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# Research Partnership Gap between Universities and Public and Private Institutions to Achieve Oman Vision 2040

**Ahmed Al Rabaani[1]*, Huda Al Dayri[2]**

[1] *Omani Studies Centre, Sultan Qaboos University, Muscat, Oman*

[2] *Ministry of Education*

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**Abstract:**
This study explores mechanisms to bridge the gap between Omani universities and public and private institutions by investigating the current extent of research partnerships and the challenges and mechanisms of bridging the gap at the partnership level. A 33-item questionnaire developed by the researchers covering four domains was administered to 204 academic and non-academic staff from Omani universities and public and private partner institutions. The gap in research partnership needs to be bridged; albeit the current extent of research partnership is moderate, and participants were moderately satisfied with the degree of partnership. They also strongly highlighted obstacles facing the enhancement of such partnerships and supported mechanisms for bridging the gap. No significant differences were found in relation to gender and institutional type, but there was a significant difference in relation to experience. This study highlights barriers to effective research partnerships as perceived by stakeholders in Oman regarding Oman Vision 2040, identifying areas to be addressed.

**Keywords:** gap, research partnership, universities, public sector, private sector, Oman Vision 2040.

# 大学与公共和私营机构之间研究合作差距，以实现阿曼2040年愿景

**摘要**:
本研究通过调查当前研究伙伴关系的程度以及弥合伙伴关系层面差距的挑战和机制，探讨了弥合阿曼大学与公立和私营机构之间差距的机制。研究人员开发了一份涵盖4个领域、包含33项的调查问卷，对来自阿曼大学以及公共和私人合作机构的204名学术和非学术人员进行了调查。研究伙伴关系方面的差距需要弥合；尽管目前研究伙伴关系的程度中等，参与者对伙伴关系的程度感到中等程度的满意。他们还强烈强调了加

Corresponding Author: Ahmed Al Rabaani, Omani Studies Centre, Sultan Qaboos University, Muscat, Oman; email: arabaani@squ.edu.om

强这种伙伴关系所面临的障碍，并支持弥合差距的机制。在性别和机构类型方面没有发现显着差异，但在经验方面存在显着差异。本研究强调了阿曼利益相关者认为阿曼2040年愿景中有效研究伙伴关系面临的障碍，并确定了需要解决的领域。

**关键词：**差距、研究伙伴关系、大学、公共部门、私营部门、阿曼2040年愿景。

## 1. Introduction

Scientific research has received global attention since the last century due to its contribution to innovation and remarkable transformation in human being life in different fields. Thus, a research partnership between universities and public and private institutions has grown for decades in order to achieve benefits for each party, which result in national and international development. The growth of research partnerships enhances the exchange of experience, technology, and benefits and promotes innovation (Perkmann et al., 2011; Freitas et al., 2013; Ankrah & Al-Tabbaa, 2015; Rorwana, 2015).

Public and private institutions in many countries are keen to establish strong research partnerships with universities in order to accelerate their production, achievement of goals through implementing research output in addressing different issues and developing new products and services (Vinson et al., 2021; Pouris, 2017; Anderson & Steneck, 2011; Adams, 2013). The literature shows that such research partnerships vary between countries and within one country due to different factors such as culture differences, work practice, confidentiality, organizational differences, and level of funding (Ankrah, 2013; Bruneel et al., 2010; Wilson, 2012a, 2012b).

Research partnerships are viewed as the engine of change at the national level. Thus, it has been considered as one of the priorities within national strategy or national vision as in the case of Sultanate of Oman, which launched its Oman National Vision 2040 in 2020. This vision focuses on achieving remarkable transformation of Oman in the international index. The vision put scientific research and innovation as one of the main priorities. Thus, the current study focuses on investigating the current level of research partnership and its contribution to achieving the Oman Vision 2040. The literature lacks studies that link research partnership and the achievement of national vision. Conducting such studies is quite important to provide information that may help in highlighting barriers and solutions that may address such barriers. Also, the achievement of the Oman Vision 2040 requires the enhancement of research partnerships to achieve remarkable transformation in the performance of public and private institutions, products, and services.

