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Impact of Knowledge Application Capability on Innovation Performance: Mediating role of Open Innovation and Moderating Effect of Dynamic Capabilities

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Abstract

The study aims to examine the impact of knowledge application capability (KAC) on innovation performance (IO), with a focus on the mediating role of open innovation (OI) and the moderating effect of dynamic capabilities (DCS). This study employed a quantitative research design with a time-lagged approach. Data was collected through a survey-based questionnaire self-administered and online from software houses in Pakistan. A total of 356 questionnaires were completed by managers, project managers, and senior executives in software houses across Pakistan. Data analysis was conducted using SPSS and AMOS software. CFA has been performed in AMOS to analyze the model fitness. As a result, all hypotheses were accepted. The research findings indicate that open innovation (OI) significantly influences on firm's innovation performance (IP).

Keywords: Knowledge Management (KM), Knowledge management capabilities (KMC), Knowledge application Capability (KAC), Open Innovation (OI), Dynamic Capabilities (DCs), Innovation Performance (IP).

1 Introduction

In the era of rapid economic globalization, companies face the challenge of comprehending all the necessary technologies and resources for innovation using only their internal capabilities. OI has emerged as an approach that addresses this challenge by integrating and leveraging both internal and external sources of innovation. OI is increasingly recognized to drive innovation accomplishment in dynamic environments (Chesbrough, 2003). The concept of OI was originally introduced by (Chesbrough and Crowther 2006) as well as (Shang, Yao, and Liu; 2017). They highlighted the importance of fostering collaboration with external entities and leveraging additional sources of information and resources within an open environment. According to (Chesbrough and Crowther 2006) OI emphasizes the creation of maximum value through interactions with external entities and the utilization of available resources in

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an entirely open environment (Chesbrough and Crowther, 2006; Ollila and Ystrom, 2017; Shang, Yao, and Liou, 2017).

OI, which originates from the innovative practices of others, forms the basis for gaining a competitive advantage. (Chesbrough and Crowther 2006) also proposed a conceptualization of OI, distinguishing it into two dimensions: inbound and outbound. Inbound OI involves the exploration and integration of external knowledge from network partners to develop technology and absorb knowledge. On the other hand, outbound OI entails the internal development of ideas or techniques through various channels to study technical capabilities (Pope, Soto-Acosta, and Martinez-Koneza; 2017). Several research studies have provided evidence for the favorable impact of both inbound and outbound OI on performance indicators (Laursen and Salter, 2006; Hung and Chou, 2013; Cheng and Shiu, 2015; Bayona-Saez et al., 2017). The relationship between firm performance and the adoption of OI practices has been examined in several studies (Burcharth et al., 2014; Greco et al., 2015; Rubera et al., 2016). Chesbrough's (2003b) OI approach has attracted significant attention from professionals and researchers in innovation and technology management circles due to its potential to improve the innovation process by facilitating internal and external knowledge flows (Salter and Laursen , 2006; Hartmann and Trott, 2009; Randhawa et al., 2016).

Although previous literature has suggested that the structure of knowledge can impact performance outcomes and have important implications for a company's innovation strategy (Clark and Henderson, 1990; Park and Fixson, 2008), the relationship between knowledge building, organizational innovators, and performance remains uncertain. According to the findings of Dabić et al. (2019), it was determined that businesses should incorporate fresh and innovative information while consistently updating their KM practices in order to promote innovation and the interaction between market and technology, which is crucial for innovation performance, relies on effective KM. Therefore, KM has gained significant attention from academics and businesses as a critical driver for enhancing IP. Previous studies have explored the mechanisms between KM and IP, emphasizing the importance of effective KM in driving innovation activities and improving performance. Recent studies have also focused on differentiating the impact of various stages of KM on IP and investigating the influence of different KM approaches on innovation (Yongbo Sun, Jingyan Liu, and Yixin Ding; 2019). To achieve innovation and sustainability, this study suggests a framework that integrates OI, KAC, DCs, and OI (Yongbo Sun, Jingyan Liu, and Yixin Ding; 2020), The fundamental aspect of innovation rests on the effective utilization of knowledge, and the proposed framework aims to foster this utilization for long-term success. With the evolving knowledge architecture, knowledge is increasingly recognized as valuable,

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and KAC has a significant positive influence on OI. Research has provided evidence that organizations with high KAC tend to excel in terms of innovation and overall organizational performance. For example, a study conducted by (Chen et al. 2012) demonstrated a positive relationship between KAC and the development and commercialization of upcoming products and services. Likewise, (Zhang and Liu 2013) highlighted the critical role of KAC in the success of OI initiatives and the effective integration of external knowledge and resources into innovation processes. In another study by (Xiaoyan Hu, Dongmei Cui, and Wei Wang 2017), the relationship between KAC, IP and OI practices was investigated. The authors found that KAC had a positive impact on IP.

