



Digital Pathways to Success: The Transformative Power of Digitalization and Digital Capabilities on SMEs' Financial Performance

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ABSTRACT

In the contemporary competitive business milieu, small and medium enterprises (SMEs) have discerned the significance of embracing the digital landscape to cater to the ever-evolving global customer demands, particularly in the aftermath of the COVID-19 pandemic. This research aims to provide valuable insights into how SMEs navigate the complex digital environment by examining the combinations of digitalization and digital capabilities dimensions that contribute to enhancing financial performance. Different dimensions of digitalization and digital capabilities are used as explanatory variables, while financial performance is an outcome. The study specifically focuses on the SME sector in Pakistan. Employing a fuzzy-set qualitative comparative analysis (fsQCA), the investigation uncovers six novel configurations of factors that drive performance in SMEs, with their roles showing variations depending on accompanying elements. The study identifies six specific combinations (configurations) of determinant antecedents that lead to improved financial performance. Interestingly, the findings highlight that achieving high financial performance is not solely contingent on any individual factor but hinges upon their collective inclusion within causal combinations. By expanding the current understanding of how these antecedents synergistically impact financial performance, this study makes a noteworthy contribution to the literature on firm performance. Furthermore, it offers valuable implications for managers, illuminating the specific factor combinations that pave the way for enhanced performance in the context of SMEs.



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1. Introduction

Financial performance (FP) in the context of Small and Medium-Sized Enterprises (SMEs) refers to their ability to effectively conduct operations, generate sufficient income, maintain continuity, and achieve growth while remaining adaptable to environmental opportunities and threats (Indriastuti & Mutamimah, 2023). Assessment of SMEs' FP commonly involves evaluating key metrics such as turnover, operating profit and capital adequacy of business over specific periods. The COVID-19 pandemic has had a profound and far-reaching impact on more than 80% of SMEs, resulting in a significant decline in their operating profits as reported (SMEDA, 2022). This adverse effect can be attributed to fixed production costs and reduced sales stemming from pandemic-induced restrictions. Additionally, SMEs have encountered challenges due to escalating expenses in critical sectors, including raw materials, transportation and labor. The vulnerability of SMEs to such disruptions is exacerbated by their limited financial resources and relative lack of preparedness compared to larger enterprises (Fauzi et al., 2023). Consequently, numerous SMEs have depleted their stocks, while others need help to sustain their operations, with some facing imminent stock shortages. Figure 1 visually presents the multifaceted issues confronted by SMEs during the pandemic, underscoring the severity of their financial situation. Remarkably, a minority of approximately 6% of SMEs (SMEDA, 2022) reported experiencing a positive impact, possibly attributable to niche products or services that experienced increased demand during this period.

Recognizing the pivotal role of SMEs in the national economy and their significant contribution to Pakistan's Gross Domestic Product (GDP), the government has prioritized enhancing the business environment for SMEs. This endeavor involves implementing various policies and regulations to encourage investments while consistently improving and apprising the legal and banking systems and labor rules to enhance the country's positioning in the global market. Figure 2 outlines the policy framework designed to foster SME development in Pakistan, showcasing the government's commitment to promoting economic diversification and resilience.

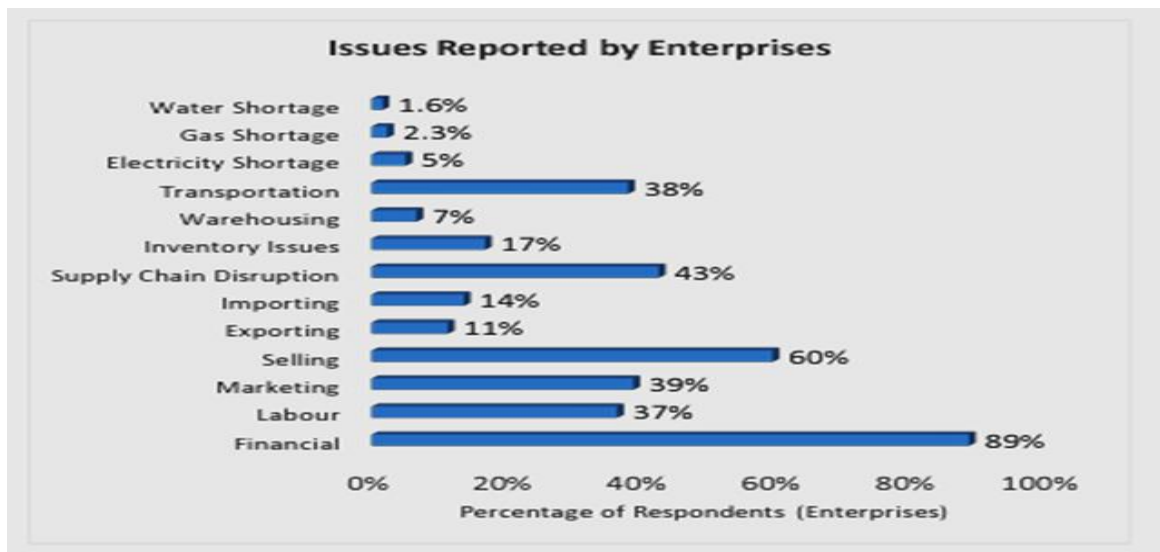


Figure 1: Issues Reported by SMEs Due to COVID-19 (Source: SEMDA)

On a global scale, SMEs play a crucial role in generating income and providing employment opportunities to a substantial segment of the workforce and Pakistan is no exception. With over 90% of the estimated 3.2 million business enterprises in the country, SMEs substantially contribute to the GDP (40%) and account for more than 40% of export earnings (Shah, 2018). However, the impact of the COVID-19 pandemic has been particularly severe on Pakistan, as reported by the "United Nations Conference on Trade and Development (UNCTAD,

2020), further emphasizing the need to examine the FP of SMEs operating in the country. The government and related stakeholders may provide critical support to SMEs in Pakistan by getting insights into their difficulties and developing appropriate solutions.

The SMEs sector is critical to the Pakistani economy, emphasizing the importance of an aggressive strategy to increase their ability to compete against larger enterprises. SMEs strive to cut expenses while achieving long-term growth to remain competitive. In this regard, digitalization is an intriguing chance for SMEs to move away from traditional processes and embrace cutting-edge technical developments (Queiroz, Alves Junior, & Costa Melo, 2022). SMEs can explore new markets and design creative means to provide products and services by implementing digitalization, such as exploiting digital platforms (Ojha, Patel, & Parida, 2023). Digitalization converts analog data, structures, or processes into digital representations, allowing for digital preservation, analysis and seamless communication (Raharja & Tresna, 2019). SMEs can improve operational efficiency, extend accessibility and introduce automation into numerous company processes by integrating digital technology (Raharja & Tresna, 2019). This change has substantial benefits, allowing SMEs to negotiate the current business landscape with greater adaptability and resilience. Embracing digitalization enables SMEs to use technology to their benefit, resulting in economically viable and innovative practices that boost their market competitiveness.

