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UNLOCKING SUSTAINABLE PERFORMANCE: THE INTERPLAY OF FINANCIAL LITERACY, DIGITAL FINANCE ADOPTION, AND STRATEGIC LEADERSHIP

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Abstract

Financial literacy is a predominant component augmenting the sustainability of SMEs, specifically in the economy that are in developing phase, like Pakistan. This research evaluated the interaction among financial literacy, digital finance adoption, strategic leadership, and Sustainable performance of SMEs. Using quantitative-method approach, data was collected from 387 owners and managerial employees of the manufacturing SMEs of various industries in Khyber Pakhtunkhwa province of Pakistan. The statistical results demonstrate that financial literacy enhances significantly the sustainable performance of SMEs, with digital finance adoption partially mediates this relationship. Additionally, the strategic leadership moderates the association of financial literacy and sustainable performance, representing that effective leadership strengthens the influence of financial literacy on sustainable performance of enterprises. The findings underline the prerequisite for SME owners and management to acquire and organize financial knowledge and invest in digital finance, while policymakers should encourage leadership development programs to foster sustainable business performance.

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Introduction

It is an established fact that SMEs (Small and Medium Enterprises) immensely contributed to the economic development by employment creation, wealth distribution, technological development, innovation and poverty reduction (Alshebami & Murad, 2022; Ye & Kulathunga, 2019). For the economic development of a country, a strongly developed sector of SMEs is vital to established compact business sector in any economy (Assifuah-Nunoo, 2023), and hence, SMEs that are well-operating are vital to steady the economy of any country. In evolving markets, because of higher profitability and economic growth SMEs are open to opportunities to become further competitive in local as well as international markets (Seraj, Fazal & Alshebami, 2022). The vigorous SME sector is significant for the economies that are developing, as it embraces enormous impending of development and growth, still the complete benefits of a prosperous SME sector remain unexploited (Haleem, 2022). A vigorous sector of SMEs is crucial for the developing economies, as it holds enormous potential for growth and development, still the complete benefits of a prosperous SME sector stay untapped. In developing nations SME sectors have festered rather than escalating and emerging further sophisticated (Eniola & Entebang, 2016). Developing countries pose inimitable problems for SME sector, comprising volatile exchange rates, economic unrest, higher transaction cost, political instability, rising isolationism, and higher discrimination, all of these impend sustainable performance of SMEs (Parmitasari & Rusnawati, 2023). Therefore, there is a rising interest among stakeholders and researchers of SMEs in establishing strategies to augment the sustainable performance of SMEs.

Lately, the KBV (knowledge-based view) of organizational performance has been gaining momentous attention and attraction. Knowledge based view recommends strategies through which SMEs can accomplish competitive edge and augment their performance (Hidayat-ur-Rehman, 2025; Seraj, et al., 2022). In line to KBV perspective tacit and mutual knowledge are the vital assets when it comes to enhancing performance of the organizations irrespective of size, age and nature. This perspective also focuses the significance of the organizational ability to amalgamate organizational level and individual knowledge for organizational products and services (Abdallah, Harraf, Ghura & Abrar, 2025). Thus, organizations having knowledge-based assets are further probable to experience enhanced returns in comparison to their competitors. Knowledge is significant, difficult to intimate resource with social complexity (Parmitasari & Rusnawati, 2023).

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Regardless of this, the investigation on performance of SMEs has generally ignored the importance of the knowledge based resources, and their influence on sustainable performance of organizations. Regardless the significance of knowledge resources to the sustainable performance of SMEs large number of prevailing studies has emphasized on other facets, like internationalization, competitive edge and supply chain management (Abdallah, et al., 2025; Seraj, et al., 2022). Kurniasari, Abd Hamid and Lestari (2025) investigated the role of managers' intellectual competencies in relation to sustainability of SMEs and established that competencies play a significant role in supporting managers to cope with volatile market situations. González-Prida, et al., (2025) also checked the role of knowledge based resources to the performance of the SMEs, and argued that the knowledge based resources like financial literacy, and intellectual capital can support the organization is sustaining their performance.

Literature is evident of the little detailed evaluation of how explicit knowledge based resources like the financial literacy, augments the sustainable performance of the SMEs and thus this research, tried to entail the detailed evaluation of the financial literacy and explored the phenomenon through which the financial literacy can augment sustainable performance of SMEs in developing economies, outspreads the literature. The basic purpose of this research to investigate the significance of the financial literacy in the SMEs of developing economies and hence to fill the available literature gap. Literature is also evident that the relationship of financial literacy and sustainable performance is multifaceted and prejudiced through numerous components, comprising such as digital finance adoption. in recent times the digital finance adoption also emerges as one the more imperative factor for the survival of organization in technologically advance business environment. Digital finance adoption is described as the amalgamation of the emerging technologies like internet, mobile banking in financial services, supporting organizations to reach financial services and products, pursue transactions, and manage organizational finances further effectively and efficiently (Irmayanti, 2025). Digital finance adoption can facilitate organization in enhancing their performance sustainably through enhancing financial inclusion, transactional cost reduction, increasing transparency in financial matters, and reaching new customers and markets, resultantly leads to enhanced financial stability, development and competitive advantage (Frimpong, et al., 2022). A well-managed digital finance adoption may support organizations to accomplish

