THE ROLE OF GOVERNMENT SUPPORT PROGRAM IN DIGITAL TRANSFORMATION AND DEVELOPMENT OF SMALL AND MEDIUM ENTERPRISES WITH THE MEDIATION OF SENSING CAPABILITY IN PAKISTAN

Muhammad Shahid Sultan
Lecturer in Law
GC University
Faisalabad – Pakistan
Shahid6023@yahoo.com

Aliza Tabassam
Freelancer
alizatabssum@gmail.com

ABSTRACT

Small and medium-sized corporations (SMEs) are a key component of their country's national having list as they play a big role in job creation, exporting promotion, GDP growth, and poverty reduction. County executive authorities that provide SMEs with the competitiveness and performance know-how to enable their local and international trade operations through knowledge and skills transfer. The Government of Pakistan happens to put in place one of such SME aid programs in line with the Common Facility Centre (CFC) program. The aim of CFC is to inform SMEs about modern production techniques and technical knowledge in order to improve their overall technological abilities and competitiveness by which the chances of a business growing can be achieved.

For this study, the positivist approach will be chosen in the quantitative technique to identify the cause and effect relationship to get a conceptual view about CFC support program digital transformation and performance of SMEs. It may appear that the CFC program is likely to enhance SME performance. However, it is predicted that the role of sensing capability in digital transformation may be capable to moderate this liability where sensing ability may play a mediating position. Main research studies, with regard to effectiveness of SME support programs, remain focused on the aggregate outcomes, ignoring individual company's capacity to positively affect firms' performance.

A quantitative research technique developed from the positivist paradigm is provided to gather data and investigate the linkages among CFC support programs, digital transformation, and SME success. It is advocated that objective and perceptual data be acquired by adopting a survey design via a self-

administrated questionnaire. This research sample will include SMEs in Pakistan's leading industrial clusters employing the CFC assistance program. A survey questionnaire has been used to collect the data. Then data is coded, fed, and analyzed by SPSS, following proper validation through exploratory and confirmatory factor analysis.

Keywords: Common facility center, digital transformation, small and medium enterprises, performance of SME, Mediation, Environmental performance, competitiveness of firm

1. Introduction

In Pakistan, the SME sector is undervalued owing to various factors, although there are several prospects for self-organization. The common facility center's (CFC) company, on the other hand, will not grow due to the Pakistani government's poor rules and underqualified workers working with small and medium-sized businesses. Pakistan is undergoing a demographic shift because of an increase in the percentage of the working-age population under the age of 15 years. The government must provide educational opportunities for the country's youthful workforce to boost productivity and job prospects. This expansion in the economy is caused by a shift in the population's average age. The government should assist small and medium-sized businesses (SMEs) by implementing cluster-based assistance programs in their best interests. The programs have capacities to enable the SMEs surpass their stricture, making it easier for them to compete with their peers in the global market.

Ideally, small and medium size companies (SMEs) will support innovation through digitalization, skill improvement and people recruitment mainly in developing countries. Small and medium-sized businesses (SMEs) are contributors to the overall 76 percent of Pakistan's 3.2 million private companies. Those small and medium-sized enterprises (SMEs), which are since more than 10 percent of GDP and 20 percent of country's total exports, and providing more than 40 percent of non-agricultural jobs, account for more than 65 percent of non-agricultural employment. From their standpoint as the ones that provide low-cost jobs which in turn contribute to poverty reduction, present governments are focusing more on small, medium enterprises. Firstly, small and medium sized enterprises are faced with several difficulties due to their small and limited resources. Due to the absence of technologically deficient frameworks, small SMEs, especially those operating in emerging nations, face the fundamental problem of barriers in the global market. Despite several federal and provincial efforts, these small and medium-sized enterprises nonetheless confront additional difficulties, such as a lack of finance, marketing, and managerial skills and an unfavorable economic and regulatory climate. Starting a firm without the help of venture capital may be difficult.

Sensing capability is one of the five dynamic competencies necessary for organizational resilience. The remaining parts are sense, seek, seize, alter, and form. Having the ability to "sense" means a business can do things like "identify, develop, and evaluate opportunities related to customer needs; mobilize resources in response to needs and opportunities; capture value from

those opportunities; and transform capabilities by adjusting or reconfiguring resources to maintain new or different values." Sensing ability is a crucial component for an entrepreneur to have while searching for possibilities, particularly in light of the changing environment of today. Every business must strive to attain performance since it reflects the organization's resource management and allocation capacity. It is not sufficient to assess company success just in terms of financial factors like sales growth, profit, and ROI (Return on Investment), but also non-financial factors like reputation, innovation, and employee and customer happiness. The inconsistent findings of earlier studies are connected to sensing capability; specifically, some researchers contend that sensing capability is not positively related to the financial success of SMEs (Mursitama, et al., 2021).

