

## **Knowledge and Social Economy Model and Higher Education Institutions' Ranking: A Grounded Theory Approach**

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### **Abstract**

*Higher education institutions (HEIs) face crucial challenges due to education internationalization, complex ranking systems, and financial support. However, stakeholders (i.e., industry, alumni, and government) expect pragmatic results from those HEIs like research, innovation, entrepreneurship, employability, and social responsibility. To address this issue, this study investigates outcome-based factors and offers a framework for HEIs to overcome those challenges. To accomplish this goal, we relied on stakeholder and academic capitalism theories and used data triangulation approach (i.e., interviews, observation, and archival literature), Delphi method, and content validation index. We analyzed the data in NVivo software. The data revealed four aggregated dimensions: knowledge economy development, social economy development, entrepreneurship development, and education internationalization. The findings indicate a strong need for comparing HEIs to identify a holistic view of their direct contribution to HEIs in general and Oman in particular. The study's findings may assist HE systems in other contexts in identifying strategies to meet some of the needs of their relevant stakeholders. The paper makes theoretical, practical, and policy contributions.*

**Keywords:** *stakeholders-driven; knowledge and social economy model; higher education institutions; outcomes-based; entrepreneurship.*

### **Introduction**

Nowadays, the world makes every effort to build dynamic, competitive knowledge economies that promote greater social cohesion, sustainable economic growth, and better and more employment. Additionally, higher education institutions (HEIs) are now more focused on meeting industrial and economic needs (Zumeta, 2011). The effectiveness and efficiency of government-supported initiatives, including funding for universities, have also gained importance. Although HEIs will always have an overarching economic impact, Cloete et al. (2017) contend that there are other facets to their influence on national development. They specifically cited the following four functions of HEIs: the production of values and components of social legitimation, selection of the elite class, development of the labor force, and production of new knowledge. These authors also emphasized the sociocultural role that higher education (HE) plays in society. Research in this area of study has shown that a holistic, multidimensional assessment tool of HEI outcomes should also include the full picture of national impact to fully capture the role that any given institution plays in society as a whole (Lynch, 2015). Furthermore, universities' legitimacy, which depends on their ability to meet stakeholder expectations,

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is a crucial intangible asset to ensure sustainable competitive advantage (Miotto et al., 2020).

Hence, in countries like Oman, the government offers support to HEIs in the form of land grants, specific customs exemptions, a matching grant of 50% of capital contributions up to a maximum of RO three million, and other financial assistance to be used for the construction of facilities and equipment directly related to enhancing educational quality (Ministry of Higher Education, Research, and Innovation [MHERI], 2022). Nevertheless, the MHERI seeks to augment and re-orienting systematic evaluation systems, while justifying their financial allocations and support for academic institutions (National Strategy of Education 2040). Thus, global university-scale developers have made massive efforts over the past decade to provide consumer-type information that is highly regarded and valued by stakeholders (AUBR Expert Group, 2009). However, according to some archived literature, there is currently no particular tool that evaluates HEIs holistically using indicators related to higher institution performance as opposed to a narrow focus on indicators of the enabling stages of the HE production process (Oman National Strategy of Education 2040). The Business School Impact System (BSIS), established in 2014 in collaboration with EFMD Global Network and FNEGE, is the tool that currently comes closest to fulfilling this requirement. This tool aims to assess business schools' impact worldwide, but not the whole HEI (El-Gohary et al., 2016). Other tools aim to rank or rate HEIs globally in various dimensions, primarily based on research, publications, and the reputation of the HEI, rather than measuring the effect per se. These instruments include World Report Best Global University Ranking, Academic Ranking of World Universities, Times Higher Education, and Quacquarelli Symonds. These tools do rank, but it is debatable to what extent they evaluate the direct contributions of HEIs to national development. Moreover, they have drawbacks in terms of scope. "We acknowledge the criticism, and now want to work with the sector to produce a legitimate and robust tool" (Baty, 2012). Consequently, this paper aims to fill the gap left by the lack of a comprehensive outcome-based assessment instrument by thoroughly examining key outcome-based dimensions regarding the anticipated contributions of HEIs to the development of a knowledge-based economy in line with Oman's Vision 2040.

The following is the flow of the paper. First, we discuss the HE systems in Oman and then highlight critical knowledge gaps in existing HEIs' governance performance and accountability. Subsequently, we evaluate theories of education of capitalism and stakeholder and present the method. We also pin the results and include a discussion of the results and propositions. Finally, we conclude the paper and present this study's limitations and future research directions.

#### The higher education system in Oman

Given the Sultanate of Oman's current situation of a disparity between supply and demand for HE, some of the major issues to be investigated in this study include access to HE, funding, quality, governance, and privatization. According to Al-Lamki (2002), Oman lacks a unified HE system because several ministries and government agencies oversee it. Furthermore, the same study found no tradition of charging fees and tuition in the Omani HE system, no established student loan mechanism, and no practice of endowment. In light of these issues, and following the Oman National Education Strategy 2040, a systematic assessment tool for augmenting, re-orienting, and justifying the government's financial allocations and support to their academic institutions based on HEIs' direct contributions to the nation is necessary.

To provide context for the advancements of the HE system in Oman, it is worth noting that Oman does not have formal HE before 1970. However, formal general education in Oman could be said to have begun in the 1930s, during the reign of the grandfather of Sultan Haitham, the current Sultan of Oman (Table 1).

Table 1. Higher education development phases in Oman.

Year	Phase
Prior to 1970	<ul style="list-style-type: none"> <li>• No formal HEIs in Oman</li> </ul>
The 1970s-1980s	<ul style="list-style-type: none"> <li>• Establishment of public vocational colleges (health &amp; teaching)</li> <li>• Establishment of Sultan Qaboos University</li> </ul>
1990s-present	<ul style="list-style-type: none"> <li>• Establishment of Ministry of HE in Oman</li> <li>• Establishment of the first private university in Oman (Sohar University)</li> <li>• Local &amp; imported international academic programs are delivered through private HEIs in Oman (colleges and universities)</li> </ul>
New Phase	<ul style="list-style-type: none"> <li>• Establishment of an all-inclusive HE system that applies adequate quality assurance and development process (OAC, 2006)</li> </ul>

Source: Compiled from Oman National Education Strategy 2040

In the past three decades, the HE system in Oman has grown dynamically and swiftly. In the 1970s, the Sultanate of Oman underwent fundamental and practical growth in HE development. Moreover, His Majesty, the late Sultan Qaboos, assumed control of the Omani government in 1970. With the discovery of oil and gas, which drives the modern economy, he envisioned that Oman's HE system would play a crucial role in the development of a knowledge-based economy. Thus, he established the first formal HEIs in Oman, including Sultan Qaboos University and public vocational colleges.

Table 2. Oman's higher education institutions management.

