# Open Innovation and Organizational Performance in Saudi Arabia: The Moderating Role of Government Support and Technological Readiness

**Mohammed Alarefi**[1]


## Abstract

Open innovation (OI) has been widely practiced in developed countries, while its application in state-driven economies is still limited. This study examines the effect of inbound open innovation and outbound open innovation on the organizational performance (OP) of companies in Saudi Arabia. The study also examines the moderating role of government support and technological readiness. The data was collected from 309 manufacturing and service companies. The findings of Smart PLS 4 showed that inbound OI and outbound OI affected positively the OP. The finding also showed that government support and technological readiness moderated the impact of inbound OI and outbound OI on OP. Resource-based view and institutional theory are capable of explaining these relationships in the context of emerging economies. More investment in technological infrastructure and systems can enhance the innovativeness of companies and improve the OP.


[1]Department of Management Information Systems, Faculty of Business Administration, University of Tabuk, Saudi Arabia
*Corresponding author

**Keywords:** Open Innovation, Inbound Open Innovation, Outbound Open Innovation, Organizational Performance, Government Support, Technological Readiness

**Introduction**

Rapid technological distribution and intensified global competition are the characteristics of the contemporary competitive landscape. In such environment, building alliance and business relationship is critical to survive and thrive. Organizations are no longer able to compete using their internal knowledge, resource, and capability (Camilleri et al., 2023). They need to collaborate with external partners to account for the increasing distributive technology and innovation. With this context, the concept of open innovation (OI) which was coined by Chesbrough has become one of the essential concepts in innovation management (Sengupta & Sena, 2020). OI focuses on purposive inflows and outflows of knowledge to speed up the internal innovation while expanding markets for external exploitation of organizational knowledge (Chesbrough, 2003). Two important dimensions of OI is the inbound OI (IOI) and outbound OI (OOI). IOI is defined as the acquisition and integration of external knowledge, technologies, and ideas from actors such as customers, suppliers, universities, and research organizations (Bigliardi et al., 2020a). On the other hand, OOI is related to the commercialization or external deployment of internal knowledge assets through mechanism such as joint venture, licensing, spin-offs, and strategic alliance. Together these dimensions enable organizations to leverage distributed knowledge ecosystems and enhance their innovative output (Sims et al., 2018). Prior literature indicated that OI enhance innovation performance, market, and financial performance (Gassmann et al., 2010) (Saebi & Foss, 2015). Nevertheless, the findings of prior literature are still inconsistent across contexts, industries, and institutional environments. This indicates that the effect of OI on organizational performance (OP) is contingent rather than universal (Greco et al., 2022).

The contingent nature of OI outcomes refers to the importance of contextual factors such as moderators. In emerging economies, which differ from the developed countries where OI was originated, there is weaknesses in organizational arrangement, regulatory frameworks and technological infrastructure (Radziwon & Bogers, 2019). Therefore, the implication and performance of OI in emerging economies differs greatly from those observed in developed economies (Mubarak et al., 2025; Thao & Xie, 2025). Saudi Arabia can be a perfect place to examine the effectiveness of OI and its impact on OP. This is because the country has launched Vision 2030 which focuses on innovation and on structural transformation to diversity the economy and strengthen private sector competitiveness as well as fostering innovation to drive growth. Among the main objectives of Vision 2030 is the digital transformation, entrepreneurship, research and development as well as knowledge-based industries. Government supports business by tax incentives, innovation grants, training and capacity building programs, regulatory reforms, and national digitalization strategies that are designed to stimulate technological advancement and organizational innovation. One of the theories that can explain the impact of government support is the institutional theory which indicates that the government-led reforms can generate coercive, normative, and mimetic pressure that influence organizational behavior and strategic orientation (DiMaggio & Powell, 1983; Scott, 2017). In this sense, the government support in Saudi Arabia can facilitate innovation and actively shape its direction and performance outcomes.

Despite the strategic importance of OI within transformation agendas, studies on OI practices in Saudi Arabia are still limited (Alarefi, 2024). Previous studies in the region focused on innovation adoption, digital transformation, or entrepreneurship with limited attention to studying the IOI and OOI and examines their impact on OP. furthermore, previous studies rarely examine the boundary condition under which OI translates into OP in state driven development contexts (Alarefi, 2023b). In the context of OI and its impact on OP, two contextual factors are potentially relevant to impact this relationship. The first is the government support and the second is the technological readiness. Government support can have a significant role in enhancing the effectiveness of OI. Prior studies found that public subsidies, innovation polices, and institutional backing amplify the returns of collaborative innovation initiatives (Alarefi, 2023a). In emerging economies such as in Saudi Arabia, this support can significantly strengthen the relationship between OI and OP. This is because this support help in mitigating uncertainty and facilitating ecosystem coordination.