2. Theoretical background and hypothesis development

This research makes significant contributions to theoretical advancements in two key areas. Firstly, it investigates how KAC influences OI activities, taking into account the positive effects of DCs on IP. Through this study, we provide empirical validation for the relationship between KAC and the impact of OI in enhancing firm IP.The findings presented in this research provide robust empirical evidence that support the field of innovation management research, particularly regarding the context of IP. Furthermore, this research contributes to the field by establishing a theoretical framework that integrates KAC, and IP, and proposes the mediating role of OI in the relationship between KAC and IP. Additionally, the study suggests the inclusion of DCs as a moderator. Previous studies have not extensively examined the mediating role of OI between KAC and IP, nor have they thoroughly investigated this variable within the specific context of Pakistan. As a result, this research expands our understanding of the Resource-Based View (RBV) theory and its applicability in the given context.

2.1. Knowledge Application Capability

The concept of KAC has gained increasing attention in recent years, as organizations recognize the importance of not only acquiring knowledge but also effectively applying it to drive innovation and achieve business goals. This capability is considered a critical factor in determining the success of KM initiatives. It is also considered critical to driving innovation and improving organizational performance. In the context of OI, KAC refers to organizations' ability to identify and apply external knowledge to their innovation processes. This can involve partnering with other organizations, engaging with customers and users, or leveraging technology platforms to access and use external knowledge. By applying external knowledge, organizations can broaden their innovation capabilities, generate new ideas, and increase their chances of success. KAC refers to the ability of an organization to effectively use and integrate knowledge acquired from various sources, including internal and external knowledge. This is to create new value and achieve its goals. This capability involves not only the technical skills to apply

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knowledge but also the organizational culture and structures that support the proper use of knowledge. The findings highlighted the importance of organizations focusing not only on acquiring knowledge but also on developing the capability to effectively apply that knowledge. This will drive innovation and achieve business goals. (Chen et al. 2012) conducted a study to examine the influence of KAC on the performance of technology-based firms. The findings revealed a significant and positive impact of KAC on these firms' performance. The study further demonstrated that organizations with higher levels of KAC were more likely to achieve superior financial performance, market performance, and innovation performance.

2.2. Open Innovation

Open Innovation (OI) is a concept that encompasses the amalgamation of internal and external ideas, resources, and knowledge. This is for generating and implementing enhanced and improved products, services, and business models. The term was first introduced by Henry and (Chesbrough 2003) and has since gained increasing popularity and recognition among organizations as a means of improving innovation performance. OI practices have become increasingly popular in the business world to enhance IP. By leveraging outer knowledge and resources, organizations can expand their innovation capabilities, performance and bring new ideas to market faster. Recent research revealed the impact of OI on IP, with varying results. In (Brem and Voigt 2007) found a study that inbound OI has a positive impact on IP, while a study by (Chesbrough et al. 2006) found that outbound OI can hurt IP if not managed properly. OI involves leveraging external knowledge, resources, and networks to create more innovative products, services, and processes. The traditional innovation model, where all innovation activities take place within the organization, has given way to a more inclusive and collaborative approach. This is where companies seek to engage with external partners to increase innovation capabilities. This literature review examines the key concepts, theories, and practices of OI and its impact on IP. OI has become a key concept in the business world and has been widely adopted by organizations to enhance IP. OI practices increase knowledge. There are two types of OI , Inbound open innovation and outbound open innovation.Inbound open innovation (IOI) refers to the process of soliciting and incorporating external ideas, knowledge, and resources into an organization's innovation process. This can be done through crowdsourcing, OI contests, customer co-creation, and other mechanisms that allow organizations to tap into external stakeholders' knowledge and expertise.

Outbound open innovation (OOI) refers to the process of sharing internal knowledge, resources, and expertise with external partners to jointly develop novel innovations. This can be achieved through collaborative research and development projects, licensing agreements, and joint ventures. Outbound

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open innovation (OOI) has been shown to increase the speed and efficiency of the innovation process, as well as provide access to new markets and customers.

