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Identifying an Innovation Leadership Framework Model for Saudi Universities

Amani Khalaf. Hamdan. Alghamdi: *Department of Curriculum and instruction College of Education Imam Abdulrahman Bin Faisal University, Saudi Arabia.*

Dalia F. El-Gezawi: *Department of Computer Information Systems College of Computer Science and Information Technology Imam Abdulrahman Bin Faisal University, Saudi Arabia.*

ABSTRACT: *Saudi Arabia currently scores 54.5 on the Global Knowledge Index (scale 0=worst, 100=best). United States scores highest at 66.9. This paper focused on identifying an innovation leadership framework tailored for Saudi universities. After determining (a) four factors pursuant to innovation in Saudi higher education (i.e., a culture of innovation, innovation purpose, innovation requirements, and innovation challenges) and (b) the three existing innovation models in use at Saudi universities (i.e., entrepreneurship, industry compatible, and patents), we (c) proposed an innovation leadership framework and model for the Saudi higher education context. It uniquely accommodates the four factors as well as both entrepreneurship and patents, which could, in turn, facilitate transferring innovative academic outputs to the market. It also accommodates faculty members interested in liaising with industry (entrepreneurs and patents) as well as those concerned with student learning, serving society, and helping the nation achieve Vision 2030's national development goals including a knowledge-based economy. Our proposed framework is the first of its kind for Saudi Arabia.*

Key words*: Innovation in higher education, innovation leadership, innovative university framework, knowledge-based economy, Saudi universities.*

1. Introduction

Innovation is the process of creating new ideas, models, products, services, methods, or solutions that positively impact and create value for organizations and stakeholders (Lazaretti et al., 2020). They opined that innovation is closely linked to sustainable development and growth in all sectors of society including higher education. They said innovation is the practical implementation of knowledge, ideas, or discoveries, which leads to the introduction of new products and services, production methods, changes in organizational processes, improved market access, even the creation of new resources.

"The study of innovation leadership has attracted more attention in recent decades" (Alsolami et al., 2016, p. 34). A combination of tools, skills, and mindset, innovation leadership entails embracing challenges, driving change through knowledge and creativity, shaping an innovation culture, and creating an innovation professional learning system with accountability (Alsolami et al., 2016). Innovation leadership within institutions (including higher education) also entails encouraging people to take initiative, providing clear and complete performance evaluation criteria and feedback, keeping people on task, and building trust (Carmeli et al., 2010).

Higher education institutions play a crucial role in fostering a culture of innovation (Youssef, 2019). Benneworth (2007) described the process of transforming an ordinary institution into an innovation-driven

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one as an innovation journey that unfolds in stages: (a) gather a cadre of innovation enthusiasts, (b) arrive at an agree-to vision and strategy; (c) pilot small but novel innovation activities, (d) build on attendant interest and mainstream innovation and (e) continually renew and innovate in the face of emergent challenges.

Investing in innovation is essential for promoting and boosting a nation's economy and enhancing social progress and change. Innovation is also a prerequisite to inclusive economic and technological growth of any society, which, of course, is beneficial to the well-being and development of society (Lazaretti et al., 2020). Innovation is paramount in Saudi Arabia, which is intentionally transitioning from an oil-based to a knowledge-based economy. Diversifying its economy (as envisioned in its most recent national development plan, *Vision 2030*) will depend on innovation (Kingdom of Saudi Arabia [KSA], 2016).

To elaborate, the nation is long-dependent on oil-related industries to bolster its Gross Domestic Product. Saudi Arabia earns 80% of its export income from selling oil (40% of the size of its economy) (Schaer, 2022). It successfully innovated accordingly. In 2022, it was the largest crude oil exporter in the world and the third largest crude oil producer (Energy Information Administration, 2023). But the oil reserves will dry up within 60 years at today's extraction rate (Schaer, 2022).

Shifting to an economy based on knowledge will require different innovative thinking that concerns people's intellectual capabilities whereby knowledge-intensive activities (instead of physical inputs and natural resources) inform production (Powell & Snellman, 2004). These activities include research and development (R&D), human resource (HR) management, management consulting, information technology (IT), accounting and financing, marketing services, and legal services (Organization for Economic Cooperation and Development [OECD], 2006).

