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Strategic resources alignment for sustainability: The impact of innovation capability and intellectual capital on SME's performance. Moderating role of external environment

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ABSTRACT

Small and medium-sized enterprises (SMEs) are vital to the growth and development of a country. This study examined how innovation capability, intellectual capital and SME performance are related. Cross-sectional questionnaires were given to 379 Pakistani textile SMEs. Only 318 surveys were considered reliable enough to proceed with the investigation. To test each hypothesis and assess the validity and reliability of the measurement model, this study used the PLS-SEM (Smart-PLS 4.0) technique. The findings indicate that the performance of SMEs is significantly impacted by their innovation capability and intellectual capital. Based on the results of this study, it can be concluded that the innovation capability and intellectual capital of an organization are significantly impacted by the external environment. The analysis indicates that intangible resources, specifically innovation capability and intellectual capital, are crucial determinants of sustainable growth and are considered internal capabilities of the firm. This study provides valuable insights and knowledge for both governmental entities and SMEs. In order to boost Pakistani SMEs' performance and build a sustainable economy, these insights can be incorporated into government programs and guidelines. This study contributed to the body of knowledge by assessing internal capacities (innovation capability and intellectual capital) in the setting of SMEs with the moderating influence of the external environment, as the majority of studies on these variables focused on large enterprises.

1. Introduction

Small and medium-sized businesses account for more than 60% of global employment and account for a significant portion of global firms, driving the growth of the economy worldwide (Journeault et al., 2021). Small and medium-sized enterprises (SMEs) play a noteworthy role in the advancement of a nation (Hussain et al., 2010; Irfan et al., 2014). The SMEs have the ability to create employment opportunities at a reduced capital cost (Aron et al., 1992), thereby offering a competitive edge over larger corporations due to their heightened elasticity and flexibility. According to Pati et al. (2018) assertions, SMEs have a noteworthy impact on the economic development and stability of nations globally. The assertion can be made that SMEs play a pivotal role in the advancement (Emmanuel et al., 2016; Eriksson and Kovalainen, 2008) and expansion of nations, as they make direct contributions towards this end (Arshad and Arshad, 2019).

Individuals across the globe are endeavoring to establish a society characterized by substantially diminished poverty rates, markedly

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augmented employment rates and sustainable production that encompasses a wide range of technological innovations (Shaikh et al., 2021). The phenomenon of globalization has significantly transformed the manner (Chuah. et al., 2023a; Chuah et al., 2023b) in which commercial activities are carried out (Ameen et al., 2023; Aziz et al., 2023; Malik et al., 2019; Oloruntobi et al., 2023a; 2023b; 2023c; Qadeer et al., 2023; Gul et al., 2022). Changing customer needs and wants, increasing competitor rivalry and introducing new technological systems transform the market scenario (Mohamad et al., 2021). The environment is becoming increasingly aggressive, making it difficult for the company to maintain its competitive edge and growth (Labas and Courvisanos, 2022). Although SMEs in developing nations have received significant economic support and have made notable contributions, they have not met the anticipated outcomes, as per Jahn's (2018) findings. It is widely acknowledged that SMEs have a significant impact on the economy. The study identified several significant shortcomings in the relationships between SMEs and their performance, as discussed by Hou et al. (2021). Numerous studies have elucidated the difficulties and hindrances that small and medium-sized enterprises encounter in terms of performance and long-term viability (Imran et al., 2019; Shah et al., 2016). It is clear that additional research on SMEs has to be carried out to gain a comprehensive understanding of the matter (Pratono and Mahmood, 2015; Rafiq et al., 2020; Sambasivan et al., 2009). There is a discrepancy between Pakistan's SME performance and that of other middle-income countries (Bilal et al., 2016). From 190 countries in the world, Pakistan is ranked 108th in the ranking for doing business activities (The World Bank, 2018). Among the world's least competitive countries, Pakistan is ranked 110th out of 141 in the Global Competitiveness Index report for 2020.

Savino and Shafiq (2018) assert that the theory of resource-based view centers on the optimal utilization of a firm's resources to improve its overall performance. The study's findings suggest that effective allocation of resources is imperative for firms to attain a competitive edge. The concept in question was initially formulated by Wernerfelt (1984) and subsequently elaborated upon by Helfat and Martin (2015). As per the Resource-Based View (RBV) perspective, a firm's competitive advantage is derived from its unique resources and capabilities. In recent decades, various research studies have investigated numerous factors that impact the development of small enterprises. They provide business owners with insight into how they can maximize the growth and stability of their businesses.

The competitive advantage of a SME in relation to its competitors is determined by both tangible and intangible resources. The SMEs have the opportunity to leverage innovation in order to develop and execute a strategic plan for improvement, as noted by Ndzana et al. (2021). Irrespective of their evolution, these theories demonstrate that innovation results in enhanced performance in small and medium-sized enterprises. In Pakistan, there is a great need to develop innovations in textile SMEs in order to keep up with the competition. Pakistani SMEs are under-represented in innovation, creating barriers to their sustainability and ability to generate value (Imran et al., 2019). The recognition of innovation capability as a crucial element has been established for small and medium enterprises to attain growth and prosperity. It was concurred that the adoption of innovative practices by SMEs is crucial for their survival and competitiveness in developing nations (Ali et al., 2017). The intellectual capital has been a topic of much attention over the years by researchers (Aljuboori et al., 2021). Intellectual capital plays a crucial role in ensuring high firm performance. Aside from that, in an economy focused on the accumulation of information, intellectual capital appears to be the most critical component in determining business success and sustained development (Khalique et al., 2011). In industries considered to be knowledge-intensive, knowledge is emerging increasingly as a source of strategic advantage that plays a vital role in organizations operations and processes (Chen and Liu, 2020).