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sustainable performance, as its helps organizations in making conversant decisions related to investments, exploiting opportunities, and navigating financial uncertainties, resultantly leads to competitive edge, long term growth and financial resilience (Hu & Liu, 2025; Senaya, 2025). This research anticipated the mediating role of the digital finance adoption in the relationship of financial literacy and sustainable performance of organizations to fill the gap in prevailing literature.

This study also tested the moderating role of the strategic leadership on the relationship of financial literacy and sustainable performance of SMEs. Literature is also evident of the fact that strategic leadership is also significant component affecting the association of financial literacy with sustainable performance of SMEs. Zhang, Mooney and Ozgen (2025) defined strategic leadership as the capability of leaders to envision, anticipate, and implement strategies that are integrated vision, mission, and objectives of the organizations, while influencing and allowing others to accomplish mutual vision for the future. Strategic leadership may help managers in shaping financial decision for the organizational sustainability, as they facilitate in making knowledgeable decisions related to financing, investment and managing risks (Mahabub, Hossain & Snigdha, 2025). Regardless of the significance of these components, there is scarcity of investigations evaluating the interplay among the financial literacy, digital finance adoption and strategic leadership in enhancing and ensuring sustainable performance of the organization specifically SMEs in developing economies such as Pakistan. Thus, this research investigated how financial literacy affects sustainable performance, with digital finance adoption as mediator. Furthermore, this research will examine how strategic leadership moderates the association among financial literacy and sustainable performance of SMEs using the perspectives of Knowledge based view, and Dynamic Capability theory.

Literature Review and Hypothesis Development

The evolving importance of the notion "financial literacy" is well recorded in modern literature. The financial literacy is briefly defined as the knowledge and cognitive competencies needed for the management of finances and efficient and effective decision making related to financial concerns (Kurniasari, Abd Hamid & Lestari, 2025). Okello Candiya Bongomin, et al., (2017) advocated the financial literacy as the abilities to design and make informed decision and formulate effective strategies relating the management and utilization of money. For the reason for entrepreneurs and enterprises financial literacy is acknowledge as the vital component. Enterprises

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requires financial literacy to assess financial affairs of their business and take financial decisions (González-Prida, et al., 2025). Financial literacy also supports enterprises to cope with the issues and challenges of volatile credit markets. Financial literacy facilitates the organizations in risk management by strategies and policies, like keeping financial reserves, diversification of portfolio of investments, and purchasing insurances. Scarcity of financial literacy is being acknowledged as the key restrain for the sustainable development of the organizations irrespective of age, size and nature (Eniola & Entebang, 2016). Empirical literature is evident that extent of financial literacy is lower among entrepreneurs. Seraj, et al., (2022) documented that scarcity of financial literacy as the general concern in the SMEs and its impact on enterprises in the startup stage and subsequently are devastating. Assifuah-Nunoo (2023) acknowledged that scarcity of the financial literacy was a major reason for SMEs' failure. However, while the significance of the financial literacy has been established empirically, its influence of sustainable performance has not been explored extensively.

For enterprises the reimbursements of sustainable performance are abundant. Sustainable performance of the enterprises leads to augmented financial stability and diminishing financial risk, support enterprises to participate further efficiently in prevailing markets, accomplish long term development, growth, success, and contributes to the economy along with job creation (Alshebami & Murad, 2022). Ye and Kulathunga (2019) defined sustainable performance of the SMEs as their ability to accomplish financial success in long term, growth, stability, by managing financial risk, leveraging financial resources efficiently and making informed financial decisions. Sustainable performance is also acknowledged as the capability of the enterprises to cope and adapt altering marketing situations, bringing innovation, and prospering in competitive business environment, while preserving financial stability along with accomplishment of organizational goals (Ratnawati, et al., 2024).). Additionally, Mikalef and Pateli (2017) described sustainable performance of enterprises as the creation of values for its stakeholders, comprising customers, employees, and society, which adding to growth and economic development, and reducing devastating social and environmental effects. In line to the Resource based view, financial literacy is described as the knowledge resources that concludes the sustainable performance of the SMEs. Therefore, financial literacy can play a vital role in the process of value creation for enterprises, which can lead to sustainable performance

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(Abdallah, et al., 2025). Financial literacy adds to the enterprises knowledge stock, supporting in adaptation of changes that are continuously occurring in business environment and taking advantage of opportunities emerges from such alterations (Kurniasari, Abd Hamid & Lestari, 2025). Hence, enterprises should acknowledge the significance of financial literacy and its strategic role in enhancing knowledge and competencies of the enterprises. Accordingly, we hypothesize that:

H1; Financial literacy is positively associated to sustainable performance of SMEs.