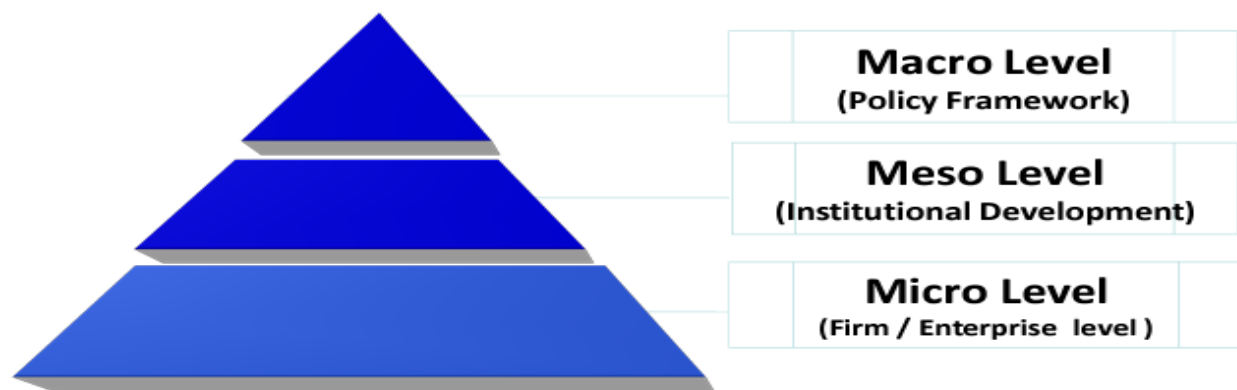


Figure 2: Policy Framework for SMEs Development (Source: SMEDA)

Businesses that adopt digital technology gain access to novel ways that leverage their resources, resulting in increased productivity (Tahir, Ullah, Haider, Ullah, & Majeed, 2022). The adoption of digitalization by SMEs provides numerous benefits, including greater accessibility, improved efficiency and greater effectiveness in product sales and information interchange between vendors and consumers (Susanty, Handoko, & Puspitasari, 2020). The incorporation of digitalization within SMEs can result in a wide range of benefits, including improved overall performance, increased turnover and operational efficiency (Susanty et al. (2020), and the ability to effect transformative changes in business strategies (Hamad, Elbeltagi, & El-Gohary, 2018). Embracing digitalization empowers SMEs to unlock significant growth potential, capitalize on emerging opportunities and enhance their competitive position in the dynamic business landscape. However, certain studies, as highlighted by Popović-Pantić, Semenčenko, and Vasilic (2020), have suggested that the impact of digital technology on FP might not be directly observable. Despite this, the prevailing consensus underscores the profound transformative potential of digitalization in augmenting SMEs' overall capabilities and market presence.

Effective management of business entities during the process of organizational change necessitates the possession of dynamic capabilities (DCs). Developing various digital-related capabilities becomes indispensable to effectively addressing digitalization's challenges and

opportunities (Sia, Soh, & Weill, 2016). In this context, DCs refer to an organization's ability to embrace and thrive in a digital culture wherein business operations are digitalized (El Sawy, Kræmmergaard, Amsinck, & Vinther, 2016). Crucial among these DCs are human, collaboration, technology and innovation capabilities, which have been identified as pivotal factors in advancing digitalization efforts (Nasiri, Ukko, Saunila, Rantala, & Rantanen, 2020). Despite recognizing the significance of these DCs, the current literature needs a comprehensive understanding of their direct impact on FP. Consequently, there exists a unique need for empirical research to explore and establish the links between digitalization, DCs, and FP. This raises our research question (RQ):

RQ: *How do the combinations of different dimensions of digitalization and digital capabilities influence the financial performance of SMEs?*

Despite the perceived significance of this relationship, there is a need for more empirical evidence that robustly establishes this connection, especially in the context of digital technology. Consequently, there is a compelling need to investigate and comprehend this relationship within the context of SMEs. To address the RQ and bridge the research gap, this study is conducted with two primary objectives: firstly, to thoroughly scrutinize the influence of various dimensions of digitalization on FP; and secondly, to examine the effect of different dimensions of DCs on FP of SMEs.

Numerous scholars have examined the significance of digitalization and DCs in driving FP improvements for SMEs (Hernández-Linares, Kellermanns, & López-Fernández, 2021). However, the scholarly focus on the intersection of digitalization and DCs within the context of SMEs remains limited. Prior research has underscored the critical role of digitalization and DCs in ensuring the long-term sustainability of businesses across diverse industries. Nonetheless, it is crucial to acknowledge that engaging in digitalization activities can substantially increase costs, particularly when industries are confronted with financial uncertainties, as exemplified during the COVID-19 pandemic.

The COVID-19 pandemic has presented significant challenges to SMEs, resulting in a notable decline in sales and subsequent reduction in business profits. To address the evident research gap and tackle these pressing issues, this study endeavors to conduct a comprehensive analysis and empirical examination of the role of digitalization and DCs in improving the FP of SMEs. The urgency of this research is rooted in the imperative to foster the development of digital SMEs in Pakistan, fostering their digital transformation and ensuring their sustained competitiveness in the digital market. Crucial to achieving mitigation and recovery, the study recognizes the importance of creating demand-driven stimuli and promoting partnerships facilitated through digital platforms. Additionally, it emphasizes the imperative of cultivating DCs within SMEs to leverage digital technology effectively. These DCs are expected to bolster product quality enhancement, competitiveness, product processing and efficient marketing practices, thereby positively impacting these companies' overall performance.

Recognizing the pivotal role played by SMEs in the national economy and their growth potential, it becomes imperative to explore innovative strategies that can empower them to thrive even amidst challenging circumstances. This research addresses this critical issue by investigating the significance of digitalization and DCs as a strategic approach for SMEs to achieve sustainable profit growth. The study aims to adopt a novel research model, employing a "fuzzy set Qualitative Comparative Analysis (fsQCA)" approach, to examine the intricate interplay between digitization, DCs and FP. By doing so, the research seeks to identify effective pathways that lead to enhanced FP for SMEs. The anticipated findings of this study are expected to make valuable contributions to the academic literature and provide actionable insights for the Ministry of Cooperatives and SMEs. These insights can be instrumental in formulating targeted policies that harness the economic potential of SMEs, particularly during the ongoing pandemic and beyond. By shedding light on the transformative potential of digitalization and DCs, this study

offers practical guidance to SMEs in navigating the challenges posed by the pandemic while fostering their sustainable growth and lasting economic contribution. Thus, the significance of this research lies in advocating for the adoption of digitalization and DCs as strategic means for SMEs to enhance their FP. The novelty of this study lies in the research model's design, which comprehensively examines the role of different dimensions of digitization (digital transformation, digital servitization, digital innovation and innovative technologies) in improving SMEs' FP through different DCs (human, technical, innovation and collaboration capabilities), utilizing the fsQCA approach.

