DTS	0.264			
INV	0.346	0.244		
SMEP	0.430	0.321	0.332	

## 4.2 | Assessment of Structural Model

After satisfying the criteria of measurement model, the structural model of the study is assessed. Structural model of the study is shown in Figure 1 which is obtained with the process of bootstrapping. Structural model detects the issue of multicollinearity through variance inflation factor (VIF). The results of VIF are reported in Table 1. According to a rule, the value of VIF should not exceed from 5. Results of Table 1 show that the value of VIF for all the items are less than 5. Thus, it is concluded that the issue of multicollinearity is not present in our data.



**Figure 1:** Structural Model of the Study

Results of the path modeling are reported in Table 3. Table 3 is comprised of 2 panels. Panel A tests the main hypotheses of the study while panel 2 tests the moderating hypotheses. In Model 1, the path coefficient for DGF is 0.234, indicating a statistically significant relationship with SMEP at the 1% significance level. This means that a one-unit increase in DGF leads to a 0.234-unit increase in SMEP, thereby supporting the study's first hypothesis. Model 2 reports a path coefficient of 0.443 for DTS, showing a positive and significant relationship with SMEP at the 1% level. This suggests that a one-unit increase in DTS results in a 0.443-unit improvement in SMEP, thus confirming the second hypothesis. In Model 3, the path coefficient for INV is 0.245, also significant at the 1% level. This indicates that a one-unit increase in INV contributes to a 0.245-unit increase in SMEP, supporting the third hypothesis. Model 4 reveals the moderating effect of INV on the relationship between DGF and SMEP, with a path coefficient of 0.425. Compared to Model 1, where the DGF coefficient was 0.234, the increase to 0.425 suggests that INV enhances the impact of DGF on SMEP. Thus, in the presence of innovation, a one-unit increase in DGF



results in a 0.425-unit rise in SMEP, confirming that innovation strengthens this relationship at the 1% significance level; thereby supporting the fourth hypothesis. Additionally, Model 4 shows a path coefficient of 0.693 for the interaction between DTS and INV, confirming the moderating role of innovation in this relationship as well. When compared to the original DTS coefficient of 0.443 in Model 2, the increase to 0.693 indicates that innovation significantly amplifies the positive effect of DTS on SMEP. This finding supports the fifth hypothesis at the 1% significance level.

**Table 3**  
Path Analysis

Models	Path	Coefficient	P-value	Decision
<i>Panel A: Main Hypotheses</i>				
1	DGF → SMEP	0.234*	0.000	SPD
2	DTS → SMEP	0.443*	0.000	SPD
3	INOV → SMEP	0.245*	0.000	SPD
<i>Panel B: Moderation Hypotheses</i>				
4	DGF×INV → SMEP	0.425*	0.000	SPD
5	DTS×INV → SMEP	0.693*	0.000	SPD

Note: "DGF: digital facilitators, DTS: digital transformation, INOV: innovation, SMEP: overall SME performance, SPD: Supported (\*): significant at 0.01"

## 5 | CONCLUSIONS AND IMPLICATIONS

### 5.1 | Policy Implications

Based on the empirical findings, present study offers following implications. First, the study found that innovativeness is a key determinant of digitalization and performance. The study, thus, suggests that managers should promote the innovations. For this purpose, they can increase the investment in idea generation. They can also use the external sources of innovative ideas. They can also provide the incentives to their employees to generate innovative ideas for promoting the innovativeness in their business. They can keep an eye to their competitors to see what steps they are taking to increase the innovation. Second, the study found the positive contributions of digital transformation strategies on the performance of SMEs. This finding suggests that the managers should improve their digital strategies. They should always keep the customers as a center of their strategic efforts. They should make the strategies according to the needs of customers. Managers should keep in mind that their digital transformational strategies should not stagnant at any point. Strategies should change with the change in marketing trend and goals. For promoting the products, managers can use email marketing, social media marketing, or YouTube marketing; it will attract more customers. SMEs can also make a customer's forum, through which they can convey their needs, desired, or specific requirements about a particular product to the company. Third, the study found the positive relationship between digital facilitators and SMEs performance. On the basis of this result, study suggests that the managers should arrange some digital facilitators for online guidance of the customers about the features of a particular product. The study further suggests that companies may arrange some digital facilitators to support itself which will help them in the upgradation of existing products, developing a new product, or making a suitable digital strategy to attract the customers.

### 5.2 | Conclusion

Digital technologies (DTs) such as mobile, or internet technologies have completely transformed the structure of industries by creating the different ways of operating the firms. There is strong aim behind the execution of these technologies as it not only reduces the cost, but also develop the customer relationships that improve the performance of SMEs. DTs also provide a new prospectus to the SMEs in order to remain competitive and to perform better. SMEs can also get access to the knowledge system, innovativeness, and probability of global trade with the help of DTs. However, digital facilitators, and digital transformation strategies are required to successfully implement the DTs in the SMEs. Besides, Innovation is another important factor of having significant influences on both digital technologies. Digitalized products are continuing to develop through the reconsolidation of digital objects through the process of innovation. Innovativeness also help the firm in making sound strategies of digital transformation by taking into account the needs of today's society, and thereby, having significant influence on the performance of SMEs. Accordingly, this study examines the empirical relationships among digital facilitators,

digital transformation strategies, and the performance of SMEs.

Results of the study offer interesting findings. First, the study found the positive relationship between digital facilitators and overall performance of SMEs. This is so because digital facilitators empower SMEs to approach to the online renting services or available outsourcing. It provides the access to different DTs such as digital communication, digital transportation, intellectual systems, and data analysts which help the firms to perform better. Results of the study are consistent with the prior studies (Zimmermann, 2020; Louie et al., 2015). Second, the study found the positive relationship between digital transformation strategies and overall performance of SMEs. It shows that digital transformation strategies help in regulating the business process by using the new or advanced technologies. It helps that how to develop a new technology or upgrade the existing one. It also enhances the efficiency of business operations, which in turn positively impacts business performance. The study's findings are consistent with previous research (Yeow, Soh & Hansen, 2018). Additionally, the study found that innovation plays a significant moderating role in the relationship between digital facilitators and overall SME performance, as well as between digital transformation strategies and overall SME performance. This is because innovation is a prerequisite for digitalization, with digital products continuously evolving through the integration of digital components via innovative processes.

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