Investing in innovation is critical to both a nation and any organization's success and their distinction in global competition, including higher education institutions (Al-Hammadi, 2020). The innovation process is affected by three major factors: personal, organizational, and environmental. (a) Innovation is influenced by *personal factors* and human character traits such as perseverance, a flexible imagination, and acceptance of mistakes and strange ideas. (b) *Organizational factors* affect innovation including the ability to spread a change culture across the organization's many levels by encouraging work teams to strive for integration. (c) *Environmental factors* affect people's motivation to innovate, especially the social, educational, and cultural environment in which they live and mature. These factors shape people's potential and skills (Al-Anazi, 2021; Al-Omar, 2023; Mabrouk et al., 2022; Mimar, 2022).

It is our contention (a key part of our argument) that researchers have not adequately explored factors that directly affect innovation in Saudi Arabian universities, which *Vision 2030* considered a lynch pin for national development (i.e., indispensable). Regarding citizens obtaining "an education that contributes to economic growth" (KSA, 2016, p. 40), the Saudi government intended to "redouble efforts to ensure that the outcomes of our education system are in line with market needs [which requires] a focus on innovation" (KSA, 2016, p. 36). Universities with international reputations and programs that serve national priorities were expected to be innovative especially in advanced technologies and entrepreneurship (KSA, 2016, see p. 36).

2. Method

With that innovation-focused national development goal in mind, we answered the research question – "*What would a Saudi-specific university innovation leadership framework comprise?* – by completing two research objectives. First, we reviewed Saudi literature related to higher education to identify factors thought to impact university innovation efforts and initiatives. Second, we strove to determine existing models of innovation in use in Saudi Arabian universities.

In more detail, we employed a qualitative research methodology, a descriptive research design, and a summative content analysis, which is appropriate when little is known about a phenomenon in a given context. Descriptive research can answer what, where, when, and how questions but not why questions. The *why* comes later. Also, instead of controlling or manipulating variables, researchers identify or observe them as they strive to determine trends, characteristics of a phenomenon, frequencies, and categories or some combination. A qualitative approach helps shape understandings of reality (Gall et al., 2015; McGregor, 2018).

First, using the Google Scholar and Dar AlMandumah search engines, along with search terms including but not limited to *Saudi Arabia*, *higher education, university(ies), college(s),* and *innovation*, we sought articles published within a five-year time frame (2019–2023). We focused on Arabic scholarly papers and

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sampled until saturation occurred (i.e., the same papers kept being found and no new insights or issues were forthcoming). Saturation helps ensure content validity because it can indicate depth, diversity, and nuance (Francis et al., 2010; McGregor, 2018).

We ultimately found 58 studies (list is available on request) with a companion paper reporting a mapping review that recounts the extent of consolidation of the concept of innovation in Saudi educational research and higher education (Author, 2024). Once collated into a collection, we iteratively read the 58 articles to discern the main factors pursuant to innovation in Saudi higher education and collapsed this information into eight agreed-to categories with one-hundred agreement.

These categories included innovative educational management (n=17), research trend toward innovative educational environments (n=14), trend towards higher education faculty members and educational leaders' involvement in innovation leadership (n=9), curricula and teaching strategies for innovation and creativity (n=5), general education teachers and educational leaders (n=4), learners' innovative skills (n=4), special needs and creativity and innovation (n=3) and technology and innovative thinking and creativity (n=2).

We employed a summative content analysis, which includes both manifest and latent content. Respectively, whereas a conventional content analysis only discerns content that explicitly appears in the document, summative content analysis also allows for the interpretation of the underlying meaning of words and latent content to include what might be inferred through contextual meaning (Hsieh & Shannon, 2005).