(1) Governance Entities	HEIs	Number of HEIs	
Ministry of HE	Colleges of Applied Sciences	6	
Ministry of HE Private HEIs		28	
<b>Total</b>		34	
The University Council (Independent)	Sultan Qaboos University	1	
Ministry of Health	Nursing Institutes	11	
Ministry of Health Institutes		5	
<b>Total</b>		<b>16</b>	
Ministry of Manpower	Higher College of Technology	1	
Ministry of Manpower Colleges of Technology		5	
Ministry of Manpower Oman Tourism College		1	
<b>Total</b>		<b>7</b>	
Ministry of Religious Affairs	The Institute of Shari'a Sciences	1	
Central Bank of Oman	The College of Banking & Financial Studies	1	
Royal Oman Police	The Royal Oman Police Academy	1	
Ministry of Defence	The National Defence College	1	
<b>Total</b>		<b>62</b>	

Source: Al Shmeli (2009)

Furthermore, as shown in Table 2, various government ministries and entities regulate and manage HEIs in Oman, complicating the governance and accountability process.

#### Education reforms

A royal decree issued in 2020 by Oman's newly installed Sultan, His Majesty Sultan Haitham bin Tariq, ordered the transfer of vocational training facilities and their responsibilities to the Ministry of Higher Education. This demonstrates that the renewed

renaissance is grounded in a careful examination of reality and is based on the conviction that improving educational effectiveness, applied research, innovation, and vocational training are the economic engines that will propel Oman’s economy forward and ensure its sustainability.

Furthermore, Royal Decree 76/2020 was issued to merge the Higher College of Technology and colleges of applied sciences and to create a new public university called the “University of Technology and Applied Sciences,” which is currently run by the Ministry of Higher Education. A proper investment assessment tool can now be used to track progress, monitor yearly financial and non-financial support given to HEIs by the government, and highlight significant contributions to developing a knowledge-based economy, thanks to changes that have decreased the number of government entities overseeing the HEIs operating in Oman.

Strategic thrust mapping

Oman Vision 2040 is a national project that aims to provide a gateway and critical reference for Oman to build confidence in all social, economic, and developmental relations throughout the country while keeping up with regional and international changes. Oman Vision 2040 is built on three pillars:


- (1) People and society
- (2) Economy and development
- (3) Governance and institutional performance

These national development objectives and strategic directions are aligned with the 17 United Nations Sustainable Development Goals.

HEIs must ensure that their academic programs and research are consistent with the Oman Vision 2040 (National Education Strategy 2040) and contribute to the achievement of education-related sustainable development goals (SDGs), as shown in Table 3. By analyzing the national strategy for education 2040, we emphasized that Oman’s transition to a knowledge-based economy necessitates reform of the current education system to contribute to the achievement of the national development goals. The education system must be dynamic to meet the requirements of the local community and market. Moreover, it should consider the following factors:

- (1) Consistency with national strategic goals
- (2) Future human capital investment
- (3) Education and economic development are complementary
- (4) Quality, performance efficiency, and transparency are all being emphasized
- (5) Making a creative, innovative, and entrepreneurial culture

Table 3. Oman vision education-related strategic directions mapping to SDGs.

Strategic Directions	Mapping to SDGs	SDGs Description
Inclusive Education, Lifelong Learning, and Scientific Research that Lead to a Knowledge-based Society and Competitive National Talents		<p><b>Goal 4:</b> By 2030, all girls and boys will have completed free primary and secondary school. It aims to equalize access to affordable vocational training, eliminate gender and wealth disparities, and achieve universal access to high-quality HE.</p> <p><b>Goal 8:</b> This goal promotes long-term economic growth, productivity, and technological innovation. Its goal is to promote entrepreneurship</p>

		and job creation.
		<b>Goal 9:</b> This goal emphasizes the importance of infrastructure investment and innovation as critical drivers of economic growth and development. It also promotes technological progress to address long-term economic and environmental challenges.
		<b>Goal 7:</b> This goal emphasizes increasing energy productivity and ensuring access to energy for all. It also aims to improve technology to provide cleaner and more efficient energy, which will benefit the Environment.
		<b>Goal 17:</b> This goal emphasizes the significance of solid global partnerships and cooperation. It also aims to improve access to technology and knowledge, which are critical for sharing ideas and fostering innovation.

Oman's plans and strategies for achieving the SDGs prioritize the development of a competitive knowledge-based economy. Oman understands fundamental economic changes and continues to launch promising sectors to help build a solid foundation based on knowledge base diversification and innovation and transition to a competitive knowledge base economy.

#### Issues in HEIs' governance performance and accountability

We identified three critical issues from the existing literature and used them as the foundation for this study to identify the key dimensions to developing an outcomes-based assessment tool for HEIs operating in Oman.

This study's first major problem is that many established rankers' frameworks are generally insufficient and do not adequately account for the full impact of the universities locally (Lynch, 2015). Furthermore, Douglass (2016) found in his research that current rankings do not well capture the overall influence of HEIs on a country. His findings demonstrated the necessity of moving away from harmful neoliberal values that support the economics of stratification and exclusion to a more accurate measure of university impact that can accurately guide educational policy.

The HEIs assessment tools should specify the linguistic, cultural, economic, and historical contexts of the educational systems being ranked because not all countries or systems share the same values and beliefs about what constitutes "quality" in tertiary institutions (Barron, 2017). Numerous studies e.g., (Watkins & Bigg, 2001) have also confirmed the impact of local cultural differences between Western and non-Western countries on HE. Additionally, Van and Ziegele (2012) found that different stakeholders have not widely acknowledged the use of the current university rankings in decision-making.

Furthermore, based on well-established research on learning quality, Pascarella (2001) discovered that reputation, resources, and outputs are given priority in global university rankings over effective educational outcomes. In addition, rather than actual knowledge of quality, established reputations of HEIs are more likely to have an impact on global scales (Clarke, 2002). Brankovic (2021) contends that using global university scales created by QS, Shanghai, or any other organization as evidence for performance in a

linear-causal approach to comprehend the significance of HEIs value is profoundly impractical. As a result, it is difficult to determine the value of existing instruments when evaluating the performance of HEIs and their significant impact at the national level.

However, one of the most recent techniques for evaluating HEIs that primarily concentrates on business education is the BSIS, which was introduced in 2014. Its main query is what the world would be like without business schools (Kalika et al., 2016). The seven multifaceted dimensions that makeup BSIS are listed in Table 4.

Table 4. BSIS dimensions and areas.

(1) Impact Dimensions	Description
Financial impact	a positive impact of the business school on the local economy like salaries, generating employment, development of various services (hotels, restaurants, etc.), payment of taxes.
Educational impact	Students flow in and out to sustain the local job market, the transmission of knowledge, professional skills, and experience.
Business development impact	the development of the local economy through activities like student internships, conducting market studies, business plans, consultancy, entrepreneurship, and business creation.
Intellectual impact	research and development, patent registration, and innovation.
Impact within the regional ecosystem	active engagement with the community ecosystem of educational, professional, cultural, economic, and political activities.
Societal impact	Sustainable development, CSR, environmental protection and how a business school's actions contribute to the sustainable development goals (SDGs).
Image impact	The business school's location and its contribution to the branding of a town.