Apart from intellectual capital (IC), an organization can leverage systems, structures, processes and routines to augment its IC. A significant number of SMEs in developing nations continue to rely on conventional performance measurement techniques that were established several decades ago (Ahmed et al., 2022b; Shumaila and Afza, 2014). Many countries are transitioning to knowledge-based business environments that include intangible assets in their business models (Awais et al., 2019). Due to this, a greater focus is being placed on the intellectual capital model (Aljuboori et al., 2021). They mostly measure tangible assets, like buildings and equipment, rather than intangible assets (Moore and Manring, 2009; Ndesaulwa, 2016). The market landscape is undergoing changes as a result of changing consumer needs and preferences, intensifying competition among firms and the integration of novel technological solutions (Naseem et al., 2020). The confluence of these factors is engendering an atmosphere that is progressively hostile, thereby rendering it more challenging to sustain a competitive edge and expand within it (Arshad and Arshad, 2019). In order to remain competitive in the current economic climate, it is imperative for businesses to innovate their business models (Nasiri et al., 2022). In the current business environment, organizations must be capable of adapting to these changes. Innovative processes are necessary to meet customer needs, increasing customer satisfaction and improving firm performance (Hanaysha et al., 2022).

Intellectual capital is recognized as a company's internal competitive advantage that promotes innovation, which is valuable to the company's growth (Rehman et al., 2022). In order to be sustained and successful, these activities should be both innovative and intellectual within a dynamic environment. For nations to achieve economic (Cao et al., 2023; Cheng et al., 2020; Tong et al., 2023; Chang et al., 2022), social (Bokhari et al., 2015; Che Mahadi et al., 2023;Hii et al., 2009) and environmental dev(elopment; Aziz et al., 2023 ; Bokhari et al., 2016;2019; 2020; Chuah et al., 2015; 2021; Dailin et al., 2022a; 2022b; 2022c)Alsaiari et al., 2023, it is imperative to possess innovation capability and intellectual capital. The primary aim of this study is to investigate the correlation between innovation capability, intellectual capital and the performance of SMEs, while considering the moderating influence of the external environment. The study also aims to identify strategies for enhancing organizational performance and growth through the development of internal capabilities.

Previous studies have examined the correlation between INOCAP and IC and their effect on performance in manufacturing SMEs. Limited empirical research has been conducted on this association in developing nations. These factors have also been examined in some recent studies in high-tech firms (Hanifah et al., 2022; Singh et al., 2022; Xu and Li, 2019). Others tended to focus on larger companies (Bai et al., 2019; Jia et al., 2022; Prencipe et al., 2023; Xu and Liu, 2021). It has been neglected in certain research studies that innovation capability and intellectual capital play a significant role in determining performance (Campos et al., 2022; Migdadi, 2022). The extent to which innovation capability and intellectual capital contribute to the performance of SMEs in developing countries has not been thoroughly investigated. It is feasible to offer significant perspectives on the results of INOCAP and IC on a worldwide scale through the utilization of data from Pakistan, a nation in the process of development. This would potentially enhance the current body of literature regarding the correlation between INOCAP, IC and SME performance. Most of the previous research highlighted the nexus between INOCAP, IC and performance but was lacking in addressing the contingency factor, i.e., the external environment. The business environment has become much more dynamic. External factors have a significant impact on business operations and performance. Based on the resource-based view (RBV) theory, a research framework has been developed to bridge this gap. To address these gaps, we examined the association between INOCAP, IC and performance, as well as the moderating role of the external environment on the association between INOCAP, IC and performance of Pakistani SMEs.

This study contributes to the existing knowledge in this field in the following ways: First, it augments the existing literature by providing empirical evidence from the perspective of developing countries on the

complex relationship between INOCAP, IC and performance. It elaborates further on how INOCAP and IC capabilities can improve the performance of SMEs. Secondly, the focus of our study is to investigate the impact of external environments on the relationships between INOCAP performance and IC performance in SMEs operating within a developing country context. This research is necessary to further explore the mediators and moderators of the INOCAP, IC and performance relationships. This has significant implications for the theoretical, practical and policy aspects of the field. To the best of our understanding, this study represents the initial attempt to investigate the moderating influence of the external environment on INOCAP, IC and performance within small and medium-sized enterprises. Thirdly, this study offers supplementary empirical evidence within a developing country context, as the practical implications of the literature primarily concentrate on SMEs in developed economies.

2. Hypothesis development

2.1. Intellectual capital and performance

Intangible assets include resources, capabilities and competencies, which are referred to as intellectual capital., that collectively enhance firm performance as well as generate value for the company (Roos and Roos, 1997). In Migdadi (2022), for the existence of a firm, knowledge is the most important factor for the existence of that firm. A transition from a production-based economic system to a knowledge-based economic system has also been predicted by Drucker (1999) and Huang and Jim Wu (2010), In order to optimize organizational performance, knowledge management (intellectual capital) is so important (Littunen and Niitty-kangas, 2010). Many things determine the success of an organization in producing knowledge (Chin et al., 2022). One crucial factor is its ability to have knowledgeable resource i.e., intellectual capital. In order to achieve and sustain a competitive advantage, organizations need to possess exceptional human talent, capabilities, as well as boundless creativity and innovation (Pigola, De Santi, da Costa and Storopoli, 2022). The Resource-based view theory states that identifying and managing intellectual capital is a critical element for better performance (Dalwai and Salehi, 2021). As it is argued in the RBV theory (Khan et al., 2021). For companies to achieve and maintain sustainability in today's competitive business environment, intellectual capital is crucial. In this way, intellectual capital allows a company to sustain its competitive advantage and improve performance over its competitors.

Similar to Khalique et al. (2011), they assert that IC is essential for knowledge-based firms to sustain themselves. Huang and Jim Wu (2010) have identified the importance of intellectual capital for the sustainability of small and medium enterprises. IPrevious research has shown that Intellectual capital is significantly related to firm performance (Hanifah et al., 2022; Jia et al., 2022; Khalique et al., 2018). It is hypothesized that.

H-1. There is a significant relationship among intellectual capital and Performance.