For the second research objective, we strove to determine which models of innovation are in current usage at Saudi higher education institutions (29 public and 36 private). To gather these data, we used a two-prong approach. (a) We employed convenience and purposiveness sampling in that we chose 10 universities we were familiar with that were best able to help answer the research question (Patton, 2002). We characterized their approach, and assigned labels that best captured each model citing three of the universities as illustrative examples. (b) We also read related Western and Arabic literature and deduced insights therein. This strategy combined on-the-ground knowledge with the paucity of scholarship on this topic in the Saudi context.

Using data from completing the research objectives, we proposed framework for innovation leadership in Saudi universities. We opted to call our approach a *framework* that is accompanied with a *model* (i.e., a pictorial representation) (McGregor, 2018). The framework was deliberately decoupled from validation at this stage of its development opting instead for Weick's (1989) criterion of "'that's plausible'" (p. 524), which means "it is interesting rather than obvious, ... a source of unexpected connections, high in narrative rationality [persuasive rhetoric], ... or correspondent with presumed realities" (p. 517).

3. Results

3.1. Phase One: Factors Pursuant to Saudi Higher Education Innovation

Our literature review and subsequent analysis generated four main factors pursuant to innovation in Saudi higher education: a culture of innovation, the innovation purpose, innovation requirements, and innovation challenges. This conceptualization is a unique contribution of this study.

3.2. Culture of Innovation

Innovations in higher education depend on a *culture of innovation*, whereby the workplace environment encourages new ideas and creativity, which in turn bolster faculty members' satisfaction and contribute to their production of new theories, models, processes, procedures and so on. Three articles expressly addressed the notion of a culture of innovation within Saudi universities (see Al-Tuwaijri, 2022; Marghalani & Al-Youbi, 2020; Mustafa, 2020).

First, such a culture depends on continuously updating work systems at all administrative levels, so they align with environmental changes (internal and external) faced by the university. Continuous updates increase faculty members' and employees' effectiveness when taking innovative decisions to address and solve problems. A workplace that supports a culture of innovation better ensures the development of new creative approaches that increase the university's ability to engage relentless change while remaining stable and viable as an organization.

Second, a culture of innovation ensures the existence of an attractive climate for creativity that helps faculty members and employees develop and improve the quality of products and services that benefit both individuals and the organization. Third, a culture of innovation also enables the organization to retain stability while creatively evolving and growing. This progressive and innovative growth can improve the institution's

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public image, which in turn provides a competitive advantage because good public relations and public image shorten the time interval between innovations and public notice and uptake.

Fourth, a culture of innovation supports optimal exploitation of the organization's resources because faculty members would be creating and applying modern and innovative scientific methods. Vig (2023) concurred and affirmed the need to spread a sustainable culture of innovation because of the beneficial social, environmental, and economic impacts. Fifth, such a culture helps the institution utilize faculty members' and employees' skills to explore new opportunities and handle events through innovative methods, thus promoting their intellectual and mental abilities and supporting them with opportunities to innovate – to develop and employ those abilities in a supportive culture of innovation (Al-Tuwaijri, 2022; Marghalani & Al-Youbi, 2020; Mustafa, 2020).

3.3. Innovation Purpose

A different collection of Saudi scholars identified the *purpose of the innovation* as a second key factor (see Al-Ruwaili & Abdel-Jabbar, 2022; Marghalani & Al-Youbi, 2020; Youssef, 2019). People strive to innovate for different reasons. First, some aim for *product innovation* by creating a new type of product or developing a specific good or service to provide new services. This type of innovation is often concerned with improving existing products and services in the organization. Some people may also strive to create innovative products and services that did not exist before.

Second, some people strive to *innovate processes* by focusing on an existing method or mechanism of production and work and improving it by innovating a set of executive activities to achieve strategic goals and produce new value for beneficiaries.

Third, others strive to *innovate marketing* initiatives, which consists of creating new methods and means of promotion, distribution, and pricing, so they can market the organization's products and services to gain improved profits and growth. Fourth, some people opt for *innovating the organization* itself, which concerns changing organizational practices and external performance to achieve institutional development and growth.