In modern fast changing digital economy, it is imperative for the enterprises irrespective of age, size and nature to adopt digital finance in order to remain competitive, sustainable and efficient, as digital finance adoption enables enterprises to use technology got the management of finances, entering new markets and making updated and informed decisions (Irmayanti, 2025). Digital finance adoption is defined as the utilizations of digital technologies like internet banking, mobile banking, online platforms, and apps to manage and access financial services and transactions (Frimpong, et al., 2022). Islam and Khan (2024) descried digital finance adoption as the outcome of enterprises leveraging digital financial technologies to improve their financial attachment, diminish transactional costs, increase financial literacy, and surge access to finance, eventually leading to better financial performance and sustainability. In SMEs, this can be enhanced by financial literacy (access to financial training and educational resources). Financial literacy enables management of SMEs to adopt informed decision using digital platforms, which may lead to the enhances financial management and sustainability (Serdarušić, Pancić & Zavišić, 2024). For the effective digital finance adoption, management of SMEs are requiring to have essential financial skills to leverage digital technological platforms and make informed decisions related to their financial resources to reduce the risk.

In line with the Resource-Based View (RBV) theory, digital finance adoption can be a valued resource that augments the sustainable performance of SMEs by enlightening financial management, decreasing costs, and growing efficiency (Kurniasari, Abd Hamid & Lestari, 2025). The Technology-Organization-Environment (TOE) framework also suggests that digital finance adoption is prejudiced through technological, organizational, and environmental components, which in turn impact sustainable performance of SMEs (Hidayat-ur-Rehman, 2025). By leveraging digital finance, enterprises can accomplish competitive edge and expand their financial sustainability, as supported

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by the Dynamic Capabilities Theory (Seraj, et al., 2022). Hence, it is anticipated that;

H2; digital finance adoption positively associated to sustainable performance of SMEs.

Mediating role of Digital Finance Adoption

It is acknowledged that financially literate enterprises have the skills and knowledge to guide the multifaceted financial environment, developing knowledgeable decision that guide toward long term survival of the enterprises. One of the major area where financial literacy plays a significant part in the adoption of novel technological based financial devices (Kajol, Singh & Paul, 2022). Enterprises with higher degree of financial literacy are further proactive in leveraging technology based financial devices like online lending platforms, mobile banking, and online payment systems. Online and mobile banking facilitates enterprises to approach financial services, managing accounts on-the-go, and making payments (Jain & Raman, 2023). Additionally, online credit providing platforms facilitates the enterprises in approaching and obtaining credits and loans from alternate lenders, which in result reduces the reliance on conventional banking platforms. Making payment through digital systems facilitate enterprises to accept payments online, decreasing transaction cost, and enhancing management of working capital (Chamboko, 2024). When enterprises adopt such digital finance tools, their access to capital, secure funding from alternative sources, comprising alternative online platforms and lenders is being increased and their working capital management become better. Enterprises can manage real time finances, do timely payment, and decrease gaps of cash flow. Furthermore, enterprises can control fees related to the conventional banking system, and payments platforms, decreasing transaction associated cost. The outcomes of the digital finance adoption go beyond the financial management, facilitating enterprises to invest in the practices that are sustainable, adopting the eco-friendly technologies and procedures, decreasing the environmental footmark, novel products and innovative services, develop novel product and services, leveraging digital technologies to satisfy needs of customers, and enhance market reach, exploring and entering new markets, consumers, and geographical territories, devising financial returns, sustainability and growth (Irmayanti, 2025).

The sustainability of the enterprises is tied strictly to their capability to bind digital technologies, and financial literacy is the main component to harness and take benefit of this potential. SMEs with higher extent of the financial literacy are in better state to augment

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financial resilience, access capital, maintain liquidity, and manage financial risk, accomplish sustainable environment, diminish environmental degradation, adopt practices that are sustainable, and add to eco-friendly economy, and increase social responsibility, create social value, support local society, and add to social development (Serdarušić, Pancić & Zavišić, 2024). Overall, financial literacy is major driver of digital finance adoption, which in result, enhance SMEs sustainable performance. Through investment in financial education and digital platforms, top management and enterprises can reveal the full benefit of digital finance, encouraging sustainable development and growth.

H3; Digital finance adoption mediates the association among financial literacy and sustainable performance of SMEs.