2. Literature Review and Hypotheses

The Resource-Based View (RBV) theory, initially proposed by Wernerfelt (1984), speculates that a firm's abilities and resources are the fundamental drivers of its keenness and overall performance. According to this theoretical framework, effective resource management permits a firm to gain a competitive advantage, leading to improved FP (Wernerfelt, 1984). By adeptly leveraging its resources, a company can cultivate distinctive capabilities that set it apart from competitors, establishing a sustainable competitive advantage and ultimately enhancing its profitability. Consequently, companies that adeptly harness their resources are more likely to perform better than their industry peers (Susanty et al., 2020).

2.1. Digitalization and Financial Performance

Kovalevska, Nesterenko, Lutsenko, Nesterenko, and Hlushach (2022) assert that effective utilization of digitalization through digital transformations can streamline and expedite various business processes, such as selling, purchasing, distributing and marketing products. This, in turn, positively impacts the FP of companies. Consequently, it becomes imperative for all stakeholders within SMEs to possess the requisite knowledge and capabilities to adeptly apply digitalization across both operational and non-operational aspects of their business. Such strategic adoption of digitalization aims to cultivate product innovation within SMEs, aligning with the core tenets of the RBV theory. According to the RBV theory, SMEs benefit substantially from possessing and controlling strategic assets, encompassing tangible and intangible resources (Heaton, Teece, & Agronin, 2023). To attain sustainable performance, the RBV strategy provides pragmatic solutions for SMEs, underscoring the significance of a unique set of resources characterized by their value, rarity, limited imitability and non-substitutability (Adeniran & Johnston, 2016). By strategically focusing on these distinctive attributes, SMEs can enhance their FP.

The existing literature underscores the significance of unique resources and adeptness in digital transformation (DT) adoption for SMEs, directly impacting their FP (Alzaharani, Mahmud, Ramayah, Alfarraj, & Alalwan, 2019; Susanty et al., 2020). Additionally, adopting DT has been associated with increased sales productivity (Awa, Baridam, & Nwibere, 2015). The research conducted by prior scholars Hai (2021); Li, Rao, and Wan (2022) provides supporting evidence of DT's positive influence on SMEs' FP. However, it is worth noting that the study by Wielgos, Homburg, and Kuehnl (2021) presents contrasting findings, revealing an insignificant effect of DT on the FP of SMEs. Thus, following proposition is formulated:

P₁: Digital transformation leads to FP.

Recently, several studies have focused on digital servitization (DS), which involves providing digital solutions alongside products to gain a competitive advantage (Kovalevska et al., 2022). This transformation entails the usage of digital outfits to shift to service-centric from product-centric models (Sklyar, Kowalkowski, Tronvoll, & Sörhammar, 2019). Notably, research on servitization suggests that services can serve as a more profitable long-term revenue source than initial product sales (Sklyar et al., 2019). Manufacturers can effectively differentiate

themselves from competitors and attain higher profitability through servitization (Suarez, Cusumano, & Kahl, 2013). Despite these insights, prior studies have yielded inconclusive evidence concerning the actual impact of servitization on FP, necessitating a more comprehensive empirical model (Crozet & Milet, 2017). Some empirical research has found that servitization leads to higher revenues but lower net profits, primarily due to increased labor costs and working capital (Kohtamäki, Einola, & Rabetino, 2020). Several scholars have established a positive affiliation between service offerings and overall performance (Antioco, Moenaert, Lindgreen, & Wetzels, 2008). Noteworthy study by Abou-Foul, Ruiz-Alba, and Soares (2021) has also provided evidence supporting the positive impact of servitization on FP. Thus, it is framed that:

P₂: Digital servitization leads to FP.

In the context of digital innovation (DI), Nambisan, Lyytinen, Majchrzak, and Song (2017) defined it as creating market offerings, business processes or models that stem from utilizing digital technology. This comprehensive definition encompasses various innovation outcomes, including developing novel products, platforms, services and transformative customer experiences, all made possible through digital technologies and digitized processes (Hund, Wagner, Beimborn, & Weitzel, 2021). In this study, DI refers to innovative digital solutions that bring about significant transformations in other organizations' products, services and overall business operations (Hund et al., 2021). The study's definition of DI revolves "the development of new products, services or solutions by leveraging digital technology."

The digital age has shifted customer expectations, prompting traditional players to adapt and offer solutions that cater to their digitally integrated everyday life (Ritter & Pedersen, 2020). Previous research Ritter and Pedersen (2020) has shown that DI effectively keeps traditional companies' main products appealing in the digital age. It helps these companies continue making money from their physical devices, and at the same time, they can generate additional revenue by using a layered modular approach. Scott, Van Reenen, and Zachariadis (2017) analyzed the long-term effects of DI on FP and found a positive correlation between DI and FP. Similarly, Hanelt, Bohnsack, Marz, and Antunes Marante (2021) utilized panel data regression to examine the impact of DI on FP and revealed that DI leads to an improvement in FP. Khin and Ho (2018) also found similar results. We, thus, posited the following proposition:

P₃: Digital innovation leads to FP.

The RBV theory provides insights into the impact of smart technologies (STs) on FP by highlighting the significance of organizations' distinctive and valuable resources and capabilities (Estensoro, Larrea, Müller, & Sisti, 2022). STs, exemplified by artificial intelligence, data analytics and the Internet of Things (IoT), constitute strategic assets that can confer a competitive edge and foster financial success (Zhuo & Chen, 2023). By adeptly utilizing innovative technologies, firms can optimize their operational processes, enhance decision-making mechanisms and deliver innovative products and services, thereby driving heightened productivity, cost efficiencies and revenue growth. As posited by the RBV theory, the adeptness to effectively integrate and deploy innovative technologies engenders sustainable competitive advantage, culminating in superior FP vis-à-vis competitors devoid of comparable resources and capabilities (Tahir et al., 2018). This theoretical framework underscores the instrumental role of STs in shaping organizations' financial prospects. It underlines the need for prudent resource management and technology integration to achieve enduring success (Estensoro et al., 2022). Thus, we established that:

P₄: Smart technologies lead to FP.

2.2. Digital Capabilities and Financial Performance

The significance of DC in businesses lies in its capacity to adapt and manipulate resources through creation, integration, recombination and release (Oliva, Couto, Santos, & Bresciani, 2019). Barreto (2010) illustrates DC as an organizational ability to address problems systematically, employing strategic approaches such as identifying opportunities and threats, making timely decisions and implementing actions to enhance company performance. In light of the heightened competition intensified by the COVID-19 pandemic, SMEs must bolster their global competitiveness. It can be accomplished by formulating adaptive strategies that enable seamless adjustments to evolving circumstances (Fahy, 2000). This concept resonates with the principles of the RBV, where companies endeavor to create distinctive and inimitable value propositions, setting them apart from competitors and ultimately maximizing revenue generation (Fahy, 2000).