2.3. Dynamic Capability

DCs are a set of organizational processes and routines that enable firms to integrate, build, and reconfigure internal and external competencies. This is to address rapidly changing environments. DCs include sensing capability, integration capability, learning capability and coordination capability DCs refer to a firm's ability to dynamically reconfigure its resources and capabilities to respond to changes in its external environment. This ability is crucial for firms operating in rapidly changing and uncertain environments. DCs encompass a firm's ability to sense and seize opportunities, reconfigure its resources and capabilities, and integrate and realign its systems and processes. DCs have been associated with several positive outcomes for firms, including better financial performance, increased innovation, and improved competitiveness. Firms need strong top management, a supportive organizational culture, and the ability to effectively manage knowledge and innovation.The study of DCs has its roots in the resource-based view of the firm, which emphasizes the importance of a firm's resources and capabilities for its competitiveness and success. However, the DCs perspective adds a progressive dimension to the resource-based view, focusing on a firm's ability to change and adapt its resources and capabilities over time.The development of DCs can be influenced by organizational structure, culture, and management practices. Firms that develop strong DCs can respond better to changes in their external environment. This can give them a significant advantage over their competitors.

This literature review aims to provide an overview of the existing research on DCs and their specific components. DCs are a concept introduced by (Teece et al. 1997) to explain how organizations can adapt and respond to changing environments. They represent a firm's ability to integrate, reconfigure, and build internal and external competencies to address evolving market conditions. This will create sustainable competitive advantages. DCs have gained significant attention in strategic management research and numerous studies have explored their dimensions and implications. Moreover, Teece's 2007 article explains the nature and micro-foundations of sustainable enterprise performance, which is a foundational work on dynamic capabilities. Teece argued that DCs enable firms to achieve sustainable competitive advantage by leveraging their existing resources and competencies while developing adapted ones. This work emphasizes the importance of sensing opportunities and threats, seizing opportunities through effective resource allocation and reconfiguring resources through organizational learning processes.

In terms of sensing capability, (Zahra and George 2002) conducted a comprehensive review, reconceptualization, and extension of absorptive capacity, a key component of sensing capability. They

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highlighted the importance of an organization's ability to acquire, assimilate, transform, and exploit external knowledge to enhance innovation and competitive advantage. This research sheds light on the mechanisms through which firms can sense and incorporate external knowledge to adapt to changing market conditions.

2.4. Innovation Performance

IP is a critical aspect of organizational success and competitiveness, driving growth, and value creation. It refers to an organization's ability to generate and implement novel ideas, products, processes, or business models that result in tangible outcomes. It is a critical driver of organizational growth and competitiveness in today's rapidly changing business environment. This literature review provides an overview of existing research on IP, examining its dimensions, determinants, and implications for organizational success. Product Innovation Performance: Product IP focuses on the successful development and commercialization of new or improved products. It includes measures such as the number of new products launched, market share of new products and revenue generated from such products. Product IP is often associated with increased market competitiveness and customer satisfaction. Process Innovation Performance: Process pertains to the improvement and optimization of operational processes within an organization. It involves enhancing efficiency, reducing costs and streamlining workflows through the implementation of new technologies, methodologies, or organizational practices. Process IP can improve productivity, quality, and time-to-market. Organizational Innovation Performance: Organizational IP captures the extent to which an organization successfully implements innovative practices, structures, or systems to enhance its overall functioning. It includes measures such as the adoption of new management practices, the implementation of innovative organization structures, and the development of a culture that fosters innovation. Organizational IP contributes to organizational agility, adaptability and resilience.

Knowledge and Technology Management: Effective knowledge and technology management plays a crucial role in IP. Research and development (R&D) activities, technological capabilities, intellectual property management and knowledge sharing processes within and across organizations significantly influence the ability to generate and utilize new knowledge for innovation. External Collaboration and Open Innovation: The recognition of collaboration with external partners, such as suppliers, customers, universities, and research institutions, as a crucial factor in determining IP, is growing steadily. OI practices, including technology licensing, joint ventures, and crowdsourcing, can facilitate access to external knowledge, resources, and expertise, enhancing innovation outcomes. Organizational Culture and Leadership: Organizational culture and leadership styles greatly impact IP. A

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supportive culture that encourages risk-taking, experimentation, and learning fosters creativity and innovation. Transformational leadership, characterized by visionary and inspirational leadership behaviors, motivates employees and creates an environment conducive to innovation.