Moderating role of strategic Leadership

It was also anticipated the strategic leadership plays an imperative contingent role in the relationship of financial literacy and sustainable performance of enterprises, working as catalyst that augments the positive influence of the financial literacy on outcomes of businesses. It is acknowledged that enterprises that are literate financially are further probable to make up to date decisions, but it is the strategic leaders who can guide this financial education and knowledge to adopt useful alterations and sustainable development (Boeske, 2023). Strategic leadership provides a clear vision and informed mission which can augment financial literacy to bring innovation, augment resources, and make investment in sustainable procedures that promote long term growth (Kasuni, Mandere & Njeru, 2022). Strategic leadership can develop culture of financial castigation, promoting experimentation and mitigate risk, while nurturing a learning environment that enhances financial literacy inside the enterprises. Resultantly, this supports SMEs in responding the market alterations, take benefits of the emerging openings, and control risk links to financial operations (Kyeyune & Ntayi, 2025). By this way, the strategic leadership can augment the positive influences of the financial literacy on the SME's sustainable performance, enhancing profitability, growth and long term survival. Literature advocates that SMEs guided by strategic leaders are in better position to harvest the outcomes of the financial literacy for accomplishing competitive edge and sustainability in complex environment (Bawono, Maulina, Rizal & Purnomo, 2022).

H4: *Strategic leadership moderates the association of financial literacy and sustainable performance of SMEs.*

The following conceptual framework was developed in the

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basis of above literature review in his study.

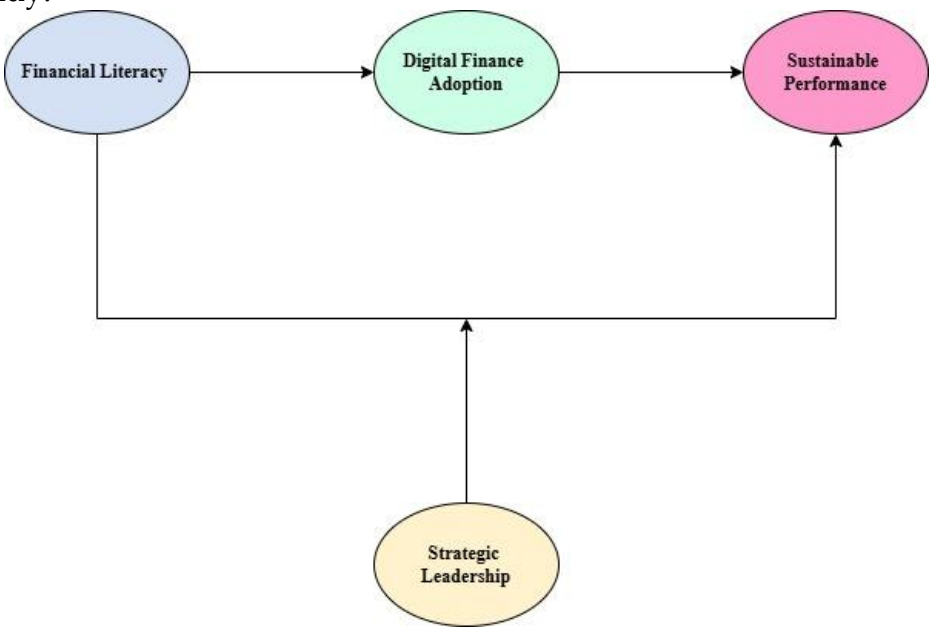


Figure 1. Conceptual Framework

Methodology

This study employed a cross-sectional survey approach to collect data from manufacturing SMEs in Pakistan. The target population included owners, CEOs and employees of SMEs from various industries such as textile, fertilizers, tobacco, surgical instruments, sports goods, and food and beverages, all of which held ISO 9001 and ISO 14001 certifications and were registered with the small industrial development board Khyber Pakhtunkhwa (SIDB) and the Small and Medium Enterprise Development Authority (SMEDA). The manufacturing sector was chosen due to its significant contribution to Pakistan's economy, accounting for 13% of GDP and employing 17% of the workforce (Khan et al., 2021; Ali et al., 2020). Moreover, manufacturing SMEs have to face financial crises and risks in recent past due to pandemic and financial concerns, making them a relevant context for studying sustainable practices (Rehman et al., 2020). In this study, a total of 1293 SMEs operating in nine industrial estates of Khyber Pakhtunkhwa, Pakistan, and registered with the Small Industrial Development Board (SIDB), and SMEDA, were approached to participate. The sampling frame consisted of 387 owners, CEOs, and managerial-level employees from various industries, including textile, fertilizers, tobacco, surgical instruments, sports goods, and food and beverages. The sample size of the Systemic random sampling was used to select respondents, targeting CEOs, owners, and managers who

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considered financial concerns in their business policies. The data collection process was lengthy and involved three phases, ensuring a comprehensive and representative sample.

The data collection process involved three phases. Initially, questionnaires with a covering letter were floated to respondents through different social media plate forms, but the response rate was low. Five months later, non-respondents were contacted through phone calls. In the final phase, 4 research assistants personally visited respondents to collect data. These efforts yielded 283 valid, completed questionnaires, achieving a 73% response rate, considered good given Pakistan's research context. In this research respondents' breakdown was as follows: 23% from the textile sector, 26% from fertilizers, 9% from tobacco, 16% from surgical instruments, 14% from sports goods, and 12% from beverages. In terms of SME age, 51% had been operating for up to 10 years, 33% for 10-20 years, and 16% for over 20 years. Regarding employee count, 43% of SMEs had over 200 employees, 27% had 100-200 employees, and 30% had under 100 employees. This distribution provides insight into the characteristics of the sampled SMEs, highlighting the diversity in industry representation, age, and size.