Several substantial efforts must be taken for the CFC market to take root, including encouraging local and international investors to develop the CFC SME's organizational performance. This paper examines the CFC that enables Pakistan's small and medium-sized enterprises (SMEs) and digital transformation in businesses where sensing capability is a mediator. Furthermore, the research identifies a unique and effective method for developing entrepreneurial activity in Pakistan with the aid of governmental policies and guidelines.

1.1 Objectives of the study

There are the following objectives of the study,

1. To explore the role of CFC in organizational performance of small and medium enterprises
2. To find the impact CFC on digital transformed SMEs
3. To explore the Sensing capability mediating impact on Digital Transformation
4. To find the impact of sensing capability on SME performance

1.2 Research questions

There are the following research questions of the study

1. What is the role of CFC in organizational performance of small and medium enterprises?
2. What is the impact CFC on digital transformed SMEs?
3. How the Sensing capability has mediating impact on Digital Transformation?
4. What is the impact of sensing capability on SME performance?

2. Literature Review

Digital Transformation of SME

The use of digital technology to build, change, and update an organization's business processes and culture is known as "digital transformation." Only a small percentage of organizations can successfully shift digitally and get the full benefits of the process.

Pakistan is attempting to keep pace with the rest of the world as digital technology becomes more commonplace. Pakistan has over 3 million small and medium enterprises (SMEs), which account for more than 40 percent of the country's GDP and 78 percent of all employment (Mubarak, et al., 2019). It has not been quantified, but according to a McKinsey report on digital finance, digitization of processes and payments would contribute $36 billion to Pakistan's GDP by 2025 and generate 4 million new jobs, according to SMEs in Pakistan. Digital technology may promote GDP increase of ten percent by 2020 as per the report on the effects of internet and digitalization on the small and medium enterprises in India. Through the implementation of digital technology, SMEs could make a 10% difference in GDP by 2020 (Chen, et al., 2021).

According to Boronenko and Zeibote (2011) industrialization and competitiveness as one of the main features of the state economy have been given proper attention (Boronenko & Zeibote, 2011). SMEs – which form roughly 90% of business in developing nations and help raise the level of industrial production and exports – are the engines of economic development in this country. There is a possibility for such programs to be beneficial to local SMEs and, in the long run, for the economic and industrial development of the country (Jednak et al., 2018).

Concerning CFC, it shall be all about giving SMSE access to a common pool of aiming technologies, education, assessment, examination, and inspection in addition to other services for process and technology development. The core idea of this plan is to upgrade the business clusters in this country by transferring of technology and employees' competence. SMEs that use CFC's facilities or services enhance their products' and processes' quality and efficiency to have the highest profit margins and high growth rates. CFCs volume increasing, public interest increases to measure their environmental role. Specifically, a definitive evaluation is needed on what CFCs can and cannot do after reading the literature about CFCs.

Clustered development plans are renowned as complex implementing efforts as shown by literature review. It is due to several factors, such as the unique nature of each cluster, the need to ensure the project's long-term viability, the wide range of stakeholders involved, and, most importantly, the need to quantify the development outcomes achieved. Evaluating CFCs is essential because it provides information to legislators and implementation agencies on how well CFCs are achieving bigger economic goals, which is necessary to secure further funding for ongoing and planned CFC initiatives (Ramanigopal, et al., 2013). In addition, evaluation helps identify obstacles or issues that may hamper the project's efficacy and performance to prioritize the allocation of resources to guarantee successful project planning and execution (Andjarwati, et al., 2021). CFCs, in particular, and other development interventions in general, have always been difficult to evaluate because of their multifaceted and socioeconomic character. Due to the lack of resources and skills, particularly in developing countries, and the lack of a bespoke and adequate assessment methodology for CFCs, evaluation of CFCs is considered an understudied issue in the literature (Andjarwati, et al., 2021).

H1: CFC impact on DT of SME

Using the CFC program, exporters that have not kept up with worldwide improvements in obsolete processes and goods may improve their information systems, intellectual capital, and capabilities. It has made it more difficult for these enterprises to keep up with the ever-increasing demands on their materials and methods. Experts and industry insiders agree that infrastructural improvements, technological modernization, and firm technology development are necessary for these industries' resurgence (Shahzad & Imran, 2021). The Republican Party's industrial and economic development policy has made using CFCs a vital component, with vast quantities of CFCs installed in several manufacturing clusters worldwide (Buratti & Penco, 2001).