Source: Compiled by the Researchers

BSIS assists business schools in producing regular impact reports, which serve as a powerful tool for communication with the various stakeholders of the business schools. However, established literature indicates that BSIS is underestimating the effects of HEIs (Fayolle & Gailly, 2015). The BSIS was developed primarily in the Western context, and its application has been limited to Western business schools (El-Gohary et al., 2016). Furthermore, BSIS does not consider systems theory. Its sole focus is on the impact of the business school on its region and zone. The relationship is regarded as one-sided.

Therefore, the government of Oman has a valid argument for seeking an alternative option and a proper HEIs measurement tool that can demonstrate how efficient and effective HEIs in Oman are in contributing to the achievement of Oman Vision 2040 strategic directions and ensuring sustainable development in building a knowledge-based economy.

The second major issue identified as the basis for this study is the annual government financial/grants/scholarships given to HEIs in Oman that is not linked to the HEI's ability to meet collective public accountability and quality assurance/improvement targets. According to Ameen et al. (2010) and Chapman et al. (2009), the Omani government faces numerous financial challenges in supporting the HE sector because oil revenue is the primary funding source for HEIs. However, Omani oil will be reduced in the coming eras (Chapman et al., 2009). There is a clear indication that necessary consequences for future funding of government and private HEIs will occur. According to Hazelkorn (2011), most HE leaders use the potential gain mentioned in the ranking to justify resource claims. Another study, which was conducted by Jaschik (2007), highlighted that

the positions and even salaries of HEI leaders were linked to their institution's performance in rankings in various cases. Although HEIs require government support to function effectively, it appears that this results in apathy toward meeting national or international standards of excellence in Oman. At the national level, Oman's HE system is expanding to meet the increasing demand for more placements for Omanis pursuing their HE.

Nonetheless, this development has resulted in less consideration in terms of quality (Al Shmeli, 2009). According to Al Shmeli (2009), "rapid growth and the introduction of the profit motive in relatively immature HE systems inevitably poses a threat to quality" (p. 18). Furthermore, Carroll et al. (2009) confirmed that developing quality assurance standards will be extremely important as Oman's HE systems expand.

The literature indicates that the Ministry of HE in Oman is attempting to encourage comprehensive quality assurance practices among its HEIs to address the disparity between HEI quality and growing access. However, these studies conjecture that some issues regarding quality assurance and academic excellence remain, and new monitoring and assessment tools are required (Al Bandary, 2005; Al-Lamki, 2006; Al Shmeli, 2009; Carroll et al., 2009). Furthermore, according to the Oman Academic Accreditation Authority (2021), only five institutions are accredited out of the total number of private HEIs. Because they cannot meet the quality standards and criteria, the remaining private HE providers are still on probation or partially certified. This indicates cause for concern and the need for a competitive drive for a ranking position that can reflect the efficient and effective use of resources allocated to HEIs by the Omani government (National Strategy of Education 2040).

The third issue identified as a groundwork for this study is a lack of HEI sustainability reporting practices on how individual HEIs can showcase their contributions to Oman Vision 2040's various strategic directions. Based on Oman Vision 2040, there is a growing need to improve how we measure each HEI's contributions to the growth and competitiveness of several national priorities. Various stakeholders in society regard such performance scales as a "reference." Azelkorn (2008) stated that potential students consult these instruments when deciding which HEI to attend. Meanwhile, various industries consider them when hiring new employees, and policymakers use them to make decisions about relevant policy development. An argument that has been raised in numerous works of literature is that the governance of the HE system in Oman is not practical in terms of accountability for resource distribution and policy-making (see, Al Harthy, 2011; Al-Lamki, 2006; Al Shmeli, 2009). Alternatively, Al-Amri (2020) proposed a local outcome-based multifaceted HEIs measurement tool, which is currently lacking to inform policy and practice.

## **Theoretical background and existing research**

This paper provides deep insights into how academic capitalism theory (Slaughter et al., 2004) and stakeholders theory (Freeman, 1984) can change university culture from being solely focused on education to being focused on the creation of multifaceted values to frame our understanding of how various stakeholders in Oman conceptualize the role of higher education institutions. Consequently, the outcomes-based dimensions that emerged from these theoretical perspectives and the data collected throughout the research process contribute to the development of an appropriate ranking tool for Oman.

### **Academic capitalism theory**

A new viewpoint on the relationship between HEIs and society is necessary for light of the emergence of a "new" knowledge society. Recent research has focused on organizations to determine the cultural factors influencing successful change (Kezar & Eckel, 2002). However, the larger environment, especially the organizational networks to

which most organizations belong, remains relatively unexplored (Slaughter et al., 2004). For instance, dramatic case studies like those by Clarke (1970, 1998), who examined how campuses foster an entrepreneurial culture, tell the story of organizational changes in the practices and culture of specific HEIs. Even the biological “triple helix” model proposed by Etzkowitz et al. (1998), who proposed that the strands represent the intertwined relationships between universities, industry, and government, still views the strands as separate from one another.

Universities were integrated with the industrial economy in the last quarter of the 19th century, moving from philosophy to science and covering everything from chemistry and engineering to the social sciences. Since then, it has become impossible to ignore the connection between HEIs and industry because knowledge cannot be easily separated from the new economy as it contributes richly to national development. Advanced knowledge is viewed as a raw material in the new economy that can be used to develop technologies or be commercialized as new products or services. Universities are thus a place where knowledge can be marginalized in many ways. The economy also requires a skilled workforce in business-related disciplines to develop and secure knowledge-based goods, procedures, and services.

Academic capitalism theory explains the consolidation of HEIs into the new economy (Slaughter et al., 2004). It shows how groups of actors, including academic experts, administrators, and students, use a variety of resources to develop new knowledge channels that link HEIs to emerging economies. These funds will also be used to strengthen management capacities for controlling new flows of external resources, invest in research infrastructure for emerging economies, and invest in infrastructure to promote institutions, goods, and services, including recruitment of new students. Consumer students increasingly choose new economics majors at HEIs where they think they can get a return on their investment in education. The university markets its graduates to employers as outputs or products that support the growth of the national economy.

In science, peer review is still essential, but universities no longer assess student performance. HEIs instead contend for positions in academic rankings compiled by scientists (Ehrenberg, 2000). Undoubtedly, industrial scientists can perform scientific research just as well as scholars, but these changes show how the academic capitalist knowledge/learning system has produced new knowledge circuits.

#### Stakeholder theory

In the 1970s, business management transformed from stakeholder influence to stakeholder partnership (Hong, 2019). These changes affected HE systems by implementing a participation-oriented approach (Mainardes et al., 2010). According to El-Gohary et al. (2006), stakeholder disagreement is the primary cause of any business failure. Consequently, students have more opportunities and power to provide perspectives and feedback on study processes. Industries and businesses also require a learning system encompassing interdisciplinary knowledge and skills (El-Gohary et al., 2006). Moreover, governments have begun to compel HEIs to seek new sponsorship streams. Eden and Ackermann (1998) define stakeholders as “people or small groups with the power to respond to, negotiate with, and change the strategic future of the organizations” (p. 117). According to some works of literature, “developing an eye for the varying nature of issues, the forms of interrelatedness between project stakeholders, and how issues are intertwined with stakeholders’ developing positions and views, maybe a start in dealing with issues more consciously and choosing more deliberately and strategically which issues to prioritize” (Van et al., 2016). Because HEIs are multidimensional systems, each stakeholder would play a specific role based on their specific needs and desires (Voss et al., 2007).