2.2. Innovation capability and performance

Innovation capability is critical to an organization's success, regardless of size and for them to remain competitive, they must continuously innovate. The SMEs can perform better and competitive if they put all their efforts into innovation (D'souza et al., 2021). Innovation is frequently defined as the "*generation, acceptance and implementation of new ideas, processes, products or services*" (Ferreira et al., 2020). Innovation capability refers to a firm's ability to produce innovations, which in turn improve its performance (Withers et al., 2011). The ability of a firm to innovate is correlated with its internal processes, organizational culture and ability to manage changes in the environment, according to Akman and Yilmaz (2008). Innovation capability was defined by Romijn and Albaladejo (2002) as "the ability to absorb, master and improve existing technologies, as well as to develop new ones." IC refers to a "company's ability to mobilize its employees' knowledge and combine it with outside knowledge to produce new products and processes" (Cakar and Erturk, 2010). Innovation capability "*consists mainly of the firm's intangibles, …which are the nonphysical characteristics of a firm that will produce value in the future*" (Saunila and Ukko, 2014).

To improve firm performance, innovation capabilities are crucial for growing sustainably. Taking the point of the RBV perspective, Perdomo-Ortiz (2006) asserts that a firm requires innovation capabilities in order to innovate. Based on the RBV theory, intangible skills and organizational resources are significant resources for a firm. These resources are acknowledged as important factors influencing a company's performance and strategy (Bahta et al., 2021). Previous research has shown that innovation capability is one of the crucial components that shouldn't be overlooked if businesses wish to increase their performance (Ferraris et al., 2017; Rajapathirana and Hui, 2018; Wang et al., 2020; Singh et al., 2022). It is hypothesized that.

H-2. There is a significant relationship among innovation capability and Performance.

2.3. Intellectual capital, innovation capability and performance. Moderating role of external environment

Whether a profit-making or not-for-profit organization, it cannot function in a vacuum. The environment plays an important role in establishing and managing organizations. Open system organizations interact with the environment in a way that directly or indirectly impacts the environment (Rasool et al., 2021). As a result, the environment significantly influences organizational activities and performance (Ndzana et al., 2021). A large part of business planning and decision-making occurs based on environmental changes (Arshad and Arshad, 2019). An increasingly competitive environment involves innovation as the key to success. Innovative firms can achieve higher performance than their competitors (Nasiri et al., 2022). Innovation capabilities allow companies to respond to their environments more efficiently and enhance their performance by gaining a competitive advantage (Nudurupati et al., 2021; Rasool et al., 2021).

There is only one way for SMEs to achieve long-term competitiveness. Certain SMEs may be unable to withstand unpredictable environmental changes, resulting in losses due to the significant impact of environmental dynamism (Ahmed et al., 2022a). Environmental changes require constant monitoring and consideration. In designing their structures, organizations should consider their competitive environment (Crema and Verbano, 2016; Dooley et al., 2017). According to the RBV theory, intangible resources such as INOCAP and IC contribute to competitive advantage. In the long run, these resources are crucial for a firm's performance. In an external environment where changes are rapid, firms with high INOCAP and IC are better equipped to respond. To achieve superior firm performance, it is imperative to be able to manage the increasing complexity of a dynamic environment and rapid changes (Deng and Noorliza, 2023). It is critical for organizations to continuously monitor their surrounding environment in order to succeed (Fu et al., 2021). This means aligning their strategies, capabilities and resources with their external environment. In the context of the RBV, the external environment refers to how the independent variables (IVs) affect the dependent variable (Mishra and Yadav, 2021). It is an exogenous variable with a moderating effect. Research has suggested that firm resources and competitive advantages are moderated by the external environment, as argued by Dess and Beard (1984) and Fu et al. (2021). The following hypotheses can be made.

H-3. External environment moderates the relationship between innovation capability and Performance.

H-4. External environment moderates the relationship between intellectual capital and performance.

Taking into account the discussion that has taken place, the research model illustrated in Fig. 1.

3. Research design

3.1. Measurements

According to Wiklund and Shepherd (2003), a firm performance measure is comprised of ten items that contribute to firm performance (Ferreira and Coelho, 2020). Three years' worth of performance were compared by respondents between their company and their competitors. On the innovation capability scale, there were 20 items: four for process innovation, four for product innovation, four for behavioral innovation, four for strategic innovation and four for market innovation, which emerged from Wang and Ahmed (2004) and Maldonado-Guzmán et al. (2019). A total of 14 items were measured for the intellectual capital scale: five items assessing human capital, five items measuring social capital and four items assessing organizational capital, adapted from Subramaniam and Youndt (2005) and Agostini et al. (2017). There are 15 items included in the External Environment dimension, including market turbulence (consisting of five items), technological turbulence (consisting of four items) and competitive intensity (consisting of six items). These were adopted by Jaworski and Kohli (1993) and Prajogo, and Oke (2016).

3.2. Questionnaire design

The questionnaire has four distinct parts that must be completed. First and foremost, a cover letter that includes standard information about the company as well as the title and primary purpose of the research being conducted. Each examined variable is then given a separate section: Innovation capability and intellectual capital are independent variables, while performance of SMEs is endogenous (dependent). External environment is the moderating variable in current research. In order to participate in the survey, respondents were required to carefully fill out each question and indicate their choice by placing a checkmark in the appropriate box in front of the question. Seven Likert scales are assigned to each question. The degree of agreement is indicated in every box on the Likert scale from one to seven. Dual language questionnaires were prepared in Urdu and English. In Levinson and Peng (2007), bilingual questionnaires are questionnaires based on two languages. In order to conduct this study, an expert translator prepared a bilingual questionnaire. We followed the standards recommended by Potaka and Cochrane (2004) during the translation process as a guide to academic research.