The second contextual factor is the technological readiness. It reflects the organizational internal capacity to absorb, integrate, and exploit external knowledge. Based on resource-based view (RBV), technological infrastructure and IT human capital form strategic assets that can enable organization to covert knowledge

flows into competitive advantage (Ullah et al., 2025). Having high level of technological readiness can enhance the relationship between OI and OP. Without sufficient technological readiness, organizations can face coordination issues that can increase the cost as well as the organizations can face knowledge assimilation challenges along with limited performance gains from OI activities (Mikalef & Gupta, 2021). Accordingly, this study investigates the impact of IOI and OOI on OP of Saudi Arabian companies. The study also examines the moderating role of government support and technological readiness. By examining these relationships, this study addresses three significant gaps. The first gaps are related to the effect of IOI and OOI on OP in the context of emerging economies. Second the study contributes to existing literature by combining resource-based view and institutional theory by investigating how state-driven development agendas conditions strategic innovation outcomes. The study also enriches digital capability research by demonstrating how technological readiness can improve the performance return of OI. The next section reviews the literature as well as the research methodology along with findings, discussion, and conclusion.

## Literature Review

This section discusses the theoretical frameworks as well as the conceptual framework along with the hypotheses of the study.

## Theoretical Framework

This study examines the OI and its impact on OP in the context in Saudi Arabia. The study deploys the resource-based view (RBV) and institutional theory. The RBV argues that organizations can achieve sustainable competitive advantages by possession and strategic deployment of resource and capabilities (Barney et al., 2021). The resource based on RBV are internal resources and include knowledge, technological infrastructure, managerial experience as well as organizational routines. However, based on the recent views which relies on knowledge intensive and digital interconnected markets, competitive advantages are increasingly depends on an organization's ability to access and integrate knowledge that resides beyond its organizational boundaries. OI expands the logic of RBV by suggesting that organizations can augment their internal resources based using purposive knowledge inflows and creating value from underutilized internal resource via knowledge outflows (H. Chesbrough & Bogers, 2014). IOI improves the organization's knowledge stock by including external ideas and technologies while OOI enables organizations to commercialize internal knowledge assets and therefore, improve the resource utilization and financial returns. The RBV can explain the effect of IOI and OOI on OP, and it can also explain how the technological readiness can affect the relationships between OI and OP.

Although internal capabilities are important, organizational strategies are also formed by broader institutional environment in which organization operate. Institutional theory suggests that organizational behavior is affected by regulatory, normative, and cognitive pressures arising from the surrounding institutional context. In Saudi Arabia, the Vision 2030 creates a strong institutional pressure on organizations to adopt innovative driven strategies that are aligned with the national economic diversification goals. Therefore, government support can reduce the uncertainty, encourage innovation, and provide legitimacy as well as enhance the access to strategic resources. These institutional support from the government can strengthen the effectiveness of OI by facilitating collaboration network and lower innovation risk as well as improve the resource mobilization. By combining these two theories, the study account for internal resource and capabilities as well as external factors such as government support. Therefore, the integration of the theories can help in explaining the OP of companies in Saudi Arabia.

### Conceptual Framework and Hypotheses Development

OI has evolved from a descriptive paradigm into a strategic capability that shapes firm-level competitive advantage in digitally interconnected ecosystem. Prior literature provides general description of the benefits that can be gained from OI. However, recently researchers argued that these benefits are context dependent (Greco et al., 2022) (Santoro et al., 2019). Therefore, this study based on RBV, and institutional theory proposes that the effect of IOI and OOI on OP is positive and significant. The study also proposes that these positive effects are dependent on the government support and the technological readiness. Accordingly, the study proposes government support and technological readiness to moderates the effect of IOI and OOI on OP. Figure 1 shows the conceptual framework of this study.