## Method

### Research design and paradigm

We identified the multifaceted dimensions for evaluating HEIs in Oman by employing the fundamental design aspects. In this study, we developed a qualitative design framework based on data triangulation principles (i.e., interviews, observation, and archives) to collect diverse data from Oman's HEIs and key stakeholders. We selected this methodology as we believe qualitative research to be interpretive, naturalistic, and subjective (Creswell, 2007). To understand and address this issue, we adopted the view that reality is socially constructed as opposed to inherently existing (Checkland, 1999).

### Data source and sample

The methods used to handle the data were in accordance with Boateng et al.'s (1970) recommendations that the selection of the anticipated dimensions and the measures that support them should be based on methodological standards of empirical research, validity, and reliability. The triangulation design (Figure 1) (Creswell et al., 2003) allowed us to "obtain different but complementary data on the same topic" (Morse, 1991, p. 122) to understand the research problem better. The application makes use of these data. Figure 1 illustrates the specifics.

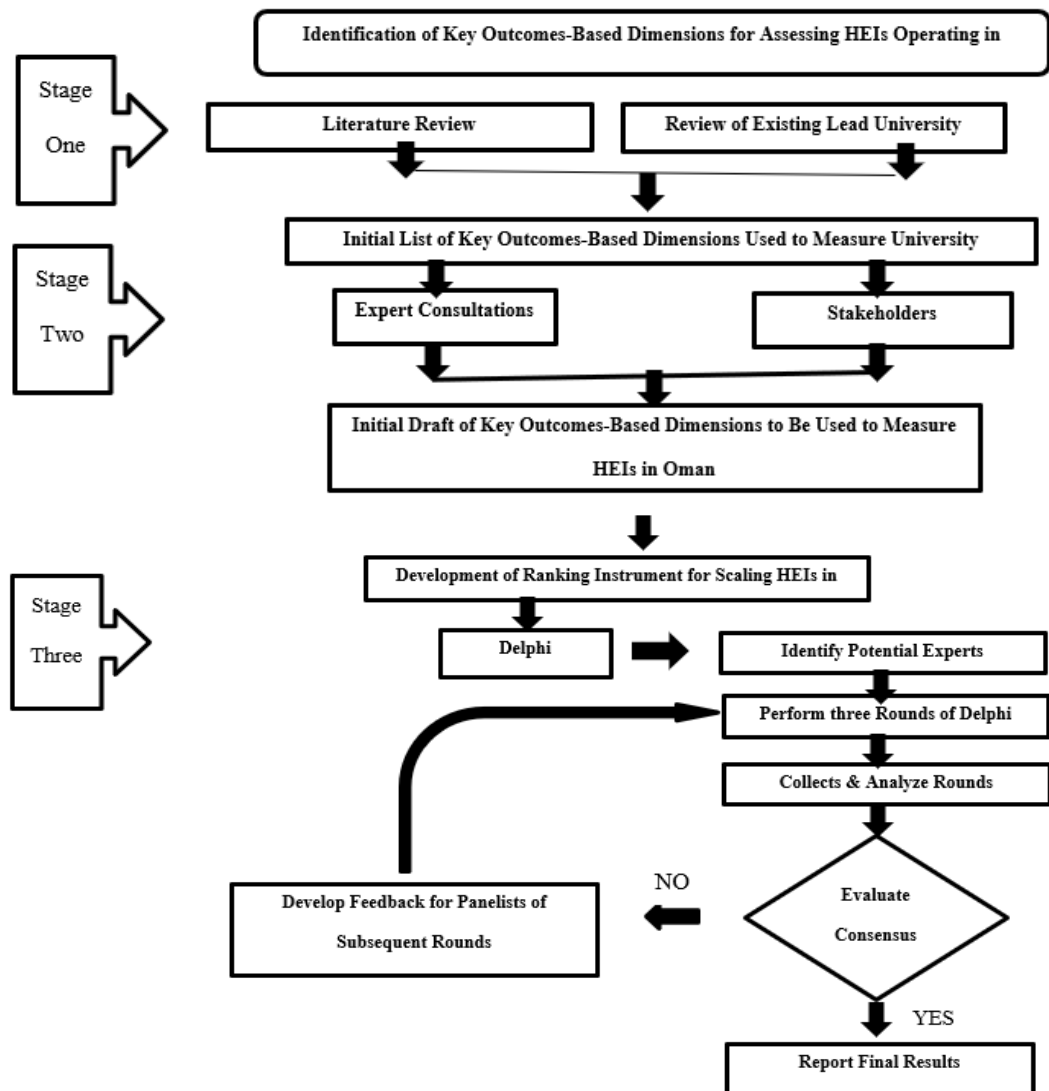


Figure 1. The qualitative method research design framework based on the principles of triangulation.

It is also important to note that triangulation mitigates, nullifies, or compensates for the shortcomings of a single strategy, thereby improving the ability to interpret the results (Thurmond, 2001).

To the best of the authors' knowledge, there is limited research on the topic of this paper; however, we find qualitative research to be a useful tool for diverse populations. Participants in the study must reflect the diversity of culture and conditions, taking into account experience, gender, age, and so on. Multiple perspectives allow us to understand the situation from different angles and gain a better understanding. Using diverse participants in research reduces bias, judgment, and conflict (King, 2004). Perspective diversity is a mode in which the pursuit of group consensus jeopardizes independent critical thinking (Miller & Glassner, 1997). To support efforts to improve the reliability of the interview protocol used in this study, we developed an interview protocol that was done systematically following the interview protocol refinement framework (Castillo-Montoya, 2016).

#### Piloting for interviews

Before beginning our formal interviews, we conducted preliminary interviews with academics, practitioners, and graduate students. It was a good opportunity to estimate interview duration and validate the established protocols. We incorporated their suggestions and began conducting interviews with various participants, including current students, graduates, officials responsible for education quality in HEIs, academics, industry, government representatives, and parents of graduates.

#### Data analysis

We identified four aggregated dimensions (i.e., knowledge economy development, social economy development, internationalization of education, and entrepreneurship development) as a result of our discussions with these stakeholders about their conceptions of the multifaceted roles that HEIs play in establishing effective and efficient Omani social and knowledge economy (see Table 5).

Table 5. Emerging four aggregated outcome-based dimensions.

Aggregated Dimensions	Frequency	% themes	# of Participants mention it	% Cases
Knowledge Economy Development (KED)	295	53.9%	22	100%
Entrepreneurship Development (ED)	46	8.4%	17	77.3%
Internationalization of Education (IE)	62	11.3%	22	100%
Social Economy Development (SED)	144	26.3%	22	100%

Subsequently, we conducted three rounds of the Delphi method (see Figure 2) with another group of experts (3 practitioners, 3 quality authorities at HEIs, and 2 academics) who had knowledge and experience with the issue of HE planning and development. Their perspectives and perceptions were identified, analyzed, and triangulated with results from previous data collection phases. The experts' consensus decision pathway is detailed in the following.