## 2. Literature Review

Research partnerships are universally regarded as critical for economic growth, innovation, and national and international competitiveness. Research quality is improved by linking universities with public and private partner institutions. OECD countries have made enhancement of research partnership between these parties a priority in order to accentuate the role of universities in sustainable socio-economic development, but more work is needed in emerging and developing countries to enhance such partnerships and enable nation progress. In the case of Oman, a developing country in the Gulf Cooperation Council (GCC), scientific research and innovation and educational development are core priorities of the national development plan Oman Vision 2040 (n.d.).

However, the baseline status of Oman according to global indicators indicates that the national academic sector is still far from realizing the ambitions of Oman Vision 2040, and one national university (ranked 379) was among the top 500 in the QS World University Ranking of 2020 (QS World University Rankings, 2020). Furthermore, Oman lost four points in the Global Innovation Index from 2019 to 2020 (from 84 to 80) (World Intellectual Property Organization, 2019, 2020). Thus, Oman needs more effort in the field of research in general and in the enhancement of research partnerships between universities and public and private institutions (P&PIs). The objective of this paper is to evaluate the current status of Omani universities and P&PIs (including industrial partners) in terms of research partnerships to achieve Oman Vision 2040.

Previous literature amply demonstrates the positive impacts of promoting research partnerships on academic institutions, P&PIs, national, and international socio-economic development. Various rationales are proposed for this connection, including that the enhancement of partnerships encourages knowledge and technology exchange (Bekkers & Freitas, 2008), builds organizational knowledge stock (Cricelli & Grimaldi, 2010), and fosters both parties' production development, innovation, and knowledge transfer and application (Champenois & Etzkowitz, 2018; Leydesdorff & Porto-Gomez, 2019), from the level of individual operational components to organization-wide paradigmatic shifts (Wilson, 2012a, 2012b).

Reforms within the education sector also compel universities and P&PIs to enhance research partnerships and pool resources for greater economic efficiency and sustainability. Private sector partners, particularly larger enterprises, are keen to have active research partnerships with universities, galvanized by the way such activities intersect with corporate social responsibility agendas, as well as to develop new products (Fontana et al., 2006; Organisation for Economic Co-operation and Development, 2007; Segarra-Blasco & Arauzo-Carod, 2008). In the modern

global economy, it is increasingly unfeasible for either public or private institutions to undertake their own autonomous research due to fundamental financial pressures and intensive global competition, mandating the sharing of facilities, knowledge, and resources (Swaminathan & Moorman, 2009). Collaborating with universities can improve competitiveness and sustainability in a very competitive environment, achieving high performance, obtaining innovative products, and responding to customer needs and market demands (Ivascu et al., 2016).

Literature shows that universities and P&PIs have increasingly created strategic research partnerships (Davey et al., 2011), and there has been a marked increase in such activities since the 2000s (Woolgar, 2007; Lehrer et al., 2009; Gertner et al., 2011; Pavlin, 2014). This is attributable to a combination of pressures on both private and public institutions on the one hand and on universities on the other hand (Giuliani & Arza, 2009). For private institutions, the globalized and increasingly digitized world economy intensifies competition, and rapid technological changes can pose challenges (Wright et al., 2008). Universities have also faced a digital revolution and increasing reforms to commercialize the education industry and place it on a business-like footing, posing challenges for service delivery in new contexts and funding paradigms (Hagen, 2002). There are also associated macroeconomic political and social pressures on universities to produce economic value for local communities and national economies (Philbin, 2008).

Furthermore, there are many economic benefits for P&PIs from investing in partnerships with universities, as modeled by Ivascu et al. (2016), due to universities being well-defined structures that support research projects, with effective project management, communication, and qualified researchers.

Despite the importance of partnership between these parties, several obstacles may limit their extent and success, such as differences in values, mindset, and norms of both parties, which sometimes can hamper knowledge transfer (Belkhodja & Landry, 2007; Muscio & Pozzali, 2013). These could be manifested in attitudes to differences in organizational and institutional culture and project management (Perkmann et al., 2011). Attitudes of both partners about research methods and target influence the level of interest to practically enhance partnerships (Plewa et al., 2013).