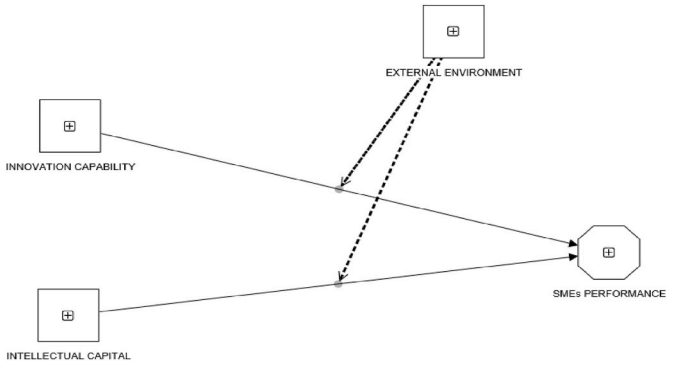

Fig. 1. Research model.

3.3. Population and sampling

An investigation was carried out in textile SMEs for the purpose of this study. As a result, the population consisted entirely of textile businesses in the country that were either small or medium in scale and were handled by their own owners. According to Pakistan Bureau of Statistics, 2023, there are 27,250 small and medium businesses engaged in textiles in Pakistan. In Table 1, the population of the country is divided among four main provinces, namely Punjab, Sindh, KPK and Baluchistan.

Table 1 shows the details of the total population of each province and federal territory in Pakistan, along with the population percentage from each. There is a government agency tasked with overseeing Pakistan's SMEs, called SMEDA (Small and Medium Enterprise Development Authority). A total of 3.2 x 10^6 SMEs in Pakistan are registered with SMEDA.

Krejcie and Morgan (1970) offer a table that simplifies deciding how many samples to take from a given population. For 20,000 participants, we need 377 samples; for 30,000 participants, we need 379 samples. Based on this assumption, a sample size of 379 is required to complete a survey using a survey protocol for a population of 27,250. The G*Power software was used to ensure adequate sample sizes in this study. As a part of the analysis of G*Power to estimate the appropriate sample size, some statistical parameters have been considered in order to estimate the sample size (Faul et al., 2007). The study involved four predictors with a moderate effect size of 0.15 and a significance level of 5%. Using these criteria as a reference point, the required sample size was determined to be 129 participants for achieving statistical significance and a power of 0.95 was deemed appropriate. G*power gives us minimum sample size appropriate for the current study if Krejcie and Morgan (1970) assumption not fulfilled. A sample size of 379 was considered suitable because it exceeds the minimum sample size of 129, which was determined by G*power (Hatta Antah et al., 2022).

3.4. Data collection procedure

This research collects data using a questionnaire in line with the methods discussed above. In order to administer the questionnaire properly, it is done on a one-to-one basis. Researchers can utilize this method to collect all the questionnaires completed on time, which is a major advantage. This method also offers the researcher the advantage of being able to instantly clarify unclear terminologies and by asking personalized questions, participants can express themselves more freely (Saunders et al., 2015; Sekaran and Bougie, 2010).

This study uses a simple random sampling method with probability sampling. Using the simple random technique, individuals can be confident that results represent the entire population, as seen by Burns and Burns (2013). A random sample, on top of that, offers greater generalization and offers less bias in comparison to a sample taken at random (Sekaran, 2003). A further advantage of this method is that every respondent has an equal chance of being selected as a sample subject (Sekaran, 2003). A random approach is used to choose the subjects for the sample after first assigning a number to each participant in the sample. Since the authors have a list of SMEs and 379 is the number of SMEs that need to be sampled, they have randomly selected 379 SMEs from the list.

Table 1
Pakistani SMEs percentage.

Provinces Name	% of SMEs
Punjab	65.40
KPK	14.21
Sindh	17.69
Baluchistan	2.71

Source: SMEDA, 2023.

3.5. Non-response biasness

We use the time lag data collection method to avoid response bias in the data collection procedure. This means we divide the questionnaire into two parts regarding the study's variables. A dependent variable as well as an independent variable were gathered during the initial phase. Moderating and independent variables were examined in the subsequent phase.

The variance attributed to the measurement method, also known as the common method bias, pertains to the trajectories that are mostly attributable to the methodology and not the construct of interest (Podsakoff et al., 2012). The use of self-reported surveys is associated with various methodological variations, which pose a significant concern (Podsakoff et al., 2012). An important issue related to CMV is that it can result in systematic measurement errors that can either increase or decrease the observed relationship between constructs (Chang et al., 2010). Harman's single-factor test was conducted using SPSS and unrotated exploratory factor analysis. According to the findings, no single factor contributed more than 50% of the variance. A single factor explained only 23.412% of the variance in this study, a value below 50%, which suggests the study was not subject to common method bias (Podsakoff et al., 2012). There is no evidence of a common method bias in the current study.

3.6. Response rate

There were 379 questionnaires distributed among SMEs in Pakistan engaged in the textile industry, out of which 331 were received. We have removed 13 questionnaires from 331 questionnaires due to the fact that 13 were incomplete. For the final analysis 318 questionnaire were used. Sekaran (2003) argued that a 30% response rate for the survey was sufficient to provide adequate information and four out of five respondents answered that way. It is likely that 86% was adequate for the survey.

4. Results and discussion

The PLS-SEM technique is extensively used to analyze multivariate data. As social problems and human behavior become more complex, it seems that only software that is adaptable and can expand and be used over time will continue to be used and expanded (Memon et al., 2021). The Smart PLS-SEM can be applied to analyze intricate research models, which serve as estimation frameworks that integrate empirical data and relevant theories (Sobaih and Elshaer, 2022). Smart-PLS 4.0 was used to analyze both the measurement model and the structural model. Previous researchers have recommended and used the PLS-SEM method to analyze data (Arshad and Arshad, 2019). A researcher tested hypotheses using PLS bootstrapping with a sample size of 500 samples and 5% significance level tests for significance. The bootstrap method is a statistical approach that may be used to estimate quantities about a population by taking the average of the estimates obtained from a number of different tiny data samples (Hair et al., 2017).