2.5. Research Hypothesis

2.5.1 Relationship between KAC and Open Innovation

The relationship between KAC and OI is complex and multi-faceted. KAC refers to an organization's ability to effectively use and apply knowledge and information to achieve its goals and objectives. OI, on the other hand, refers to the process of actively seeking and incorporating external ideas, perspectives, and expertise into an organization's IP. Recent research revealed that organizations with high levels of KAC are more likely to successfully implement OI practices and achieve positive outcomes. For example, a study by (Afuah and Tucci 2012) found that organizations with strong knowledge application capabilities were better able to effectively integrate external ideas and expertise into their innovation processes, resulting in improved performance outcomes. In turn, engaging in OI can help organizations enhance knowledge application capabilities. For example, by tapping into external expertise and innovation sources, organizations can gain access to new and diverse perspectives. This can inform and improve their decision-making and problem-solving processes. Additionally, OI can help organizations build relationships and networks with external partners and stakeholders, which provides valuable opportunities for knowledge sharing and transfer.In conclusion, there is a reciprocal relationship between KAC and OI, in which each can enhance the other. Organizations that leverage both can achieve significant advantages in innovation, competitiveness, and overall success. As a result, the following hypothesis can be proposed:

HI: Knowledge application capability has a significant positive relationship with Open Innovation.

2.5.2. OI Mediating the Relationship between KAC and IP

OI has been proposed as a mediating factor between KAC and IP. KAC refers to an organization's ability to effectively apply and utilize knowledge resources to achieve desired outcomes. IP, on the other hand, also refers to an organization's ability to successfully develop and implement new and improved products, services, and processes. Studies have shown that organizations with high KAC tend to have better IP outcomes. However, the relationship between KAC and IP can be complex and difficult to manage. This is where OI comes in, as it can help mediate the relationship between KAC and IP.One way OI can mediate the relationship between KAC and IP is by providing organizations with access to a more diverse and robust pool of knowledge, ideas, and perspectives. This can help organizations more

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effectively identify and incorporate customer and market needs into their innovation processes, leading to more relevant and successful innovations. In turn, this can lead to improved IP outcomes.

Another way OI can mediate the relationship between KAC and IP is by enhancing an organization's internal KAC. By incorporating external knowledge and perspectives into its innovation process, an organization can more effectively leverage and utilize its internal knowledge resources. This leads to improved innovation processes and outcomes. In conclusion, OI can show a significant mediating relationship between KAC and IP. By providing organizations with access to a wider and more diverse pool of knowledge, ideas, and perspectives, and by enhancing an organization's internal KAC, OI can help organizations achieve improved IP outcomes. This study verifies knowledge application capabilities and OI relationships with IP and proposes the following hypotheses:

H2: OI mediates the relationship between KAC and IP and they have a significant relationship.

2.5.3. Dynamic Capability moderates the relation between OI and IP

DCs have been proposed as a moderating factor between OI and IP. OI refers to the process of seeking and incorporating external knowledge, ideas, and perspectives into an organization's innovation processes. IP refers to an organization's ability to successfully develop and implement new and improved products, services, and processes. Dynamic capabilities, on the other hand, refer to an organization's ability to continuously adapt and evolve its capabilities in response to changing market and industry demands. Studies have shown that organizations that engage in OI practices have higher IP levels. However, the relationship between OI and IP can be complex and difficult to manage. This is where DCs come in, as they can help mediate the relationship between OI and IP. One-way DCs can mediate the relationship between OI and IP by enabling organizations to effectively recognize and combine external knowledge, ideas, and perspectives into their innovation processes. Organizations with strong DCs are better equipped to identify and incorporate relevant external knowledge into their innovation processes. This leads to more effective and relevant innovations. Another way DCs can mediate the relationship between OI and IP is by enabling organizations to continuously adapt and evolve their innovation processes and capabilities. By doing so, organizations can more effectively respond to changing market and industry demands, leading to improved IP outcomes. In conclusion, DCs shows a significant role in moderating the relationship between OI and IP. By enabling organizations to effectively absorb and integrate external knowledge and continuously adapt and evolve their innovation processes and capabilities, DCs can help organizations achieve improved IP outcomes.

H3: Dynamic capability moderates the relationship between OI and IP.