This study used a structured questionnaire to collect data on the research variables, leveraging previously validated items. The survey comprised 39 questions covering four latent variables: financial literacy (independent), digital finance adoption (mediating), strategic leadership (moderating), and sustainable performance (dependent). Financial literacy was assessed using 13 adapted items from Okello Candiya Bongomin et al. (2017), with all items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). the scale had a Cronbach's α value of 0.804. A sample item: "*In our organization, employees have the ability to analyze our financial performance periodically*". The measuring scales, derived from prior research, demonstrated validity and reliability. The 8-item scale for Sustainable Performance, adopted from Saleem et al. (2024) and originally designed by Mikalef & Pateli (2017), captures economic, social, and environmental performance and the scale had a Cronbach's α value of 0.891. Participants responded using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). A sample item: "*In the last three years, our organization has experienced increasing profit growth rates and growing market shares*". This scale assesses sustainable performance across three key mechanisms: economic, social, and environmental performance. Digital finance adoption was measured using a 10-

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item scale adapted from Serdarušić et al. (2024), the scale had a Cronbach's α value of 0.814, indicating good internal consistency. Respondents answered on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). A sample item: "*Our organization uses online financial institutions to transfer money*". Strategic leadership was assessed using an 8-item scale established by Aslan et al. (2011) which computed Cronbach's α value of 0.784. Respondents answered on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). A sample item: "*In my organization, strategic leadership is fundamental for the provision of strategic direction to firms*".

The study assessed construct reliability using Cronbach's alpha and CITC, with results in Table 1. Cronbach's alpha values exceeded 0.70, and CITC values were above 0.5, indicating good reliability. Convergent validity was evaluated using AVE and CR, with CR > 0.70 and AVE > 0.50. Discriminant validity was confirmed using Fornell and Larcker's (1981) method, with AVE square roots > correlation coefficients. VIF values (< 0.5) indicated no multi-collinearity issues. CFA results ($\chi 2/df$ = 4.587, CFI = 0.911, GFI = 0.932, IFI = 0.962, RMSEA = 0.063, p = 0.000) showed good model fit.

Table 1

Measurement Model Assessment and Confirmatory Factor Analysis Results

Construct		CITC	FL	t-Value	Cronbach's alpha coefficient	AVE	CR
Financial Literacy	FL1	0.681	0.854	12.97	0.804	0.757	0.905
	FL2	0.645	0.896	11.92			
	FL3	0.612	0.859	14.70			
	FL4	0.676	0.892	12.46			
	FL5	0.690	0.805	12.89			
	FL6	0.598	0.788	13.95			
	FL7	0.596	0.877	14.08			
	FL8	0.608	0.896	14.50			
	FL9	0.654	0.859	13.99			
	FL10	0.599	0.837	13.67			
	FL11	0.669	0.865	12.83			
	FL12	0.654	0.804	13.95			
	FL13	0.599	0.786	14.07			
Digital Finance Adoption	DFA1	0.592	0.891	11.34			
	DFA 2	0.672	0.837	14.96			
	DFA 3	0.633	0.791	13.26			

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	DFA 4	0.690	0.766	12.86	0.814	0.769	0.925
	DFA 5	0.588	0.877	13.90			
	DFA 6	0.676	0.833	13.24			
	DFA 7	0.635	0.791	14.19			
	DFA 8	0.697	0.766	15.64			
	DFA 9	0.582	0.877	12.22			
	DFA 10	0.595	0.854	13.88			
Strategic Leadership	SL1	0.597	0.893	13.22	0.784	0.706	0.945
	SL2	0.609	0.876	14.11			
	SL3	0.667	0.823	15.66			
	SL4	0.628	0.897	12.88			
	SL5	0.613	0.859	14.89			
	SL6	0.599	0.837	13.99			
	SL7	0.689	0.865	13.67			
	SL8	0.678	0.809	13.83			
SP	SP 1	0.659	0.786	12.91	0.891	0.717	0.958
	SP 2	0.596	0.876	13.95			
	SP 3	0.669	0.895	14.07			
	SP 4	0.619	0.856	14.64			
	SP 5	0.594	0.832	13.99			
	SP 6	0.657	0.876	13.03			
	SP 7	0.678	0.802	14.53			
	SP 8	0.689	0.861	13.66			
Notes: model fit index : $\chi 2/df$ = 4.587, CFI = 0.911, GFI = 0.932, IFI = 0.962, RMSEA = 0.063, p = 0.000, Significance level: *p < 0.05; **p < 0.01; ***p < 0.00; CITC= corrected item correlation, AVE=average variance extracted, FL= Factor loading, CR= composite reliability							

4. Results

Correlation and regression analyses were conducted to examine the relationships between financial literacy, digital finance adoption, strategic leadership, and sustainable performance. Results in Table 2 show significant positive correlations: financial literacy and sustainable performance ($r=0.292^{**}$, $p<0.001$), financial literacy and digital finance adoption ($r=0.450^{**}$, $p<0.001$), and digital finance adoption and sustainable performance ($r=0.478^{**}$, $p<0.001$). For Control variables: enterprise age (Mean=2.26) and size (Mean=3.97).

