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Business Development Initiatives: Exploring the Relationship between Human Capital, Financial Resources, and Technological Capabilities on SME Performance Saudi Arabia

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ABSTRACT: This research assessed the effects of human capital development, financial resource acquisition, and technological capability development on the performance of SMEs in the Saudi Arabian manufacturing sector. In particular, the study examined how these factors affected SME success in terms of human capital development, financial resources, technological innovation, operational efficiency, innovation, and overall competitiveness. For the quantitative analysis, 222 SME owners and managers were surveyed in Saudi Arabia's primary industrial areas. The study revealed that human capital development positively and significantly influenced SME performance, and that employee training and skill enhancement were strongly correlated with business growth. However, the acquisition of financial resources and the development of technological capabilities, while important, did not show a direct statistically significant effect on SME performance in this study. The findings also highlighted the need to integrate human capital with technological and financial resources to maximize returns on such investments. It is therefore recommended that policymakers emphasize human capital development in SMEs such as vocational training and skills enhancement, and that SME owners adopt a balanced approach to financial resources, technology, and human capital. This research enhanced understanding of the key drivers of SME performance in Saudi Arabia and provided practical insights for policymakers and stakeholders in business and academia aimed at strengthening the sustainability and global competitiveness of SMEs under the Saudi Vision 2030 economic framework.

KEYWORDS: Small and Medium Enterprises (SMEs), human capital development, financial resource acquisition, technological capabilities, SME Performance.

1. Introduction

In Saudi Arabia, Small and Medium Enterprises (SMEs) were central to the country's economic growth, particularly in line with the objectives of Saudi Vision 2030. Human capital development, the acquisition of financial resources, and the advancement of technological capabilities were critical factors shaping the success of SMEs, especially in the manufacturing

sector. As the nation pursued its Vision 2030 goals of economic diversification and innovation, SMEs were required to adapt to a rapidly changing economic environment [1]. The ability of SMEs to thrive depended significantly on how they developed and managed their workforce, accessed financial resources, and leveraged technological advancements. Human capital played a vital role in SME performance by driving creativity, innovation, and operational efficiency [2]. By enhancing the skills and knowledge of their employees, SMEs improved organizational capabilities, responded more effectively to market changes, and gained a competitive edge. Previous studies showed that investing in employee training and development directly boosted firm performance, particularly in terms of innovation and market responsiveness [3]. The dynamic nature of the modern economy required SMEs to invest in their workforce to remain adaptable and innovative. In this context, human capital development became crucial for long-term business growth and sustainability.

Financial resources, on the other hand, enabled SMEs to invest in technology, human resources, and other operational needs. However, limited access to financial capital remained a key challenge for many SMEs, especially in emerging economies. In Saudi Arabia, the inability to secure sufficient funding hindered growth, innovation, and competitiveness [4]. Financial resources were necessary to purchase new technologies, expand production capacity, and enhance overall operational efficiency. Despite their importance, financial resources alone did not guarantee improved performance unless they were effectively utilized in conjunction with other resources, such as human capital and technology. Technological capabilities also played a critical role in improving the efficiency and innovation capacity of SMEs [5]. Technology streamlined operations, enhanced product quality, and improved market responsiveness. However, simply adopting new technology did not automatically lead to improved performance. Instead, effective integration of technology with human capital and financial resources drove success [1]. SMEs that invested in technology needed to ensure their employees were adequately trained to use these tools effectively. Moreover, successful integration of technology with other resources required strategic planning and strong leadership.

The relationship among human capital, financial resources, and technological capabilities was complex and interdependent. While each factor individually contributed to SME performance, their combined effect drove sustained growth and competitive advantage [6]. This study aimed to examine how these three factors interacted and influenced the overall performance of SMEs in Saudi Arabia's manufacturing sector. Previous research primarily focused on individual factors such as financial access or human capital development [7]. However, a gap in the literature existed regarding how these factors worked together to enhance SME performance. Few studies had explored the synergies among human capital, financial resources, and technological capabilities within the context of SME growth, particularly in Saudi Arabia. This research sought to fill this gap by examining the combined effects of these resources on SME performance in the manufacturing sector.

