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Saudi firms' performance dynamics: Organizational learning, innovation, and the dual roles of firm size and type

التعلم التنظيمي، الابتكار، والأدوار المزدوجة لحجم الشركة والنوع: ديناميات أداء الشركات السعودية

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Written by:

Musrrat Parveen¹ <https://orcid.org/0000-0002-3796-8061>**Saima Javaid²** <https://orcid.org/0000-0001-7961-1629>

Abstract

The objective of this research paper is to propose a robust framework for understanding the correlation between organizational learning, innovation, and the performance of Saudi Arabian firms, encompassing both financial and non-financial aspects. Additionally, the study evaluates how factors such as "firm type" and "firm size" influence organizational learning, innovation, and overall firm performance. For this study, we distributed a questionnaire to Jeddah, Saudi Arabia's private firm employees for a year. Analysis involved 815 complete sets, utilizing Structural Equation Modeling (SEM) through Confirmatory Factor Analysis (CFA) to explore relationships among latent variables via path analysis. Organization learning significantly enhances both financial and non-financial performance. Additionally, innovation positively influences firm performance. The combined impact of organizational learning and innovation strongly influences overall firm performance. Introducing the mediating variable "type of firm" enhances the relationship between organizational learning, innovation, and firm performance, as depicted in Model 2. The result of path analysis shows that "firm size" as moderating variable is significantly negatively related with innovation and firm performance. This study contributes by exploring the interplay of organizational learning, innovation, and their impact on firm performance, particularly within the emerging Saudi context, enhancing existing knowledge.


Keywords: Organization learning, innovation, firm financial and non-financial performance, Confirmatory factor analysis, Structural equation modeling.


خلاصة

الهدف من هذه الورقة البحثية هو التوصية بإطار شامل للتعرف على العلاقة بين التعلم التنظيمي والابتكار على أداء

في هذه (المالية وغير المالية) الشركات السعودية الدراسة، قمنا بتوزيع استبيان على موظفي الشركات الخاصة في جدة بالمملكة العربية السعودية لمدة عام مجموعة كاملة، باستخدام نموذج 815 شمل التحليل من خلال تحليل العامل (SEM) المعادلات الهيكلية لاستكشاف العلاقات بين المتغيرات (CFA) التوكيدي التعلم التنظيمي يعزز بشكل الكامنة عبر تحليل المسار بالإضافة إلى ذلك، كبير الأداء المالي وغير المالي يؤثر. يؤثر الابتكار بشكل إيجابي على أداء الشركة التأثير المشترك للتعلم التنظيمي والابتكار بقوة على نوع "إن تقديم المتغير الوسيط. الأداء العام للشركة يعزز العلاقة بين التعلم التنظيمي والابتكار "الشركة وتساهم 2. وأداء الشركة، كما هو موضح في النموذج هذه الدراسة من خلال اكتشاف التفاعل بين التعلم التنظيمي والابتكار وتأثيره على أداء الشركة مع السياق السعودي الناشئ، وتعزيز المعرفة الموجودة.

التعلم التنظيمي، الابتكار، الأداء: الكلمات المفتاحية المالي وغير المالي للشركات، التحليل العائلي التوكيدي، نمذجة المعادلات الهيكلية

¹ Ph.D, Associate Professor, Faculty of Economics and Administration, Department of Human Resource Management, King Abdulaziz University, Jeddah, Saudi Arabia.  WoS Researcher ID: A-5238-2013

² Ph.D, Assistant Professor, Department of Commerce, Zakir Husain New Delhi, India.  WoS Researcher ID: B-2115-2013

Introduction

In today's dynamic society, companies face constant challenges derived from technological advances and market changes. To survive and thrive, organizations must adapt, foster innovation, and embrace change. In this context, organizational learning and innovation have become fundamental pillars for business success.

Organizational learning is the continuous process of acquiring, creating and applying knowledge within an organization. According to Kyoungshin & Zhenqiu (2019), this process allows companies to adapt to changes in the environment, improve their efficiency and develop new ideas and products. Innovation, on the other hand, is the implementation of new ideas and methods to improve a company's processes, products or services.

Saudi Arabia, historically reliant on oil exports, has undergone a remarkable evolution into a burgeoning economy ripe with diverse business prospects. Embracing this transformation, the Saudi government acknowledges the critical role of organizational learning and innovation in driving economic progress. In response, it has instituted a range of policies aimed at fostering these practices within companies operating within its borders. This strategic approach not only enhances the nation's competitiveness but also propels it towards sustainable growth, positioning Saudi Arabia as a dynamic player in the global marketplace.

Studying organizational learning and innovation dynamics within the country could provide valuable insights into their impact on financial and non-financial performance across sectors, making it a compelling case study for understanding evolving organizational dynamics and innovation in a changing business landscape. Our integrated framework, comprising three pivotal pillars for business success, lays the groundwork for this exploration. Through our research, we aim to uncover the intricate relationships between organizational learning, innovation, and firm performance within the Saudi context. By focusing on the mediating role of company type and the moderating influence of company size, we seek to provide insights into the mechanisms shaping organizational resilience and growth in the Saudi business environment. The research questions addressed in this study are:

- Is there a positive relationship between organizational learning and innovation?