#### Round 1

We began by stating the primary research question and briefing experts on the results of the first phase of the data collection of stakeholders' driven thematic analysis results. Then, we solicited input from experts regarding potential measurable/quantifiable criteria that should be considered when evaluating the contribution of HEIs to national development.

## Round 2

We presented the analysis of Round 1 and asked experts to rate the importance and applicability of each response in light of the preliminary first-level themes identified in Round 1. Examples of items from Rounds 1 and 2 that fell short of the required level of expert agreement (consensus percent) are shown in Table 6.

Table 6. Exemplary reviewed items in first two rounds of Delphi process.

No.	Dimension	Criteria	Mean	Standard Deviation	Consensus %
1.	Knowledge Production	HEIs research findings need to be mentioned by the local and global media to show cases of their contributions to community.	1.57	0.73	57.14%
2.	Students' Skills Development	The HEIs environment needs to develop self-confidence and emotional stability in their students based on students/employers' feedback.	1.57	0.73	57.14%
3.	Employment Quality	HEIs need to have easily employable graduates based on graduates or employers' feedback.	1.57	0.73	57.14%
4.	Internationalization	The HEIs need to attract a more diverse student body.	1.57	0.73	57.14%
5.	Social Impact	HEIs need to rank various social issues related to their activities to create an explicit and affirmative HEIs' social agenda.	1.71	0.88	57.14%

## Round 3

We presented the Round 2 analysis results. Items were changed, and experts were asked to re-rate the criteria that did not achieve consensus in Round 2 and capture additional thoughts on key dimensions that had emerged thus far. Consensus among experts was formed in the first and second rounds based on <70% of agreement among experts to consider certain dimensions. By the end of Round 3, the final consensus had been reached based on a combined consensus (CC percent) of not less than 85% for each dimension's inclusion.

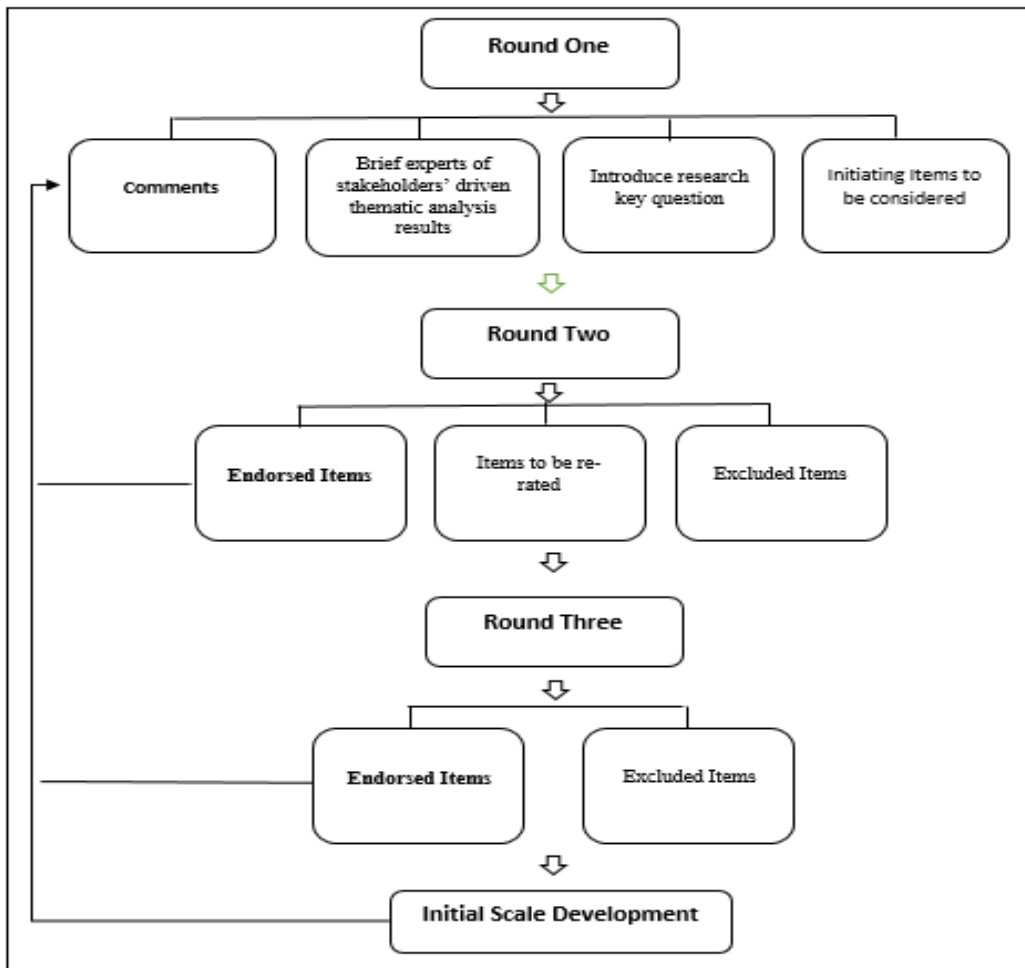


Figure 2: The three rounds of Delphi technique.

Using Delphi assisted us in predicting new outcomes-based dimensions for inclusion in the intended national HEI ranking scale development and confirming or validating previously identified dimensions (Jayawardena et al., 2022).

## Results

The present research aimed to identify the key multidimensional assessment tool for ranking Oman's higher education institutions according to their direct contributions to national development. Figure 3 depicts the data structure, while Table 7 provides a listing of themes and representative quotations. The data revealed clusters of first-level themes, which we classified into four broad categories: development of the knowledge economy, social economy, entrepreneurship, and internationalization of education.