4.1. Assessment of measurement model

As stated by Hair et al. (2011), we must first determine the construct's reliability and validity in order to assess its measurement model accurately, as stated by Hair et al. (2011). Hierarchical Component Modeling was used to model several higher-order constructs in this study, such as intellectual capital and innovation capability. It has been determined that the model is Reflective-Reflective. In order to ensure reliability and validity, confirmatory factor analysis was conducted on the measurement model in order to ensure reliability and validity. It starts by determining how the items load on each of the constructs. It appears that the loading of each construct is greater than 0.706, which is the thrush hold value, which ranges from 0.708 to 0.923. This demonstrates that the reliability of the indicator of each of the constructs has been established.

In the following step, calculations and assessments are made about Cronbach Alpha (CA) and Composite Reliability (CR) values. As shown in Table 2, all constructions' CA and CR values vary from 0.804 to 0.936, which is within the allowed range of 0.706, i.e., larger than 0.706. (Hair et al., 2016). The inter-construct reliability in this study is high, so all the constructs are highly reliable. Next, we have to determine whether the measurement model has good convergence validity. For a construct to be considered valid, it must be feasible for its individual indicators to correlate with those in other dimensions of that construct (Hair et al., 2016). The AVE is determined by taking the squared loadings of each indicator and dividing them by the grand mean value (Hair et al., 2016). Based on this measure, one can gauge how well a construct accounts for its indicators. An indicator's variance can be explained by its construct in nearly half of the cases employed by an AVE value of more than 0.50, it is generally accepted (Fornell and Larcker, 1981). According to Table 2, the AVE for this study ranged between 0.547 and 0.703, adding to the evidence that each construct has convergent validity.

The measure of DV (discriminant validity) represents "the extent to which a construct is truly distinct from other constructs by empirical standards" (Hair et al., 2017). The degree to which indicators are distinguishable across constructs is specified by two criteria that were verified as discriminative validity: Fornell-Larcker criteria and Hetrotrait-Monotrait (HTMT) correlation ratio. The concept of discriminate validity can be described as "the extent to which the constructs are different from one another empirically" (Ab Hamid et al., 2017). A new heterotrait-monotrait ratio of correlation (HTMT) method and Fornell & Larcker were applied to ensure discriminate validity in the present study. By Fornell & Larcker's criteria, this study does not demonstrate discriminate validity due to constructs' inability to explain similar phenomena; the Fornell and Larcker criterion and the heterotrait-monotrait ratio (HTMT) are investigated with regard to the evaluation of discriminant validity. The results of these investigations are presented in Tables 3 and 4.. A construct should have a diagonal value that exceeds any other value. For the assessment of the heterotrait-monotrait ratio, construct values should not exceed 0.9, indicating that each construct is distinct from every other construct. It is important to note that all the values for the current study are under a level of 0.9. As a result, discernment validity has been achieved. In summary, the measurement model meets all of the criteria it was designed for. During the next phase of the study, we evaluated the structural model.

4.2. Assessment of structural model

The Smart-PLS model also provides a prediction relevance score (Q2 value) of the models in addition to path coefficients, effect sizes (f2) and

Table 2
Measurement model evaluation.

	CA	Items Loading	CR	AVE
FP	0.923	0.756–0.819	0.935	0.592
EXT ENV	0.912	0.810–0.902	0.924	0.538
ETTB	0.868	0.742–0.899	0.915	0.678
ETMK	0.723	0.707–0.799	0.902	0.519
ETCI	0.767	0.801–0.867	0.907	0.636
IC	0.936	0.762–0.805	0.944	0.547
ICS	0.855	0.803–0.876	0.896	0.635
ICO	0.843	0.708–0.816	0.895	0.681
ICH	0.867	0.786–0.897	0.904	0.654
INOCAP	0.906	0.855–0.923	0.922	0.544
INSTG	0.858	0.734–0.899	0.904	0.703
INPR	0.853	0.789–0.869	0.901	0.695
INPD	0.804	0.744–0.843	0.873	0.635
INMK	0.810	0.732–0.899	0.922	0.637
INBH	0.886	0.745–0.912	0.875	0.746

Table 3
Fornell-Larcker criterion.

	1	2	3	4	5	6	7	8	9	10	11	12
FP	0.89											
ETTB	0.517	0.812										
ETMK	0.498	0.655	0.823									
ETCI	0.523	0.542	0.433	0.867								
ICS	0.627	0.378	0.437	0.568	0.897							
ICO	0.514	0.397	0.337	0.541	0.766	0.825						
ICH	0.496	0.424	0.447	0.499	0.726	0.776	0.809					
INST	0.456	0.418	0.372	0.487	0.591	0.378	0.437	0.838				
INPR	0.169	0.591	0.378	0.437	0.349	0.397	0.337	0.593	0.834			
INPD	0.294	0.349	0.397	0.337	0.459	0.424	0.447	0.617	0.737	0.897		
INMK	0.245	0.459	0.424	0.447	0.415	0.418	0.372	0.567	0.711	0.706	0.798	
INBH	0.344	0.415	0.418	0.372	0.504	0.422	0.397	0.678	0.601	0.692	0.554	0.864

Table 4
HTMT criterion.