Bauters et al. (2018) propose that human employees possess cognitive abilities that distinguish them from conventional digitalized automation systems. These human capabilities (HCs) enable individuals to adapt their behavior and learning in response to changes within the work environment, facilitating adaptability and flexibility in modern businesses. Consequently, the presence of HCs becomes crucial in enhancing a company's performance through digitalization, which aims to modernize and improve traditional work practices, ultimately transforming the work environment for employees. As a result, employees' digital-related capabilities significantly influence how digitalization's advantages are effectively realized and integrated into the organization.

Supporting this perspective, Bauters et al. (2018) emphasize the pivotal role played by a company's employees and organizational culture in influencing its financial outcomes. Consequently, employees' capabilities are crucial in shaping how performance measurement is pursued in increased digitalization. For instance, Bauters et al. (2018) demonstrate that employees should have access to information from automated performance management systems to achieve flexibility while maximizing process efficiency. These systems provide real-time diagnoses about digitalized processes, presenting opportunities and potential areas for improving FP. In this manner, employees' capabilities play a crucial role in facilitating the effective utilization of digitalization, ultimately leading to enhanced FP (Henri, 2006). Furthermore, Franco-Santos, Lucianetti, and Bourne (2012) highlights the positive effects of employee engagement in digitalization, demonstrating its potential impact on FP. Hence, digital-related HCs encompass employees' skills and abilities to adapt to and leverage increased digitalization successfully. Accordingly, following proposition is suggested:

P₅: Digital-related human capabilities lead to FP.

The widespread adoption of digital technologies has increased customer awareness regarding the vast array of product and service options available, raising their expectations (Nudurupati, Tebboune, & Hardman, 2016). In response, companies must possess technical capabilities (TCs) to harness the opportunities presented by digital technologies effectively. For example, empowering designers to integrate physical materiality with software-based DCs exemplifies how TCs can enhance products and services (Parida, Sjödin, Lenka, & Wincent, 2015). These TCs play a critical role in creating competitive advantages through the strategic implementation of digitalization. Given the rapid technological advancements in digitalization, companies must prioritize and enhance specific areas to achieve improved performance (Nudurupati et al., 2016). Firstly, Barton and Court (2012) advocate for creative approaches in sourcing data from diverse channels such as social media, networks and web analytics, while concurrently establishing robust infrastructures for data analysis, storage and retrieval. Secondly, they Barton and Court (2012) propose the development of performance optimization and prediction models founded on a comprehensive understanding of critical success factors

specific to each business. Lastly, the provision of user-friendly tools and information to decision-makers is emphasized to ensure the effective presentation of results (Nudurupati et al., 2016). Conclusively, digital-related TCs enable firms to leverage the potential of digitalization in creating innovative products and services. These capabilities are integral to fostering essential actions aimed at enhancing FP. Therefore, we propose that:

P₆: Digital-related technical capabilities lead to FP.

Firms place significant emphasis on innovation Hervas-Oliver, Sempere-Ripoll, Boronat-Moll, and Rojas-Alvarado (2018) and in conjunction with the rise of the digital economy, innovation serves as a compelling driver for enhancing FP (Melnyk, Stewart, & Swink, 2004). Indeed, Melnyk et al. (2004) confirm that innovation has a positive and notable impact on FP. They underscore the criticality of firms possessing the requisite capabilities to effectively evaluate novel solutions, which includes having the right personnel, well-defined processes, efficient communication channels and opportunities for serendipitous innovation.

Extensive research has further established that changes in firms' capabilities, mainly those closely aligned with innovation, significantly influence FP (Taylor & Taylor, 2014). However, digitalization within organizations fundamentally transforms individuals' ways of thinking, acting, and interacting (Franco-Santos et al., 2012). According to Melnyk et al. (2004), competent management of performance assessment processes is a critical driver for transforming capabilities into desired results. Artiach, Lee, Nelson, and Walker (2010) investigated the role of innovation management in business success and discovered that management innovations focused on improving FP. In the context of managing organizational changes, innovation capabilities (ICs) are regarded as indispensable. To summarize, digital-related ICs represent the pivotal capabilities enabling firms to harness the potential of digitalization to foster innovation (Hervas-Oliver et al., 2018). These capabilities incite actions that play a fundamental role in augmenting FP. Consequently, we put forth the following proposition:

P₇: Digital-related innovation capabilities lead to FP.

The paradigm shift towards digitalization poses novel challenges for collaboration management in the pursuit of generating additional value through efficiency-oriented behaviors and a focus on effectiveness. This entails exploring innovative avenues, such as capitalizing on product innovations or engaging in collaborative product innovation improvement (Bals, Laine, & Mugurusi, 2018). To foster the integration of information technology (IT) and digitalization in business collaborations, previous research has predominantly centered on comprehending the dynamics between clients and digital service providers, encompassing investigations into IT outsourcing relationships (Goo, Kishore, Nam, Rao, & Song, 2007). Empirical evidence from Brito and Nogueira (2009) has demonstrated that such relationships facilitate the exchange and synergistic combination of IT resources between parties, enhancing their respective capabilities.

Furthermore, Nudurupati et al. (2016) advocate for a comprehensive performance evaluation, not solely relying on internal metrics but also encompassing the assessment within the context of collaborative networks and social media. It highlights the essential nature of cultivating collaborative capabilities (CCs) to achieve superior performance within digital businesses (Nudurupati et al., 2016; Tahir, Ullah, Ahmad, Syed, & Qadir, 2021). Essentially, digital-related CCs epitomize the enabling factors empowering firms to harness the potential of digitalization for cooperative pursuits, such as the collaborative development of novel products and services. These capabilities assume a pivotal role in instigating pivotal actions in augmenting FP. Drawing from above, we propose that:

P₈: Digital-related collaboration capabilities lead to FP.

This study has investigated eight distinct factors that can individually influence the FP. However, it is crucial to acknowledge that the interplay among these factors can amplify or attenuate their impact on FP. Prior research has revealed diverse effects of these factors on performance, with some demonstrating positive effects Scott et al. (2017) while others may exhibit negative implications (Kohtamäki et al., 2020). Furthermore, the influence of these factors on performance might be contingent upon the presence of other contextual factors. Hence, our primary focus is identifying the synergistic combinations of these factors that collectively contribute to a firm's overall performance. Thus, we assume that:

P₉: The combination of digitalization and digital capabilities dimensions lead to FP.

2.3. Conceptual Framework

The conceptual framework is illustrated in Figure 3.