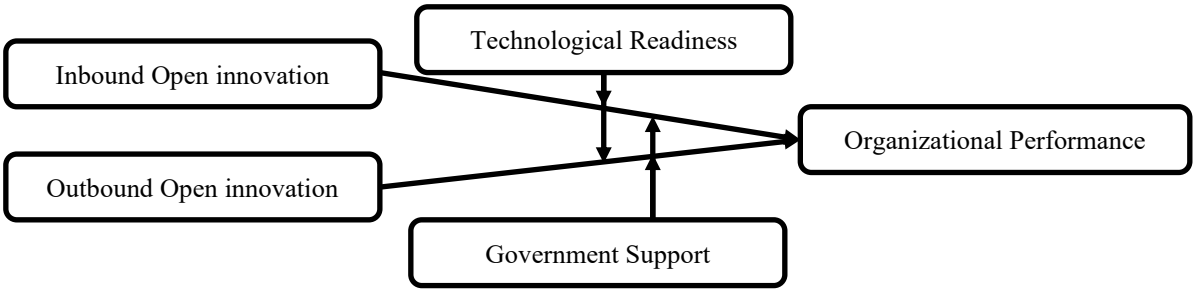


**Fig. 1**: Conceptual Framework

**Inbound Open Innovation and Organizational Performance**

IOI allows organizations to access complementary external knowledge from customers, suppliers, and research institutions (Naqshbandi & Tabche, 2018). Based on RBV, this practice improves the organization's resource heterogeneity by improving its knowledge portfolio (Barney et al., 2021). Organizations when they can access knowledge sources, they can increase innovation novelty and speed up the process of product development as well as improve problem-solving capabilities. Prior literature indicated that the IOI could improve organizational outcome. (Greco et al., 2022) indicated that IOI improves significantly the innovation output and performance when organization have adequate integration capability. Similarly, (Naqshbandi & Jasimuddin, 2018) found that external collaboration improves operational efficiency and market performance in technology-intensive industries. In similar approach, the study of (Santoro et al., 2019) found that inbound knowledge positively impacts the growth of organization in emerging economies. Organizations that have the ability to sense and integrate external knowledge have high readiness to respond to environmental uncertainty and achieve better performance (Wang & Xu, 2018). In Saudi Arabia, where rapid transformation in terms of diversity and digitalization is taking place, IOI can be a mechanism to adapt and cope with the current environment which enables organization to achieve better performance. Therefore, this study proposes a positive impact of IOI on OP.

H1: IOI has a positive impact on OP of companies in Saudi Arabia.

**Outbound Open Innovation and Organizational Performance**

OOI involves the commercialization or external usage of internal knowledge assets via licensing, alliance, and spin-offs (Naqshbandi et al., 2019). Prior literature focused more on IOI. However, recently, more focus was paid on OOI as a revenue generating mechanism that have the ability to enhance resource usage effectively (H. Chesbrough & Bogers, 2014). Based on RBV, OOI enables organization to extract value from excess or underutilized intellectual assets (Najar et al., 2020) (Pillai, 2021). It also reduces redundancy and improves return on innovation investments. Prior studies showed that OOI strategies can contribute to the growth of revenue and profitability when effectively used (Saebi & Foss, 2015) (Ferraris et al., 2017). Moreover, OOI increases interorganizational learning and ecosystem positioning (Sims et al., 2018). Nevertheless, previous studies indicated that OOI requires governance mechanisms to mitigate knowledge leak risk (Greco et al., 2022). The effective usage of OOI can impact positively the OP and strategic performance of companies (Tang et al., 2021). In the context of Saudi Arabia, Vision 2030 encourage the OOI which is expected to have a positive impact on OP. Therefore, the following is hypothesized:
H2: OOI has a positive impact on OP of companies in Saudi Arabia.

**Moderating Role of Government Support**

Recently, there were more focus on the role of government in supporting business and initiatives (Lu et al., 2021). Government support determines the institutional framework in shaping organizational-level innovation outcomes (Radziwon & Bogers, 2019). Institutional theory suggested that regulatory structure and state policies can impact the strategic choice by providing legitimacy and reducing uncertainty as well as allocating critical resources (Scott, 2017). Government support which includes several aspects such as tax incentives, training programs, financial grants, and digital transformation, policies can reduce innovation risk and resource constraints. (Ngisau & Ibrahim, 2020) found that institutional support strengthens the impact of

collaborative innovation on OP. In Saudi Arabia, the vision 2030 promotes innovation and entrepreneurship as well as digital transformation. Government supported activities and initiatives can facilitate the knowledge exchange networks and can improve commercialization pathways. Consequently, organizations that are operating under high levels of institutional support have the ability to IOI and OOI into tangible performance gains. Therefore, government support is expected to increase the positive effect of IOI and OOI on OP. Therefore, the following is proposed:

H3: Government support moderates the effect of IOI on OP of companies in Saudi Arabia.
H4: Government support moderates the effect of OOI on OP of companies in Saudi Arabia.

### 2.2.4 Moderating Role of Technological Readiness

Technological readiness is proposed in this study as a moderator. It reflects the organization's digital infrastructure and IT human capital that enable knowledge integration and coordination (Delshab et al., 2022). Based on RBV, IT capability forms a strategic resource that enhances absorptive capacity. Prior studies found that there is a moderation role of technological readiness (Azhar Mohd Harif et al., 2022). For instance, (Cenamor et al., 2019) found that digital capability enhances the relationship between innovation and performance relationship. (Mikalef & Gupta, 2021) demonstrate that organization with high IT infrastructure can secure more benefits and values from data-driven and collaborative innovation initiatives. Similarly, (Mariani & Nambisan, 2021) suggested that digital platforms can increase the ecosystem-based innovation performance.

IOI requires organization to share external knowledge efficiently while OOI relies on digital platforms and coordination technologies to commercialize internal innovations (Zanjirchi et al., 2019). Without sufficient technological reediness, firm can face integration barriers that can weaken the OP (Bigliardi et al., 2020b). Accordingly, the technological readiness is proposed to enhance the positive impact of both IOI and OOI on OP. Thus, the following is proposed:

H5: Technological readiness moderates the effect of IOI on OP of companies in Saudi Arabia.
H6: Technological readiness moderates the effect of OOI on OP of companies in Saudi Arabia.