Table 2

Descriptive Statistics and correlation statistics

Construct	M	SD	1	2	3	4	5	6

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Enterprises' Age	2.26	0.89	1					
Enterprises' Size	3.97	0.88	0.11	1				
Financial Literacy	3.98	0.88	0.19*	0.18	1			
Digital Finance adoption	3.67	0.83	0.24	0.21*	0.450**	1		
Strategic leadership	3.53	0.92	0.17	0.12	0.370**	0.804**	1	
Sustainable performance	3.80	0.89	0.08	0.14	0.292**	0.478**	0.605**	1
M (Mean),SD (Standard Deviation)								

Regression analysis (Table 3) confirmed hypotheses 1-4. Financial literacy positively impacts sustainable performance (H1: β=0.309, p=0.000), financial literacy boosts digital finance adoption (H2: β=0.514, p=0.000), and digital finance adoption enhances sustainable performance (H3: β=0.439, p=0.000). Digital finance adoption mediates financial literacy-sustainable performance link (H4), as its inclusion renders financial literacy non-significant (β=0.053, p=0.131 vs. β=0.304, p=0.000), as per Baron and Kenny's (1986) method. which anticipated that digital finance adoption has a mediating role in the association of financial literacy and sustainable performance in enterprises.

Table 3

Regression Analysis for testing H1 to H4

Hypotheses	Details	R^2	F	B	T	Sig.	Results
HI	FL→SP	0.186	24.638	0.309	11.264	0.000	Approved
H2	FL→DFA	0.356	101.101	0.514	9.095	0.000	Approved
H3	DFA→SP	0.382	121.13	0.439	14.829	0.000	Approved
H4	FL→DFA→SP	0.386	61.842	0.053 0.345	1.548 9.883	0.131	Full mediation

Hierarchical regression analysis (Table 4) tested H5, which posited strategic leadership moderates the financial literacy-sustainable performance link. Results showed significant variation in sustainable performance (R^2=0.266, p<0.001). The interaction term (financial literacy × strategic leadership) in Model 3 was significant (β=0.058, p<0.001), confirming H5: strategic leadership moderates the relationship.

Table 4

Moderating effects of strategic leadership

	Model 1	Model 2	Model 3

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Factors and research resumes	B	t-value	B	t-value	B	t-value
Enterprises' Age	-0.039	-0.823	0.13	0.166	0.023	0.456
Enterprises' Size	0.057	1.299	0.127	3.649	0.143	4.091
Financial literacy			0352**	8.233	0.334**	8.166
strategic leadership			0.465**	9.066	0.148**	20.424
Financial literacy* strategic leadership					0.062**	3.113
Model resumes						
R			0.516***			0.523***
ΔR^2			0.266***			0.016***
R^2		0.013	0.266***			0.273***
F-Statistics		0.995	161.025			

Note(s): Significance level ***p < 0.001, **p < 0.01. *p < 0.05, p < 0.1

The below figure 2 demonstrate that strategic leadership has positive and higher degree association with sustainable performance when strategic leadership support was higher (β value=0.334, p-value < 0.001) comparatively than lesser (β value=0.148, p-value < 0.001), in support of H5 of this study. As a result, it is approved that strategic leadership enhances relationship of financial literacy and sustainable performance of enterprises.