	1	2	3	4	5	6	7	8	9	10	11	12
FP												
ETCI	0.617											
ETMK	0.598	0.755										
ETTB	0.623	0.642	0.633									
ICH	0.627	0.378	0.537	0.768								
ICO	0.514	0.597	0.637	0.641	0.814							
ICS	0.596	0.424	0.747	0.599	0.726	0.676						
INBH	0.756	0.618	0.672	0.687	0.691	0.678	0.737					
INMK	0.569	0.591	0.378	0.437	0.549	0.697	0.637	0.693				
INPD	0.694	0.549	0.597	0.337	0.659	0.524	0.547	0.717	0.837			
INPR	0.745	0.459	0.424	0.447	0.415	0.418	0.372	0.567	0.611	0.826		
INSTG	0.744	0.415	0.418	0.372	0.504	0.422	0.397	0.678	0.701	0.692	0.754	

coefficients of determination (R^2). With Smart-PLS researchers can calculate empirical "Beta-values", "T-values" and "P-values" for any of the assessed structural models after using the bootstrapping procedure. The beta values, which represent the regression coefficients, illustrate the causal connection that exists between the various constructs. Specifically, the researcher examined the hypotheses using PLS bootstrapping with a sample size of 500 with a significance level of 5%. The T-value of 1.967 is considered the crucial cutoff point in this study when

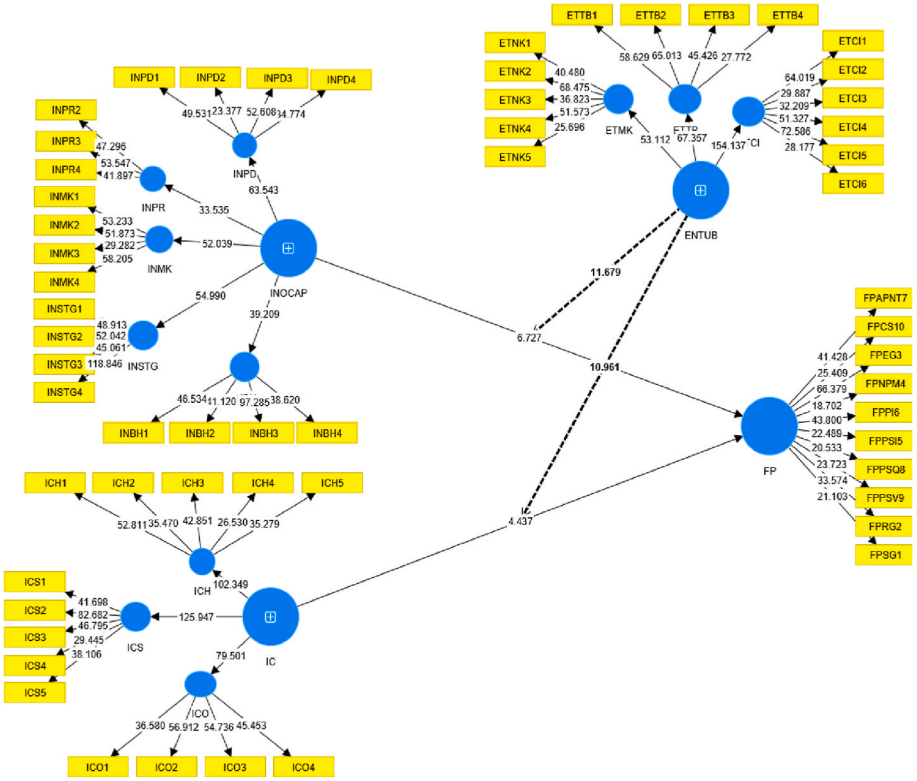

Fig. 2. Structural model.

examining hypotheses (Hair et al., 2014, 2016). According to Smart-PLS software, structure model assessment is represented in Fig. 2. Additionally, Table 5 illustrates the direct relationships between the latent variables with which the present study is concerned. The findings of the structural model assessment may be seen in Fig. 2, which was created using the Smart-PLS. According to Table 5, the latent variables that were studied here are directly correlated with one another.

After acquiring the measurement model's parameters, we assessed the structural model parameters. According to Breiman and Friedman, 1985, the coefficient of determination (R^2) explains the variation of endogenous variables accounted for by independent variable constructs. Later, Chin (1998) points out specific ranges, which are 0.19, 0.33 and 0.67, indicating that the coefficient of determination (R^2) shows weak, moderate and substantial effects. IC and INOCAP are the two endogenous variables in the current study. The R^2 is 0.573. This means we can explain 57.3% of the variance in FP by analyzing IC and INOCAP.

This study compared the exogenous variables to endogenous variables to determine the effect size of the exogenous variables on the endogenous variables (Chin, 1998). According to the f2 effect size values of 0.02, 0.15 and 0.35, the additional latent variable represented by the exogenous latent variable has small, medium and large effects, respectively. There is substantial agreement between IC and INOCAP for explaining the endogenous variable (FP), with effect sizes f2 of 0.268 and 0.378, which shows medium and large effect sizes.

Along with the R^2 value as a criterion of predictive accuracy, Stone-Geisser's Q2 value was also assessed in this study (Geisser, 1974; Stone, 1974). A model's Q2 value is an indicator of its predictive ability to estimate its prediction quality (Hair et al., 2011). It is reliable to predict the outcomes of a path model that has a reflective endogenous value greater than zero (Cha, 1994; Fornell et al., 1994). The endogenous variable during the present study namely, FP, has a Q2 value of 0.435, which has a high correlation with the study.

4.3. Testing the moderating effect

We examined whether the external environment can be applied as a moderator to the association between INOCAP, IC and performance of SMEs, in order to explore potential future applications. In a nexus, an influencing variable, also called a moderating variable, modifies the direct effects of the independent and dependent variables (Hair et al., 2017). The same bootstrapping procedure is used for moderation testing. A positive nexus was shown in Table 6 as well as the positive relationship between the innovation capability of SMEs and their performance (B = 0.501, T-value = 11.679), as well as the positive relationship between the intellectual capital of SMEs and their performance (B = 0.419, T-value = 10.961), which was influenced by extranormal environments. H3 and H4 are also supported.