Such obstacles and barriers are clearer in developing countries than in developed and industrialized countries, which have longer experience and more efficient resource deployment to foster the building of strategic research partnerships between universities and P&PIs. Consequently, developed countries continue to lead in innovation and national socio-economic wellbeing. In the context of Oman, the enhancement of research partnerships is crucial to achieve the Oman Vision 2040, which emphasizes the prioritization of research to support private sector development and economic diversification. This is the core national strategic priority in order to reduce dependence on oil and gas revenues and place the national economy on a sustainable footing for the next century. Achieving economic diversification as per Oman Vision 2040 entails building strategic research partnerships between 21 Omani universities and P&PIs to develop their performance, production, quality of services, and innovation.

*The objectives of the study:*

- Measuring the level of research partnership between universities and P&PIs;
- Identifying barriers to enhancement of research partnership between universities and P&PIs;
- Providing mechanisms that enhance research partnership between universities and P&PIs.

*Research questions*

- What is the current status of research partnerships between universities and P&PIs?
- What is the degree of satisfaction with research partnerships among universities and P&PIs?
- What are the obstacles facing research partnership promotion between universities and P&PIs?
- What are the mechanisms that can be used to enhance research partnerships?
- Are there any significant differences in views related to research partnerships due to gender and institutions?

## 3. Materials and Methods

This study used a descriptive approach to collect data using a five-point Likert scale questionnaire. The use of this approach was due to its suitability to collect data from a large sample. Shiu et al. (2009) stated that the descriptive approach "uses a set of scientific methods and procedures to collect raw data and create data structure that describes the existing characteristics of a defined target population."

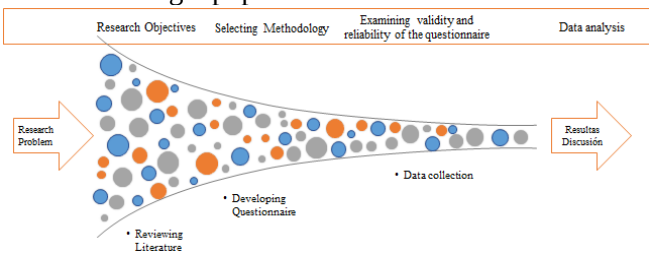


Figure 1. Research methodology (Developed by the authors)

### *3.1. Study Sample*

A purposive sample was used to ensure that participants were personnel responsible for and familiar with research partnerships. The study sample consisted of 204 participants from university partnerships in Oman, comprising 70 from universities, 72 from public institutions, and 62 from private institutions (Table 1). They comprised 132 males and 72 females (Table 2).

Table 1. The sample distribution according to institutions

| **Institutions** | **N** | % |
|---|---|---|
| Universities | 70 | 34.3 |
| Public institutions | 72 | 35.3 |
| Private institutions | 62 | 30.4 |

| Continuation of Table 1 | | |
|---|---|---|
| Total | 204 | 100.0 |

Table 2. The sample distribution according to gender (Developed by the authors)

| Gender | N | % |
|---|---|---|
| Male | 132 | 64.7 |
| Female | 72 | 35.3 |
| Total | 204 | 100 |

### *3.2. Instrument*

This study used a descriptive methodology to collect data from a large sample of the target population (experts on relationships between universities and P&PIs). A questionnaire was developed by the researchers based on the reviewed literature, consisting of 32 items divided into four domains: current extent of research partnership; satisfaction about extent of research partnership; obstacles to promoting research partnership; and mechanism of promoting research partnership. A panel of judges ensured the validity of the questionnaire, and its reliability was checked with a pilot study. The questionnaire achieved a Cronbach's alpha coefficient value of .886 indicating acceptable reliability.

## 4. Results

### *4.1. What is the Current Extent of Research Partnerships between Universities and P&PIs?*

The mean and standard deviation (SD) values in Table 3 indicate that the extent of research partnership between universities and P&PIs is perceived to be average or middling among participants and strongly focused on providing scholarships to postgraduate students. However, it shows moderate levels of various types of research partnerships, such as providing data and information to researchers, financing conferences and symposia, and the involvement of universities in selecting and deciding issues or research topics to be studied under partnerships, while financing research chairs and innovation received the lowest attention.