- Is innovation positively correlated with company performance?
- Is there a positive relationship between organizational learning and company performance?

Additionally, the study investigates: the effects of organizational learning on innovation and firm performance, innovation on firm performance, and organizational learning on firm performance. It also analyzes how firm type and size influence organizational learning, innovation, and firm performance. The article encompasses a literature review, hypotheses, methodology, results, and a conclusion, offering managerial insights.

Theoretical framework and hypothesis development

Taylor's 1900 discovery of knowledge transfer's positive impact on industry marked the birth of learning organizations. Cyert and March coined "organizational learning" in 1978, introducing single and double loop learning. The concept gained prominence in the 1990s, emphasizing that learning extends beyond individual skills to group dynamics, thriving in a conducive work environment (Nemeth, 1997). Since then, organizational learning has become a focal point for researchers and practitioners, reflecting its profound influence on organizational distinctions (Jyothibabu & Farooq, 2010). Organizations, especially in high-tech industries, strive to adapt and innovate to meet market demands, maintain market share, and stay profitable in the dynamic realm of technology. Understanding how businesses can adjust and enhance competitiveness amid environmental changes is crucial. Scientists predominantly employ organizational learning to explore strategies for adaptation. Research affirms that learning is integral to long-term performance improvement and serves as the cornerstone for attaining sustainable competitive advantages.

Calantone et al. (2002) and Jiménez-Jiménez & Sanz-Valle (2011) highlight that learning-oriented businesses respond to market changes, with competition driven by the acquisition and application of knowledge to provide added value to customers. This concept forms the basis for research in management and organizational studies, emphasizing learning as a crucial competitive advantage for firms.

Bolaji Bello, & Adeoye (2018) found significant correlations between organizational learning, innovation, and organizational performance (financial and non-financial). These variables also exhibited positive relationships with each other. However, limited research explores these interconnections, particularly in Saudi Arabia. Addressing this gap, our study aims to comprehensively investigate the relationships and impacts of organizational learning, innovation, and performance. It will depict the organizational learning process and assess innovation (product, process, and culture) and organizational performance (financial and non-financial) within a comprehensive framework or model.

Organizational learning

Giniuniene and Jurksiene (2015) define Organizational Learning (OL) as the process of collecting and transforming data into knowledge. OL facilitates quick learning and application of knowledge, allowing businesses to continually improve processes. According to (DiBella, Nevis, & Gould, 1996), organizational learning comprises four forms: information acquisition (Infacq), informational distribution (infdis), informational interpretation (infant), and behavioral and cognitive changes (BCC). Organizational learning unfolds in four forms. Firstly, information acquisition involves creating and reinforcing knowledge as a precursor to gathering information. Secondly, information distribution sees the dissemination of acquired information within the organization. The third form is information interpretation, where organizations emphasize understanding acquired and distributed information through electronic, formal, and informal channels. The fourth form, behavioral and cognitive changes, represents significant learning at the top level, causing alterations in norms and rules, dynamically impacting the business climate.

There were several modified models developed by researchers (Hung et al., 2011; Sarros et al., 2008; & Tamininau et al., 2009) pertaining to organizational learning and innovativeness. However, we have followed the pathway by (Škerlavaj et al., 2010) and made an attempt to study an empirical investigation of the relationship between organizational learning and innovation that leads to firm performance in both financial and non-financial way pertaining to the Saudi context. Based on the review literature, we hypothesize that:

H1: Organizational learning (information acquisition, information distribution, information interpretation, and behavioral and cognitive changes) has a significant and strong impact on Saudi Arabian Firm Performance (both Financial and Non-Financial).

H1a: Information Acquisition has a positive and significant impact on Organisational learning in context of Saudi Arabia.

H1b: Information Distribution has a positive and significant impact on Organisational learning in context of Saudi Arabia.

H1c: Information Interpretation has a positive and significant impact on Organisational learning in context of Saudi Arabia.

H1d: Behavioral and Cognitive behavior has a positive and significant impact on Organisational learning in context of Saudi Arabia.

Innovations

The concept of innovation at the organizational level we need to understand the amalgamation of two constructs as by (Crossan & Apaydin, 2010): First, Technical innovation (Product), Second, Administrative innovation (Process) and (3) Innovative culture. Innovative culture can be defined as an organization means that all the organization members are engaged actively in generating new processes, product and services (Sarros et al., 2008).