An independent and structured organization, a CFC provides the following services: 1) a manufacturing plant (for production), 2) technology development, and 3) a consulting firm, all of which are necessary for the most modern methods of production and distribution, 4) R&D (input material experimentation and inspection, research lab, conceptual design, and so on), as well as 5,) customer service and support (Kim, 2021). SMEs benefit from CFC programs by being able to better their goods and services, expand their company, invent and improve the quality of their products, and train their personnel for essential tasks to match global standards and client demands.

SME profitability and productivity depend strongly on technological competence, company growth, overall quality, and understanding of global markets (Rehman & Anwar, 2019).

H2: CFC impact on SME performance

The CFC provides trade financing loans to small and medium-sized enterprises (SMEs) to help bridge the payment gap at the time of shipping as well as meet the exporter's working capital requirements so that the farmer may be paid on time. In order to establish long-term business relationships with farmers, they must get prompt payment for the goods they have delivered.

A wide variety of financing options are available to enterprises in the commodities supply chain. SMEs in the agricultural commodities industry benefit from trade financing since it helps them access international markets. With the growth in SMEs' revenue comes the desired effect CFC is eager to achieve.

Exporters need payment assurance for their commodities before shipping, whereas buyers prefer to pay upon receipt of their shipments using traditional trade finance instruments. It is possible to satisfy both parties' demands by offering items such as trade credit, letters of credit, or guarantees.

SMEs in developing nations perceive a high risk regarding agricultural funding from financial institutions. In contrast to the 13% of trade financing requests granted to large multinationals, most SMEs are turned down, showing that the world's liquidity is confined to a small number of large financial institutions and their customers. With SMEs accounting for 70 to 90 percent of the GDP in commodity-dependent nations, businesses in these countries face even greater hurdles, especially those in rural areas where agriculture is their primary source of income.

Due to hefty collateral requirements, agricultural funding may be out of reach for small and medium-sized businesses. The CFC depends on the strong connection between the exporter and its customer, rather than collateral, to alleviate the CFC's hardship. CFC and exporter agree

that cash advances will be based on sales contracts under the loan agreement. As a result, the exporter's customer will be instructed to pay the CFC in full for any bills deriving from its contracts. Tripartite Repayment Instructions, signed by the exporter, the importer, and the CFC, outline this arrangement.

The CFC's financial stability is enhanced by directly transferring sales income from such contracts to its account. However, this does not come without hazards, such as during times of significant commodity price volatility. The exporter's operational and managerial skills will also be crucial regarding the CFC's instructions.

Various stakeholders in the value chain benefit from CFC's trade financing loan. It fosters long-term business relationships and provides small businesses with the financing they need throughout the harvest season. SMBs may take advantage of market possibilities without the need for collateral and build tight connections with their farmers and their customers via this method. Farmers profit from quick off take, prompt cash payments, and the possibility of advance payments. Buyers may establish long-term partnerships and a more solid supply base for goods from underdeveloped nations. A solid value chain with impact-driven SMEs procuring from smallholder farmers is essential. This shift is also fueled by a shift in consumer consciousness about global trade challenges and a focus on ethical sourcing.

If you are a small business with a strong social or environmental mission, trade financing might be an excellent beginning point for a future investment strategy. If successful, it offers a firm foundation for helping businesses in their diversification strategy or intentions to go into value-added products to lessen their exposure to commodity price volatility.

H3: DT impact on SME performance

As technology progresses, organizations are being forced to reconsider their business strategies. It is becoming more common for companies to use digital technology to get an edge over their competitors in numerous sectors. The high speed of change and adaptation expected by digital disruption is too much for conventional organizations to handle with their hierarchical, centralized, closed, top-down organizational structures (Ashekele & Matengu, 2008). In order to succeed in today's digital environment, established businesses must reevaluate their methods of operation, take cues from digital upstarts, and modify their strategies and attitudes accordingly. As a culture and an economy, we are shifting to digital. While this transformation has been taking place for almost 50 years, the speed of change has accelerated as more digital infrastructure has been deployed, cellphones have proliferated, and vast amounts of data have been generated. Because of these advancements, data is now a valuable strategic asset (Chen, et al., 2021). Many now link the digital transition to prior industrial changes fueled by general-purpose technology such as steam or electricity. The economy and society are undergoing substantial changes, whether we call them the Second Machine Age (Faraj, et al., 2018), the Third Wave (Toffler, 1980), or Industry 4.0. (Wilkesmann & Wilkesmann, 2018). A great window of opportunity has opened to solve our day's most critical social concerns (Shahbaz, et al., 2019), Health, schooling, and the natural world. While the digital revolution has many positive effects, it has also introduced new

problems, such as employment and training, privacy and security, social and economic interaction, and much more (Mubarik, et al., 2019), the construction of communities, and the ideals of equality and inclusion in the current industrial period. 4.0. Macro-level productivity and performance are positively affected by the digital transformation of enterprises (Bughin, et al., 2019). Industry 4.0 is referred to improve operational efficiency and productivity and increase automation. A clear link between performance and Industry 4.0 may be seen in the manufacturing and service sectors. Several elements of Industry 4.0 are linked to internet technologies and advanced algorithms. On the other hand, they make it clear that one of the key features of Industry 4.0 is its emphasis on value creation and information management (Posada, et al., 2015).