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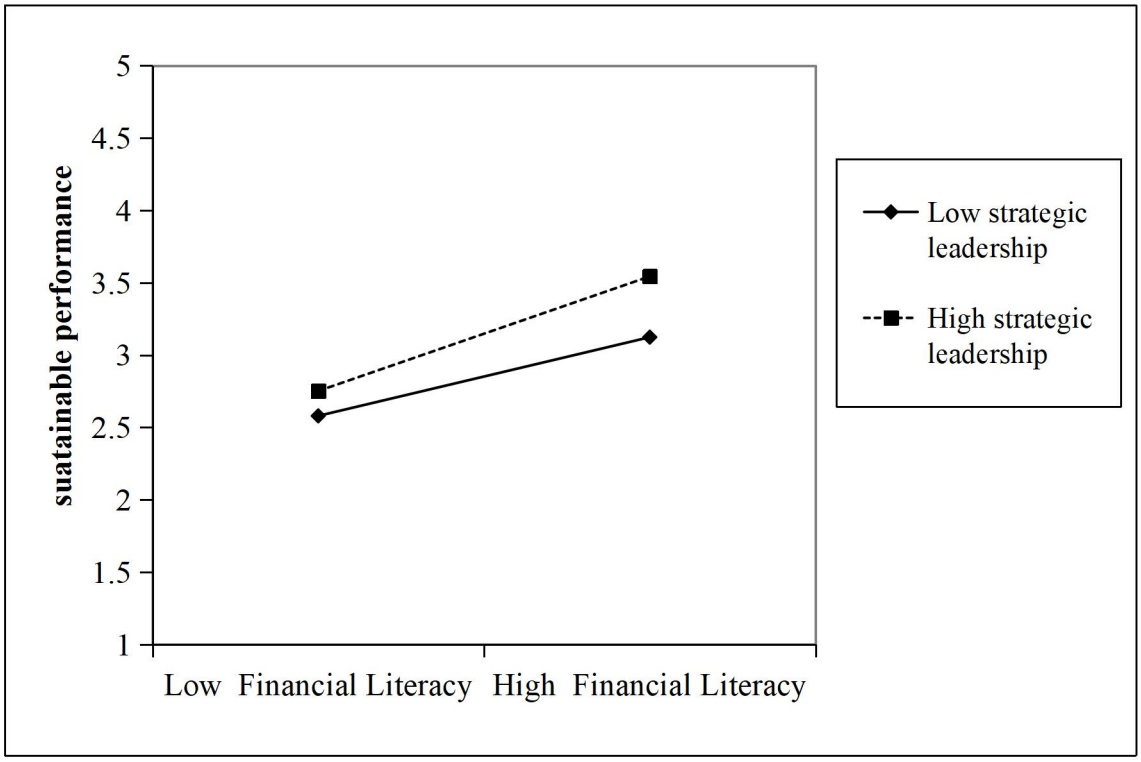


Figure 2 Moderating role of strategic leadership upon the association of financial literacy and sustainable performance

Discussion

This research was carried out to test the association between financial literacy and sustainable performance of SMEs utilizing digital finance adoption as mediator and strategic leadership as moderator. Several investigations have been carried out to study the financial literacy, and its influence on other constructs; however, the association anticipated in current study, that is, the influence of the financial literacy on sustainable performance with the intervening role of the digital finance adoption and the moderating role of the strategic leadership, was not investigated before, especially in the context of SMEs in developing economy like Pakistan. Manufacturing SMEs were selected for the reason that SMEs sector of Pakistan is majorly comprises of the manufacturing units, and these SMEs are contributing largely to GDP of Pakistan, however, these SMEs are also having financial concerns at large (Rehman et al., 2020; Seraj, et al., 2022). The anticipated model of the study was tested in SMEs sector for several reasons. First, arising environmental concerns in recent past foster to shift focus from traditional performance to sustainable performance. Secondly, SMEs are now compelling to adopt technology specifically in financial

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matters due to rise in online banking systems and online payment systems. Results of the statistical analysis represents that financial literacy contributes significantly to sustainable performance of SMEs. The positive influence of financial literacy on sustainable performance advocates that financial literacy enables organizations to redesign and plan their financial operation in a way that its add to the economic, social and environmental performance of the enterprises. Financial knowledge, financial skills, financial attitude financial behavior and financial decision capability allow enterprises to device strategies, align resources and procedures to accomplish economic, social and environmental value. Financially literate SMEs are better equipped to manage finances, access credit, and make informed decisions, ultimately driving sustainable performance. In examining the mediating role of digital finance adoption, it was affirmed that digital fiancé adoption partially mediates the relationship between financial literacy and sustainable performance of SMEs. Especially, the statistical results represent that digital finance adoption works as a bridge, transforming the benefits of the financial literacy into concrete outcomes. This recommends that SMEs with employees and owners with higher financial literacy are more probable to adopt and use digital financial platforms, tools and devices, which in result augment their economic, social and environmental performance. Hence, digital finance adoption serves as the key mechanism of transformation that translate financial literacy into sustainability outcomes for enterprises. In this study, it was also found that strategic leadership moderates the relationship between financial literacy and sustainable performance. Strategic leadership has a vital role in amplifying the influence of financial literacy on sustainable performance of the SMEs. The finding demonstrates that benefits of financial literacy are further augmented when leaders of the enterprises have a clear strategic vision and strategy, allowing enterprises to take benefits of the financial knowledge to device and drive informed decisions and sustainability. Summarizing it, effective and strategic leadership act like promoter, augmenting the positive outcomes of the financial literacy on long term survival.

In developing economies SMEs involve in manufacturing concern, financial literacy inclines to be low due to the reason that management and owners are often engrossed with production, quality control, and supply chain management. Resultantly, financial management gets consigned to bookkeepers or external parties, leading to a deficiency of financial awareness and inaccuracy. Which can cause concerns like deprived cash flow

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forecasting, underselling, and insufficient investment in revolution or development initiatives which ultimately affect the economic, social and environmental performance of the SMEs.