Impact of Innovation on Organization/firm performance

Recent research consistently shows a positive correlation between innovation and various measures of firm performance (Ayinaddis, 2022; Dessie et al., 2022; & Issau et al., 2021). This highlights the crucial role of innovation in sustaining and boosting revenues, contributing to overall improved performance. Chen (2017) emphasizes the necessity of innovation for firms to enhance their performances. While innovation is often associated with individual companies, it has become a key driver for a country's economic growth and social welfare. In the present dynamic landscape, both developing and developed nations focus on innovation to drive growth and competitiveness, ensuring business sustainability (Chen, Yin, & Mei, 2018). Yıldız et al. (2014) confirm that innovation significantly and positively impacts business performance. Raj and Srivastava (2014) define innovation as a firm's capacity to develop new products, services, and processes. Crossan and Apaydin (2010) further suggest that, at the organizational level, innovation encompasses an innovative

culture and technical innovations (products, services), along with administrative innovations (processes). Batmaz and Özcan (2008) define product innovation as the transformation of an idea into a marketable, new/improved product, method, or service. Veugelers (2008) notes that process innovation impacts output, production growth, and cost-effectiveness. The introduction of innovative products is expected to positively influence employment, income growth, and process innovation, with potential cost-cutting benefits (Fagerberg et al., 2004). Additionally, an innovative culture serves as a valuable resource, distinguishing organizations from competitors and significantly impacting both financial and non-financial performance (Rehman et al., 2019).

Mabrouk and Mamoghli (2010) highlight the positive impact of product and process innovation on productivity and profitability. Githikawa (2011) argues that fostering an organized innovative culture, along with process and product innovation, enhances a firm's flexibility, leading to improved products, expanded networks, and heightened technological competitiveness. Prior studies (Reed et al., 2012; Yavarzadeh et al., 2015) affirm a positive relationship between organizational performance and innovation. The study affirms that innovation, whether in product, process, or organizational structure, significantly and positively influences organizational performance across growth, finances, internal processes, and customer satisfaction. Existing empirical studies from various countries, including Ireland, the UK, Finland, Sri Lanka, South Korea, and China, consistently underscore the importance of innovation in organizational performance (Ken & Tsai, 2010; Saunila, Ukko, & Rantanen, 2014; De Mel, McKenzie, & Woodruff, 2009; Han et al., 2017; Wang & Lin, 2013).

Recent global studies highlight innovation's positive impact, including product and process types, on companies, improving performance and financial value (Rajapathirana & Hui, 2018; Spescha & Woerter, 2018). Zaefarian et al., (2017) research emphasizes the role of business relationships with suppliers and customers in fostering innovation and enhancing firm performance. They emphasize that these relationships are strengthened by an innovative culture. Despite potential negatives and some contradictory evidence, theories and empirical studies consistently propose a positive and significant relationship between innovative

activities and company performance. Hence, following are the hypothesis that,

H2: Innovation has a significant and strong impact on both financial and non-financial Saudi Arabian firm performance.

H2a: Product/service (technical) innovation has significantly and positively impacted on Innovation in context of Saudi Arabia.

H2b: Process innovation (administrative) has significantly and positively impacted on Innovation in context of Saudi Arabia.

H2c: Innovative culture has significant and a positive influence on Innovation in context of Saudi Arabia.

Impact of organizational learning on innovation

Studies by (de Pablo Gonzalez del Campo & Skerlavaj, 2009; Škerlavaj et al., 2010) showcase empirical and theoretical research on the pivotal role of organizational learning in driving innovation. Effective organizational learning is deemed essential for fostering innovation within firms (Park & Kim, 2006). Firms with diverse resources, potential, skills, and competencies facilitate a faster learning process, generating internal and external opportunities. Organizational learning, thus, enhances a firm's innovation and creativity (Rodan & Galunic, 2004), cultivating an innovative culture through knowledge development. With knowledge as a crucial component, firms must innovate in research and development to manage and utilize it effectively (Liao, Fei, & Liu, 2008). The foundation of innovation lies in organizational learning, enriching firms' knowledge. A high degree of knowledge sharing enhances firm innovation. Fostering innovation demands efforts like acknowledging innovative behavior, dedicating resources, and cultivating a structure and culture that promotes innovation implementation and development (Senge et al., 1994).

Kandemir and Hult (2005) posit that positive changes in behavior and understanding the environment are linked to an innovative culture and administrative/technical innovations. Encouraging cognitive map changes fosters innovation acceptance and motivates experimentation for creativity, essential for improving organizational learning efficiency. Prioritizing all four forms of organizational learning—information acquisition, distribution, interpretation, and behavioral/cognitive changes—is vital.

Hence, following are the hypothesis that,

H3: Organisational Learning has a significant and strong impact on Innovation in context of Saudi Arabia.

Organizational performance

Organizational performance, defined by (Peterson, Gijbers, & Wilks, 2003), involves efficient resource use, producing consistent outcomes aligned with goals. Antony and Bhattacharyya (2010) consider it a measure of success delivering value to customers, while De Waal & Sultan (2012) define it as meeting financial and non-financial criteria. Gentry and Shen (2010) stress a comprehensive evaluation considering both financial and non-financial aspects as the key approach.