The performance of SMEs was critical not only for the success of individual businesses but also for the overall economic development of Saudi Arabia. As SMEs faced challenges such as limited access to financing, technological gaps, and a shortage of skilled labor, addressing these issues was essential to ensuring growth and sustainability [8]. By understanding how human capital, financial resources, and technological capabilities interacted, policymakers and business leaders could develop strategies that supported SME

development and aligned with the economic goals of Saudi Vision 2030. The performance of SMEs in Saudi Arabia's manufacturing sector was influenced by a combination of factors, including human capital development, financial resources, and technological capabilities [9]. This study aimed to investigate the relationships among these factors and their impact on SME performance. By exploring these dynamics, the research provided valuable insights into how SMEs could optimize their resources to improve performance, innovate, and compete effectively in the global market. The findings were expected to inform policymakers, business leaders, and scholars on strategies to strengthen the sustainability and competitiveness of SMEs, ultimately contributing to the realization of Saudi Vision 2030.

2. Literature Review

2.1. Human capital development.

Human capital development is essential for enhancing the performance of small and medium enterprises (SMEs), especially within dynamic environments. Investing in human capital fosters employee retention, satisfaction, and productivity, which is crucial for organizational growth [10]. Developing employees' skills, knowledge, and competencies enhances their ability to contribute effectively to business goals, resulting in improved performance. Several studies have shown a positive link between structured training programs and business outcomes, emphasizing the importance of vocational education and skills development for SMEs to bridge skills gaps [11]. As technology evolves rapidly and competition intensifies, SMEs must focus on strategic human capital development to sustain a competitive edge [12]. Future research should explore the long-term impact of human capital development on SME resilience and performance, given the growing importance of workforce skills in adapting to changing business landscapes.

2.2. Financial resource acquisition.

Acquiring financial resources is vital for the growth and sustainability of SMEs. Financial resources allow businesses to invest in necessary equipment, technology, marketing, and human resources, enabling them to expand and improve their offerings [13]. However, limited access to financial resources is a key challenge for many SMEs, hindering their ability to capitalize on market opportunities and adopt new technologies. SMEs often struggle with securing sufficient funding, especially in developing economies, where financial markets are underdeveloped [14]. The ability to manage finances effectively is crucial for SMEs to adapt to market changes, develop competitive advantages, and grow sustainably. Research indicates a strong correlation between financial resources and SME growth potential, emphasizing the need for strategies to improve access to funding [15]. Future studies should investigate how different financial acquisition strategies impact SME performance, helping policymakers and business practitioners design more effective financial frameworks to support SME development.

2.3. Technological capabilities.

Technology plays a key role in driving innovation and enabling SMEs to adapt to rapidly changing markets. Technological capabilities involve acquiring, assimilating, and utilizing

technology to meet market needs [16]. Research suggests that SMEs with strong technological capabilities tend to achieve higher operational efficiencies and greater responsiveness to market demands. However, merely adopting technology is not enough to improve performance; its successful integration with human capital and financial resources is essential [17]. Investments in innovation, such as R&D and collaboration with research institutions, can further enhance technological capabilities [18]. While much attention has been given to the role of technology in SME performance, more research is needed to understand the determinants of technological capability development across sectors [19]. Understanding how technology interacts with other resources, such as human and financial capital, will be critical for improving SME performance and competitiveness in a digital economy.

2.4. Performance of small and medium manufacturers.

The performance of SMEs in the manufacturing sector is shaped by both internal factors and the external market environment. SMEs face various challenges that can limit their ability to contribute to economic growth, such as limited resources, lack of innovation, and competition. However, SMEs also play a significant role in economic advancement, particularly through innovation and product development [20]. Research shows that SMEs with strong growth ambitions and innovative practices can gain increased market positions. Innovation is critical for SMEs' profitability, as firms that invest in innovation often experience improved performance [21]. In addition to financial performance, other elements, such as sustainability, flexibility, resilience, and the ability to adapt to changing market conditions, contribute to overall SME performance. Although studies have explored various factors influencing SME performance, comprehensive analyses on how these factors interact within the manufacturing sector are limited. Future research should focus on how different performance drivers impact manufacturing SMEs in specific economic contexts.

2.5.Hypothesis development.