H4: Sensing capability mediating impact on Digital Transformation of SMEs

Digital sensing skills have become more vital for enterprises. Digital scouting, digital scenario planning, and digital mindset constructing are the three sub-capabilities that make up digital sensing. Customers' habits and preferences are changing at a faster rate than ever before. By using digital scouting and analyzing their external environment, organizations must be able to anticipate these shifts and changes in trends that might have a disruptive impact (Rashidirad & Salimian, 2020).

Scan and learn about companies' opportunities and challenges, as Teece (2007) described in his sensing article. Information gleaned from various business ecosystems and cross-functional teams are used to allow the ability to detect patterns (Teece, 2007). Because of this, sensing must occur at all levels of the business, and all workers, not just the top ones, should contribute to data collection. A growing number of firms are shifting their attention from relying on managers' and workers' cognitive capacity to use technology to forecast human behavior and profit from it by identifying new possibilities or risks (Warner & Wäger, 2019). Sense-making talents should not be restricted to the confines of the workplace. New digital platforms, gadgets and the internet should be included in the scope of information collecting. This technique is essential when customer behavior is observed in the company ecosystem (Nylén & Holmström, 2015).

Analyzing, evaluating, and designing digital plans for future situations are part of digital scenario planning. Due to digital innovation and technology, it is difficult for businesses to obtain the sub-capability of digital scenario planning. LMA (layered modular architecture) is possible because of the programmability, homogeneity of data, and self-referencing nature of digital technology (Yoo, et al., 2010). It means that digital technology is fluid and adaptable since the four layers of digital technology may be interchanged in many ways. One layer can be modified to produce something entirely new. They may grow in unforeseen ways that might lead to unexpected or unintentional changes in firms' business models (Yoo et al., 2010). Because of this, digital sensing is much more critical, but it is also more difficult to implement (Warner & Wäger, 2019).

The phrase "digital mindset crafting" refers to creating a long-term digital vision inside an organization while instilling a digital and entrepreneurial attitude.

Managers and executives are in charge of instilling a digital attitude and a clear strategy for the company. Additionally, digital sensing necessitates dynamic management skills. In smaller companies, this is especially true (Li, et al., 2018). The capacity to create, integrate, and adapt the firm's resources and competencies, which is the situation in digital transformation, is referred to as emotional management skills (Helfat & Martin, 2015). It is easier for managers to detect an opportunity or a danger when they maintain a high level of dynamic capability. Keep an open ear to the ground, develop a mental model for decision-making, absorb information and knowledge from various sources, manage official and informal interactions, and more.

Managers can maintain a high level of adaptability through experimenting and making mistakes. It may be particularly difficult in small businesses because of the resources required and the consequences of failure for a smaller firm. Restrictive strategic planning is an internal obstacle that may prevent small and medium-sized enterprises (SMEs) from fully utilizing their digital sensing capabilities. According to Warner and Wäger (2019), the firm's capacity to use its digital dynamic capabilities will be affected.

H5: sensing capability impact on SME performance

Sensing capacity is "the firm's ability to investigate, understand, and detect environmental possibilities." (Nieves & Haller, 2014). One of the most critical elements of dynamic capabilities is the capacity to detect.

Understanding and perceiving possibilities in the context of entrepreneurship and creating new ways to take advantage of such chances. Putting together all the pieces is essential to understanding the business's future. This talent is all about being able to see and then seize the best possible chance. A common belief is that entrepreneurs develop fresh ideas and either establish a new company or improve current goods and services. As a result, these acts are entrepreneurial, yet the tasks of entrepreneurial management are anchored in dynamic capacities for launching operations (Teece, 2007).

It is also stressed that to make the most of environmental opportunities, a reorganization is necessary to account for the expansion of relevant markets and the development of suitable technologies (Pavlou & El Sawy, 2011). According to Teece et al., a company's ability to build and integrate pieces to counter and manage rapid changes depends on its ability to monitor the environment, evaluate the condition of markets and competitors, and finish reconfiguration quickly to gain a competitive edge (1997). Teece (2007) argues that in order for organizations to discover and develop new possibilities, they must constantly do market research, scan, and search throughout local and worldwide marketplaces. The report argues that success requires an in-depth understanding of talent demand, the structural evolution of organizations and marketplaces, and the responses of suppliers and competitors.