Organizational learning and its impact on Saudi Arabian firm/organization performance (Financial and Non-financial).

Organizational learning, as highlighted by (Sanzo et al., 2012), is a dynamic process involving creating, acquiring, and integrating knowledge to enhance internal resources and competencies, ultimately empowering the organization for higher performance. Megheirkouni (2017) emphasizes the significant benefits of this type of organizational learning, particularly for organizations in uncertain and dynamic environments, enriching their performance through a learning-oriented workforce. Thus, organizational learning plays a crucial role in shaping firm performance. According to (Kim, Watkins & Lu, 2017), organizational learning is a critical component explaining organizational performance. Studies by (Shurafa & Mohamed, 2016; Rehman, Bhatti & Chaudhry, 2019) proclaimed, organizational learning's pivotal role in shaping firm financial and non-financial performance. This raises the question: How is organizational performance evaluated? In the modern business landscape, the emphasis is on strengthening relationships among employees, customers, and society. In addition, it demonstrates a significant and positive impact of organizational learning on both financial (Return on Assets and Value added per employee) and non-financial firm performance (in terms of suppliers, employees, and customers).

H4: Organizational learning and Innovation has a significant and strong impact on both Saudi Arabian firms' financial and non-financial performance.

Impact of Firms' Type and Firm's Size on organizational learning, innovation and firm's performance

The learning organization framework helps businesses by fostering experimentation, creativity, and brainstorming, which increases total innovation. Giving employees the space (and time) to learn new things, pursue interests, and share their views enables them to excel in their jobs. Innovative activities in large-sized companies and SMEs differ even when they have the same physical capital structure (Noori et al., 2017). In contrast to SMEs, large sized companies are more adept at securing external finance for the advancement of research and development (R&D) projects by (Noori et al., 2017). The performance of the company may benefit from this capability. SMEs and large companies often engage in different kinds of innovative activity. Externally-driven innovation makes use of both internal and external resources, as well as technological expertise. These primarily include raising a company's productivity levels. Internal innovation refers to the assets and skills a business has available for innovative R&D projects (Kim et al., 2016). The analysis revealed that even though both external and internal creative R&D activities have an impact on the performance of large-sized firms, only internal innovative R&D activities have an impact on the performance of SMEs (Kim et al., 2016). Mabenge et al. (2020) find larger and younger enterprises are more influenced by innovation. Studies establish a direct link between innovation and company performance (Mustafa & Yaakub, 2018; & Ullah, 2020).

Large companies leverage economies of scale, gaining advantages in input cost negotiations and output levels. Lee's (2009) study supports this by revealing higher profitability with larger total assets. Theoretically, larger organizations engage in more operations, generating more sales and products, leading to increased revenues. Higher sales yield higher profits, translating to increased income. More income or profit after taxes enhances the return on assets, investments, and equity, highlighting the benefits of size in achieving financial success. Empirical evidence indicates an association between firm size and performance/profitability (Bolarinwa & Obembe, 2019 & Dang et al., 2018). Companies in different sectors engage in diverse primary activities, leading to varied innovation approaches. According to Abdu & Jibir (2018), manufacturing companies, followed by service and retail companies, show the highest innovation levels. Across diverse industries,

public and private entities pursue technological and innovative endeavors, impacting the profitability of their companies in various ways.

H5a: Type of Firms has strong and significant effect on organizational learning, innovation and firms' performance.

H5b: Firm size has a significant and positive relationship between organizational learning, innovation and firms' performance.

H6a: Firms type mediates the relationship between innovation and firms' performance

H6b: Firm size moderates the relationship between innovation and firm's performance.

Research methodology

Measurement instrument

We employed Škerlavaj et al. (2010) instrument with three constructs and 42 items rated on a five-point Likert scale. Innovativeness was measured using a five-item scale for innovative culture and a 13-item scale for innovations (Process and Product). Organization/firm performance was assessed with a 19-item bipolar scale, measuring

financial performance (Return on Assets, Value added per employee) and non-financial performance from suppliers (3 items), employees (12 items), and customers (4 items) perspectives, along with demographic details (7 items). The questionnaire was translated into Arabic. Among the 815 respondents, 63.2% were male, 36.8% were female, 51.2% held bachelor's degrees, 78.5% were Saudi, and 40.4% had 6 to 10 years of professional experience. IBM SPSS (version 24) and Amos (version 20) software were used for data analysis, employing Structural Equation Modelling (SEM) to test stated hypotheses.

Participants and sample size

In the latter part of 2022, 1000 questionnaires were disseminated to employees in private and public firms located in Jeddah, Saudi Arabia. A total of 835 complete sets were gathered from October 2023 to January 2024, and the size was determined by calculating the natural logarithm of total assets. After performing Cook and Leverage's outlier test, 815 responses were retained for further analysis. Demographic details are presented in Table 1.