## Research Methodology

This study examines the effect of IOI and OOI on OP as well as the moderating role of government support and technological readiness. The study is quantitative, and it uses cross-sectional approach to collect data from the respondents. The population of this study are manufacturing and service companies that are involved in OI. Therefore, a purposive sampling is deployed to select only these companies that match the inclusion criteria of using OI and being manufacturing or service companies in Saudi Arabia. The study collects the response from managerial levels of these companies as representatives. Therefore, the unit of the analysis is organizational while the managerial level are the proxies. The data is collected using a questionnaire. The questionnaire was adopted from several sources. Inbound OI was measured using six items adapted from (H. Chesbrough & Bogers, 2014) and (Greco et al., 2022). The outbound OI was measured using five items adapted from (Saebi & Foss, 2015) and (Ferraris et al., 2017). Government support consisted of five items adapted from (Narwane et al., 2019). In terms of technological readiness, the variable was measured using six items adapted from (Cenamor et al., 2019) and (Mikalef & Gupta, 2021). Lastly, the OP was measured using six items adapted from (Venkatraman & Ramanujam, 1986).

The scales were translated into Arabic because the study is conducted in Saudi Arabia and Arabic is the official language. The scales were validated by three experts to assess the accuracy of the translation and content of the measurement. Suggestions of the experts were considered for refining the scales. Next, a pilot study was conducted to assess the reliability of the scales. Table 1 shows the results of pilot study. The data was collected by distributing the questionnaires to managerial levels in the Saudi companies. A total of 500 questionnaire was distributed. As a result, a total of 356 responses were collected. To ensure that the data is free from missing value, a frequency analysis was conducted, and it showed that 30 responses missing large number of answers, and they were removed accordingly. This made the complete response account for 326. The outlier was checked also, and it showed that 17 responses were identified as outliers and removed accordingly. The finalized dataset includes 309 responses. The normality of the measurement was checked. The values of Skewness and Kurtosis is less than 1. Therefore, the data is normally distributed. In addition, the multicollinearity issues are not a concern in this study because the value of variation inflation factor (VIF)

is less than 5 and the values of tolerance above 0.20. Table 1 shows the items, source, results of pilot study, normality and multicollinearity.

**Table 1:** Measurement and Reliability, Normality, and Multicollinearity

| Variables | Item | Source | Reliability | Skewness | Kurtosis | Tolerance | VIF |
|---|---|---|---|---|---|---|---|
| Inbound Open Innovation | 6 | (H. Chesbrough & Bogers, 2014); (Greco et al., 2022) | 0.89 | -0.62 | 0.84 | 0.59 | 1.69 |
| Outbound Open Innovation | 5 | (Saebi & Foss, 2015) (Ferraris et al., 2017) | 0.87 | -0.54 | 0.76 | 0.64 | 1.56 |
| Government Support | 5 | (Narwane et al., 2019) | 0.88 | -0.41 | 0.65 | 0.71 | 1.42 |
| Technological Readiness | 6 | (Cenamor et al., 2019)(Mikalef & Gupta, 2021) | 0.91 | -0.73 | 1.12 | 0.52 | 1.92 |
| Organizational Performance | 6 | (Venkatraman & Ramanujam, 1986) | 0.90 | -0.38 | 0.91 | 0.36 | 2.78 |

## Findings

This section presents the descriptive information of the respondents and variables as well as the assessment of the measurement model and structural model along with the hypotheses of the study.

## Descriptive Statistics of Respondents

Table 2 show the profile of the respondents. A total of 309 respondents participated in this study. The highest percentage of the respondents are senior manager (34.6%) followed by innovation and R&D manager. The majority of the companies are in service sector with 57.9%. More than 64% of the companies are SMEs while 35.6% are larger companies. 33% of the companies have been operating for more than 5 years while 41.7% have been operating for more than 15 years. Table 2 shows the descriptive statistics of respondents.

**Table 2**: Profile of Respondents

| Characteristic | Category | Frequency | Percentage (%) |
|---|---|---|---|
| **Position** | Senior Manager | 107 | 34.6 |
| | Innovation/R&D Manager | 88 | 28.5 |
| | IT Manager | 66 | 21.4 |
| | Executive Director/Strategy | 48 | 15.5 |
| **Industry Type** | Manufacturing | 130 | 42.1 |
| | Services | 179 | 57.9 |
| **Firm Size** | < 50 employees | 81 | 26.2 |
| | 50–249 employees | 118 | 38.2 |
| | ≥ 250 employees | 110 | 35.6 |
| **Firm Age** | < 5 years | 78 | 25.3 |
| | 6–15 years | 102 | 33.0 |
| | > 15 years | 129 | 41.7 |

## Measurement Model

The assessment of the measurement model was conducted by examining the level of factor loading. All the items showed acceptable factor loading with loading above 0.70. the Cronbach's alpha as well as the composite reliability were above 0.70 indicating that the measurements are reliable. For the convergent validity, it was assessed by checking the average variance extracted (AVE). Values of AVE were above 0.50 supporting the notion that more than 50% of the variation in the variables can be explained via the measurement items. Table 3 shows the results of assessing the measurement model. It shows also the mean score values of the variables. The values were mostly above 3.50 indicating that the respondents have generally agreed on the statement that are related to the variables. The HTMT's correlation showed that the correlation among the variables is less than 0.85 indicating that the discriminant validity is achieved.