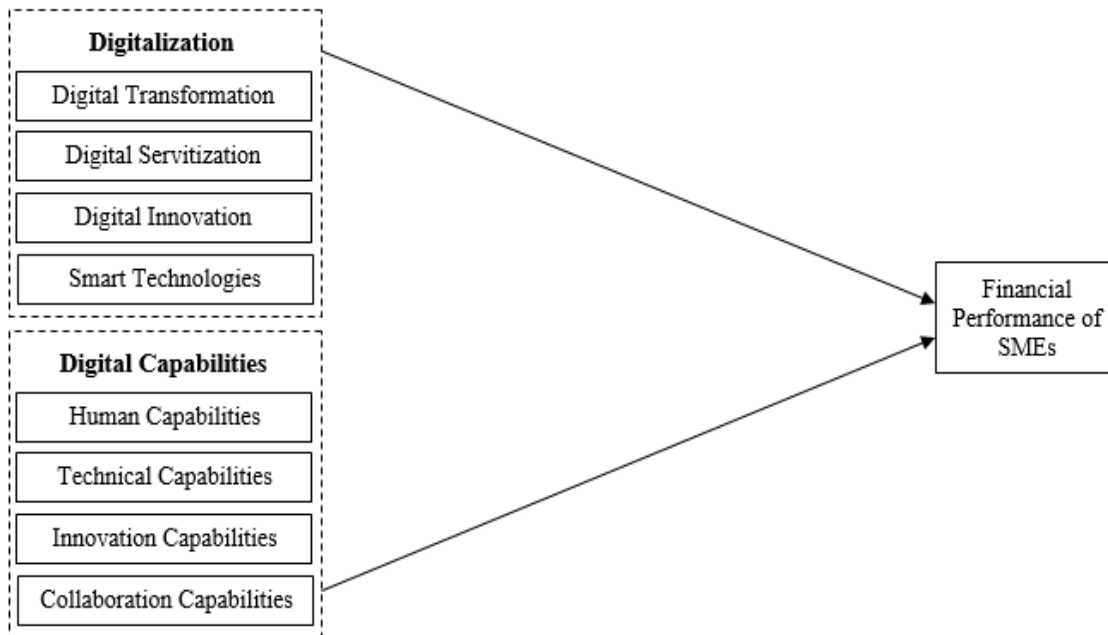


Figure 3: Conceptual Framework

3. Data and Methodology

3.1. Data and Variables

The research aims to investigate the impact of different dimensions of digitalization and digital capabilities on the FP of SMEs in Pakistan. A list of SMEs was obtained from the SMEDA to ensure a representative sample. Data were collected using a structured questionnaire administered to SME owners, CEOs and managers. The questionnaire utilized a 5-point Likert scale, ranging from "Strongly Disagree to Strongly Agree", as it is widely used in quantitative research and facilitates better comprehension for respondents. For data collection, three essential criteria were established. Firstly, SMEs selected for the study must have actively engaged in online business activities to ensure a complete digital operation over the past three years. Secondly, it was required that the SMEs possess their websites. Lastly, the inclusion criterion dictated that the SMEs have an IT Department responsible for managing and upgrading their digitalized mechanisms.

The study's independent variables include various dimensions of digitalization, specifically DT, DS, DI and ST, and digital capabilities comprising HCs, ICs, TCs and CCs. The dependent variable under investigation is the FP of SMEs. All variables are represented as indices and their

values are determined based on responses to multiple questions. To assess the DT dimension, a questionnaire proposed by Liu and Jung (2021) was utilized. The items about the DS were drawn from studies conducted by Baines, Lightfoot, and Smart (2011) and Calabrese, Levialdi Ghiron, Tiburzi, Baines, and Ziaee Bigdeli (2019). The DI was measured through a questionnaire designed by Zhen, Yousaf, Radulescu, and Yasir (2021), while the ST employed a questionnaire developed by Saunila, Nasiri, Ukko, and Rantala (2019). Regarding the measurement of DCs, the HC dimension was derived from works authored by El Sawy et al. (2016) and Lerch and Gotsch (2015). The TC and IC dimensions' questionnaire was adapted from research conducted by prior scholars El Sawy et al. (2016); Parida et al. (2015); Xue (2014). The CC dimension questionnaire was developed based on the works of Amit and Han (2017) and El Sawy et al. (2016). For measuring the FP, this study adopted metrics and measures previously used in scholarly works (Al-Mamary et al., 2020; Alves & Lourenço, 2022).

3.2. The Method

This study utilized the fsQCA method, developed initially by Ragin (2014), to investigate the factors influencing a firm's FP and their configurations. fsQCA is a configurational comparison technique that can be used in place of more traditional regression-based research. The primary objective of fsQCA (fuzzy set Qualitative Comparative Analysis) is to conduct a systematic investigation of cases and identify underlying causal links between components and their consequences (Schneider & Wagemann, 2012). This method entails identifying and calculating each potential conditional combination present in the data and subsequently applying logical inference techniques to generate valid descriptive inferences. By utilizing fsQCA, researchers can gain valuable insights into the intricate relationships among components and their effects, thus achieving a comprehensive understanding of the underlying mechanisms of causality. This innovative technique expands the horizons of QCA, enabling a more comprehensive study that incorporates a wider range of variables and enhances the precision and applicability of the approach.

The fsQCA technique is a data analysis strategy for deriving significant inferences from a dataset, focusing on the intricacies of underlying causal links. Researchers use this strategy to identify which specified conditions (such as DT, DS, DI, ST, HC, IC, TC and CC, alone or in combination) influence the fulfillment of desired objectives, such as FP. Furthermore, fsQCA allows for identifying essential and sufficient conditions for achieving the intended conclusion. Regarding the number of cases suitable for fsQCA analysis, it has been designed initially for analyzing a relatively small number of cases (e.g., 10-100); researchers have successfully extended fsQCA to studies with more than 100 cases (Palacios-Marques, Roig-Dobon, & Comeig, 2017). The fsQCA method has recently experienced a notable surge in popularity across diverse scientific fields, evident from the increasing number of publications employing QCA methods (Tahir et al., 2021).

Technically, the QCA analysis can be broken down into three fundamental stages, facilitating the identification of appropriate conditions and variability combinations:

- a) *Calibration* involves transforming the data to facilitate analysis.
- b) Building a *truth table* is the foundation for conducting the analysis.
- c) *Logical minimization* is employed to derive simplified configurations.

However, it is imperative to acknowledge that the accuracy of case selection, theoretical comprehension of the analyzed cases and interpretation of the results are equally crucial aspects of this analytical approach (Ragin, 2014). These factors significantly contribute to the meaningful application and generation of insightful findings through the fsQCA method.

3.2.1. Calibration

During the initial phase of the analysis, all variabilities are transformed into sets, indicating their degree of membership in specific categories. These sets encompass values ranging from 0 to 1 (Woodside & Zhang, 2013). The calibration of variabilities can be executed crisply, signifying binary membership. Calibration of fuzzy sets commonly involves the utilization of three threshold values: 0.05 as the threshold for “non-belonging”, 0.50 as the point of “maximum ambiguity” and 0.95 as the threshold for “complete membership” in the set (Ragin, 2009). In our specific approach, cut-off points were determined based on percentiles (Dul, 2016). Precisely, we adopted the 95th, 50th and 5th percentiles as the thresholds for categorization. This methodological choice aimed to ensure robustness and objectivity in identifying relevant configurations, contributing to the reliability and validity of the findings in the context of fsQCA.