Al-Tuwaijri (2022) and Mabrouk et al. (2022) grouped the purpose of innovation into three categories: administrative, technical, and additional. In their model, *administrative innovation* deals with (a) creating ideas that can be converted into new policies and strategies and (b) organizing work in ways that contribute to performance development. To that end, innovators would (a) focus on both effective relationships that help accomplish work and achieve goals and relationships between individuals inside and outside institutions or between institutions. They would also (b) intensify communications between employees and the surrounding environment, which facilitates exchanging experiences leading to innovation. Administrative innovation also includes transforming new ideas *into* products and services offered by the institution and then innovating market accessibility.

Technical innovation includes making changes in technologies within the organization to meet customers' demands. Technological innovations can lead to new products or services. This type of innovation is most evident in commercial, industrial, and technical methods, processes, and procedures that contribute to marketing new goods and to the commercial use of new technical equipment and processes. It may also contribute to reducing costs, raising quality, and conducting appropriate changes that suit market needs and beneficiaries' demands (Al-Tuwaijri, 2022; Mabrouk et al., 2022).

Finally, *additional innovation* goes beyond administrative innovation, which introduces new leadership and managerial methods and concepts, and beyond technical innovation, which focuses on technology. To reiterate, technological innovations lead to new or improved products, services, or processes whose *technological* characteristics are significantly different from before. Additional innovation goes beyond traditional ideas and functions by providing products and services in a way that maximizes beneficiaries' level of satisfaction and determines the organization's competitive advantage (Al-Tuwaijri, 2022; Mabrouk et al., 2022).

3.4. Innovation Requirements

As a third factor, efforts to support innovation in organizations should focus on cultural, regulatory, and material requirements (Al-Zamil, 2022). *Cultural requirements* can be met by (a) creating and spreading a culture of innovation; (b) developing a culture of teamwork as a means of exchanging experiences, achieving

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goals, and increasing innovation; and (c) providing information and data and contributing to knowledge dissemination based on people's role in achieving innovation. Institutions should also (d) support research groups comprising diverse researchers in complementary specializations in ways that contribute to the completion of distinguished, innovative, and useful research; and (e) socialize and support employees to accept risks and bear its consequences because many innovations contain a level of risk.

Regulatory requirements concern (a) developing executive procedures and practices in ways that help achieve the planned innovative output, (b) working to provide and localize technologies that support innovation, (c) encouraging the production of innovative knowledge by spreading the culture of innovation among all employees and providing them with encouraging incentives and (d) managing knowledge that supports innovation and developing knowledge exchanges between employees inside and outside the organization (Al-Zamil, 2022).

Regulatory requirements also concern qualified workers, which are more assured by (e) developing their performance and innovation skills via workshops and training courses; and (f) encouraging them to increase their patents by spreading a culture of invention, explaining its importance, and providing appropriate incentives to encourage others to invent and innovate (Al-Zamil, 2022).

Material requirements concern (a) increasing allocations for research, development, and innovation because financial support contributes to both the quantity and type of research and then to development and innovation; (b) developing an infrastructure to meet societal needs in ways that serve innovation and reflect positively on the outcome; and (c) providing grants to support areas identified as needing innovation (Al-Zamil, 2022).

3.5. Innovation Challenges

Organizations invariably encounter challenges that must be addressed to create an appropriate innovative environment. Al-Harbi and Ismail (2022) discussed seven such challenges starting with weak incentives and inadequate material and moral rewards to individuals who present innovative ideas. Incentives and rewards encourage people to engage in and submit innovative ideas. Second, resistance to change is also problematic as failure to accept new technologies and new ways of working severely compromises the adoption of innovative thinking and attendant innovations.

Third, a culture of risk avoidance, whereby managers are reluctant to take risks, is an issue because risk taking is one of the most important features of innovation projects. Hand in hand is the inability to manage risks, which can lead to missed opportunities that innovative projects can provide in developing and improving an organization's performance and public image (Al-Harbi & Ismail, 2022).

Fourth, although organizational bureaucracy lends stability, a bureaucratic structure and culture focused on maintaining the status quo of those in power does not encourage innovation activity. This culture is often accompanied with people's hesitation to stop relying on unsuccessful tactics simply because they are the status quo. Two additional challenges to innovation are (a) people's weakness in creating an attractive environment for innovation, one that supports initiators with the necessary resources to proceed with their innovative projects; and (b) the absence of innovation activity within the organization's mission and vision, which indicates that innovation is not a priority (Al-Harbi & Ismail, 2022).