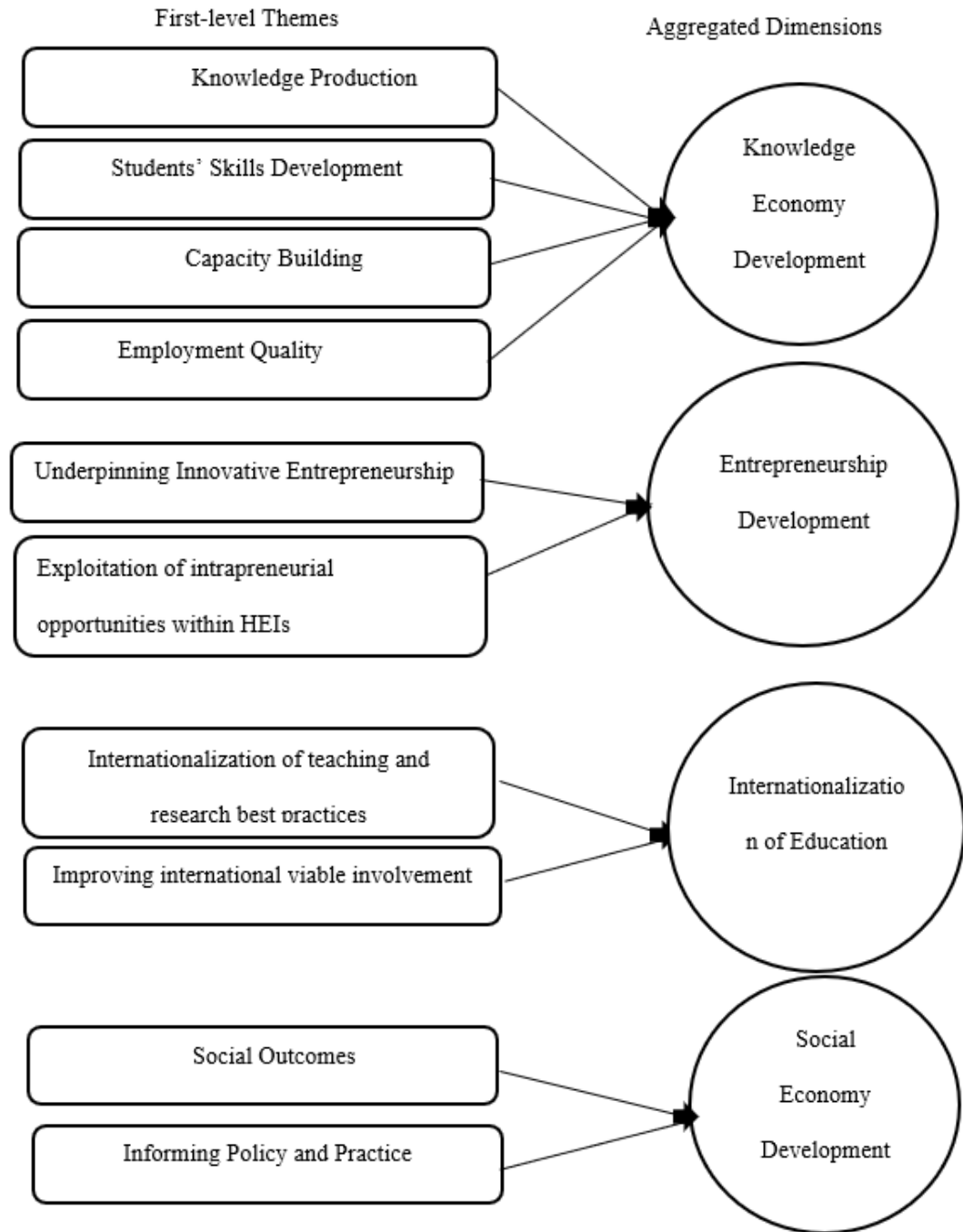


Figure 3. Data structure.

Table 7. Representative quotations underlying first-level themes and aggregated dimensions.

Aggregated Dimensions	First-level Themes	Exemplary quotations
Knowledge Economy Development	Knowledge Production	<ul style="list-style-type: none"> <li>I think HEIs should present research findings in reputed journal indexing agencies e.g. SCImago and Scopus</li> <li>I believe HEIs should present research findings in book chapters or books</li> </ul>
	Students' Skills Development	<ul style="list-style-type: none"> <li>I believe HEIs environment have to develop students' soft skills</li> </ul>

		<p>like communication, critical and logical thinking, problem-solving, etc.</p> <ul style="list-style-type: none"> <li>● It is strongly assumed that HEIs environment has the role of developing students' intellectual capabilities (knowledge, skills &amp; abilities)</li> </ul>
	Capacity Building	<ul style="list-style-type: none"> <li>● Yes, part of the HEIs' role now is to deliver trainings and professional development workshops for public and private sectors.</li> <li>● HEIs should maintain interaction of research infrastructures with industry through technology transfer</li> </ul>
	Employment Quality	<ul style="list-style-type: none"> <li>● HEIs have to produce graduates who meet job-market requirements</li> <li>● I think HEIs should establish sector skills units to empower graduates with sector-specific skills and knowledge.</li> </ul>
Entrepreneurship Development	Underpinning Innovative Entrepreneurship	<ul style="list-style-type: none"> <li>● We expect HEIs to support home-based businesses that have distinctive impact.</li> <li>● I think HEIs should contribute more in facilitating the creation of business spin-offs and start-ups</li> </ul>
	Exploitation of intrapreneurial opportunities within HEIs	<ul style="list-style-type: none"> <li>● In addition to supporting entrepreneurs, I think HEIs should also guarantee the accessibility of different shapes of intrapreneurial activities in research, education, knowledge transfer, and societal collaboration in the academic context to support their intrapreneurial ecosystem.</li> </ul>
Internationalization of Education	Internationalization of teaching and research best practices	<ul style="list-style-type: none"> <li>● I think HEIs should facilitate transfer of know-how and good practices with international institutions</li> </ul>
	Improving international viable involvement	<ul style="list-style-type: none"> <li>● I think HEIs should also increase staff and student mobility through exchange programs with international institutions.</li> </ul>
Social Economy Development	Social Outcomes	<ul style="list-style-type: none"> <li>● I hope HEIs would help to improve environmental issues identified in the society.</li> <li>● I think HEIs should also deliver workshops and seminars that promote solving various social issues.</li> </ul>
	Informing Policy and Practice	<ul style="list-style-type: none"> <li>● I believe HEIs should make sure that their academic programs, courses, pathways and research are consistent with the national</li> </ul>

objectives.

- I think HEIs' research findings are to be used as the basis for discussions, debates, and consultations in developing national policies.

Our findings highlight the value of creating a strategic thrust map between the strategic plans of all HEIs and the Oman Vision 2040, National Strategy for Education, and UN SDGs. This important discovery helps us better understand how different stakeholders view the multiple roles that HEIs play. This finding emphasizes the importance of HEIs reflecting a high-quality educational system that works in collaboration with society. The need for an integrated system of regulation and evaluation of the educational ecosystem concerning national and international standards was also confirmed by several stakeholders. Higher education institutions are expected to encourage educational innovation and ensure that education and the labor market are in harmony. Additionally, the analysis of this finding shows that value-enforcing academic programs at HEIs are anticipated to align with the present requirements of sustainable development and future skills and contribute to the diversification of the local economy.

## **Discussion**

This study aims to explore the key dimensions that can be used to identify a scale of dimensions to assess HEIs in Oman based on their direct contributions to national development. To accomplish this goal, we used a qualitative method approach, which included interviews and archival literature, to collect data from 22 stakeholders and 12 experts. Moreover, we used NVivo, Delphi, and content validation index methods/techniques to analyze the data. These stakeholders included industry, academia, alumni, and government. To understand the background of the research well, we incorporated theories of academic capitalism and stakeholder and thus develop the basis for the study.

Data analysis revealed aggregated dimensions and first-level themes. Knowledge economy development (KED), social economy development (SED), entrepreneurship development (ED), and internationalization of education (IE) is the aggregated dimensions. Furthermore, the KED dimension had four first-level themes. SED had two first-level themes. The first-level themes in ED were all the same. Finally, IE had only one first-level theme. The following has been interpreted to discuss the findings in light of the study objective.