3.2.2. Building the Truth Table

The principal aim of constructing a truth table is to identify the specific combinations of conditions in the analyzed cases that result in the anticipated outcome. The truth table, encompassing lines corresponding to 2^n , where n represents the number of conditions under consideration, presents all potential combinations of conditions and their respective outcomes (Ragin, 2009). Nevertheless, the cases associated with different combinations may vary (Fiss, 2011). This study identified several possible combinations and generated the truth table for the analyzed cases and conditions (refer to Table 1). Notably, only combinations in at least one case were included, resulting in 13 such combinations.

Table 1
Truth Table

DT	DS	DI	ST	HC	IC	TC	CC	number	FP	Raw consist.	PRI consist.	SYM consist
1	1	1	1	1	1	1	1	14	1	0.9050	0.7875	0.8059
0	1	1	1	1	1	1	1	1	1	0.8969	0.5813	0.5813
1	0	1	1	1	1	1	1	1	1	0.8961	0.5422	0.5521
1	0	1	1	0	1	1	1	1	1	0.8844	0.4135	0.4188
1	1	1	1	0	1	1	1	1	1	0.8808	0.5221	0.5325
0	0	0	0	1	1	1	0	1	1	0.8303	0.2389	0.2435
0	0	0	1	0	1	1	1	1	1	0.8280	0.2416	0.2416
1	0	1	0	0	1	1	0	1	1	0.8227	0.2241	0.2241
0	0	1	0	0	1	0	0	1	1	0.8127	0.1718	0.1718
0	0	1	0	0	0	0	0	1	0	0.7892	0.2070	0.2070
1	0	0	0	0	0	0	0	2	0	0.7747	0.2796	0.2796
0	0	0	0	0	1	0	0	1	0	0.7677	0.2224	0.2224
0	0	0	0	0	0	0	0	8	0	0.6747	0.1755	0.1783

The subsequent step involves reducing the number of rows in the truth table to isolate the relevant causal combinations that lead to the desired outcome. This reduction process takes into account two crucial factors. Firstly, it considers the minimum number of cases required to consider a combination as relevant, typically linked to the total number of cases analyzed. Given our study's relatively modest sample size, we focused on combinations that led to success in at least one case. Secondly, the analysis considers the level of consistency, a value ranging from 0 to 1, which reflects the degree to which a combination of causal conditions is reliably associated with the outcome. A consistency value of 1 indicates a total and consistent relationship (Fiss, 2011). In fsQCA analysis, combinations with a consistency value below 0.8 are generally excluded (Schneider & Wagemann, 2012). Subsequently, the truth table is refined by removing combinations not meeting these criteria, commencing the third stage of the analysis.

3.2.3. Logical Minimization

fsQCA effectively reduces various conditions and identifies configurations linked to the outcome (effect) (Fiss, 2011). Through opposing analyses of potential solutions, the main causal factors and marginal links between causes and results are revealed (Ragin, 2009). Core connections exhibit causal solid relationships, while marginal connections demonstrate weaker associations (Fiss, 2011). Three solutions in fsQCA are “*complex, intermediate, and parsimonious*” (Rihoux & Ragin, 2008). Results are evaluated based on data coverage and consistency. Adequate consistency, akin to a correlation coefficient, must meet the threshold of “0.75-0.95” (Ragin, 2009). The data coverage indicator indicates how well the configurations explain the outcome (effect) and should ideally fall within 0.25-0.65 (Rihoux & Ragin, 2008). Our study obtained six solutions through logical minimization and connection simplification (see Table 3). The intermediate solution offered two marginally dissimilar paths to success (Ragin, 2009). All solutions met the assumed consistency and coverage values, with consistency exceeding 0.75 and the coverage falling within the acceptable range.

4. Results and Discussion

4.1. Analysis of Necessary Conditions

Before continuing to the subsequent stage of fsQCA, which involves constructing a truth table, it is crucial to investigate the potential necessity of the causal conditions. In fsQCA analysis, results are interpreted based on consistency and a condition is deemed necessary when its consistency value exceeds 0.9 (Schneider & Wagemann, 2012). The affiliations concerning the necessity of the eight conditions (DT, DS, DI, ST, HC, IC, TC, CC) and the outcome (FP) are illustrated in Table 2. The findings reveal that all eight conditions are optional (not necessary) for achieving success (FP). Consequently, this analysis indicates that only some of the analyzed conditions will be consistently present in all configurations leading to the desired outcome.

Table 2
Analysis of Necessary Conditions

Conditions Tested	Consistency	Coverage
DT	0.7893	0.7427
~DT	0.5854	0.5974
DS	0.7581	0.7934
~DS	0.6027	0.5544
DI	0.7598	0.7217
~DI	0.5686	0.5744
ST	0.7431	0.7566
~ST	0.5980	0.5638
HC	0.7340	0.7867
~HC	0.6498	0.5856
IC	0.8104	0.7166
~IC	0.5479	0.6008
TC	0.8234	0.7440
~TC	0.5560	0.5941
CC	0.7666	0.7791
~CC	0.6079	0.5742

4.2 Analysis of Sufficient Conditions

The results obtained from the fsQCA analysis on the configurations for FP of SMEs are presented in Table 3. The solutions are categorized based on the core conditions, and each combination within a solution explains the outcome to a certain degree. The consistency values for each solution are also provided in Table 3, all of which surpass the recommended threshold (>0.75). Consistency indicates how well the relationships have been approximated, while coverage assesses the empirical relevance of a consistent subset.

Notably, the overall consistency, analogous to correlation, demonstrates the robustness of the solutions. The overall solution coverage, likened to the R-square value in traditional regression analyses, is 0.76, indicating that the six solutions collectively account for 76% of the outcome.

Furthermore, fsQCA assesses the empirical relevance of each solution by computing the raw and unique coverage. The raw coverage indicates the degree to which a particular alternative solution accounts for the outcome. In contrast, the unique coverage denotes the outcome portion exclusively explained by an alternative solution. In our study, all configurations demonstrated coverage greater than zero, confirming their empirical relevance. For SMEs' FP, solutions S1-S6 exhibit diverse combinations in which the examined factors may be present or absent, contingent on their interactions.

Table 3
Analysis of Sufficient Conditions for Financial Performance

Input Variable	Solution (S)					
	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Digitalization						
Digital Transformation (DT)	●		⊗	⊗	●	⊗
Digital Servitization (DS)		●	⊗	⊗	⊗	⊗
Digital Innovation (DI)	●	●	●	⊗	●	⊗
Smart Technologies (ST)	●	●	⊗	⊗	⊗	●
Digital Capabilities						
Human Capabilities (HC)		●	⊗	●	⊗	⊗
Innovation Capabilities (IC)	●	●	●	●	●	●
Technical Capabilities (TC)	●	●	⊗	●	●	●
Collaboration Capabilities (CC)	●	●	⊗	⊗	⊗	⊗
Raw Coverage	0.5148	0.4870	0.2678	0.2684	0.2645	0.2488
Unique Coverage	0.0316	0.0191	0.0215	0.0224	0.0055	0.0093
Consistency	0.8936	0.8992	0.8127	0.8303	0.8227	0.8280
Overall Solution Coverage	0.7564					
Overall Solution Consistency	0.8213					

Note: ● = "presence of core condition"; ⊗ = "absence of core condition"; ● = "presence of peripheral condition"; ⊗ = "absence of peripheral condition"; Blank Space = "Do not care".