2.5.1. Human capital development and sme performance.

The development of human capital is closely linked to improved performance in SMEs, especially in the manufacturing industry. Investing in employee training and development enhances skills, promotes innovation, and increases competitiveness [22]. Skilled employees are better equipped to meet market demands, adopt new strategies, and drive operational efficiency. SMEs with effective human resource development strategies, such as management-supported training programs, tend to perform better in competitive markets [23]. These programs not only enhance employee expertise but also encourage cooperation and information sharing, vital for operational success [24]. Research suggests that investing in human capital helps SMEs sustain growth and stay competitive. Therefore, human capital development is crucial for SMEs to enhance performance, innovation, and competitiveness in the market.

2.5.2. Financial resource acquisition and SME performance.

Financial resource acquisition is essential for the functioning of SMEs, particularly in manufacturing. Access to financial resources allows SMEs to invest in technology, human resources, and marketing, enabling them to improve operational efficiency and adopt

innovative strategies [25]. However, many SMEs struggle with securing the funds necessary to grow and expand. Research shows that financial access influences an SME's ability to develop competitive advantages and innovate [26]. Proper management of financial resources enables SMEs to adopt growth strategies and improve performance. Therefore, strengthening financial access is crucial for improving SME performance. Financial resources alone, however, may not guarantee growth unless they are strategically managed and integrated with other resources, such as technology and human capital.

2.5.3. Technological capabilities and SME performance.

Technological capabilities are essential for SMEs in the manufacturing sector, as they enhance innovation, operational efficiency, and market responsiveness. Technology enables SMEs to improve product quality, streamline operations, and respond to market demands more effectively [27]. However, the mere adoption of new technologies is not sufficient for improved performance. It is the integration of technology with human and financial resources that enables SMEs to achieve higher performance [28]. Technological investments, such as those in R&D and collaboration with research institutions, contribute to innovation and market competitiveness. SMEs with strong technological capabilities can create new products, enter new markets, and strengthen their competitive position. Therefore, the development of technological capabilities is crucial for SMEs to improve performance, especially in fast-changing industries.

2.6. Underpinning Theories

2.6.1. Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory emphasizes that a firm's competitive advantage is derived from its unique and valuable resources [29]. In the context of SMEs, these resources include human capital, financial assets, and technological capabilities. The RBV framework suggests that SMEs can achieve superior performance by effectively organizing and utilizing these resources to improve operational efficiency and innovation [30]. By developing competencies in key areas and applying new technologies, SMEs can enhance their competitive advantage [31]. The RBV provides a useful lens for understanding how SMEs can leverage their internal resources to create and sustain competitive advantages in dynamic market environments.

2.6.2. Dynamic Capabilities (DC) theory.

The DC theory builds on the RBV by focusing on how firms adapt and reconfigure their resources in response to changes in the business environment [32]. For SMEs, the ability to innovate and respond to market shifts is essential for long-term success. Dynamic capabilities enable SMEs to quickly adjust their strategies, adopt new technologies, and improve their operations in response to changing conditions[33]. Research shows that SMEs with strong dynamic capabilities are better able to manage external challenges, such as market volatility and technological disruptions. By investing in innovation and flexible operations, SMEs can improve their resilience and performance in rapidly evolving industries. Therefore, dynamic

capabilities are crucial for enhancing SME performance and ensuring long-term sustainability in competitive markets.

2.7. Conceptual Framework

This study examines the relationships between human capital development, financial resource acquisition, technological capabilities, and SME performance in the manufacturing sector. The conceptual framework highlights the importance of integrating these resources to enhance SME performance. It posits that human capital, when combined with financial and technological resources, creates a synergistic effect that improves operational efficiency, innovation, and competitiveness. The framework Figure 1. also underscores the need for SMEs to strategically manage and leverage these resources to achieve sustainable growth and success in a competitive market environment. The literature review highlights the critical role of human capital, financial resources, and technological capabilities in influencing SME performance. While each factor contributes individually to business success, their interaction and integration are key to achieving long-term growth and competitiveness. Future research should explore how these factors interact within specific sectors and economic contexts, particularly in developing economies like Saudi Arabia.