The ability to monitor and adapt to shifting conditions is a crucial component of what we call "dynamic capabilities" (Pavlou & EI Sawy, 2011). Dynamic capabilities relate to a company's strategic capacity to integrate, expand, and recombine its resources (DCs) (Eisenhardt & Martin, 2000). Firm resources are transformed into firm performance using competencies (Raza, et al.,

2018). Capabilities are portrayed as strong mediators in this approach. In most investigations, capabilities were cited as a mediating factor (Hassan, et al., 2017). Advanced sensing capabilities might be utilized to refocus efforts on the market and boost the efficiency of small and medium-sized enterprises (SMEs). Consequently, the purpose of this research is to examine how SMEs' sensing capacities might act as a mediator between digital transformation and their performance.

3 Methodology

The positivist approach has been selected for the quantitative research technique to explain the cause-and-effect link. Creswell (2013) advocated a quantitative technique for research that trends toward deductive reasoning. To overcome obstacles and answer issues in research, a quantitative approach employs formulating questions and hypotheses, acquiring objective measures, and collecting numerical data. This study uses a quantitative method since it is interested in complex data from SMEs that have benefited from the CFC program and sensing capability as a moderating factor.

A survey has been conducted using the questionnaire as an instrument for data collection. To evaluate and validate the theorized link between these factors, we have gathered empirical data from the user SMEs about their usage of CFC services and digital transformation in their firms, as well as the changes noticed in the performance metrics of those organizations. We contact the SME owners and non-owner workers to gather the data needed to assess the SMEs' digital transformation, capabilities, and performance. The list of CFCs and user SMEs established by the preceding scholar has been utilized as a starting point.

4 Analysis and results

Of the original sample size of 900 firms, 274 responded, with 264 providing complete data for analysis. It equates to a response rate of 29.3 percent. Table 1 displays the respondents' and businesses' basic information. In addition, two statistical analyses were performed to show no non-response bias in this study (Armstrong & Overton, 1977). To begin, this study compares the assets and number of employees at the responding and non-responding businesses. This data is available in Common Wealth Magazine, and an independent sample t-test indicated no statistically significant difference ($p = 0.092$ and $p = 0.124$, respectively). The responses are then divided in half according to their expected return dates. No significant differences were found between the two groups when comparing business assets and the number of employees using the independent sample t-test ($p = 0.137$ and $p = 0.115$, respectively). So, this study does not need to worry about non-response bias.

Table 1:

Characteristics		Number of respondents (264)	Percentage (%)
Work experience	Less than 5 years	8	3.0
	5-10	26	9.9
	10-15	85	32.2
	16-20	71	26.9
	Older than 20	74	28.0
Qualification	Graduated	42	15.9
	Masters	131	49.6
	Post graduate	91	34.5
Title of respondents	Chief information officer (CIO)	126	47.7
	IT Manager	78	29.6
	Other managers in IT department	23	8.7
	Others	37	14.0
Industry Types	Traditional manufacturing	116	43.9
	High tech manufacturing	148	56.1
Number of Employees	Less than 500	43	16.3
	501-1000	61	23.1
	1001-3000	80	30.3
	3001-5000	68	25.8
	More than 5000	12	4.5
Total assets	Less than $10 billion	76	28.8
	$11-$50 billion	113	42.8
	$51-$100 billion	51	19.3

	More than $100 billion	24	9.1

Data were derived from prior studies and adjusted to meet the SMEs setting. Next, the survey's measuring questions were refined, and its content validity was verified by pretesting. At the beginning of the process, we asked for input on the questions and language from three IT managers and three information management experts. Based on the feedback from these six people, the construction measurements were reworked. The Appendix contains a list of the independent and dependent variables measurement items, and the following discussion focuses on those items.

The data was analyzed using SmartPLS 3, a software package for partial least squares structural equation modeling. (PLS-SEM). The PLS-SEM procedure consists of the first two stages (Hair et al., 2013). To ensure the constructs' validity and trustworthiness, First, we estimate that the measurement model employs a confirmatory factor analysis (CFA). During this second stage of the study, it was believed that the structural model would do link analysis.

4.3 Measurement model

A measuring model's reliability, convergent validity, and discriminate validity are all evaluated. These results, which fall over a suggested threshold of 0.70 and indicate good construct dependability, are given in Table 2. The average variance extracted (AVE) values are suggested to surpass the specified cut-off threshold of 0.50 (Hair, et al., 2013) for convergent validity testing. Convergent validity may be inferred from these findings. Also shown in Table 2 is that the square root of AVE is larger than the correlation between the components, which supports the claim of acceptable discriminant validity. As a result, the suggested model was shown to have adequate reliability and validity.