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Research Framework

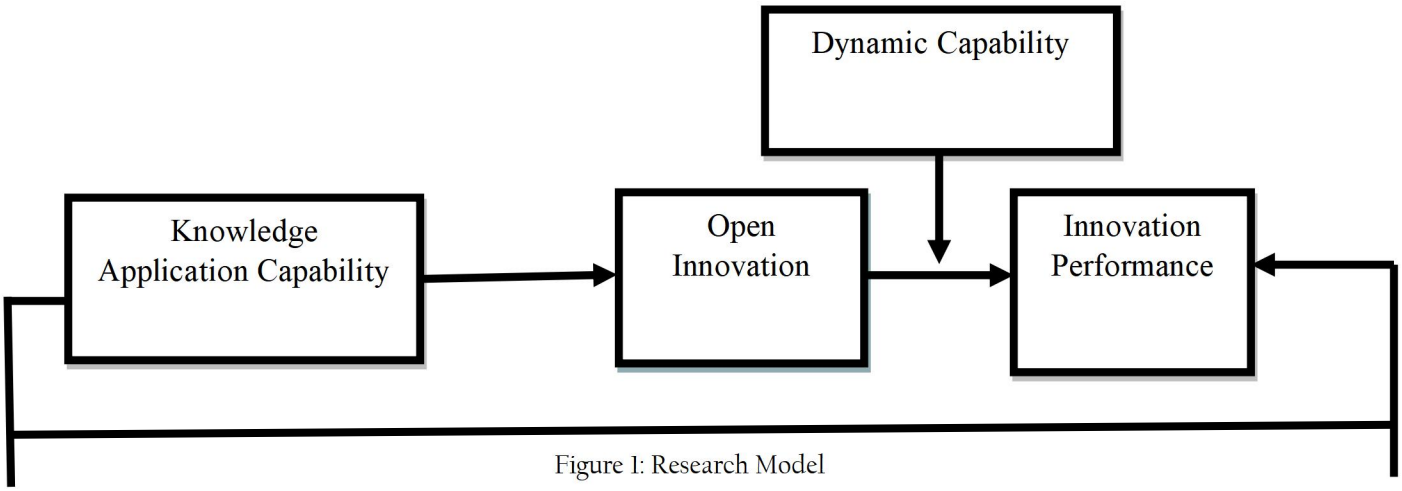

Figure 1: Research Model

3 Methodology

Data Collection and Sample

For the current study, survey research design was adopted to collect data in order to empirically investigate the relationship between the proposed variables and the relationships. Using convenience sampling technique, questionnaires were emailed to 500 employees of software houses located in Islamabad/Rawalpindi, Pakistan. To handle the CMB (common method biasness), time-lag study was led and responses were collected with 15 days gap at three different time period. At time-1 responses on independent variable and moderating variable i.e. about firm strategy and leadership were asked; after fifteen days respondents were inquired about sustainable practices of the firm; and at time-3 after 15 days respondent rated about firm performance. In total 386 complete responses were received.

Instrument

Knowledge Application Capability: The measurement of KAC utilized a 9-item scale developed by (Gold, Malhotra, and Segars ; 2001). In the current study, the scale demonstrated high reliability with a Cronbach's alpha coefficient of 0.933. Sample items from this scale included statements such as "Have processes for using knowledge in new product/service development." Participants rated their agreement with these statements on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Open Innovation: I utilized a scale consisting of nine items, which was developed by (Cheng and Shiu 2015), to assess OI. Cronbach alpha reliability of 0.882 for this scale in the current study was observed. In the current study, the scale included items such as "Our OI involves active participation managers/employees from the software houses" Participants rated their agreement with each item on a 5-

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point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The factor loadings of all the items were equal and above 0.4.

Innovation performance: Ronin and Taylor (1994) created a self-rated scale consisting of four items to assess IP. In the present study, the Cronbach Alpha reliability coefficient for this scale was calculated to be 0.801, indicating good internal consistency. An example of an item from this scale used in the current study is "Our firm introduces new products that mainly involve incremental improvements to existing products." The scale was measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree)". All the items exhibited factor loadings equal to or greater than 0.4, indicating their significance in measuring the intended construct.

Dynamic Capability: In the present study, the assessment of dynamic capability was conducted using a 17-item scale developed by Li and Liu (2014). The internal consistency of this scale, as measured by Cronbach's alpha reliability coefficient, was found to be 0.956. The sample items included in this study were "We have a capability to perceive environmental changes before our competitors" and "I make an effort to address all our concerns openly, aiming for optimal resolution". Participants rated their responses on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). All the items demonstrated factor loadings equal to or greater than 0.4.

4 Results

Table 1 and 2 depicts measurement model evaluation, mean, standard deviation, Composite reliability, average variance extract and correlation between the study variables. As reported in table 1, mean and standard deviation calculated as: "Knowledge application capability" (M=3.73, S.D=0.96), "Innovation performance (M=3.09, S.D=0.77), "Open Innovation" (M=3.55, S.D=0.93), "Dynamic Capability" (M=4.51, S.D=0.93).