Table 1.
Demographic profile

Demographic variables		Responses	Frequency	Respondents
Gender	Male	515	63.2	815
	Female	300	36.8	
Age	20 – 30	214	26.2	815
	31 – 40	375	46.01	
	41 – 50	126	15.4	
	51 and Above	100	12.3	
Highest Educational level	Diploma	215	26.3	815
	Bachelor's degree	418	51.2	
	Master's degree	182	22.3	
	PhD	40	4.9	
Work Experience	0–5 years	205	25.1	815
	6–10 years	330	40.4	
	11–15 years	165	20.2	
	More than 15 years	115	14.3	
Nationality	Saudi	640	78.5	815
	Non-Saudi	175	21.5	
Firm Size	Total Assets	815	100	815
Firm Type	Public	484	59.4	815
	Private	331	40.6	

Survey Results

Preliminary analysis

Data set is analyzed to ensure instrument quality by convergent and discriminant validity, which

leads to better constructs value and before testing the hypothesis using SEM. In the words of (Rehman et al., 2019) stated that convergent validity refers to a situation where items of a

variable reflect effectively to their associated indicator. As per Hair et al. (2013) prescribed to calculate three things to see convergent validity, that is, Average Variance-Extracted (AVE), factor loadings, and composite reliability. The standardized values of AVE and factor loadings should be at least 0.50 and CR value must be higher than 0.70 (Hair et al., 2013; Rehman et al., 2019). To get better results concerning CR and AVE we have deleted all those items that have factors loadings less than 0.50 to make a good model as recommended by (Hayduk & Littvay, 2012 and Rehman et al., 2019). Non-financial Performance from suppliers has been dropped from the analysis at the preliminary stage to get reliability and best fit. To ensure the Composite

Reliability, we have dropped few items from Non-Financial Firm Performance variable, and all reaches above 0.60 (Rehman et al. 2019).

Refer to Table-2 (Annexture I) AVE of all the three constructs i.e. Organizational Learning, Innovation and Firm Performance is 0.792, 0.885 and 0.766 respectively, all greater than 0.7, suggesting the convergent validity of the constructs. Also, the results presented in Table-2 confirm the discriminant validity as the AVE of the underlying factors is higher than the squared correlation between the factors and the ASV for each factor is lower than the AVE value, consistent with the previous studies like (Alarcon & Sanchez; 2015; Parveen & Adeinat, 2019).

Table 2.
Assessment of Reliability, Convergent Validity and Discriminant Validity

	Mean	SD	CR	AVE	ASV	OL	Inno	Firm Perf
OL	9.514	3.67	0.769	0.792	0.234	0.889		
Inno	5.312	2.69	0.771	0.885	0.338	0.541	0.941	
Firm Perf	13.65	5.38	0.818	0.766	0.321	0.455	0.372	0.875

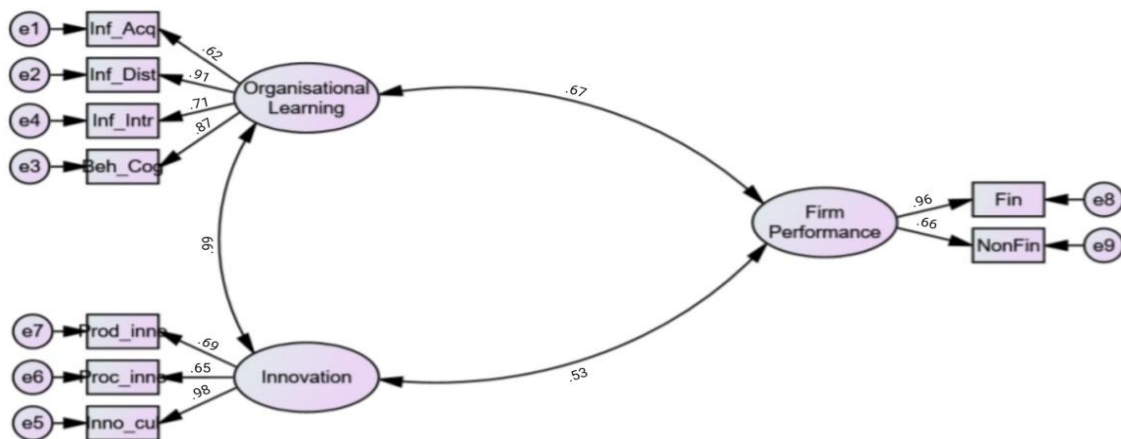
Notes: CR, composite reliability; AVE, average variance extracted; ASV, average shared variance.

Values below the diagonal are correlation estimates among factors, diagonal elements are the squared root of AVE and values above the diagonal are squared inter-factor correlations. Based on Alarcon & Sanchez, 2015) threshold, reliability = CR > 0.70; convergent validity = AVE > 0.50; discriminant validity = ASV < AVE or the squared root AVE > inter-factor correlations.

Result analysis

The present study took special care in research design, data collection and related factors affecting missing values (Bagozzi & Yi, 2012).