Construct	The standardized loadings	ompo site Reliability	xtracted variance Average	Correlation of internal construct					
						3		5	
CFC	.742-.919	913	724	851					
SME Performance	.723-.915	919	741	524	861				

Digital transformation SME	.712-.844	948	583	742	630	.764			
DT of SME	.863-.944	949	824	754	473	.738	908		
Sensing Capability on DT	.858-.893	928	764	611	378	.554	676	.874	
Sensing capability on SME	.874-..891	913	777	490	758	.584	437	.308	.882

The significant level of all loadings is $p<0.01$. The diagonal elements are square root of AVE (Average variance extracted) for this construct. On the other hand the off-diagonal elements are inter construct correlations.

4.4 The common method bias

An essential worry when using a single-informant technique is the risk of procedure variation (CMV). As indicated by Podsakoff, this research followed two methods to minimize CMV (Podsakoff, 2003). In order to limit the risk of CMV, this research employed neutral phrasing for questions and many items for constructs. In this study, we used Harman's single-factor test to determine whether or not a single factor emerges via principal component analysis (PCA) or whether or not a single factor accounts for the vast majority of the covariance among the variables in un-rotated factor analysis. It became clear from the findings that several different variables may have caused the data difference. However, it seems that the presence of CMV is not a significant issue in this research.

4.5 Hypothesis test

Once the reliability and validity of the measurements had been established, the structural model was utilized to evaluate the predicted correlations. The structural model's findings are shown in Table 3. The amount of variation explained in the endogenous variable (the R2 value) must be ensured to assess the model's quality. An R2 value greater than 26% is significant. R2 scores for all endogenous variables exceeded the benchmark (ranging from 0.360 to 0.595), showing that the structural model had a high ability to explain the data. Q2 is also used to evaluate the model's accuracy in predicting future outcomes. All endogenous variables had Q2 values larger than zero, supporting the model's predictive power. Accordingly, the SRMR is 0.086, which is within the acceptable range for a successful model fit (Hair, et al., 2013).

Hypothesis test
From

	Digital transformation	Sensing capability	SME performance
H1: CFC impact on DT of SME	0.146*	0.077^{n}s	
H2: CFC impact on SME performance	0.385***	.121*	
H3: DT impact on SME performance	0.127*	.198**	
H4: Sensing capability mediating impact on DT	.128*	.108*	
H5: sensing capability impact on SME performance	.218***	.097	
R^2	.593	.501	.595
Q^2	.295	.264	.355

Ns=non-significant ┼<0.10; *P<0.05; **P< 0.01; ***P< 0.001

Standardized root mean square (SRMR) = 0.086

Digital transformation of SMEs (= 0.146, p = 0.5) is influenced significantly by impact of CFC on SME digital transformation, whereas sensing capability is non-significant (p = 0.5). In this case, H1 is supported. H2 is supported by the fact that CFC have a considerable impact on SMEs digital transformation (= 0.385) as well as sensing capability (= 0.121). Both digital transformation and sensing capability is influenced by Digital SME performance (= 0.127, p 0.5) in the deployment of SMEs.

SMEs DT is significantly affected by sensing capability (= 0.218, p 0.05) and sensing capability is marginally affected by DT (= 0.097, p = 0.1), while the latter has a significant impact on the former (= 0.218, p 0.001) but a marginal effect on the latter (= 0.108, p = 0.5). This means that H4 and H5, can be used.

5. Discussion and conclusion

This article considers the function of sensing capabilities as a mediator between the digital transformation of SMEs and the effect of CFC. Theoretically, the findings of this research support the idea that a company's success is affected by its resources and skills. It also helps fill a gap in the literature by empirically analyzing the role of sensing capabilities as a mediator between the CFC effect and the performance of digitally transformed SMEs. Therefore, this study recommends

to policymakers and researchers that digital transformation and sensing capabilities are critical for performance improvement.

According to Kohli and Devaraj, the impact of the digital infrastructure on CFC expenditures may have a time lag since linked, interoperable, and modular digital infrastructure is essential but not uncommon (Kohli & Devaraj, 2003). In the early stages, the digital infrastructure of SME with green activities may be influenced by CFC but less so in more broad environmental cooperation with manufacturing.

Regarding SME, the digital transformation and CFC are both critical enablers that have varying effects on its many aspects. Regarding SME digital personnel plays a far more significant role than they do in its all aspects. SME are significantly impacted more by the digital transformation and then CFC by any other preceding factors. Our findings provide a fresh insight into using RBV in the SME literature. Companies need access to knowledgeable and skilled IT personnel to integrate new technologies into existing business processes effectively. IT workers who are well-versed in implementing SMEs are more likely to accept management responsibilities and assist businesses in integrating SMEs into digital management processes. Successful implementation of an expanded SME business model is more likely for companies with solid links to their IT departments. Businesses require a deeper focus on the correlation between CFC and SME success.