### **Aggregated dimension 1: Knowledge economy development**

A wide range of information resources, including people, processes, and technology, are utilized by an information-based economy to maximize economic development. The foundation of knowledge-based economies is education and training. Human capital, also known as “educational capital,” is an asset that can be sold or exported to generate revenue for individuals, businesses, and the economy (Giangrande et al., 2019). The knowledge economy focuses primarily on enhancing the nation’s financial culture and developing its educational foundation with greater credibility and significance. In addition, HEIs significantly impact the enhancement of the entire infrastructure of the knowledge economy by effectively and credibly addressing the challenges outlined below. First, it transformed an economy based on natural resources and physical inputs into one based on intellectual assets (Powell & Snellman, 2004). Additionally, it emphasizes the control and accessibility of business platform ecosystems (Gawer, 2009). A platform places fewer restrictions on participation and development, whether for innovation developers or end-user (Eisenmann et al., 2009).

In addition to maintaining the management and integration infrastructure, it improves the quality of every type of service provider. Moreover, they are improving information and communication technologies because they have the potential to transform economies and societies in numerous ways, such as reducing information and transaction costs, developing new collaborative models to increase the performance efficiency of workers, fostering innovation, and enhancing education. Overall, these findings are consistent with those reported by well-established literature on learning quality, such as Pascarella (2001), who suggested that global university rankings are more concerned with reputation, resources, and outputs than with effective educational outcomes and impact. Incorporating the multifaceted measures identified in this study into a new monitoring and assessment tool for HEIs will assist various stakeholders in better understanding the added value and academic excellence of HEIs concerning the particular local content. This result is comparable to the conclusion drawn by Kaba (2012) and Lynch (2014) when they criticized the global university rankings for being dominated by a single shared value or objective in the general politics of knowledge production. This is also consistent with the findings of Brankovic's (2021) research, in which he argued that considering global university scales produced by QS, Shanghai, or any other organization as confirmation for performance in a linear-causal approach is highly impractical when attempting to comprehend the significance of an HEI's value.

#### Aggregated dimension 2: Social economy development

By comparing our findings with those of earlier studies, we have confirmed that for HEIs to fulfill their role in society, they must abide by a purpose that serves as the cornerstone for all they do, from research and teaching to community service. An educated populace is a strong foundation for the nation's socioeconomic development because it boosts citizens' productivity and effectiveness and turns them into competent labor, thus ensuring long-term economic viability. For instance, in the US, the \$36.9 billion that international students spend annually on HE, lodging, food, retail, and transportation supports more than 450,000 jobs and helps the country's economy (Salvia et al., 2019). With this goal as a guiding philosophy, the University of the Philippines Open University (UPOU) has been gambling a pivotal position in extending "get entry to" exceptional education, particularly to sectors that are not typically reached via means of the traditional educational system. Therefore, UPOU created the "openUP," a flagship program that aims to increase access to ongoing professional development, provide digital resources for local communities, host forums to discuss important societal issues, and offer technical assistance to improve the educational legacy and the financial foundation with greater credibility and effectiveness.

In addition, interviewees conjecture that HEIs are crucial to the community's implementation of SDG initiatives. To communicate the results of SDG initiatives to the larger community, they must also create a tracking and monitoring system. The findings of this study confirm that HEIs across all of their disciplines must consider whether the idea of sustainable development can serve as a continuing vision for the future (Kohl & Hopkins, 2021). And this will also be in line with Oman Vision 2040, which anticipates that locally based educational institutions will attain a considerable number of contributions that will enhance the process of practically achieving SDGs at the national level (Oman Vision 2040). In other words, the findings of this study showed that HEIs should act as key contributors to cope with the great challenges and demands of the SDGs, which call for creating a successful and productive economy while maintaining the elements of diversification. These results follow patterns found in earlier research that supported the various missions of HEIs, including education, research, innovation, community outreach, and internationalization (Vught & Ziegele, 2012). Additionally, these findings emphasized the importance of key roles played by HEIs in the development of the social and knowledge economies, which is consistent with Powell et



al.'s (2004) work on the knowledge economy as a site of production of goods and services based on knowledge-intensive activities.

#### Aggregated dimension 3: Entrepreneurship development

The most obvious finding to emerge from the analysis is that stakeholders view entrepreneurship as a type of solution that can quickly generate employment and income for graduates. HEIs should be evaluated based on how much they help businesses in several ways, such as providing business incubators, which help start-ups form and increase their chances of success. The literature has found a strong relationship between HEI performance and ED. Case studies from the United States (New York start-up), Spain (Mondragon), and Germany demonstrate that universities play an important role in the development, design, and implementation of entrepreneurship and innovation by providing human capital coaching, fundamental concepts, and academic and practical models to assist new and existing entrepreneurs in building long-term enterprises (Zarate-Hoyos & Larios-Meono, 2015). The most intriguing finding was that stakeholders expect HEIs to contribute to developing both entrepreneurship and intrapreneurship. The findings further show that HEIs should provide evidence of their efforts to constructively utilize the intrapreneurial potential of their academic and non-academic staff and how to capitalize on it by providing a supportive institutional culture. Their proactive approach to organizational responsibilities and ability to identify future opportunities are critical for sustaining innovation, which affects organizational performance. Amo (2010) also reported on this discovery.

#### Aggregated dimension 4: Internationalization of education

This research aimed to evaluate HEIs based on their direct contributions to multiple local dimensions. Regarding this objective, stakeholders were determined to have awareness about the growing influence of global economic, cultural, and educational forces on HEIs. However, according to the interviewees, the movement to preserve local culture and identity is challenging these global forces. As a result, they are interested in how HEIs approach the concept of transnationalism and the extension of social, political, and economic processes beyond Oman by, for example, internationalizing teaching and research best practices and enhancing international viable participation. Participants believe that this will also positively contribute to national HEIs' increased international positional competition. These results are similar to those reported by Marginson and Rhoades (2002) and Cantwell et al. (2018).

### **Limitations and direction for future studies**

As with most studies, the current study design is subject to limitations, and the empirical results reported here should be interpreted with caution. One of these restrictions is the necessity to have a clear understanding of the particular "driving forces" of HEIs that appeal to pertinent stakeholders (Alsop, 2002) and third-party judgments that either hinder or facilitate those institutions' efforts to increase their ranking position based on the identified dimensions. This can be quantitatively tested.

Therefore, we suggest using the outcomes-based dimensions identified in this paper as "drivers" of reputation perception and assessment that are specifically tailored to the Omani context. This will make it easier to consider the important aspects of the knowledge and social economy model and how they affect the effectiveness and standing of HEIs. Furthermore, mediating and moderating variables are also suggested to increase the model's explanatory accuracy. Understanding the effects of HEIs on national development would be genuinely advanced by combining direct outcome measures, performance criteria, perceptual criteria, and stakeholder groups within the same index (see Morgeson & Nahrgang, 2007). In other words, the proposed conceptual framework is

expected to contribute to the development of a theory about how perceptions of reputation influence HEI outcomes.