Effective steps taken to address the conventional considerations such as dealing with missing values, identifying suspicious responses and outliers etc. The present study used the full information maximum likelihood (FIML) method which is considered as more efficient than list wise deletion, pairwise deletion and similar response pattern imputation (Enders & Bandalos, 2001; Xiong et al., 2015). In our case, the maximum likelihood estimates are all positive and significant at p<0.05. The SEM model was employed to examine the relationship between different latent variables using the path analysis using Confirmatory Factor Analysis (CFA) technique as depicted in Model-1.



Model-1. Relationship between Organizational Learning, Innovation and Saudi Arabian firm performance.

The Path analysis using Confirmatory Factor Analysis (CFA) in the above Model-1 comprises of three exogenous latent factor variables i.e., Organizational Learning, Innovation and their impact on Firm Performance covering both financial and non-financial aspects without the mediating and moderating variables. Organizational Learning factor is measured by four observed variables viz. Information Acquisition, Information Distribution, Information Interpretation and Cognitive behavior, whereas the Innovation is measured by three observed variables viz. Product innovation, Process Innovation and Innovation Culture, and Firm Performance by Financial and Non-Financial Variables, the reliability of which is influenced by random measurement error as indicated by associated error term. Each of these observed variables is regressed onto its

respective factor. Finally, the above three factors are shown to be inter-correlated.

The Chi-square (χ^2) test predicts overall model fit by analyzing the discrepancy between the sample model and the proposed model (Hu & Bentler, 1999). We found the normed chi-squared value is 1.67. Also, the comparative χ^2 of the χ^2 to degrees of freedom ratio can be used to minimize the effect of sample size (Hooper et al., 2008). We have got the values of this ratio less than 2 i.e., 1.221 that indicates a good fit consistent with the previous studies (Marsh & Hou, 1996; Reisinger & Turner, 1999; Xiong et al., 2015). As per the Baseline comparisons, we found CFI (Comparative Fit Statistic) as 1.997 greater than 0.9, which is considered as the model is fitted good. (See Annexure I, table-3)

Table 3.
Model Fit

Goodness of Fit Indices	Construct
χ^2 / degree of freedom	1.221
CFI (Comparative Fit Index)	1.997
TLT (Tusker-Lewis fit Test)	0.997
RMSEA (Root Mean Square Error)	0.042
GFI (Goodness Fit Index)	0.938

Further, the absolute indices are the most vital signal of how well the proposed theory fits the real world (Hooper et al., 2008; Xiong et al., 2015). In addition to the χ^2 test, the absolute indices include the root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), root mean square residual (RMR) and standardized root mean square residual (SRMR). RMSEA, as a very informative statistic, measures how well the parameter estimates generated in the proposed model fit the population matrix (Byrne, 2001; Xiong et al., 2015). The RMSEA considers the error of approximation in the population and asks the question "How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?" (Browne & Cudeck, 1992; Byrne, 2010). This discrepancy, as measured by the RMSEA, is expressed per degree of freedom, thus making it sensitive to the number of estimated parameters in the model (i.e., the complexity of the model); values less than .05 indicate good fit (Xiong et al., 2015), which is in our case is found out to be 0.042. (see Annexure I, table-3)

Figure-1 illustrates that Organizational Learning accounts for 62% of Information Acquisition, 91% of Information Distribution, 71% of Information Interpretation, and 87% of Cognitive Behavior. Product innovation, Process Innovation, and Innovation Culture contribute 69%, 65%, and 98% to Innovation, respectively. Regarding Firm Performance, 96% is clarified by Financial Variable, and 66% by Non-Financial Variable. Particularly, 67% of Organizational Learning and 53% of Innovation impact Firm Performance, confirming the significance of the stated hypotheses.

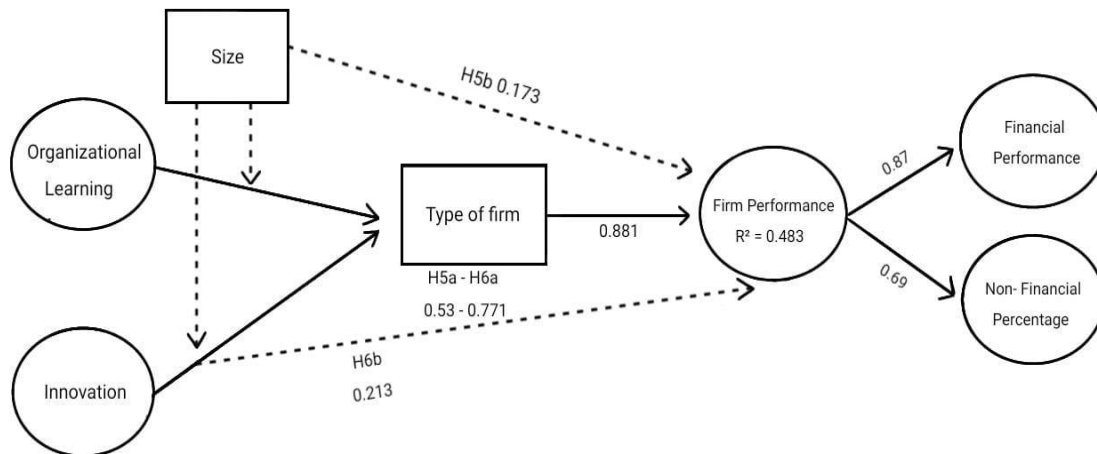
Refer to Table 4, Model-1 shows that Information Acquisition Information distribution Information Interpretation and Cognitive Behavior have significant positive influence on organizational learning significant at p value ≤ 0.05 and p ≤ 0.001 level supporting H1a, H1b, H1c and H1d respectively. Further, Organizational Learning have significant positive impact on Firms financial and non-financial performance, have positive coefficients and t-value significant at p ≤ 0.001 level supporting H1. Also, Product Innovation, Process innovation and Innovation culture has positive and significant impact on Innovation at p value ≤ 0.10 p value ≤ 0.05 and p ≤ 0.001 level