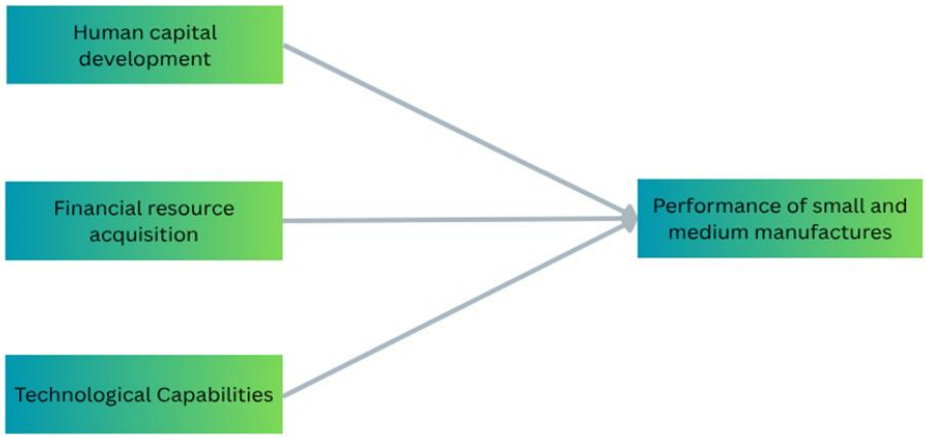

Figure 1. Framework

3. Results and Discussion

3.1. Sampling and data collection.

This research aimed to explore the determinants of performance for small and medium-sized manufacturing enterprises (SMEs) in Saudi Arabia. The performance of these SMEs relies heavily on factors such as human capital development, financial resource acquisition, technological capabilities, strategic partnerships, and government support. The study utilized a quantitative research approach to measure these determinants. Given that Saudi Arabia has approximately 16,000 small and medium manufacturing enterprises, a purposive sampling technique was used to select a representative sample of 222 SME owners. These owners were deemed the most appropriate respondents due to their knowledge of the firm, decision-making

authority, and overall business environment. The sample size was calculated using power analysis, ensuring sufficient data for the research objectives.