Table 3. Means and SD for the current extent of research partnerships (Developed by the authors)

| Items | Mean | SD |
|---|---|---|
| P&PIs are concerned about financing research chairs in universities | 3.06 | .905 |
| P&PIs are concerned about financing research projects of university students | 3.00 | 1.024 |
| P&PIs take the initiative to adopt scientific innovations for research results of local universities | 3.00 | 1.083 |
| P&PIs are concerned about involving universities in their research projects | 3.32 | .933 |
| P&PIs are concerned about financing international conferences and symposia organized by universities | 3.38 | .893 |
| P&PIs allow researchers to obtain data information necessary to perform scientific research in universities | 3.38 | .876 |
| Universities provide P&PIs with updated research project results | 3.30 | .897 |
| Universities offer postgraduate scholarships for workers in P&PIs | 3.58 | .864 |
| Universities involving P&PIs in selecting and deciding the issues or research topics to be studied in research partnerships | 3.26 | .971 |
| Average | 3.25 | .681 |

### *4.2. What Is the Degree of Satisfaction with Research Partnerships among Universities and P&PIs?*

The results in Table 4 indicate that the satisfaction level with research partnerships was average. Participants believed that the current level of partnership was essentially below expectations and fluctuated over time, but they moderately believed that partnerships will be better in the future.

Table 4. Satisfaction with research partnerships (Developed by the authors)

| Items | Mean | SD |
|---|---|---|
| I feel satisfied with the level of partnership between universities and P&PIs | 2.68 | .937 |
| I expect that the future of partnerships between universities and P&PIs will be better | 3.16 | .923 |
| I think staff in universities and P&PIs realize the importance of research partnership enhancement | 3.63 | .898 |
| The level of partnership between universities and P&PIs fluctuates from time to time due to financial circumstances and decision-makers' attitudes | 3.98 | 1.02 |
| Average | 3.36 | .730 |

### *4.3. What Are the Obstacles Facing Research Partnership Promotion between Universities and P&PIs?*

The results shown in Table 5 indicate that participants strongly perceive that there are many obstacles facing the enhancement of research partnerships. They think the first obstacles come from a lack of P&PI interest in applying the results of research projects in their strategic planning and development. Second, they cite the absence of research budgets to finance scientific research in universities, followed by a lack of awareness among P&PIs of the role of research in improving their services and products. The next most cited issue was that P&PIs depend mainly on their own competencies, followed by a perception that university research focuses on theoretical and abstract academic objectives, which may not achieve the pragmatic needs of P&PIs. Also, P&PIs are considered to have low awareness of universities' material and human potentials. Other obstacles include decision-makers in the public and private sectors, having low motivation to enhance the contribution of scientific research to their decision-making processes.

Table 5. Means and SD of obstacles to research partnerships (Developed by the authors)

| Items | Mean | SD |
|---|---|---|
| Lack of awareness of the importance of scientific research in improving P&PI services and products | 4.30 | .745 |
| P&PIs highly depend on reputed and experienced international consulting firms rather than Omani universities | 4.27 | .704 |

| | | |
|---|---|---|
| Absence of research budgets in P&PIs to finance research projects in universities | 4.32 | .737 |
| P&PIs lack interest in applying the results of universities' research projects in their strategic planning and development | 4.34 | .774 |
| P&PIs rely on their technical and statistical reports instead of scientific research projects in their development process | 4.07 | .762 |
| P&PIs lack confidence in the capabilities of universities to provide solutions to their problems or develop their services | 4.16 | .768 |
| P&PIs depend on their competencies in the development process | 3.83 | .813 |
| P&PIs lack awareness of universities' material and human potentials | 4.09 | .713 |
| Decision-makers in P&PIs have low motivation to enhance the contribution of scientific research in their decision making | 4.19 | .741 |
| P&PIs fear wasting money on research projects that may not be beneficial for them | 4.21 | .754 |
| Limitation of university research projects to theory, which may not achieve the real needs of P&PIs | 3.89 | .925 |
| Average | 4.15 | .450 |

### *4.4. What Are the Mechanisms That Can Be Used to Enhance Research Partnerships?*

The results in Table 6 indicate that participants highly supported the enhancement of research partnerships, strongly recommended that P&PIs support transforming innovations of research projects to products, and highly supported the need to have innovation support strategic policy, followed by forming partnership groups to enhance communication between universities and P&PIs. The participants supported enhancing the role of scientific research in policy-making in P&PIs and recommended allocating public funding for scientific research partnerships with universities. They stressed the importance of conducting needs assessments to link research projects in universities to issues and problems associated with industry practice. Finally, P&PIs are recommended to provide various types of incentives to university research projects.