**Table 3:** Results of Assessing Measurement Model

| Variable | Items | Factor Loading Range | CA | CR | AVE | Mean | IOI | OOI | GS | TR | OP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inbound Open Innovation | 6 | 0.72 – 0.88 | 0.89 | 0.91 | 0.63 | 3.78 | — | | | | |
| Outbound Open Innovation | 5 | 0.71 – 0.86 | 0.87 | 0.90 | 0.60 | 3.74 | 0.64 | — | | | |
| Government Support | 5 | 0.73 – 0.87 | 0.88 | 0.91 | 0.66 | 3.81 | 0.58 | 0.61 | — | | |
| Technological Readiness | 6 | 0.75 – 0.90 | 0.91 | 0.93 | 0.68 | 3.85 | 0.72 | 0.69 | 0.63 | — | |
| Organizational Performance | 6 | 0.72 – 0.88 | 0.90 | 0.92 | 0.65 | 3.79 | 0.74 | 0.71 | 0.66 | 0.77 | — |

**Structural Model**

The structural model was evaluated by examining the R-square. IOI and OOI explained 53.8% of the OP. when including technological readiness as a moderator, the R-square increased to 0.672 indicating that 67.2% can be explained by IOI and OOI along with technological readiness. The R-square further increased to 0.688 when government supported was included in the model as a moderator. For the effect size, it is larger than 0.02 for all paths indicating that the effect is meaningful. Figure 2 shows the structural model of direct effect.

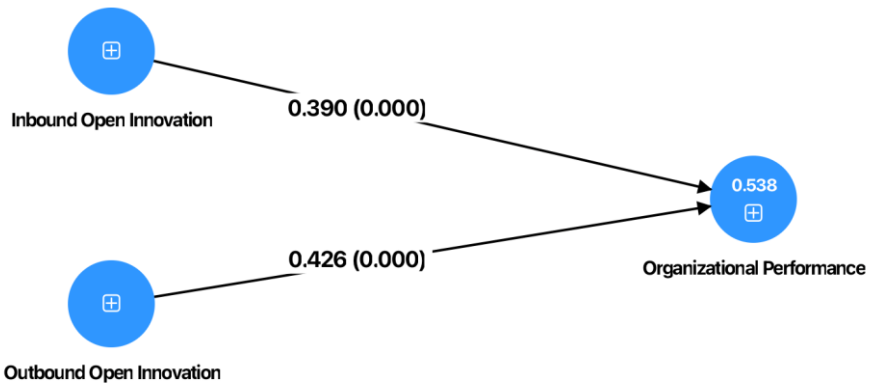


**Fig. 2:** Structural Model of Direct Effect

Figure 2 shows the moderating role of government support. As shown, the interaction is positive and significant supporting the hypotheses that government support plays a moderating role between IOI and OOI, and OP.

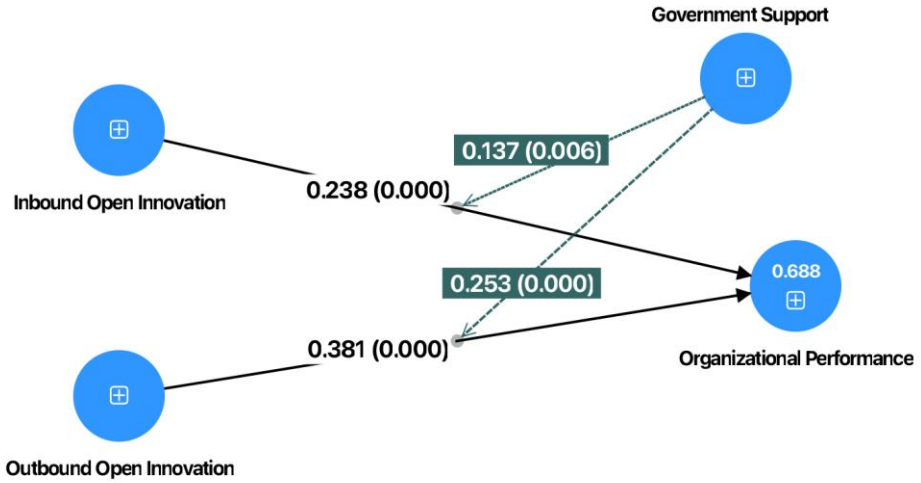


**Fig. 3:** Moderating Role of Government Support

Figure 4 shows the moderating role of the technological readiness. It shows that technological readiness moderated the effect of IOI and OOI on OP.