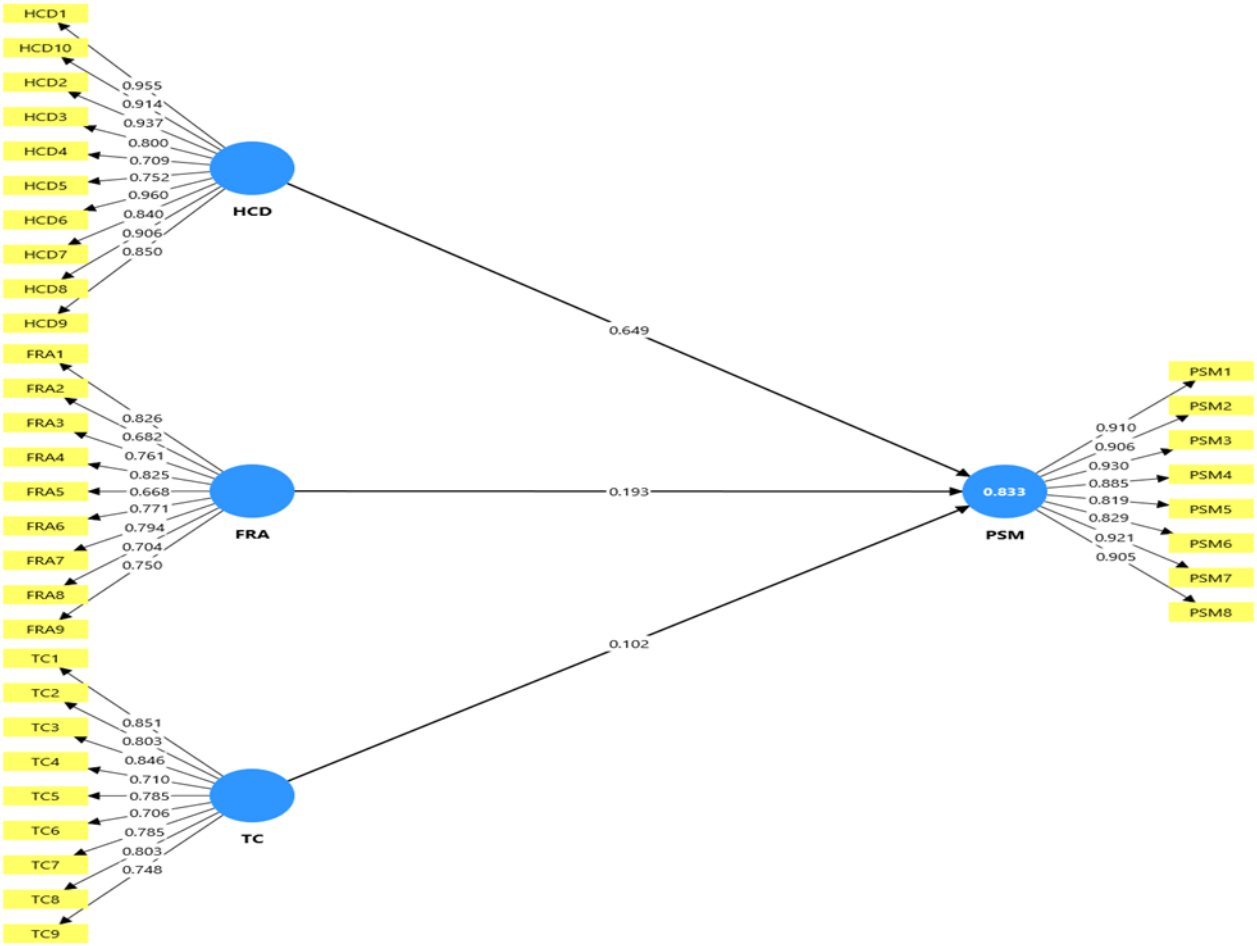

Figure 2. Reliability & R2.

3.2. Construct Reliability and Validity

Figure 2 show that reliability and validity are essential for ensuring the robustness of the research model. The study evaluated construct reliability using Cronbach's alpha and composite reliability. Table 1 show cronbach's alpha values for all constructs ranged from 0.909 (Financial Resource Acquisition) to 0.962 (Human Capital Development), exceeding the acceptable threshold of 0.70, indicating strong internal consistency [34]. Composite reliability values, ranging from 0.922 to 0.968, further confirmed the reliability of the constructs.

Table 1. Construct reliability and validity.

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FRA	0.909	0.924	0.922	0.571
HCD	0.962	0.970	0.968	0.750
PSM	0.962	0.965	0.968	0.790
TC	0.925	0.963	0.934	0.614

To assess construct validity, both convergent and discriminant validity were evaluated. Convergent validity, measured through Average Variance Extracted (AVE), showed values ranging from 0.571 (Financial Resource Acquisition) to 0.790 (Performance of Small and

Medium Manufacturers), indicating strong convergent validity [35]. Table 2 show that discriminant validity was confirmed using the Heterotrait-Monotrait Ratio (HTMT), where all values were below the threshold of 0.85, suggesting that the constructs were adequately distinct from one another [36]. Furthermore, Table 3 show that Fornell-Larcker criterion confirmed discriminant validity, as the square root of the AVE for each construct exceeded its correlations with other constructs, demonstrating that each construct had more variance with its own indicators than with those of other constructs.

Table 2. Heterotrait-monotrait ratio (HTMT) – Matrix.

	FRA	HCD	PSM	TC
FRA				
HCD	0.904			
PSM	0.872	0.928		
TC	1.013	0.761	0.752	

Table 3. Fornell-Larcker criterion.

	FRA	HCD	PSM	TC
FRA	0.755			
HCD	0.892	0.866		
PSM	0.866	0.902	0.889	
TC	0.926	0.791	0.794	0.783

3.3. Model fit.

Model fit was assessed using several indices, including Standardized Root Mean Square Residual (SRMR), Goodness-of-Fit Index (NFI), and the Chi-square test. Table 4 show the SRMR value of 0.134 indicated that model fit could be improved, as it exceeds the commonly accepted threshold of 0.08. The NFI value of 0.604 was below the acceptable minimum of 0.90, indicating that the model's fit was only fair [37]. The Chi-square value of 4931.792, while significant, indicated a reasonable fit given the sample size. Despite these minor issues, the model as a whole fit the data reasonably well.

Table 4. Model fit.

	Saturated model	Estimated model
SRMR	0.134	0.134
d_ULS	11.924	11.924
d_G	5.673	5.673
Chi-square	4931.792	4931.792
NFI	0.604	0.604

3.4. R-Square.

R^2 is an important measure of how well the independent variables explain the variance in the dependent variable. Table 5 show the R^2 value for the Performance of Small and Medium Manufacturers (PSM) construct was 0.833, meaning that the independent variables explained 83.3% of the variance in SME performance. The adjusted R^2 value of 0.831 further confirms that the model's explanatory power remains strong, even after accounting for the number of predictors in the model [38].

Table 5. R-square.