Table 1: Correlation, Descriptive, Reliability and Validity Analysis

	Mean	SD	CR	AVE	KAC	IP	OI	DC
KAC	3.735	.96781	0.914	0.785	1			
IP	3.095	.77061	0.924	0.621	.196**	1		
OI	3.552	.93169	0.936	0.568	0.89**	.188**	1	
DC	3.516	.93300	0.910	0.646	.163**	.434**	.440**	1

Note: N=356 where SD = Standard deviation; CR = "Composite Reliability", AVE = "Average Variance

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Extracted, KAC = Knowledge application capability, IP = Innovation performance, OI = Open Innovation, DC = Dynamic Capability

Table2: Confirmatory Factor Analysis - Measurement Model

Model	χ2	Df	χ2/Df	CFI	GFI	AGFI	IFI	TLI	RMSEA
Four (4) factor model (KAC, IP, DC, OI)	980.69	553	2.780	. 923	. 910	932	. 926	. 901	. 058

Note: N=356 where SD = Standard deviation; CR = "Composite Reliability", AVE = "Average Variance Extracted, KAC = Knowledge application capability, IP = Innovation performance, OI = Open Innovation, DC = Dynamic Capability

Hypothesis testing (Mediation Analysis)

Results of hypothesis H2 (mediation analysis) is reported in table 3. Hypothesis 1 states that KAC is positively related to IP with β = 0.173, p<0.001; Hypothesis 2 states that OP mediates the relationship between KAC and IP.The full mediation was confirmed according to the process suggested by Hayes (2017) i.e. if there is no zero reported between lower and upper confidence interval. As the values in table 3 depicted no zero, therefore mediation is proved and hypothesis 1 and 2 is accepted.

Table3 : Mediation Analysis Results

	Relationship	B	SE	T	P
1	Indirect effects of KAC on IP	0.0148	0.0111	3.8075	0.0002
2	Direct effects of KAC on IP	0.1739	0.0497	3.4958	0.0005
3	Total Effect of KAC on IP	0.1887	0.0502	3.7551	0.0002

Indirect Effects

	E	SE	LL	UL
KAC➔OI ➔IP	0.1887	0.0502	0.0899	0.2875

Note: N=356 where SD = Standard deviation; CR = "Composite Reliability", AVE = "Average Variance Extracted, KAC = Knowledge application capability, IP = Innovation performance, OI =

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Open Innovation, DC = Dynamic Capability. Bootstrap Sample Size=5000. E= "Effect", LL="Lower Limit", CI= "Confidence Interval", UL= "Upper Limit".

Moderation Regression Analysis

In line with moderation hypothesis i.e. Hypothesis 3; table 4 depicts interaction between KAC, OI and DC (β =2.2652, p <0 .0005) as significant. Thus, hypothesis is accepted.

Table 4: Moderated Regressions Analysis for DC

H	Interaction Effect	B	SE	T	P
H3	KAC*OI➔DC	2.2652	.4871	4.6500	.000

Note: N=356 where SD = Standard deviation; CR = "Composite Reliability", AVE = "Average Variance Extracted, KAC = Knowledge application capability, IP = Innovation performance, OI = Open Innovation, DC = Dynamic Capability. Bootstrap Sample Size=5000. E= "Effect", LL= "Lower Limit", CI= "Confidence Interval", UL= "Upper Limit".

Discussions

To address the identified issue, the current study formulated a set of five research questions and corresponding objectives. To test these research questions, five hypotheses were developed. Statistical tools, including SPSS and AMOS, were utilized to analyze the data and provide answers to each research question and clarification for each research objective. The following section provides detailed explanations of how each research question was resolved and how each research objective was addressed.

The first research question, along with the first research objective, explored the positive and direct relationship among the dependent and independent variables. Previous research examined whether KAC has an impact on OI. The current study demonstrates that KAC has a significant and favorable impact on OI, as confirmed through statistical analysis (B=0.829, p=0.001).The study's first hypothesis (H1) was tested empirically, establishing a significant and direct relationship between KAC and OI. The statistical results (B=0.829, p=0.001) provide support for this hypothesis.

In relation to the second research question and objective, the study investigated the direct and favorable correlation among the dependent variable and mediating variable. Previous studies have

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investigated how OI affects the dependent variable, IP. The current study's statistical analysis validates a significant and positive influence of OI on IP.