supporting H2a, H2b, and H2c respectively. Innovation has positive impact on Firm's Financial and Non-Financial Performance at $p \leq 0.05$ supporting H2. Then, Organizational Learning has strong and positive impact on Innovation at $p \leq 0.001$ supporting H3. Lastly, Organizational Learning and Innovation has significant strong impact on Firm's Financial and Non-Financial Performance at $p \leq 0.05$ supporting H4. The result is consistent and supportive with the previous literature.

Further, we have introduced "type of firm" as mediating variable and "size" as moderating variable in Model 2 to see the overall effect on the firm's financial and non-financial performance. We have found a strong and significant direct effect of introducing the

mediating variable "type of firm" to the relationship of organizational learning, innovation, and firm performance (see Model 2).

Then, we excluded the type of firm from the path analysis and perform the bootstrap. The result shows standardized path coefficients of indirect effect as 0.53 and 0.771, t-statistic of 11.363 and 7.325, and co- efficiency of total effect as 0.881, with t-statistics 17.651. Table 4 shows that the total effect is statistically significantly stronger than indirect effects, indicating that type of firm is a mediator affecting the relationship between organizational learning, innovation, and firm performance. This shows that H5a and H6a is supported. Later, we add the construct firm size (Size) to see the moderating effect of its impact on the relationship between the organizational learning, innovation and firm performance.



Model-2. Effect of Moderating Variable and Mediating Variable as Size and Type of Firm on Firms' Performance.

The result of path analysis shows that firm size as moderating variable is significantly negatively related with innovation (-0.213, t-statistics of 8.773) at $p \leq 0.10$ confidence level and significantly positively related with organizational learning and firm performance (path coefficient=0.173, t-statistics of 9.728) at $p \leq 0.05$ confidence level. This shows that hypotheses 5b and 6b are supported and consistent with previous studies

like Wolff and Pett (2006); Leal-Rodríguez et al. (2015) and Kijkasiwat and Phuensane (2020). Therefore, by adding type of firm as the mediator, and firm size as the moderator in Model 2, gives the R-square of 0.483 implying organizational learning, innovation, type of firm, and firm size explains the variance of firm performance to 48.3 percent.

Table 4.
Estimates of Parameters (Model 1 and Model 2)

Hypothesis		Pathways	Standardized Pathway's Coefficient	t-value
Model 1				
H1		OL → Firm Per	0.389*	5.982
	a	Inf acq → OL	0.832*	3.590
	b	Inf distr → OL	0.451***	14.213
	c	Inf Int → OL	0.094*	1.985
	d	Cog_Beh → OL	0.253***	4.494
H2		Inno → Firm Per	0.710**	9.515
	a	Prod inno → Inno	0.572*	6.122
	b	Proc inno → Inno	0.693****	1.711
	c	Inno_Cul → Inno	0.591***	5.531
H3		OL → Inno	0.583***	3.133
H4		OL → Inno → Firm Per	0.831*	11.329
Model 2				
H5	a	OL → Type → Firm Per	0.053**	11.363
	b	OL → Size → Firm Per	0.173**	9.728
H6	a	Inno → Type → Firm Per	0.771**	7.325
	b	Inno → Size → Firm Per	-0.213*	8.773

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

Note: Firm Performance includes both Financial and Non-Financial Variables.

Discussion

The relationship between innovation, financial performance, and non-financial performance has been extensively studied in the literature. The analysis presented in this study indicates a dual relationship between innovation and firm performance, where innovation positively influences both financial and non-financial performance, while enhanced financial performance facilitates increased funds for innovation (Petare et al., 2023). Innovation has been found to have a positive impact on both financial and non-financial performance, benefiting stakeholders such as employees, stockholders, customers, and management. Improved non-financial performance, such as market share, customer satisfaction, and employee engagement, can motivate further innovation, leading to a virtuous cycle of innovation and performance improvement; hence this is aligned with the prior research by (Chen, 2017).