	R-square	R-square adjusted
PSM	0.833	0.831

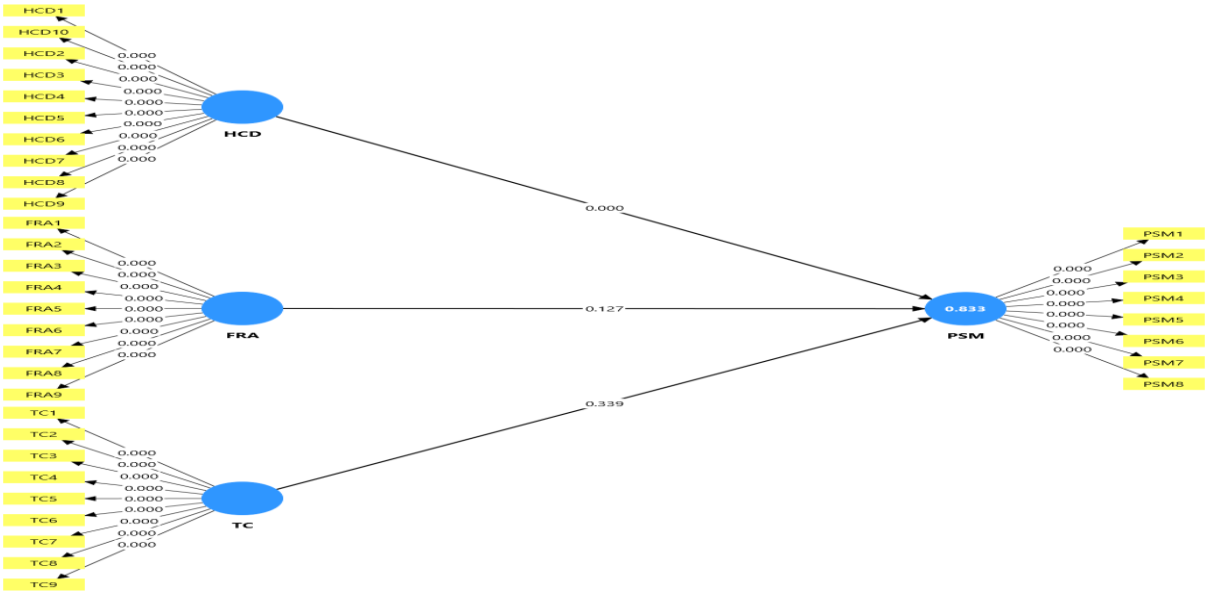

Figure 3. P values.

3.5. Hypothesis testing.

Figure 3 the results of the hypothesis testing, based on structural equation modeling (SEM), are summarized in Table 6. The study tested the relationships between Financial Resource Acquisition (FRA), Human Capital Development (HCD), Technological Capabilities (TC), and the Performance of Small and Medium Manufacturers (PSM).

Table 6. Hypothesis testing.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
FRA → PSM	0.193	0.191	0.126	1.527	0.127
HCD → PSM	0.649	0.652	0.064	10.138	0.000
TC → PSM	0.102	0.102	0.107	0.956	0.339

FRA→PSM: The path coefficient for the relationship between Financial Resource Acquisition and Performance was 0.193, with a T statistic of 1.527 and a p-value of 0.127. Since the p-value is greater than 0.05, this path is not statistically significant, indicating that financial resource acquisition does not have a direct impact on SME performance in this study. HCD → PSM: The path coefficient for the relationship between Human Capital Development and Performance was 0.649, with a T statistic of 10.138 and a p-value of 0.000. Given that the p-value is less than 0.05, this path is statistically significant, suggesting that human capital development has a substantial positive effect on SME performance. TC → PSM: The path coefficient for the relationship between Technological Capabilities and Performance was 0.102, with a T statistic of 0.956 and a p-value of 0.339. Since the p-value is greater than 0.05, this path is not statistically significant, indicating that technological capabilities did not directly impact the performance of SMEs in this study.

3.6. Discussion.

This research explores the intricate relationships between human capital development, financial resource acquisition, technological capabilities, and the performance of SMEs in the manufacturing sector of Saudi Arabia. The results indicate that human capital development plays the most significant role in enhancing SME performance, consistent with existing literature emphasizing the importance of investing in employee skills and capabilities for business success [39]. While financial resources and technological capabilities are essential, they did not show a direct and significant impact on SME performance in this study. The significant impact of human capital development suggests that SMEs in Saudi Arabia that invest in training, skill development, and employee retention are better positioned to improve their operational efficiency, foster innovation, and enhance their competitiveness. The positive path coefficient of 0.649 indicates that human capital development is a critical driver of SME performance. This finding is supported by previous studies that highlight the importance of human capital in improving employee productivity, creativity, and the overall competitiveness of firms in dynamic environments.