4.4. Interaction - effect analysis

Interaction analysis involves various methods and procedures (Bauer and Curran, 2005). Despite this, slope analysis is still one of the most commonly used techniques in the field. This method engages the use of specific intervals of the moderator variable as the basis for calculating the slope and intercept of the model. Specifically, H4 and H5 represent a moderated association among InoCap, IC and SMEs' performance when external environmental influence is present. Innovation capability and intellectual capital would have a stronger correlation with SME performance if the interaction term were more significant, which would suggest that Innovation capability and intellectual capital are more important factors in explaining the performance of SMEs in firms with high external environmental influence. A steep gradient can also be seen in Figs. 3 and 4, indicating an interaction between external environmental, intellectual capital and innovation capability (Dawson, 2014), in which the line labeled "high EXTENV" indicates a high level of external environmental.

Table 5
Hypothesis results.

Sr#.	Hypothesis	Beta	S.E	T-Value	P-Values
1	IC - > FP	0.268	0.060	4.437	0.000
2	INOCAP- > FP	0.378	0.056	6.727	0.000

Table 6
Hypothesis results.

Sr#.	Hypothesis	Beta	S.E	T-Value	P-Values
H-3	Moderating of INOCAP*EXT ENO- > FP	0.501	0.043	11.679	0.000
H-4	Moderating of IC*EXT ENO- > FP	0.419	0.038	10.961	0.000

5. Conclusion

The objective of this research is to examine the interconnections among intellectual capital, innovation capability, the external environment and performance in small and medium-sized enterprises in Pakistan. The aim is to develop policies and strategies that can facilitate the growth of these businesses. We aim to fulfil our objectives by testing two primary direct hypotheses and two primary moderating hypotheses. Specifically, the first hypothesis, H-1, examined why intellectual capital is related to SME performance. The second hypothesis, H-2, explored why innovation capability is related to SME performance. In hypothesis 3, the external environment is examined for its moderating effect on INOCAP and performance, while in hypothesis 4, the external environment is examined for its moderating effect on IC and performance. INOCAP and IC are considered some of the most significant capabilities for SMEs to maintain their competitive advantage over the long term since both hypotheses have been accepted. The first hypothesis (IC and FP) confirms prior research on the relationship between IC and performance (Irawanto et al., 2017; Khalique et al., 2018; Ahmed et al., 2020). There is a difference between SMEs with more intellect and those with less at the level of intellectual capital (HC, OC and SC). In particular, SMEs possessing greater intellectual capital exhibit a higher capacity to promptly adjust to market fluctuations and acquire fresh knowledge at a faster pace. In light of evolving markets, intensifying competition and the shift from production-based to knowledge-based economies, it is imperative for small and medium enterprises to maintain their

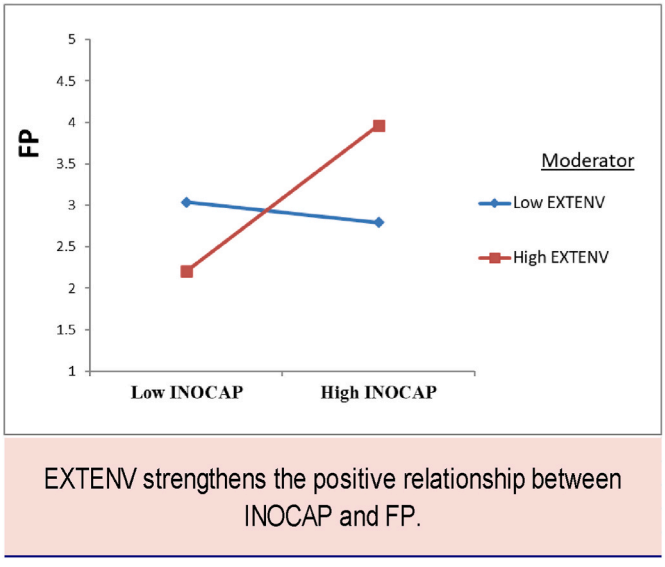

Fig. 3. Interaction effect INOCAP-EXTENV on FP.

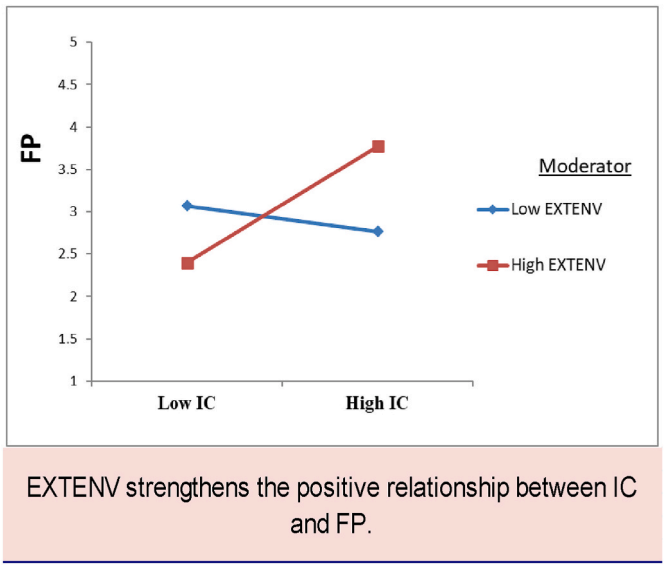

Fig. 4. Interaction effect INOCAP-EXTENV on FP.

competitiveness in emerging markets. This factor is crucial for the survival and success of the entity in question.

Several contexts were evaluated to analyze the innovation capability as it is linked with diverse advantages for SMEs. This has numerous benefits, with the most significant being the enhancement of firms' performance. This study validates the results of previous research that suggested a significant correlation between innovation capability and SMEs performance based on a correlation analysis between the two variables (Maldonado-Guzmán et al., 2019; Rajapathirana and Hui, 2018). As it is depicted here, based on the assumption of the rational basis for value (RBV) model, it is shown that innovation capability plays a crucial role in strategic decision-making in a firm. The firm can gain an edge over its competitors by providing them with resources in order to gain a competitive advantage. The ability of a firm to produce new ideas that have commercial value and can improve the firm's performance leading towards sustainability is referred to as its innovation capability. Businesses must adapt to constantly changing market conditions, which are increasing both client demand and competitive settings. Companies are under a lot of pressure to keep up with these changes and the latest advancements. This must involve enhancing their ability to innovate and reconfiguring every aspect of their business to remain competitive.