Moreover, the study reveals that public firms, with greater access to financial resources, allocate more to innovation, resulting in heightened financial and non-financial performance (Gurel, 2017). This finding is consistent with the literature, which suggests that public firms have more resources to invest in innovation, leading to better performance outcomes (Baumol, 2002).

Furthermore, firm size affects innovation and performance, as larger total assets correlate with

increased innovation but lower financial and non-financial performance (Hu & Wang, 2010). This finding indicates that larger firms may face challenges in managing innovation and performance, as they may have more complex organizational structures and processes (Burgelman, 2002). Recent studies have further explored this relationship, finding that firm size and innovation performance are positively correlated, but moderated by factors such as technology category, innovation strategy, and organizational structure. For example, high-technology firms are better able to leverage innovation to improve performance compared to low-technology firms (Agustia et al., 2022), and firms with a more proactive innovation strategy or a decentralized organizational structure are better able to leverage their size to achieve higher innovation performance (Kijkasiwat & Phuensane, 2020; Song et al., 2015). These findings highlight the importance of considering multiple factors when examining the relationship between firm size and innovation performance.

In addition, the study finds that organizational learning leads to increased financial and non-financial performance. Specifically, when profits increase, there are more funds available for training and development programs and R&D, leading to the accomplishment of both individual and organizational goals and enhancing more effective and efficient organizational learning. Kim (2016) suggests that a learning organization influences knowledge performance, adaptive performance, and financial performance, with both knowledge performance and adaptive

performance positively affecting financial performance. However, a study by (Obadeyi, 2019) found no meaningful relationship between organizational learning and financial performance of start-up companies. The study suggests that the relationship between organizational learning and financial performance may be more complex in start-up companies compared to established firms.

Moreover, when there is an enhancement in non-financial firm performance, it also helps in gaining more effective organizational learning, as it facilitates the overall growth and development of its human resources, giving the Saudi company a competitive edge in the global world (Azizi, 2017). This finding is consistent with the literature, which suggests that non-financial performance, such as employee satisfaction and customer loyalty, is critical for organizational learning and competitiveness (Easterby-Smith, Crossan, & Nicolini, 2002). A recent study by (Jamai et al., 2021) also found that non-financial performance significantly impacts organizational learning, which subsequently enhances firm performance.

Conclusion

In summary, this study contributes to the literature by examining all variables collectively in a single model, establishing a clear link between organizational learning, innovation, and firm performance (financial and non-financial) in the Saudi context. Additionally, it introduces a mediating variable (type of firm) and a moderating variable (firm size) for a more robust analysis, yielding interesting results in Model-2. Lastly, the research utilizes a sample of Saudi Arabian firms, addressing the scarcity of empirical research in the Saudi context. The outcome of this research paper have raised to major recommendations to the top managerial level, Human resource specialist and practitioners, Finance managers and policy makers for improvising the financial and non-financial performances of Saudi Arabian firms.

Managerial implications

1. Saudi Arabian firms can opt for performance linked learning, and there should be increment in knowledge availability and accessibility to knowledge sources. Firstly, acquisition of new knowledge should be promoted by preparing employees attending numerous conferences/seminars/workshops regularly, amalgamating their R&D policy and raising the enhancement of novel

philosophies, ideas and experimentation within the firm. Secondly, the firms should encourage knowledge distribution and interpretation within the firm by applying various approaches and techniques to promote coordination, preparing employees accountable for accumulating, assembling and sharing employee's recommendations within the firm. Thirdly, Saudi firms should made efforts to retain the knowledge by creating the databases and facilitating access to these databases through divergent networks. Also reflective culture should be enhanced in order to enrich the learning culture in the organization.

2. The findings also provide insight that organizational learning expedites innovation. Hence, a firm expecting to develop and enhance corporate performance through innovation should develop its organizational learning processes and practices.
3. This research also confirms that organization learning has positive association with firm financial and non-financial performance. This provides an implication for managers, practitioners, in go-getting for an improved performance of the firm. They should also utilize organizational learning dimensions effectively to achieve their performance objectives.
4. The analysis provides a clear indication that Saudi Arabian firms should pay more attention to innovation in product improvisation, process up gradation and enhancement of innovative culture, and inclined towards adoption of new technologies and procedures for firm's sustainability in this current dynamic environment.
5. Finally, this research study also shows positive and significant relationship between innovation and firm performance (financial and non-financial). Since firm performance is a major concern to all firms, it's very pertinent to understand the association between innovation and firms' financial and non-financial performance will help the Saudi Arabian firms to develop better competitive strategies. The greater the understanding of the significance of innovation, the better would be the comprehension into how firms can accomplish improved competitive strategies and firms' financial and non-financial performance.

Limitation of the Study

The study only considers the impact of organizational learning on firm performance in the context of SMEs in Saudi Arabia. The findings may not be applicable to SMEs in other countries, where the organizational and institutional contexts may be different. Future studies should consider a more diverse sample of countries in order to increase the generalizability of the findings.

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