The lack of significance for financial resource acquisition in influencing SME performance was unexpected. While financial resources are crucial for the growth and expansion of SMEs, the findings suggest that their mere availability does not automatically lead to improved performance [40]. This could indicate that SMEs in Saudi Arabia face challenges in effectively utilizing available financial resources, particularly in terms of managing funds efficiently or accessing appropriate financial instruments. The findings align with literature suggesting that the effective use of financial resources, rather than just their availability, is key to improving performance. Similarly, technological capabilities did not show a direct effect on SME performance, despite the widely acknowledged role of technology in driving innovation and operational efficiency. The results suggest that simply adopting technology is insufficient to improve performance unless it is accompanied by the development of human capital and effective financial management. This finding aligns with studies that argue technology investments should be integrated with other resources to maximize their impact on performance.

3.7. Main findings and implications.

The main findings of this study highlight the central role of human capital development in driving the performance of SMEs in Saudi Arabia’s manufacturing sector. SMEs that allocate resources toward enhancing their employees' skills and capabilities are better positioned to improve their operational efficiency, innovation, and competitiveness. This aligns with the goals of Saudi Vision 2030, which emphasizes human capital development as a key pillar for economic diversification and growth. The study also reveals that while financial resources and technological capabilities are important, their direct impact on SME performance is weaker. This suggests that SMEs need to integrate these resources effectively with human capital development to achieve sustained growth and innovation. Policymakers and business practitioners should focus on strategies that promote the development of human capital alongside financial and technological investments.

3.8. Theoretical contributions.

This research contributes to the literature by providing empirical evidence on the interplay between human capital, financial resources, and technological capabilities in determining the performance of SMEs. While previous studies have examined these factors in isolation, this study integrates them into a cohesive model, offering a more comprehensive understanding of how these resources interact to influence SME success. The findings support the Resource-Based View (RBV) and Dynamic Capabilities theories, emphasizing that firms can achieve competitive advantages by effectively organizing and reconfiguring their resources, particularly human capital.

3.9. Practical contributions.

The study's findings offer valuable insights for SME owners, policymakers, and business leaders in Saudi Arabia. SMEs should prioritize human capital development through targeted training programs, skills development initiatives, and effective workforce management strategies. Financial resources and technology should be seen as complementary to human capital, with a focus on integrating these resources to maximize performance. Policymakers can support SMEs by creating policies that facilitate access to financial resources, promote technological innovation, and encourage investment in human capital.

4. Conclusion

This research highlighted the key factors that influenced the performance of small and medium enterprises (SMEs) in Saudi Arabia's manufacturing sector, focusing on human capital development, financial resource acquisition, and technology adoption. It underscored the need for a comprehensive and integrated approach to SME growth, with human capital development as the central driver of performance. The study showed that while financial resources and technology were important, they alone were insufficient to enhance performance without effective human capital integration. The research emphasized the critical role of human capital training, both on-the-job and off-the-job, as well as leadership initiatives, in driving operational efficiency and innovation. These findings aligned with the goals of Saudi Vision 2030, which stressed the importance of human capital in achieving economic diversification. Although financial resources and technological advancements were essential, their direct impact on SME performance was found to be minimal in this study. The lack of effective integration of these resources suggested that SMEs faced challenges in optimizing their potential. The research called for initiatives that integrated human capital development with financial and technological resources to foster innovation and resilience. It recommended that SMEs prioritize human capital as the first step in resource integration. While this study provided valuable insights, future research should adopt a longitudinal approach and include a broader range of sectors and external factors, such as government policies and market dynamics, to further explore the drivers of SME performance. The inclusion of variables such as organizational culture and leadership could also deepen understanding of the factors influencing SME success.

Author Contribution

Mohammad Abdulghaffar Osman: Conceptualization and execution of the research; Methodology; Software; Data curation; Writing of original draft; Literature Review; Conclusion of the study; Discussion; Review and formatting.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Competing Interest

No potential conflict of interest was reported by the author.

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