Phase Two: Models of Innovation Leadership in Saudi Universities

In our experience as established Saudi scholars and educators, we have observed that Saudi universities practice innovation through applying different models (i.e., entrepreneurship, industry compatible, and patents) with the literature revealing a fourth approach not yet used in Saudi Arabia– the innovative leadership university model.

3.6. Entrepreneurship Model

The entrepreneurship model is the most common model applied in Saudi universities, wherein the idea of innovation is related to the concept of entrepreneurship. This model of innovation focuses on business operations and encourages startups. In university innovation centers, the language and literature of business administration is dominant, and students work on defining business ideas that are usually in demand in the Saudi domestic market. They are encouraged to submit their business ideas to the innovation center, which helps them turn their idea into a startup company. The university center offers them support and consultations.

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To assess the success of such centers, most Saudi universities who have them designed a set of Key Performance Indicators (KPIs) to define the number of startup companies that emerged within these centers, any spin-off companies, and the extent of their success and continuity. In most instances, Saudi universities, which have only developed innovation centers within the last six years or so, encountered obstacles and stumbling blocks far greater than anticipated.

King Abdullah University of Science and Technology (KAUST) is an exception to the rule. It is considered the most mature among all universities in the Kingdom. The *KAUST Innovation Center* has launched several student-developed startup companies and is still qualified to do more because of the entrepreneurial environment (ecosystem) in place. Saudi universities with an environment similar to the KAUST environment may view this innovation model as an optimal choice to achieve similar successes if the same facilities and capabilities are in place and appropriately and effectively utilized.

3.7. Industry Compatible Model

Leading innovation through the industry compatible model depends on a university adapting itself to fit the directions of a company so both the company benefits and makes significant financial and competitive gains, and the University achieves its goals. An example of this model is the Innovation Center at *King Fahd University of Petroleum and Minerals* (KFUPM) and the partnership it holds with companies like *Aramco* (the primarily state-owned *Saudi Arabian Oil Company*).

Since 2006, KFUPM has focused on patents that are related to the petroleum and mineral industries. This strategy has enabled the university to successfully compete with other countries in the number and quality of patents emerging from its partnerships with the industrial sector. Leading innovation processes through applying this model – depending on partnerships and focusing on innovations that are compatible with the nature of the university and its target market – is why KFUPM reports outstanding performance.

3.8. Patents Model

In the patent model, the university is keen to transform ideas and research into inventions in which intellectual property rights and patents can be obtained, regardless of what happens to this patent in the future. Usually, specialized American law firms help to formulate the idea and register it legally in the US Patent Office. *Imam Abdulrahman Bin Faisal University* (IAU) in Saudi Arabia is an example of this innovation model.

Universities applying this model must succeed at producing a good number of patents, specifically those registered in the American office. This type of innovation focus offers such a competitive advantage that every good research or idea becomes patentable once the budget is available. Another advantage is that this model gives the university a chance to occupy center stage of granting U.S utility patents within Arab countries. For example, IAU ranked 58th in 2021 among the top 100 worldwide universities granted U.S utility patents and jumped to 26th in 2023 (National Academy of Inventors [NAI], 2021, 2022, 2023). Despite its advantages, the patent model of innovation does face the years-long challenge of the technology transfer of patents to interested parties and converting them into industrial products with commercial value.

3.9. Innovative Leadership University Model

Although we are unaware of any Saudi universities employing, what we called, the *innovative leadership university model*, any university using this model would focus on developing everything directly related to the university's main mission, which is education, research, and service (e.g. Crow & Dabars, 2015; Ma, 2008). These universities would realize that they must innovate across the board to attract students, stay competitive, and influence society. Universities would raise the value of their assets, enhance their resources, and benefit and get the most from their professors and workers. When universities succeed in innovating modern methods of education, and employing innovative ways to integrate students, improve their academic performance, and raise their skills, they are better able to market their academic outputs – education would meet labour market needs.