Solutions S1 and S2 demonstrate that combining DI, IC and TC positively impacts SMEs' FP. The presence of other factors, such as DT, ST and CC in S1, or DS, ST, HC and CC in S2, as peripheral conditions can reinforce these core conditions. This affirms the significance of DI (P3), TC (P6), and IC (P7) in enhancing FP, aligning with prior research (Hervas-Oliver et al., 2018; Hund et al., 2021; Nudurupati et al., 2016). Notably, this observation holds special value for SMEs, as they are more adaptable to environmental changes. DI improves SMEs' FP by enhancing efficiency, productivity and cost savings through automation and streamlined operations. Additionally, it provides access to new markets, expanded customer reach and improved competitiveness, leading to increased sales and profitability (Hund et al., 2021). IC enables SMEs to continually develop and deploy innovative technical solutions, products and services, positioning them ahead of competitors, enhancing customer experiences and facilitating market entry, thereby expanding revenue streams and improving FP (Hervas-Oliver et al., 2018). TC empowers SMEs to effectively leverage modern technologies and digital tools, resulting in

optimized processes, increased operational efficiency and enhanced product/service quality (Nudurupati et al., 2016) . By reducing expenses, improving productivity, and meeting customer demand more effectively, TC contributes to improved FP. Thus, P3, P6 and P7 are acknowledged.

Solutions S1 and S5 highlight the significance of DT in enhancing SMEs' FP. In S1, DT along with ST and CC serve as a peripheral condition and DI, IC and TC as core conditions. In S5, DT is present as a peripheral condition, DI, IC and TC remain core conditions, and DS, ST, HC and CC are peripheral conditions. These findings substantiate the importance of DT (acceptance of P1) in driving FP. DT contributes to improved FP by streamlining operations, reducing operational costs and facilitating market expansion through online channels, leading to increased sales and revenue growth, aligning with prior research (Hai, 2021; Li et al., 2022).

Additionally, Solution S2 underscores the role of DS in FP enhancement. In S2, DS acts as a peripheral condition, alongside ST, HC and CC as peripheral conditions, and DI, IC and TC as core conditions, resulting in increased FP. This finding supports the significance of DS (sustaining P2) in improving FP. DS plays a vital role in boosting SMEs' FP by generating new income streams through value-added services, enhancing customer satisfaction and loyalty and fostering enduring business connections, ultimately leading to enhanced profitability and sustainable growth, which is also in line with previous scholarly works (Abou-Foul et al., 2021).

Solutions S2 and S4 provide support for the role of HC in enhancing SMEs' FP. In S2, HC, as a peripheral condition, coexists with the presence of DS, DI, ST, CC, IC and TC, leading to improved FP. Similarly, in S4, HC, as a peripheral condition, with the presence of IC and TC and the absence of DT, DS, DI, ST and CC, also enhances FP. These findings validate the significance of HC (supporting P5) in driving FP. Digital-related HCs, such as digital skills and expertise, empower SMEs to effectively leverage technology for innovation, customer engagement and operational efficiency (Nudurupati et al., 2016). These qualities enable staff to adapt to DI, resulting in increased productivity and competitiveness, ultimately elevating SMEs' FP. These findings align with prior research in the field (Parida et al., 2015).

Furthermore, Solutions S1 and S2 also shed light on the roles of ST and CC in influencing FP. In S1, ST, as a peripheral condition, coexists with the presence of DT and CC as peripheral conditions and DI, IC and TC as core conditions, leading to an increase in FP. Likewise, in S2, CC, as a peripheral condition, along with the presence of DS, HC and CC as peripheral conditions and DI, IC and TC as core conditions, contributes to improved FP. These results support the significance of ST (sustaining P4) in elevating FP. STs have a positive financial impact on SMEs by optimizing operations, reducing resource waste and enhancing decision-making through real-time data analysis. These technologies improve productivity, lower costs and enhance customer experiences, ultimately leading to increased profitability and competitive advantage in alignment with prior scholarly works (Estensoro et al., 2022; Zhuo & Chen, 2023).

Moreover, CC (as a peripheral condition), along with the presence of DT and ST as peripheral conditions, DI, IC and TC as core conditions (S1), and the presence of DS, ST and HC as peripheral conditions, and DI, IC and TC as core conditions (S2), also contributes to enhancing FP, confirming the importance of CC (accepting P8) in influencing FP. CCs enable SMEs to form strategic alliances, pool resources and expand their customer base, resulting in improved market reach and commercial potential (Scott et al., 2017). Collaborating with other businesses allows SMEs to leverage complementary skills and experiences, driving innovation and expansion and ultimately contributing to greater FP. These findings are supported by existing studies Kohtamäki et al. (2020).

Among the six solutions obtained, ICs were consistently present, indicating their significance in driving SMEs' FP. Additionally, TC appeared in five out of the six solutions, while DI was present in four out of the six solutions. These findings underscore the importance of IC, TC and DI as factors contributing to improved FP in SMEs. The results further support the P9

that combinations of digitalization and DCs dimensions lead to FP while acknowledging the limited role of DT, DS, ST, HC and CC. By including these five conditions, namely DT, DS, ST, HC and CC, we can better explain the impact of digitalization and DCs dimensions on FP. All the propositions (P1-P8) raised in the study are accepted, albeit with certain constraints, as they are observed in specific individual solutions. Consequently, P9 is also accepted with constraints. Among the six solutions, S1 and S2 are particularly significant, exhibiting high raw coverage and greater relevance than other solutions in explaining the FP of SMEs. Thus, the findings support the RBV theory. Moreover, configurational results are visually presented in Figure 4.