Limitation and Future Research Directions

Besides from all the major contribution made and major research gaps filled in the current research, there were some limitations that when addressed may provide further avenues for future researchers. Firstly: current study focuses solely on the software houses sector, therefore in future for generalizability the same research framework may be studied in different industries and cultural settings. Secondly: in future longitudinal study should be conducted where development and deployment of strategies and its impact should be thoroughly investigated. Thirdly: Other dimensions of KAC which could provide valuable insights into explaining firm innovation have not been explored in this study. Future research could investigate the impact of those other KACs on firm innovation in various industries.

Conclusion

The main objective of this study was to investigate the impact of KAC on IP, with OI as a mediator and Dynamic Capability as a moderator. The Resource-Based View (RBV) theory was employed in this research. In my nation's context, there has been limited research conducted on the relationship between KAC and IP. Hence, this study serves as a pioneering framework for exploring this connection and contributing to the existing literature. Additionally, the findings of this study provide empirical support for the RBV theory. Furthermore, the statistical analysis reveals the presence of a moderating effect of Dynamic Capability between KAC and IP. In conclusion, this study contributes to the existing literature by examining the relationships between KAC, IP, OI, and DCs. It provides a comprehensive framework for understanding how KAC influences IP, while considering the mediating role of OI and the moderating influence of Dynamic capability. The empirical findings offer valuable insights.

References:

1. Inauen, M., & Schenker-Wicki, A. (2011) "The impact of outside-in open innovation on innovation performance". European journal of innovation management.
2. Jasimuddin, S. M., Connell, N. A. D., & Klein, J. H. (2006) "What motivates organisational knowledge transfer? Some lessons from a UK-based multinational". Journal of Information & Knowledge Management, 5(02), 165-171.
3. Kim, H., Kim, M., & Kim, Y. (2020)"Impact of knowledge application capability, innovation performance, and open innovation practices". Journal of Business Research, 108, 125-135.
4. Alghamdi, F. (2018) "Ambidextrous leadership, ambidextrous employee, and the interaction between ambidextrous leadership and employee innovative performance". Journal of Innovation and Entrepreneurship, 7(1), 1.
5. Liao, S., Fu, L., & Liu, Z. (2019) "Investigating open innovation strategies and innovation performance: the moderating role of technological capability and market information management capability". Journal of Business & Industrial Marketing.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:3 Issue No:3 (2024)

6. Lichtenthaler, U. (2011) "Open innovation: Past research, current debates, and future directions". Academy of management perspectives, 25(1), 75-93.
7. Lu, C., Tsai, H., & Tsai, C. (2019) " Relationship between knowledge application capability, innovation performance, and open innovation practices". International Journal of Innovation Management, 23(8), 1950073.
8. Mak, B. L., & Sockel, H. (2018) "Impact of knowledge management capability on firm performance: Evidence from China". Journal of Knowledge Management, 22(2), 296-313.
9. Mohamad, S., Yunus, N. A. M., & Mohd Salleh, N. A. (2020) "The impact of knowledge management capability on firm innovativeness: Evidence from Malaysia". International Journal of Innovation, Creativity and Change, 14(2), 202-216.
10. Naqshbandi, M. M., & Jasimuddin, S. M. (2018) " Knowledge-oriented leadership and open innovation: Role of knowledge management capability in France-based multinationals". International Business Review, 27(3), 701-713.
11. Ndubisi, N. O., & Wah, C. K. (2015) "The effect of knowledge management capability and dynamic capability on organizational performance". Journal of Knowledge Management, 19(3), 433-451.
12. Oghogho Destina Ovuakporie, Kishore Gopalakrishna Pillai, Chengang Wang, & Yingqi Wei (2021) "Open innovation practices and organizational innovation performance: The mediating role of knowledge application capability". Journal of Innovation & Knowledge, 6(1), 1-9.
13. Peteraf, M. A. (1993). "The cornerstones of competitive advantage: A resource-based view." Strategic Management Journal, 14(3), 179-191.
14. Qureshi, T. M., Warraich, S., Khan, I., Rehman, C. A., & Sadiq, M. (2020) "Impact of knowledge management capability on innovation performance: The mediating role of organizational learning capability". Journal of Innovation & Knowledge, 5(1), 50-60.
15. Yousafzai, S. Y., Sambasivan, M., & Singh, S. K. (2020) "Knowledge management capability and organizational performance: The mediating role of innovation". Journal of Business Research, 106, 145-157.
16. Argote, L., & Ingram, P. (2000). "Knowledge transfer: A basis for competitiveness." Harvard Business Review, 78(2), 121-131.
17. Singh, S. K., Kapoor, M., & Tiwari, M. K. (2021). "Knowledge sharing and innovation performance: The mediating role of knowledge-based dynamic capability". Journal of Knowledge Management, 25(2), 254-276.
18. Sun, Y., & Anderson, A. R. (2020) "Explicating the relationship between knowledge management capability, knowledge absorption, and SME performance". Journal of Small Business Management, 58(4), 838-860.
19. Teece, D. J. (2010). "Dynamic capabilities and strategic management: Organizing for innovation and growth." Oxford University Press.
20. Attia, N. M., & Eldin, T. N. (2018) "Knowledge management capability and organizational performance: A structural equation modeling approach". Business Process Management Journal, 24(3), 778-799.
21. Wang, C., Huang, J. C., & Yang, B. (2015). "The role of knowledge management capability in innovation performance." The Journal of High Technology Management Research, 26(2), 139-151.
22. Wernerfelt, B. (1984). "A resource-based view of the firm". Strategic Management Journal, 5(2), 171-180.