The intentionally developed integrated creative system becomes an attractive environment for the best students and the best professors, thus creating a stimulating environment for innovation in all areas including those with a business orientation: entrepreneurship, industry compatibilities, and patent models. Furthermore, creating such an innovative environment should result in establishing pioneer companies, reaping inventions,

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and adopting smart and new practices in education as well as supporting research and providing community service.

Generally speaking, the innovative university model conceptualizes the university (with Arizona State University being a prime example)

> as a complex and adaptive comprehensive knowledge enterprise committed to discovery, creativity, and innovation, accessible to the demographically broadest possible student body, socioeconomically as well as intellectually, and directly responsive to the needs of the nation and society more broadly. The objective of the new model is to produce not only knowledge and innovation, but also students who are adaptive master-learners, empowered to integrate a broad array of interrelated disciplines and negotiate over their lifetimes the changing workforce demands and shifts in the knowledge economy driven by continual innovation. (Crow & Dabars, 2015, p. 56)

Aside from Arizona State University (Crow & Dabars, 2015), the University of California at Berkeley has also gained a reputation for its innovative university model. Ma (2008) recounted its efforts to realign and make changes to knowledge production in response to federal research and development (R&D) investment, create an increasingly complex university organizational structure in response to federal science policy, federalize and privatize university research, develop a triple helix relationship with government and industry, and generate global and international collaborations in teaching and learning.

3.10. Phase Three: Innovative Leadership Framework for Saudi Universities

Saudi universities implemented different models to lead their innovation process with varying degrees of success. We are convinced that innovation leadership in Saudi Arabian universities can be directed through managing the effects of the four factors related to the climate of innovation: a culture of innovation, the innovation purpose, innovation requirements, and innovation challenges. Combining these factors with our reasoned consideration of four possible models, we propose the *innovative leadership university framework* as the preferred approach for leading innovation in Saudi Arabia, but we have adapted it, so it integrates all three models currently in use in the Kingdom (see Figure 1) per Benneworth's (2007) recommendation.