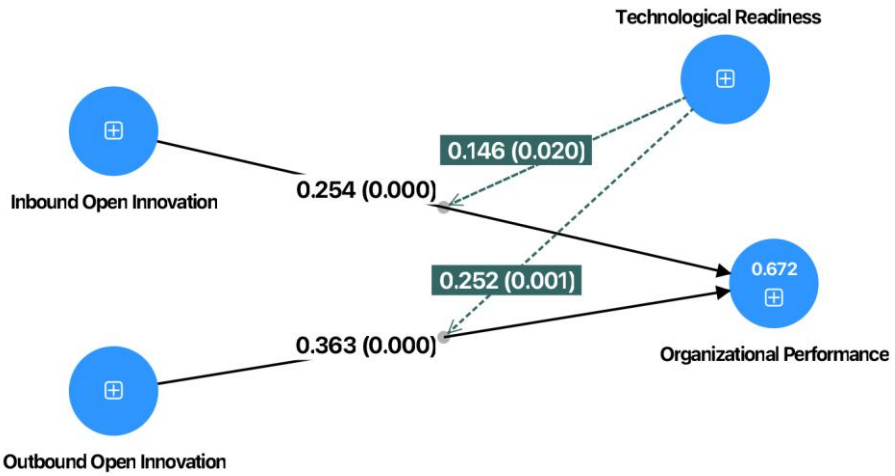


**Fig. 4:** Structural Model of the Moderating Role of Technological Readiness

For better presentation of the result, Table 5 shows the results of testing the hypotheses of the study. The results are based on Figure 2, Figure 3 and Figure 4. The table shows the hypothesis, path, coefficient (B), standard deviation (Std), t-values, and p-values.

**Table 5**: Results of Hypotheses

| H | Path | B | STD | T-Values | P values |
|---|---|---|---|---|---|
| H1 | IOI -> OP | 0.390 | 0.046 | 8.494 | 0.000 |
| H2 | OOI -> OP | 0.426 | 0.047 | 9.013 | 0.000 |
| H3 | Government Support x IOI -> OP | 0.137 | 0.049 | 2.783 | 0.006 |
| H4 | Government Support x OOI -> OP | 0.253 | 0.058 | 4.351 | 0.000 |
| H5 | Technological Readiness x IOI -> OP | 0.146 | 0.062 | 2.342 | 0.020 |
| H6 | Technological Readiness x OOI -> OP | 0.252 | 0.075 | 3.376 | 0.001 |

As shown in Table 5, the effect of IOI on OP is positive and significant. Therefore, the H1 is supported and the increase in IOI can lead to a positive increase in OP of companies in Saudi Arabia. This result is aligned with the RBV which indicated that using IOI effectively can contribute to the competitive advantage and increasing the performance. Similarly, the H2 was supported because the effect of OOI on OP is positive

(B=0.426, P<0.05). accordingly, when the OOI increases, the OP will increase. This is again in line with the RBV. It is also in line with prior literature that found a positive impact of OOI on OP and strategic performance (Ferraris et al., 2017; Greco et al., 2022; Saebi & Foss, 2015; Sims et al., 2018). H3 and H4 were supported because the government supported moderated positively the effect of IOI (B=0.137, P<0.05) and OOI (B=0.253, P<0.05) on OP. this suggests that the increase in the level of government support as a moderator will results in a positive increase in the relationship between IOI-OP and OOI-OP. This finding aligns well with the institutional theory which referred to the importance of state-led initiatives to support business and improve the outcome of business. For H5 and H6, the findings as shown in Table 5 indicated that the technological readiness have a moderating role between IOI (B=0.146, P<0.05) and OOI (B=0.252, P<0.05) on OP. the significant role of technological readiness aligns with the RBV. Companies that use their resources and capability to invest in technologies can enhance the relationship between OI and OP.

The result of this study confirms the critical role of OI as a strategic mechanism for companies operating in a transformation-driven economy such as Saudi Arabia. However, the positive impact and the effectiveness of IOI and OOI is not automatic. It is dependent on the level of government support that companies receive from the government, and it is also dependent on the technological readiness of the companies. One of the important insights from the findings that OOI is more critical than IOI to improve the OP. It also noted that the effect of government support and technological readiness as moderators between OOI and OP is higher than IOI and OP. This could be due to the notion that these external knowledge sharing using OOI contributes more to the OP because it adds values to the internal knowledge and processes.

**Implications**

This study has a theoretical and practical implications. The study contributed to the OI literature by examining both the IOI and OOI in one model in the context of emerging economy such as Saudi Arabia. This is important because in a state-driven transformational environment, OOI can play a more dominant role in enhancing performance. This contribution adds to the RBV validity in the context of emerging economies and suggest that organizations that relies on their resource and knowledge can improve their OP. Knowledge commercialization strategies can be an effective predictor of the OP. The study also contributed to the literature by examining the moderating role of government support. In state-driven transformation environment, the government support is critical because it can give suitable framework for companies to be involve in innovation and this can contribute to their performance. In addition, the study contributed to the literature by examining the technological readiness as a moderator in the context of emerging economies. Digital transformation is one the characteristics of Saudi Arabia based on Vision 2030. Therefore, the study adds to the literature in term of examining the critical role of this moderator.

From managerial perspective, the findings suggest that organizations in Saudi Arabia should prioritize outbound open innovation strategies by commercializing knowledge. Managers are also advised to actively involve in partnerships with research institutions, suppliers, and customers to diversify knowledge and enhance the innovation speed. Nevertheless, the OI must be always with strong and effective strategies in terms of digital infrastructure and skilled human capital. Investments in IT systems as well as digital integration platforms along with employee digital competencies are critical for maximizing and improving performance. Furthermore, due to the critical role of government support, managers are recommended to leverage government initiatives and make alignment between the government strategies and innovation strategies. This is because organizations that are actively involved in the government national development program can achieve better and superior performance. For policymakers, the findings highlighted the importance of government support for innovation ecosystems. Government support in the forms of incentives, regulatory clarity as well as capacity building programs are significantly able to enhance the effectiveness of organizational OI strategies.