Table 6. Mean and SD of mechanisms to enhance research partnerships (Developed by the authors)

| Items | Mean | SD |
|---|---|---|
| P&PIs should allocate budgets for scientific research in university partnerships | 4.34 | .904 |
| Needs assessment should be conducted to link research projects in universities to issues and problems associated with P&PIs | 4.32 | .855 |
| Enhance the role of scientific research in policy-making in P&PIs | 4.36 | .879 |
| P&PIs should support research projects related to their needs | 4.29 | .943 |
| P&PIs are recommended to support transforming innovations of research projects into products | 4.42 | .762 |
| P&PIs are recommended to provide various types of incentives to university research projects | 4.30 | .974 |
| Form partnership groups to enhance communication between universities and P&PIs | 4.37 | .805 |
| Both universities and P&PIs should adopt innovation support as a strategic policy | 4.38 | .904 |
| Average | 4.34 | .783 |

### *4.5. Are There Significant Differences in Views Related to Research Partnerships due to Gender, Institutions, and Experience?*

#### *4.5.1. Gender*

Table 7 shows no significant differences between male and female participants regarding their views on research partnerships between higher educational institutions and P&PIs.

Table 7. T-test results for gender (Developed by the authors)

| | Gender | N | Mean | SD | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|
| Current extent of research partnerships | Male | 132 | 3.28 | .603 | .816 | 202 | .416 |
| | Female | 72 | 3.20 | .807 | .750 | 115.102 | .455 |
| Satisfaction about research partnership | Male | 132 | 3.49 | .553 | .312 | 202 | .755 |
| | Female | 72 | 3.56 | .689 | .286 | 114.160 | .775 |
| Obstacles to research partnership | Male | 132 | 3.34 | .644 | 1.572 | 202 | .118 |
| | Female | 72 | 3.38 | .871 | 1.660 | 170.238 | .099 |
| Mechanisms that can be used to enhance research partnerships | Male | 132 | 4.27 | .778 | 1.799 | 202 | .074 |
| | Female | 72 | 4.48 | .779 | .816 | 202 | .416 |

#### *4.5.2. Institutions*

Table 8 shows that there were no significant differences between participants from universities and P&PIs regarding their views on research partnerships.

Table 8. One-way ANOVA results for institutions (Developed by the authors)

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Current extent of research partnerships | Between groups | 1.537 | 2 | .769 | 1.666 | .192 |
| | Within groups | 92.739 | 201 | .461 | | |
| | Total | 94.276 | 203 | | | |
| Satisfaction about research partnership | Between groups | 2.660 | 2 | 1.330 | 2.532 | .082 |
| | Within groups | 105.608 | 201 | .525 | | |
| | Total | 108.268 | 203 | | | |
| Obstacles to research partnership | Between groups | .098 | 2 | .049 | .240 | .787 |
| | Within groups | 41.045 | 201 | .204 | | |
| | Total | 41.143 | 203 | | | |
| Mechanisms that can be used to enhance research | Between groups | 1.480 | 2 | .740 | 1.209 | .301 |

| | | | | |
|---|---|---|---|---|
| partnerships | Within groups | 123.090 | 201 | .612 |
| | Total | 124.570 | 203 | |

*4.5.3. Experience*

Table 9 shows that participants' level of experience influenced their views. The Shefia test revealed that those with experience of 1-5 years believed that the current extent of research partnerships is high compared to those who had 6-10 years' experience, while veterans in the field with over a decade of experience considered the extent of partnerships to be moderate. Those with more experience were also less satisfied with the extent of research partnerships.