This study contributes novel insights to the literature by exploring the moderating impact of the external environment on the performance of SMEs, INOCAP and IC. There is a positive relationship between innovation capability, intellectual capital and SME performance, but the intensity of this relationship changes (Farzaneh et al., 2022; Ali et al., 2021). The impact of external factors on a company's performance and competitiveness is greater in a pressurized environment. The bottom line is that organizations operating in a dynamic environment have a stronger capacity for innovation and the development of intellectual competence (Tsou and Chen, 2020). As a result, these businesses have a competitive advantage. The link between these variables was strengthened by the chaotic environment. The findings show that firms facing intense competition are more likely to perform better and have higher levels of innovation and intellectual capability than firms facing less intense competition (Mura et al., 2014; Shah et al., 2016; Leonidou et al., 2017). A firm with greater innovation capability and intellectual capital can react more effectively to environmental changes and develop new capabilities than a firm with fewer resources. In today's dynamic business environment, SMEs should strive not only to be profitable but also to develop innovative new markets and keep pace with their competitors. As a result of a more efficient and effective management of IC resources, SMEs can respond more effectively to the current turbulence in the business environment in order to excel. SMEs must maintain competitiveness by staying up-to-date on technological advances and changing competition, market trends and technological advances, as well as by modifying their internal capabilities (INOCAP and IC) in order to be able to adjust their behaviour when it comes to external environmental factors. A more dynamic environment has a greater impact on intellectual capital than one that is more stable. As a company grows, it is more likely that it will invest in INOCAP and IC to control the risks associated with environmental turbulence. In a stable economy, investment is directed toward operational funding expenses (Ahmed et al., 2022a).

6. Implications

6.1. Theoretical implication

The SME sector remains critical to the overall economy of any country. Most studies tend to focus on large-scale organizations and developed economies regarding intellectual capital and innovation capability. This study provides a valuable contribution to the existing research on the impact of intellectual capital and innovation capability on the performance of SMEs. Additionally, it has shed light on the moderating role of the external environment in this relationship. The current research framework being employed is distinct and has not undergone extensive investigation, particularly within the context of textile SMEs. In this sense, the current study is an excellent resource for SMEs to adopt and execute the framework in order to obtain a durable competitive advantage that is distinctive in its method of operation. The findings of our study support recent studies that describe RBV theory as a theme in environmental activities. In this sense, the study contributes to the RBV by supporting its assertions with empirical evidence. This study contributes to the current body of knowledge about the impact of intellectual capital and innovation capability on the success of SMEs. It has also shed light on the external environment's moderating influence on this relationship. The current study paradigm is unique and has not been thoroughly investigated, particularly in the context of small and medium-sized textile firms.

6.2. Practical implication

The present research offers significant insights for policymakers, practitioners and managers operating in emerging and developing economies. The study has furnished policymakers with valuable insights on how SMEs can optimize their resource utilization to foster innovation and cultivate intellectual capital. This is achieved by considering external factors that impact the business environment. It is recommended that proprietors and executives of small and medium-sized enterprises prioritize their endeavours towards providing distinctive products and services to their clientele, devising inventive and original solutions for customer predicaments, and fostering employee ingenuity for future sustainability. It is imperative for owner-managers of SMEs to take into account the crucial role played by intellectual capital in enhancing the performance and longevity of their firms. The intellectual capital of a company is a crucial asset that plays a significant role in attaining long-term competitive advantage and superior performance which leads towards attaining sustainability. The dynamic nature of the economic environment demands enhanced adaptability and versatility in the management of intellectual capital. Due to the intangible nature of the IC and INOCAP, it is imperative to adopt distinct management approaches for each component of these entities, as opposed to tangible assets, to effectively harness their potential and optimize their functionality. The findings of the research indicate a strengthened correlation between said variables amidst turbulent circumstances. It is recommended by the researcher that the management of INOCAP and IC be undertaken by business proprietors and policymakers in order to

guarantee the endurance of small and medium-sized enterprises.

7. Limitation and future research

In the future, researchers might take inspiration and ideas from the study's findings and limitations. To its contribution to the area and its ramifications, this study acknowledges shortcomings and offers future directions. First, it investigated the relationship between INOCAP, IC, the external environment and performance in the context of SMEs. This should be explored in other circumstances, such as large and multinational corporations, where the structure and resources are more complex. Future studies should extend beyond the SME context. Second, because the data was gathered from a single source, the firm's owner or management, who may have biased viewpoints, the results may not be as accurate as they could be. In the future, researchers may obtain data separately from numerous stakeholders inside each firm (e.g., owners, managers and financiers). Third, the current study was quantitative in nature, with data acquired using a questionnaire survey. It would be interesting in the future if future studies used qualitative and quantitative methodologies in their research to investigate the performance of SMEs in Pakistan in depth. Fourth, this research solely looked at textile SMEs in Pakistan. To this research, various other sectors, geographic areas and data sources should be investigated in order to further validate the findings and generalize them to the broader SME sector. Fifth, the current study was structured as a cross-sectional study, which means data was collected for a certain period, allowing future studies to be designed longitudinally, which means data was collected at different intervals. In the current framework, two capabilities and one moderator are examined so that future studies can take further capabilities and the mediation in the current study model into account.

CRediT authorship contribution statement

Muhammad Zulqarnain Arshad: Conceptualization, Writing – original draft. **Darwina Arshad:** Writing – review & editing. **Hendrik Lamsali:** Project administration, Writing – review & editing. **Ahmad Said Ibrahim Alshuaibi:** Writing – review & editing. **Mohammad Said Ibrahim Alshuaibi:** Writing – review & editing. **Gadah Albashar:** Writing – review & editing. **Awais Shakoor:** Writing – review & editing. **Lai Fatt Chuah:** Project administration, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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