The results suggest that policy initiatives under Vision 2030 are recommended to continue supporting innovation network as well as digital transformation infrastructure and commercialization facilitation. Encouraging innovation platforms and strengthening intellectual property frameworks can enhance the effectiveness of OIO. Therefore, in the context of Saudi Arabia which aims to diversify the economy, coordinated policy and digital capability development are critical for maximizing growth that are based on innovation.

**Conclusion**

This study was conducted to examine the effect of OI on OP of companies in Saudi Arabia. The study found that OOI and IOI have significant impacts on OP. The effect of OIO is higher and more important in terms of size effect. Government support and technological readiness moderated positively the effect of IOI and OOI on OP. The findings of this study are limited to the Saudi Arabian context. It is also limited to manufacturing and service companies. The study deployed purposive sampling. Therefore, generalization of the result should be only on the companies that have participated in this study. As a way forward, future studies are recommended to examine the effect of OOI and IOI in different countries and using different industries such as educational institutions or banks. Future studies are recommended to examine the OOI and IOI using random sampling method so that the findings can be more generalizable. Additional mediator and moderator can be examined. For instance, the environmental uncertainty as well as the organizational agility can be tested in OI and OP context to better understand the conditional effect of OI on OP.

**References**


1. Alarefi, M. (2023a). Adoption of IoT by telecommunication companies in GCC: The role of blockchain. *Decision Science Letters*, *12*(1), 55–68.
2. Alarefi, M. (2023b). Cloud computing usage by governmental organizations in Saudi Arabia based on Vision 2030. *Uncertain Supply Chain Management*, *11*(1), 169–178.
3. Alarefi, M. (2024). The Impact of Artificial Intelligence on Business Performance in Saudi Arabia: The Role of Technological Readiness and Data Quality. *Engineering, Technology & Applied Science Research*, *14*(5), 16802–16807.
4. Azhar Mohd Harif, M. A., Nawaz, M., & Hameed, W. U. (2022). The role of open innovation, hotel service quality and marketing strategy in hotel business performance. *Heliyon*, *8*(9), e10441. https://doi.org/10.1016/j.heliyon.2022.e10441
5. Barney, J. B., Ketchen Jr, D. J., & Wright, M. (2021). Resource-based theory and the value creation framework. *Journal of Management*, *47*(7), 1936–1955.
6. Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2020a). The influence of open innovation on firm performance. *International Journal of Engineering Business Management*, *12*, 1–14. https://doi.org/10.1177/1847979020969545
7. Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2020b). The past, present and future of open innovation. *European Journal of Innovation Management*, *24*(4), 1130–1161. https://doi.org/10.1108/EJIM-10-2019-0296
8. Camilleri, M. A., Troise, C., Strazzullo, S., & Bresciani, S. (2023). Creating shared value through open innovation approaches: Opportunities and challenges for corporate sustainability. *Business Strategy and the Environment*, *32*(7), 4485–4502.
9. Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, *100*, 196–206.
10. Chesbrough, H., & Bogers, M. (2014). Explicating open innovation: Clarifying an emerging paradigm for understanding innovation. *New Frontiers in Open Innovation. Oxford: Oxford University Press, Forthcoming*, 3–28.
11. Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.
12. Delshab, V., Winand, M., Sadeghi Boroujerdi, S., Hoeber, L., & Mahmoudian, A. (2022). The impact of knowledge management on performance in nonprofit sports clubs: the mediating role of attitude toward innovation, open innovation, and innovativeness. *European Sport Management Quarterly*, *22*(2), 139–160. https://doi.org/10.1080/16184742.2020.1768572
13. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147–160.
14. Ferraris, A., Santoro, G., & Dezi, L. (2017). Journal of Knowledge Management How MNC's subsidiaries may improve their innovative performance? The role of external sources and knowledge management capabilities How MNC's subsidiaries may improve their innovative performance? The role of external sourc. *Journal of Knowledge Management Journal of Knowledge Management Journal of Knowledge Management Universiti Sains Malaysia At*, *21*(17). https://doi.org/10.1108/JKM-09-2016-0411
15. Gassmann, O., Enkel, E., & Chesbrough, H. (2010). The future of open innovation. *R&d Management*, *40*(3), 213–221.
16. Greco, M., Cricelli, L., Grimaldi, M., Strazzullo, S., & Ferruzzi, G. (2022). Unveiling the relationships among intellectual property strategies, protection mechanisms and outbound open innovation. *Creativity and*