CFC has a positive impact on SMEs performance, it means that both internal and external adoption of digitally transformed SMEs may lead to a digital image and an increase in operational performance. Businesses may improve their long-term competitiveness by enhancing their digital image and operational effectiveness. More importantly, the findings reveal that CFC directly impacts SMEs' competitiveness by improving overall performance.

The results of our research also show that having the right SC (sensing capability) is not enough to guarantee the survival of SMEs; an organization must also be able to reinvent itself strategically and digitally. In order to improve and maintain organizational performance, managers of SMEs must put in place the necessary plans for updating organizational strategies, procedures, routines, and structure. Managers must constantly reinvent themselves to identify and take advantage of possibilities available in their company environment, which is why they must build relationships with their industry partners for improved performance and long-term survival.

Overall, the study's results indicate that the best way to ensure SMEs in a highly competitive business climate is to combine adequate sensing capabilities with the prompt digital transformation of the SME. Therefore, in practice, CFC strongly impacts SMEs and their digital transformation, where sensing capability also plays a vital role as a mediator with the right partners and strategically reevaluating themselves to surpass their competitors and secure their survival over the long term.

Limitations of the study and future research

Due to the limitations of this study, more research is possible. The current study only polls one representative from each selected company. While IT managers' perspectives and experiences are valuable data points for studying SMEs' performance, without other respondents from the same

company, it is impossible to evaluate the group's overall SME impressions. In order to gain an idea of a jointly owned SME deployment, the following research will need to collect data from a large number of competent respondents in both organizations. Second, although it is theoretically and usually accepted to use subjective (self-reported) assessments of digital transformation implementation success, self-reported competitive advantage is vulnerable to response bias. Future research is suggested to use objective (physical performance data) and subjective (self-reported) assessments to evaluate the efficacy of digital transformation of CFC implementation to minimize bias. A more realistic image of the effects of digital transformation on small and medium-sized enterprises could be established, and more insights might be gleaned from the research if various methods were used. Third, this study examined the factors influencing SME implementation, including digital resources and quality. SME deployment may also be affected by factors such as the organization's capacity for adaptation, top executives' mindset, and the market's state. Indeed, this is something that has to be looked at more. Fourth, the paper follows the SME-related literature in examining internal integration's impact on SMEs' external collaboration. Since exceptional SMEs' external cooperation is predicted to boost internal integration to improve digital transformation implementation performance, further research will be conducted to determine the nature of the reciprocal relationship between internal integration and external collaboration. Moreover, 264 Pakistani industrial firms serve as the study's participants. Since cultural variations between Pakistan and other nations may have affected the findings, more research utilizing samples from other countries is necessary to provide a more accurate assessment of the hypotheses.

References

Andjarwati, T., Barata, F., Latif, I. & Setiono, B., 2021. The Effect of Entrepreneurial Characteristics and Business Capital and Innovation on Marketing Performance of Small and Medium Enterprises (SMEs).. *International Journal of eBusiness and eGovernment Studies,* Volume 13(1), pp. 142-158.

Armstrong, J. & Overton, T., 1977. Estimating nonresponse bias in mail surveys. *Journal of marketing research,* Volume 14(3), pp. 396-402.

Ashekele, H. & Matengu, K., 2008. Success factors in technology transfer to SME's: Rundu woodwork common facility center.. *In PICMET'08-2008 Portland International Conference on Management of Engineering & Technology* , pp. 2190-2196.

Boronenko, V. & Zeibote, Z., 2011. The potential of cluster development and the role of cluster support policies in Latvia.. *Economic Annals, ,* Volume 56(191), pp. 35-67.

Bughin, J., Kretschmer, T. & van Zeebroeck, N., 2019. Experimentation, learning and stress. The role of digital technologies in strategy change..

Buratti, N. & Penco, L., 2001. Assisted technology transfer to SMEs: lessons from an exemplary case.. *Technovation,* Volume 21(1), pp. 35-43.

Chen, C. et al., 2021. Role of government to enhance digital transformation in small service business.. *Sustainability,* Volume 13(3), p. 1028.

Eisenhardt, K. & Martin, J., 2000. Dynamic capabilities: what are they?. *Strategic management journal,* Volume 21(10-11), pp. 1105-1121.

Faraj, S., Pachidi, S. & Sayegh, K., 2018. Working and organizing in the age of the learning algorithm.. *Information and Organization,* Volume 28(1), pp. 62-70.

Hair, J., Ringle, C. & Sarstedt, M., 2013. Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance.. *Long range planning,* Volume 46(1-2), pp. 1-12.

Han, Z. & Huo, B., 2020. The impact of green supply chain integration on sustainable performance. *Industrial Management & Data Systems,* Volume 120(4), pp. 657-674.