Table 9. One-way ANOVA results for experience (Developed by the authors)

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Current extent of research partnerships | Between groups | 3.480 | 2 | 1.740 | 3.852 | .023 |
| | Within groups | 90.796 | 201 | .452 | | |
| | Total | 94.276 | 203 | | | |
| Satisfaction about research partnerships | Between groups | 3.284 | 2 | 1.642 | 4.659 | .011 |
| | Within groups | 70.845 | 201 | .352 | | |
| | Total | 74.129 | 203 | | | |
| Obstacles to research partnerships | Between groups | .732 | 2 | .366 | 1.820 | .165 |
| | Within groups | 40.411 | 201 | .201 | | |
| | Total | 41.143 | 203 | | | |
| Mechanisms that can be used to enhance research partnerships | Between groups | .086 | 2 | .043 | .069 | .933 |
| | Within groups | 124.485 | 201 | .619 | | |
| | Total | 124.570 | 203 | | | |

# 5. Discussion

The results showed that the current extent of research partnership between universities and P&PIs is still far from ideal expectations, and the existing scenario does not contribute to achieving Oman Vision 2040. Each party is failing to realize the potential benefits of partnerships between P&PIs and universities and the optimum use of their material and human potentials. Despite huge public funding by the government for universities and a mandate to diversify their portfolio of activities and contribution to the private sector, the role of these institutions remains mainly restricted to traditional academic and theoretical research and providing the local job market with qualified labor, with a dearth of productive direct partnerships with P&PIs. This impasse reflects that the efforts of universities to increase research partnerships with P&PIs need to be re-evaluated to develop more effective methods.

These results contradict the findings of previous studies in different national contexts, which showed an absolute increase in the number and depth of partnerships between universities and P&PIs (Woolgar, 2007; Lehrer et al., 2009; Gertner et al., 2011; Pavlin, 2014). This indicates a need to invigorate research partnerships in Oman by fostering an active and enthusiastic research culture among P&PIs and universities, raising awareness of the importance of research in the development and sustainability of institutions and national socio-economic development. In particular, this study found that P&PIs do not appreciate the value offered by universities, and they tend to depend solely on their own competences and international partners rather than developing links with local higher educational institutions.

Conversely, universities should seek to make their research activities more relevant to P&PIs to counteract the perception that their research is academically abstract and theoretical, with limited practical importance for private firms. Universities must expand their role in industry beyond producing graduates fit for the labor market to offer pertinent and valuable research via partnerships with P&PIs. Thus, both P&PIs and universities need to adapt and support each other to remain sustainable and responsive to public and market needs and factors (Giuliani & Arza, 2009; Schmitz et al., 2016; Elia et al., 2017; Giones, 2019). In addition to supporting institutions, effective partnerships between universities and P&PIs can improve the quality of products and services and develop new products required by society to drive national and global socio-economic development (Wright et al., 2008; Cantoni & Yuchtman, 2014; Kantor & Whalley, 2019).

The results showed that the participants were moderately satisfied with the current extent of research partnership. This could be due to participants from both stakeholder groups realizing how research partnerships significantly influence national and global economic development and the dangers of the current situation if it continues without any change. The participants' views support the results of previous studies, which showed that there is an increasing interest to have active research partnerships (Fontana et al., 2006; Organisation for Economic Co-operation and Development, 2007; Segarra-Blasco & Arauzo-Carod, 2008), and that concern about enhancing research partnerships is due to the clear understanding that such enhancement will lead to benefits for both sides, which will significantly empower them to achieve their goals (Conway & Waage, 2010; Bardsley, 2017; Leach et al., 2017; Ivascu et al., 2016).

The study also showed that there are many obstacles facing enhancement of research partnerships, caused by lack of awareness of both parties about research partnership potentialities, which causes a gap between

them. This also leads to negative mutual perceptions about each other, with P&PIs believing that universities are concerned with irrelevant theoretical and abstract research of no practical utility, while universities think P&PIs are concerned only with short-term profit; such problems are commonly due to the mindset and norms of both parties, and often a failure to realize educational and research development and potential in universities in developing countries (as reflected in P&PIs' preference for foreign academic partnerships) (Muscio & Pozzali, 2013). Such perceptions also relate to organizational culture (Perkmann et al., 2011) and attitudes toward research methods and targets (Plewa et al., 2013). Besides underlying perceptions, such obstacles could arise directly from negative institutional experiences of partnerships between both sides. Furthermore, as independent organizations, P&PIs may prefer to pursue independent decision-making processes and not to allow others (i.e., universities and their personnel) to access their commercially sensitive data.