*Innovation Management*, *31*(2), 376–389.
17. Lu, C., Yu, B., Zhang, J., & Xu, D. (2021). Effects of open innovation strategies on innovation performance of SMEs: evidence from China. *Chinese Management Studies*, *15*(1), 24–43. https://doi.org/10.1108/CMS-01-2020-0009
18. Mariani, M. M., & Nambisan, S. (2021). Innovation analytics and digital innovation experimentation: the rise of research-driven online review platforms. *Technological Forecasting and Social Change*, *172*, 121009.
19. Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information and Management*, *58*(3), 103434. https://doi.org/10.1016/j.im.2021.103434
20. Mubarak, M. F., Evans, R., Shabbir, M., Ghobakhloo, M., Petraite, M., & Jucevicius, G. (2025). Driving new product development performance: the mediating role of absorptive capacity in open innovation for SMEs. *Journal of Manufacturing Technology Management*, 1–16.
21. Najar, T., Dhaouadi, K., & Ben Zammel, I. (2020). Intellectual capital impact on open innovation: The case of technology-based sectors in Tunisia. *Journal of Innovation Economics and Management*, *32*(2), 75–106. https://doi.org/10.3917/jie.032.0075
22. 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. https://doi.org/10.1016/j.ibusrev.2017.12.001
23. Naqshbandi, M. M., & Tabche, I. (2018). The interplay of leadership, absorptive capacity, and organizational learning culture in open innovation: Testing a moderated mediation model. *Technological Forecasting and Social Change*, *133*(March), 156–167. https://doi.org/10.1016/j.techfore.2018.03.017
24. Naqshbandi, M. M., Tabche, I., & Choudhary, N. (2019). Managing open innovation: The roles of empowering leadership and employee involvement climate. *Management Decision*, *57*(3), 703–723. https://doi.org/10.1108/MD-07-2017-0660
25. Narwane, V. S., Raut, R. D., Gardas, B. B., Kavre, M. S., & Narkhede, B. E. (2019). Factors affecting the adoption of cloud of things: The case study of Indian small and medium enterprises. *Journal of Systems and Information Technology*, *21*(4), 397–418. https://doi.org/10.1108/JSIT-10-2018-0137
26. Ngisau, N., & Ibrahim, A. (2020). Technological Innovation Adoption in Manufacturing Sector: The Moderator Role of Government Support. *J. Econ. Bus. Manag*, *8*, 200–205.
27. Pillai, G. (2021). This is a repository copy of Differential Moderating Effects of Strategic and Operational Reconfiguration on the Relationship between Open Innovation Practices and Innovation Performance . White Rose Research Online URL for this paper : Version : Accepted. *Research Policy*, *59*(1), 1–36.
28. Radziwon, A., & Bogers, M. (2019). Open innovation in SMEs: Exploring inter-organizational relationships in an ecosystem. *Technological Forecasting and Social Change*, *146*, 573–587.
29. Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *European Management Journal*, *33*(3), 201–213.
30. Santoro, G., Ferraris, A., & Winteler, D. J. (2019). Open innovation practices and related internal dynamics: case studies of Italian ICT SMEs. *EuroMed Journal of Business*, *14*(1), 47–61.
31. Scott, W. R. (2017). Institutional theory: Onward and upward. *The Sage Handbook of Organizational Institutionalism*, *900*, 853–871.
32. Sengupta, A., & Sena, V. (2020). Impact of open innovation on industries and firms – A dynamic complex systems view. *Technological Forecasting and Social Change*, *159*(November 2019), 120199. https://doi.org/10.1016/j.techfore.2020.120199
33. Sims, J., Gichoya, J., Bhardwaj, G., Bogers, M., Street, F., & Park, B. (2018). *Write Code , Save Lives : How a Community Uses Open Innovation to Address a Societal Challenge*.
34. Tang, T. (Ya), Fisher, G. J., & Qualls, W. J. (2021). The effects of inbound open innovation, outbound open innovation, and team role diversity on open source software project performance. *Industrial Marketing Management*, *94*(March 2019), 216–228. https://doi.org/10.1016/j.indmarman.2021.02.013
35. Thao, H. T., & Xie, X. (2025). Fostering green innovation performance through open innovation strategies: do green subsidies work? In *Environment, Development and Sustainability* (Vol. 26, Issue 7). Springer Netherlands. https://doi.org/10.1007/s10668-023-03409-4
36. Ullah, S., Kukreti, M., Sami, A., & Shaukat, M. R. (2025). Leveraging technological readiness and green dynamic capability to enhance sustainability performance in manufacturing firms. *Journal of Manufacturing Technology Management*, *36*(3), 714–730.
37. Venkatraman, N., & Ramanujam, V. (1986). Measurement of Business Performance in Strategy Research: A Comparison of Approaches. *Academy of Management Review*, *11*(4), 801–814. https://doi.org/10.5465/amr.1986.4283976

38. Wang, X., & Xu, M. (2018). Examining the linkage among open innovation, customer knowledge management and radical innovation: The multiple mediating effects of organizational learning ability. *Baltic Journal of Management*, *13*(3), 368–389. https://doi.org/10.1108/BJM-04-2017-0108
39. Zanjirchi, S. M., Jalilian, N., & Shahmohamadi Mehrjardi, M. (2019). Open innovation: from technology exploitation to creation of superior performance. *Asia Pacific Journal of Innovation and Entrepreneurship*, *13*(3), 326–340. https://doi.org/10.1108/apjie-02-2019-0005