Hassan, S., Mei, T. & Johari, H., 2017. Mediating role of operational capabilities between intellectual capital and organizational performance: A proposed theoretical framework.. *Academy of Strategic Management Journal, ,* Volume 16(3), pp. 1-12.

Helfat, C. E. & Martin, J. A., 2015. Dynamic managerial capabilities. Review and assessment of managerial impact on strategic change.. *Journal of Management,,* Volume 41(5), p. 1281–1312.

Jednak, S., Kragulj, D. & Pareža nin, M., 2018. Knowledge and industry clusters as drivers of economic development and competitiveness.. *Anali ekonomskog fakulteta u Subotici, ,* Volume (39), pp. 3-17.

Kim, S., 2021. Sustainable growth variables by industry sectors and their influence on changes in business models of SMEs in the era of digital transformation.. *Sustainability,* Volume 13(13), p. 7114.

Kohli, R. & Devaraj, S., 2003. Measuring information technology payoff: A meta-analysis of structural variables in firm-level empirical research.. *Information systems research,* Volume 14(2), pp. 127-145.

Li, L., Su, F., Zhang, W. & Mao, J., 2018. Digital transformation by SME entrepreneurs. A capability perspective. *Information Systems Journal,* Volume 28(6), pp. 1129-1157.

Mubarak, M. et al., 2019. The impact of digital transformation on business performance. A study of Pakistani SMEs.. *Engineering technology & applied science research,* Volume 9(6), pp. 5056-5061.

Mubarik, S., Naghavi, N. & Mubarik, M., 2019. Governance-led intellectual capital disclosure: Empirical evidence from Pakistan. *Humanities and Social Sciences Letters,* Volume 7(3), pp. 141-155.

Mursitama, T., Furinto, A. & Wijanto, S., 2021. The Role of Sensing Capability in Enhancing Small Business Performance. *In 1st UMGESHIC International Seminar on Health, Social Science and Humanities (UMGESHIC-ISHSSH 2020),* pp. 717-722.

Nieves, J. & Haller, S., 2014. Building dynamic capabilities through knowledge resources.. *Tourism Management,* Volume 40, pp. 224-232.

Nylén, D. & Holmström, J., 2015. Digital innovation strategy. A framework for diagnosing and improving digital product and service innovation.. *Business Horizons,* Volume 58(1), pp. 57-67.

Pavlou, P. & El Sawy, O., 2011. Understanding the elusive black box of dynamic capabilities.. *Decision sciences,* Volume 42(1), pp. 239-273.

Podsakoff, N., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology,* Volume 885(879), pp. 10-1037.

Posada, J. et al., 2015. Visual computing as a key enabling technology for industrie 4.0 and industrial internet.. *IEEE computer graphics and applications, ,* Volume 35(2), pp. 26-40.

Ramanigopal, C., Palaniappan, G. & Hemalatha, N., 2013. Common FaCility Centre (a SuCCeSS Strategy oF entrepreneurShip Development).. *Journal of Rural and Industrial Development, ,* Volume 1(1), p. 22.

Rashidirad, M. & Salimian, H., 2020. SMEs' dynamic capabilities and value creation. the mediating role of competitive strategy. *European Business Review..*

Raza, S. et al., 2018. Entrepreneurial network towards small firm performance through dynamic capabilities: the conceptual perspective.. *Academy of Entrepreneurship Journal,* Volume 24(4), pp. 1-9.

Rehman, A. & Anwar, M., 2019. Mediating role of enterprise risk management practices between business strategy and SME performance.. *Small Enterprise Research,* Volume 26(2), pp. 207-227.

Shahbaz, M., Rasi, R. & Ahmad, M., 2019. A novel classification of supply chain risks: Scale development and validation.. *Journal of Industrial Engineering and Management,* Volume 12(1), pp. 201-218.

Shahzad, K. & Imran, F., 2021. Surviving the covid-19 pandemic: The role of digital innovation and transformation. In International Conference on Applied Human Factors and Ergonomics. pp. 708-715.

Teece, D., 2007. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance.. *Strategic management journal*, Volume 28(13), pp. 1319-1350.

Toffler, A., 1980. *The Third Wave. Bantam Books (US)*.. s.l.:s.n.

Warner, K. & Wäger, M., 2019. Building dynamic capabilities for digital transformation. An ongoing process of strategic renewal.. *Long range planning*, Volume 52(3), pp. 326-349.

Wilkesmann, M. & Wilkesmann, U., 2018. Industry 4.0–organizing routines or innovations?. *VINE Journal of Information and Knowledge Management Systems*..

Yoo, Y., Henfridsson, O. & Lyytinen, K., 2010. Research commentary—the new organizing logic of digital innovation. an agenda for information systems research.. *Information systems research*, Volume 21(4), pp. 724-735.