Managerial Implications

In regard to managerial implications, this research is anticipated to extend understanding of the several components that influence the development and sustainability of the SMEs. In current era, the governments of the developing countries become largely involved in developing the SMEs sector in their respective economies. According to the findings of this study there is a strong association between financial literacy and sustainable performance of the SMEs. World bank and other financial institutions have also emphasized this perspective both conceptually and practically, the findings of this study have some implications for managers and practitioners. From the perspective of managers and practitioner's, this study enlightens that improving financial literacy can reinforce the association between access to financing and business development, eventually pouring further effective financial management of financial resources. It is imperative for management and owners of SMEs to acquire, new financial knowledge, and implement this financial information to enhance quality and efficiency of their financial operations to promote sustainability. Secondly, SMEs with stronger financial literacy can be in better position to analyze and compare the traditional and digital financial products like bank accounts, loan and credit products lines, payment platforms, opportunities of investments, and insurance coverages. The government of Pakistan and other developing economies are willing to focus on both financial literacy and technology adoption among owners and management of enterprises. In line to findings of this study enterprises with higher extent of financial literacy and better in adopting digital technologies and digital finance for enhancing timely access to the capital and business performance. By doing so, management and owners of the SMEs can augment their financial understanding and financial knowledge and learn how to raise and approach financial capital. According to the findings of this study, enterprises which rely exclusively upon financial capital and oversee the significance of the financial literacy are doubtful in ensuring survival. Consequently, while enterprises have easy access to financial assets, it is imperative to have skills of digital finance adoption, and strategic leadership to support growth of their business. Lastly, the findings of the study have implication for owners and management of the enterprises looking to attract investors so that

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they will make investment in their business. As from investors point of view, investors typically assess an enterprise business model, skills, and financial goals to instrument the investors' potential and feasibility. To achieve this goal, the enterprises requires to adopt technologies and must have strategic leaders to guide the investment and finances from stakeholders. These findings of the study are anticipated to influence the decision making related to financial concerns in SMEs of developing economies in general, and in economy of Pakistan in particular. The findings of this study may be beneficial for the policymakers to resolve the financial concerns faced by SMEs with lower capital. To encourage SMEs to adopt digital finances, the government should design policies for adoption of digital finance platform to perform business financial operations effectively.

Limitations and Future Directions

This study adds to the available body of knowledge but have several limitations that might be considered in account while conducting studies in future. Firstly, this research undertaken cross-sectional research deign from SMEs of small industries Khyber Pakhtunkhwa to test the importance of the relationship between the constructs under study; in future research the longitudinal research design may be adopted to investigate the anticipated relationship among study's constructs. Secondly, undertaking the small sample size, the study examines the mediating and moderating role of digital finance adoption and strategic leadership in determining the association among financial literacy and sustainable performance in Pakistan. In future research the other entrepreneurial traits that directly and indirectly influence the relationship of financial literacy and sustainable performance. Thirdly, in this research quantitative approach was undertaken to analyse the primary data. However, in future research mix methodologies might be adopted to expand the understanding of the various contextual factor associated to financial literacy and sustainable performance. In future research, this framework may be explored in multi-sample or comparative-based investigations between the industries, province or economies to further addition in the field of financial management and sustainability.

Conclusions

This study reveals the favorable influence financial literacy can have on sustainable performance alongside the mediating effect of digital finance adoption and the moderating effect of strategic leadership in the interaction between financial literacy and sustainable performance. The examination of the mediating function of digital finance adoption in the correlation between

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financial literacy and sustainable performance was performed to evaluate the importance of this mediating role and the necessity of implementing financial literacy, particularly as this conceptual framework has not been thoroughly investigated, either within the context of developing economies like Pakistan, and is supposed to have substantial scientific implications.

The findings of the analysis proved that financial literacy exhibit a direct statistically significant relationship with digital finance adoption and sustainable performance. This indicates that digital finance adoption and sustainable performance may be positively affected by the enhancement of financial literacy in enterprises. In particular, the relationship between financial literacy and sustainable performance is mediated by digital finance adoption, which suggests that adaption of digital finance capabilities are the critical mechanisms for outcomes of sustainable performance. This implies that financial literacy has the capacity of enhancing sustainable performance through adoption of digital financial platforms. This study is important because it will help understand the impact of financial literacy on sustainable performance and how digital finance adoption in turn affects sustainable performance. An in-depth study of such interrelationships can supports enterprises to formulate digital technological adoption strategies that are effective in boosting sustainable performance. Strategic leadership plays a crucial role in providing vision and guidance to adopt digital financial platforms to address the financial concerns of the enterprises. In return, strategic leadership drives sustainability by encouraging technological adaptation, financial awareness, and receptiveness to changes in the environment. Which in turn enhance the economic, social and environmental performance of the SMEs.

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