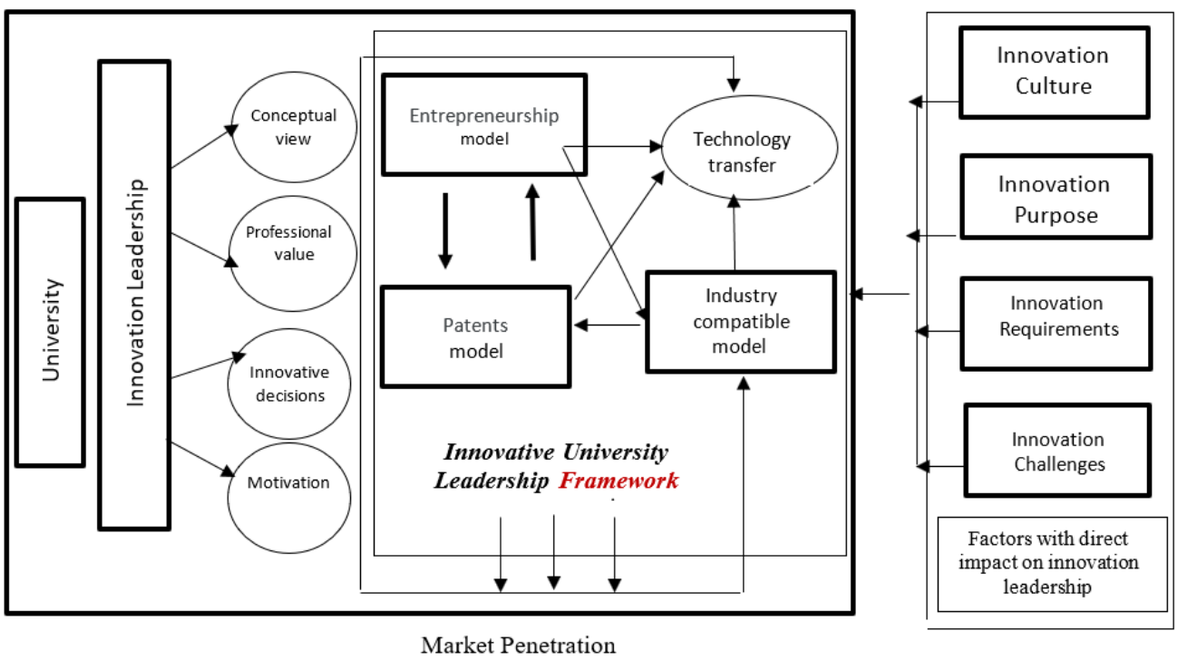


Figure 1. Proposed Innovation Leadership Framework for Saudi Universities (Source: Authors)

Innovative leadership plays a significant, pivotal role in achieving organizational success including universities (Alsolami et al., 2016; Amabile et al., 1996; Samad, 2012; Samad et al., 2015; Vlok, 2012). To reiterate, innovative leadership within an institution involves introducing some combination of novel methods,

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products, services, techniques, and ideas to meet people's needs and address present and future challenges faced by the organization. In the process, an innovative leader must be aware of and understand employees' challenges and innovate with these issues in mind (Alsolami et al., 2016; Benneworth, 2007; Şen & Eren, 2012). Horth and Buchner (2014) proposed that innovation leadership encompasses both a technique and philosophy that integrate diverse leadership styles to inspire and motivate employees in generating creative ideas, products, and services.

With these sentiments in mind, the proposed framework recognizes that innovative university leaders should possess a *conceptual vision* of the needs and opportunities inside and outside the university (Horth & Buchner, 2014). Next, effective innovative leaders possess both core values and explicit knowledge (Farkas & De Backer, 1996). Indeed, values play a crucial role in shaping the leader-member relationship, facilitating the establishment of a close rapport, and fostering an open-communication environment (O'Neil, 2004). Because values encompass understanding social concepts, beliefs, intuitions, values, and imaginative aspects within a given context (Lebow & Simon, 1997), the proposed framework assumes that innovative university leaders should have professional experience, so they can add *innovative professional values*.

Furthermore, an innovative university leader should demonstrate creativity and critical thinking skills to devise novel solutions and effectively address the situation (Fragouli, 2017). Innovation leaders should be able to make *innovative decisions* at the right time, and exploit opportunities based on creative thinking. Finally, an innovative university leader should guide and mentor employees to overcome the fear of failure. And they should utilize rewards as a motivational tool (Alsolami et al., 2016; Benneworth, 2007; Chutivongse & Gerdsri, 2015). By using *motivation* through acknowledging and rewarding employee's innovative ideas, innovative university leaders foster an environment where creativity thrives. Recognizing employees' contributions not only motivates them to innovate, but it also enhances job satisfaction and overall morale thus perpetuating the innovation mindset.

Applying the innovation leadership university framework (see Figure 1) in Saudi Arabia could accommodate both entrepreneurship and patents, which could, in turn, facilitate transferring innovative academic outputs to the market especially via industrial companies. The innovative university model would accommodate faculty members interested in liaising with industry (entrepreneurs and patents) as well as those concerned with student learning, serving society, and helping the nation achieve the *Vision 2030* goals for national development.

To better explain, we believe our approach offers a temporary balance of oil-based and knowledge-based economy during this time of transition. The knowledge revolution will not immediately end oil, petroleum, and manufacturing industries because society will continue to need energy sources and physical goods and services (Stewart, 1997). But we envision future iterations of the Saudi-specific innovative university framework and model likely favoring knowledge-based economy innovations for attendant industries and related sectors. In the knowledge economy, innovation based on research is commodified via patents and other forms of intellectual property (e.g., software, databases, search engines, digital solutions, and technology-based procedures and processes) (Hayes, 2021).

"The knowledge economy is the marketplace for the production and sale of scientific and engineering discoveries" (Hayes, 2021, para. 4). But the knowledge economy also depends on higher education innovations in pedagogy and instructional strategies that prepare graduates for the labour market. In a knowledge economy, not only trade secrets but also human capital and human expertise are important economic resources (Hayes, 2021). The university thus assumes a dual role: innovate in house *and* graduate citizens who can innovate in industry, the economy, and society.