Despite these obstacles, the participants strongly supported mechanisms of enhancing research partnerships through collaboration in supporting transforming innovation of research project to products, having strategic innovation policies, forming research partnership groups to enhance communication, and more active involvement of research in decision-making and development. These results could be due to participants realizing that the success of both universities and P&PIs is influenced by research, and P&PIs recognizing that continuously depending on international partners is unsustainable and potentially risky, as well as more expensive over the long term, compared to proactively supporting the development of local universities. As education and research in Oman matures, after decades of heavy investment, local universities are increasingly poised to offer valuable academic and research resources to P&PIs. The enhancement of such partnerships can create an attractive research environment to further enhance the innovation.

The results also showed that there was no significant difference due to participant gender and institutions. This could be because they have similar insights on the current extent of research partnerships, face the same challenges, and share similar ambitions to enhance research partnerships. It was also revealed that those who have experience of 1-5 years highly rated the current extent of research partnership and were more satisfied with it than those with more experience. This could be due to those who have more experience having more experience of struggling to develop research partnerships, greater awareness of potential research partnership opportunities, and comparing local research partnerships with regional and international equivalents. Also, they have more understanding of the research partnership environment and its complexity.

Finally, it can be seen that the research partnership gap needs to be bridged by improved collaboration between parties to achieve Oman Vision 2040, which entails changing their mindset. Academics and researchers at universities are recommended to be more concerned with the practical utility of their research outputs for industrial partners and communicate this awareness clearly. They should also actively seek to meet market and societal needs by finding innovative solutions for issues facing both public and private intuitions. Also, decision-makers in P&PIs need to change their mindset about the importance of research in the development of their institutions, to see investment in research and in local universities not as a burden but as a long-term investment for sustainable development. P&PI partnership in university research and development (R&D) essentially supports national human resource development, which is the key to long-term sustainable socio-economic development as per Oman Vision 2040. Thus, investing in such partnerships ensures the long-term sustainability of P&PIs in Oman.

The current study revealed that the research partnership between universities and P&PIs is average, and there was moderate satisfaction among participant stakeholders about such partnerships. This is because of many obstacles and huge gaps between both parties. To strengthen such partnerships, it is necessary to raise awareness between both sides about research partnerships and the potential opportunities for both sides to optimize their resource potential. It is fundamentally important to change the mindset of both parties about research partnerships and foster a new, cohesive policy to galvanize academia and the private sector in a culture of research and innovation to achieve Oman's Vision 2040.

# 6. Conclusion

The current study focuses on a new perspective of studying research partnership where the previous literature mainly focused on the benefit of enhancing research partnership between industry and universities, while this study has gone beyond by including public and private institutions and linking it with the national level as per Oman Vision 2040. None of the previous studies targeted linking research partnerships with national level or strategies. The results of the current study highlight very critical points that need to be considered to ensure the contribution of scientific research in Oman to achieving the Oman Vision 2040 and reaching the targeted level in the global competitive indicators. The current level of research partnership in Oman needs to be enhanced by all parties, which requires a national strategy to address all obstacles to growing such partnerships.

### *6.1. Significance*

This study discovers that the situation of the research partnership between Oman universities and P&PIs is not in line with research partnerships in developed countries. It also discovers that the current level of research partnership is far away from the expectations of all parties and may not help that much in achieving Oman Vision 2040. Such results help in reconstructing

the research partnership in a systemic approach that ensures the contribution of all parties to building solid scientific relationships in order to achieve the targeted level within the global competitive indicators.

The study highlighted critical points that need to be studied by researchers, where the literature rarely refers to linking research partnerships to the national level instead of individual institutions. It is quite interesting to conduct more research in this area by linking research partnerships with national strategies by involving all stakeholders. This study will help the researchers to uncover the critical areas of developing research partnerships, reaching a new perspective on such research and making different transformations of research partnerships.

### *6.2. Limitations of the Study*

The results of the study are limited by the study sample, which covers the decision-makers and some researchers and academics in the targeted institutions. Also, it is limited to the content of the applied questionnaire and period of its application during the COVID-19 pandemic.

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