In order to “reflectively” operationalize the reputation perception, we have proposed the inclusion of trust observers’ experience for the target HEI and their perception of the target’s level of overall community esteem (Vidaver-Cohen, 2007). This follows one of the critical developments in the construct-validation area made by the Reputation Institute. We concurred with Alsop (2004) that a serious breach of stakeholder trust could destroy the reputation. An extensive body of literature has also shown that trust serves as the foundation of organizational commitment, fostering employee motivation, investor confidence, community support, and customer loyalty (see Costigan et al., 1998; Dirks & Ferrin, 2001; Lee & Jamil, 2003, Schoorman et al., 2007). The financial endowment and national ranking are proposed to be used for the same.

We take into account literature (see Standifird, 2005; Trieschmann et al., 2000) indicating that HE reputation assessments vary across stakeholder groups depending on the extent to which each group perceives the institution meets its specific expectations in order to illustrate the relationship between the HEIs’ outcome-based multidimensions and HEIs’ perception of reputation. Stakeholder expectations has thus been proposed as a mediator.

According to Baron and Kenny (1986), the influence of moderators’ variables could alter the relationship between a predictor and a mediator or between a mediator and an outcome. Additionally, a number of theories contend that stakeholders’ expectations may change depending on how a HEI is viewed and “institutionally” validated by influential and formal third parties (e.g., accreditation bodies) (see Antunes et al., 2004; Argenti, 2000; Standifird, 2005; Vidaver-Cohen, 2007b; Urgel, 2007). To externally moderate the relationship between stakeholder expectations and perceptions of HEI reputation, we suggest including “Third-Party Judgments” as a moderator.

Given that numerous studies have demonstrated that institutional forces do have a sizable impact on stakeholder expectations in HE performance, the term “Institutional Forces” has been proposed as an internal moderator in this model (Evans et al., 2006).

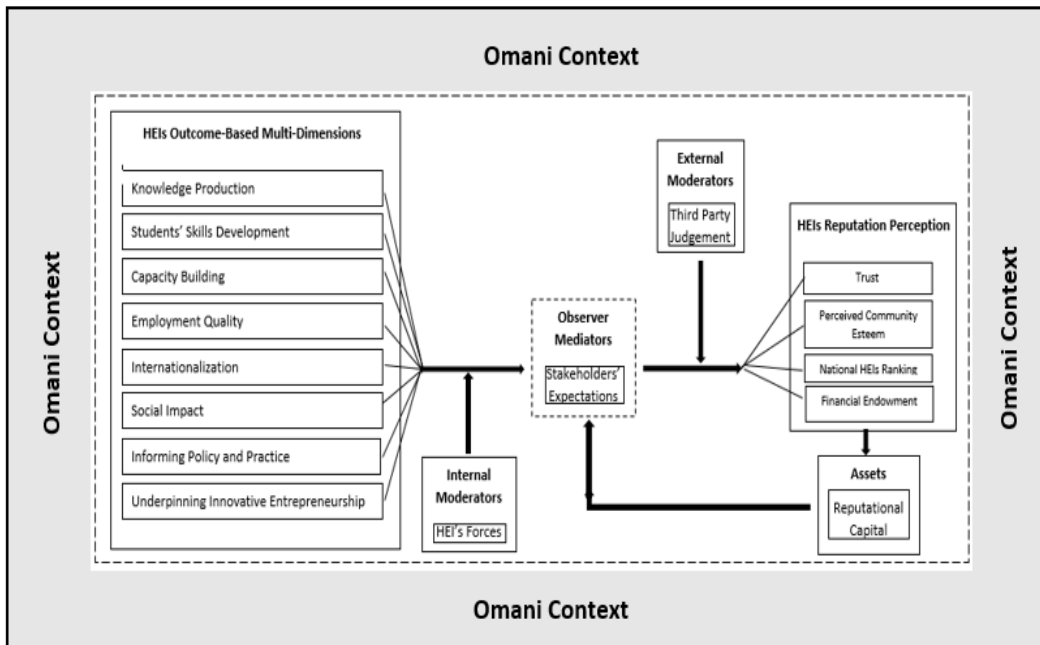


Figure 4. The proposed conceptual framework of knowledge and social economy model.

In general, the above model (Figure 4) is expected to provide a clear conceptual distinction between HEIs’ outcome-based multidimensional predictors and reputation perception. Furthermore, the following theoretical propositions have been proposed to

guide future empirical research, but they represent only a small selection of possibilities. Future research could expand on these possibilities by developing new hypotheses and propositions (see Table 8).

Table 8. Proposed hypotheses.

No.	Proposed Hypothesis
1.	HEIs outcome-based multidimensions will be positively associated with HEIs reputation perception.
2.	HEIs outcome-based multidimensions will be positively associated with stakeholders' expectations.
3.	Stakeholders' expectations will be positively associated with HEIs reputation perception.
4.	Stakeholders' expectations will be positively associated with HEIs reputational capital.
5.	HEIs reputation perception will positively affect their reputational capital.
6.	Moderating the role of HEIs forces will strengthen the link between stakeholders' expectations and HEIs reputation perception.
7.	Moderating the role of a third party will strengthen the link between HEIs outcome-based multidimensions and stakeholders' expectations.

## Conclusion

Using a multistage qualitative research design framework based on triangulation, we collected diverse data from Oman's higher education institutions and relevant stakeholders. From the comprehensive study, entrepreneurial development plays a huge role in effectively obtaining better results from SDGs by linking various patterns of social and economic elements. On this note, it can be asserted that local HEIs play a crucial role in contributing to the aforementioned multifaceted dimensions, which is advantageous for enhancing the structure of achieving the desired outcome in the field of SDGs. In addition, the findings of this study provide direct evidence of the need to address concerns regarding the absence of HEIs' sustainability reporting practices on how each institution can demonstrate its contributions to various national strategic directions (Oman National Education Strategy 2040). Consequently, the results of this study align well with those of previous research, such as Barron (2017), who asserted that generating and securing opportunities to develop global competitiveness and social well-being, stimulating growth, and building confidence in all financial, social, and development are key responsibilities of HEIs (see also Zamora-Polo & Sánchez-Martín, 2019). In light of mapping the identified aggregated themes and categories to both the SDGs and Oman Vision strategic education-related directions, HEIs must mobilize and motivate the Omani people to realize their full potential to achieve the earlier vision.

Moreover, following the United Nations' SDGs, stakeholders must map various themes that can effectively contribute to the structural development of the nation. In this context, it can be asserted that the identified themes of KED, entrepreneurship development,

social and economic development, and internationalization of education are the essential elements for achieving SDGs substantially (Matte et al. 2015).

In addition, there is a strong preference for HEIs operating in Oman to be compared to identify a holistic perspective of their direct contribution to the nation. Therefore, a new national, multidimensional university ranking has proven necessary in Oman, and a ranking dimension driven by stakeholders can serve as an essential performance metric.

#### Declaration of Interest Statement

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#### Data availability statement

Data available on request from the authors

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