As a caveat, most Saudi universities will not initially succeed in implementing an innovative university model as long as they perform the university's main tasks in the traditional way (Al-Harbi & Ismail, 2022). The bureaucracy and restrictions that exist in Saudi university reality severely dampen the innovation environment. We thus suggest that Saudi universities should lead innovation as if they were a startup company that welcomes exploration and experimentation: analyze and study the pain areas in the university, understand the user experience, and try innovative solutions while remaining cognizant of and planning around the four factors impacting this process (see Figure 1).

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4. Study Limitations

We did not solicit international perspectives on this phenomenon because our interest was the Saudi context; hence, we focused on Saudi research on university innovation leadership. The former could have strengthened the global relevance of the proposed innovation leadership framework. That said, others can now turn to our work for international comparisons and adaptations.

Future studies should employ a strategic systematic literature review (SLR) to augment our standard literature review, which respected the parameters of using less than three people over a period of months yielding a summary of literature on a topic via subjective methods to collect and interpret studies. In comparison, an SLR involves three or more people over at least 18 months addressing a clinical question that demands minimal to no bias because study results will support evidence-based practice. They employ pre-specified search criteria, a systematic search strategy of numerous data bases and often complicated statistical analyses (meta-analysis) (Kysh, 2013).

5. Recommendations

We believe that actionable implementation steps should be left to the discretion of each university within its context (Benneworth, 2007). That said, a companion piece to this research includes an assessment of potential difficulties when implementing the framework, various approaches to overcoming those difficulties, a set of procedural recommendations, and a proposed operational plan (Author, 2020).

Future researchers should address how each of the four models can scale across Saudi universities of different sizes and resource levels. They should conduct case studies or administer surveys involving Saudi university stakeholders who could provide practical insights and validate the feasibility of the proposed innovation leadership framework and model. Future researchers should engage in a deeper analysis of how the key factors outlined in the model (see Figure 1) interact with and influence each other with detailed explanations. Some researchers may want to conduct comparative analyses of the four different innovation leadership models in KSA to further clarify their strengths and weaknesses relative to the proposed framework. Once this scholarship is underway or completed, attempts can be made to empirically validate the proposed innovation leadership framework and model for Saudi universities.

6. Conclusion

"There is no such thing as a 'best' style of leadership for innovation – the style reflects regional endowments and culture which are not easily manipulated or changed [in the] short-term" (Benneworth, 2007, p. 8). Regional institutional leaders of innovation must thus tailor their approaches to what works best for their context (Benneworth, 2007). That said, we posit that the *innovation leadership university framework and model* (see Figure 1) is the preferred approach for leading innovation and resultant performance in the Saudi university setting (for reasons given), so institutions can achieve the promising results deserving of focused innovation leadership.

To that end, Saudi universities should become aware of the major factors that affect innovation and creativity (e.g., innovation culture, purpose, requirements, and challenges). Different universities – once they gain awareness – will opt for different implementation strategies. With this awareness, they can better create their context-specific innovation model and strategies, so they reflect and apply the principles of innovative and creative practices thus enabling the transfer of their innovative outputs to the market while also serving learners, society, and the nation.

Saudi Arabia has consistently improved in the innovation arena and currently scores 54.5 on the *Global Knowledge Index* (scale 0=worst, 100=best) (World Intellectual Property Organization [WIPO], 2019, 2020, 2021, 2022, 2023). It is poised on the threshold of becoming more innovative given that the highest scoring nation is United States at 66.9 (Knoema, 2021). Saudi Arabia only has to gain 12.5 points to become the world leader in innovation in a knowledge-based economy. Adopting a innovative leadership university framework and model is thus timely, and, we suggest, an imperative in the Saudi context.

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Corresponding Author: Amani Khalaf. Hamdan. Alghamdi

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Corresponding Author: Amani Khalaf. Hamdan. Alghamdi

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