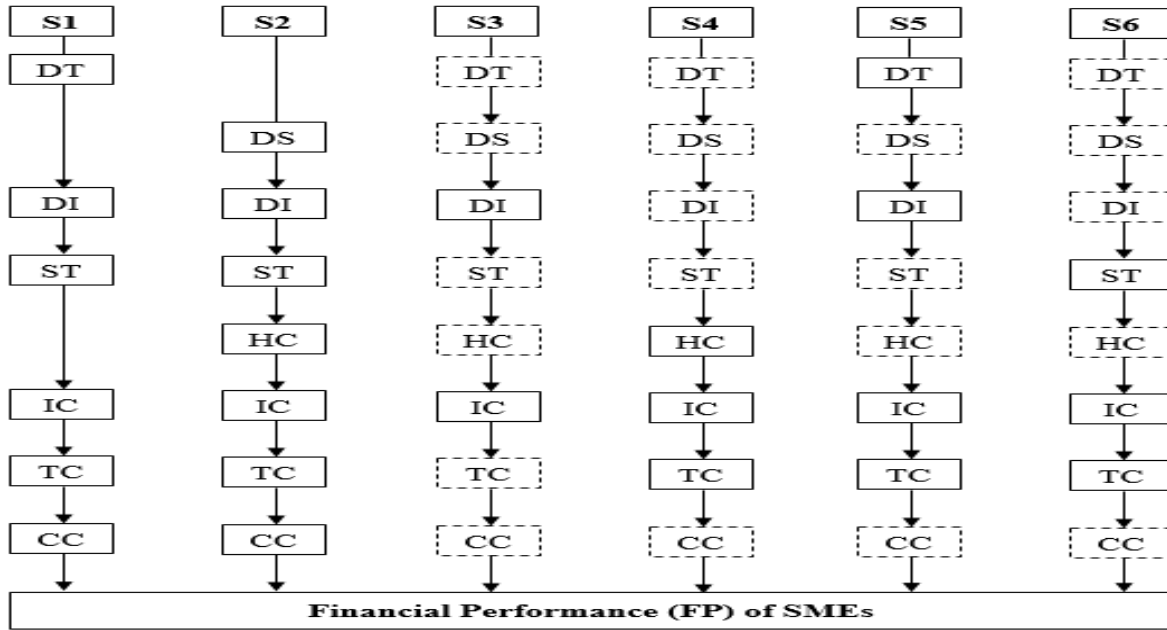


Figure 4: Configuration Paths for SMEs

Boxes with solid lines indicate full membership, while boxes with dotted lines indicate partial membership.

5. Conclusion and Implications

5.1. Conclusion

The objective of research is to investigate the diverse combinations of determinants influencing the FP of SMEs, encompassing factors such as DT, DI, DS, ST, HC, IC, TC and CC. The significance of this research lies in promoting the adoption of digitalization and DCs as strategic tools for SMEs to improve their FP. Notably, the roles of these factors are contingent on their interactions with other accompanying elements. Specifically, when combined with specific aspects of digitalization and DCs, the study reveals the remarkable contributions that DI, IC and TC play in driving FP. The findings reveal six solutions to improve FP among them solution 1 and 2 are found to be the best solutions. This highlights the significance of understanding the interconnected nature of digitization, DCs and FP about SMEs. More research is needed to understand the ramifications of these functions though fully. The study confirms the fsQCA methodology's worth as a viable analytical technique in FP research. Also, it highlights the importance of considering a wide range of factors in studying FP. These findings guide future studies in this area.

5.2. Contribution to the Knowledge

This study significantly contributes to RBV theory by confirming the importance of digitalization and DCs in FP and revealing new combinations of drivers affecting the FP of SMEs.

Specifically, the study identifies DI, DC and TC as pivotal factors capable of individually or collectively influencing FP, thus underscoring the critical role played by digitalization and DCs in enhancing SMEs' success. Furthermore, the findings offer valuable insights into the intricate interplay between different factors within the dimensions of digitalization and DCs, revealing that the impact of specific factors is contingent upon their coexistence with accompanying elements. Moreover, the study addresses the pertinent recommendation to explore the determinants enabling SMEs to effectively harness digitalization for optimizing their performance. Additionally, this research extends the application of the fsQCA methodology to encompass new conditions, specifically focusing on the dimensions of digitalization and DCs.

5.3. Policy Implications

Policymakers ought to strategically design and implement targeted policy interventions to capitalize on the favorable impact of digitalization on the FP of SMEs in Pakistan. One essential policy measure involves investing in comprehensive digital skills training and capacity-building programs tailored to SME owners and their workforce. Equipping SMEs with enhanced digital literacy and proficiency in utilizing digital tools and technologies would empower them to leverage digital resources, thereby fostering financial growth effectively. Moreover, policymakers should prioritize ensuring affordable access to technology for SMEs, recognizing it as a pivotal factor in embracing digitalization. By offering financial incentives, subsidies, or tax breaks, SMEs can be facilitated in procuring essential digital infrastructure and software. This incentivization approach alleviates the financial burden on SMEs while motivating them to adopt digital solutions that streamline operations and enhance overall FP. Furthermore, facilitating collaborations and partnerships between SMEs and digital service providers holds significant potential. Policymakers can play a facilitative role in establishing matching platforms or industry-specific networks that forge connections between SMEs and technology suppliers, fostering synergistic relationships that foster digital adoption and ultimately contribute to improved FP.

To leverage the positive impact of digital skills on the FP of SMEs in Pakistan, policymakers should adopt a comprehensive approach that focuses on enhancing digital readiness and fostering an enabling ecosystem. Firstly, substantial investments in comprehensive digital skills development programs must equip SME owners and their workforce with the requisite knowledge and proficiency to effectively harness DCs. Secondly, policymakers must prioritize enhancing the country's digital infrastructure and connectivity. This entails expanding access to high-speed internet while reducing digital services' costs. By ensuring affordable access to digital infrastructure, SMEs can capitalize on DCs to optimize operations and explore new markets, thereby bolstering their FP. Moreover, facilitating SMEs' access to digital banking and credit is paramount. Policymakers can collaborate with financial institutions to devise innovative digital finance solutions tailored to SME needs. Such initiatives can empower SMEs to invest in digital technologies and expand their business operations, augmenting their FP.

5.4. Limitations and Future Recommendations

This study acknowledges several limitations, primarily focusing on the employed fsQCA methodology. Although fsQCA has demonstrated its usefulness in analyzing configurations related to performance outcomes, it is not exempt from certain constraints. Specifically, careful consideration is required for the calibration justification and cut-off points, as modifications to these aspects could potentially yield varying results. Our study exclusively examined the presence model and the absence model remained unexplored. A comprehensive analysis of the absence model holds promise in providing valuable insights into the factors associated with the absence of performance. Consequently, we recommend that future research delve into this aspect. Furthermore, to thoroughly comprehend the associations among the variables, it is imperative to incorporate alternative methods that facilitate the estimation of each variable's impact strength on performance. Additionally, exploring methodologies identifying moderating

and mediating factors can offer deeper insights into the underlying mechanisms shaping the relationship between DCs and FP among SMEs. Concerning the fsQCA methodology, we advocate for further investigations encompassing novel combinations of factors to extend the scope of inquiry. Such endeavors can enhance our understanding of the interplay of digitalization, DCs and their influence on SMEs' FP.

Authors Contribution

Muhammad Rizwan Ullah: Conceptualization, write the methodology, validation and write literature review section and complete the original draft

Safdar Husain Tahir: Conceptualization, supervise in the methodology, Analysis, validation, and completing the original draft

Hina Shahzadi: Formal investigation and examine the visualization.

Hafiz Waqas Kamran: Assist in the analysis, investigation and guide in the review and editing, visualization section.

Conflict of Interests/Disclosures

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