23. Bayona-Saez, C., Garcia-Marco, T., & Huerta-Álvarez, R. (2017) "Open innovation practices in SMEs and large firms: Differences in motivation and capacity". Journal of Small Business Management, 55(S1), 32-48.
24. Bhatt, G. D. (2016) "Knowledge management in organizations: examining the interaction between technologies, techniques, and people". Journal of Knowledge Management, 10(5), 32-46.
25. Bigliardi B, Ferraro G, Filippelli S, Galati F.(January 2020) "The influence of open innovation on firm performance". International Journal of Engineering Business Management.
26. Caridi-Zahavi, O., Carmeli, A., & Arazy, (2016) "The contingent effects of internal and external knowledge flows on employee creativity". Journal of Product Innovation Management, 33(6), 702-717.
27. Chang, S. I., et al. (2017) "Exploring the impact of knowledge sharing culture on knowledge management practices". Journal of Knowledge Management, 12(4), 22-36.
28. Chen, C. J., & Huang, J. W. (2009) "Strategic human resource practices and innovation performance:The mediating role of knowledge management capacity". Journal of business research, 62(1), 104-114.
29. Chen, C. J., Huang, J. W., & Hsiao, Y. C. (2012). "KMC and firm performance: The moderating role of organizational climate". International Journal of Information Management, 32(5), 512-523.
30. Chen, J., Zhu, Z., & Xie, H. (2012). "KMC and New Product Performance: The Critical Role of Innovation". Journal of Knowledge Management, 16(4), 619-636.
31. Chen, Y.-H., Lee, G.-G., & Hsu, C.-C. (2012) "The impact of knowledge application capability on the performance of technology-based firms in Taiwan". Journal of Business Research, 65(2), 276-285.
32. Crossan, M. M., & Apaydin, M. (2010). "A multi-dimensional framework of organizational learning: Integrating processes, antecedents, and outcomes." Academy of Management Review, 35(3), 517-535.
33. Dabić, M., Daim, T., Rueda, A., & Novak, I. (2019) "Exploring the relationship between knowledge management and innovation performance: The mediating role of dynamic capabilities". Journal of Business Research, 94, 442-450.
34. Afuah, A., & Tucci, C. L. (2012). "Open innovation: A review and agenda for future research." In The Oxford handbook of innovation management (pp. 267-285). Oxford University Press.
35. Eisenhardt, K. M., & Martin, J. A. (2000). "Dynamic capabilities: What are they?" Strategic Management Journal, 21(10-11), 1105-1121.
36. Fainshmidt, S., Pezeshkan, A., Lance, F. C., & Nair, A. (2016). "Dynamic capabilities and operational capabilities: A knowledge management perspective". Journal of Business Research, 69(5), 1810-1823.
37. Gold, A. H., Malhotra, A., & Segars, A. H. (2001) "Knowledge management: An organizational capabilities perspective". Journal of Management Information Systems, 18(1), 185-214.
38. Grant, R. M. (1991). "The resource-based theory of competitive advantage: Implications for strategy formulation." California Management Review, 33(3), 114-135.
39. Greco, M., Grimaldi, M., & Cricelli, L. (2015) "Open innovation actions and innovation performance: A literature review of European empirical evidence". European Journal of Innovation Management, 18(2), 150-171.