Beyond Teaching: Investigating a University's Efforts to Promote Entrepreneurship: Islamic University of Madinah as a Case Study

Abdulrahman Awdah Albeladi

Islamic University of Madinah
College of Arabic Language and Humanities
Associate professor

Abstract: The purpose of this study is to examine the role of the strategic plan of the Islamic University of Madinah (IUM) in promoting entrepreneurship through its initiatives, specifically, the Islamic University of Madinah Accelerator Program (IUMAP). This study provides insight into the experiences and track record of the IUM accelerator program's participants. A qualitative case study was conducted, and semi-structured interviews and document analysis were the primary data collection tools. Ten entrepreneurs and four administrators of the accelerator were interviewed. A thematic analysis of both the interviews and the document was conducted. The main findings are the IUM's focus on expanding its role from teaching Islamic science to being an entrepreneurial university and launching initiatives that develop the entrepreneurial ecosystem. Consequently, 50% of the projects of the IUMAP were able to continue. This study contributes to developing a proposed framework for a university business accelerator with four components: participants, services, essentials for success, and impact. Regarding the lattermost component, this includes business model improvements, awards, marketing projects, community engagement, and the promotion of entrepreneurship.

Keywords: Entrepreneurial university, Entrepreneurship, Islamic University of Madinah, Startup, Entrepreneurship education, Accelerator, Strategic plan

1. INTRODUCTION

Entrepreneurship is booming in the Kingdom of Saudi Arabia (KSA). Innovation, venture capital (VC), and angel investors have led to an increase in startups in the KSA (Monsha'at, 2022). As part of its efforts to boost economic growth, diversify its economy, provide employment opportunities, and improve living conditions, the KSA promotes entrepreneurial activities and supports Small and Med-university Enterprises (SMEs) (Aloulou & Al-Othman, 2021; Siddiqui et al., 2021). The KSA's Vision 2030 includes several initiatives to accelerate venture investment (Monsha'at, 2022). Consequently, VC funds in the KSA have increased from 56 deals worth US$59 million in 2018 to 144 deals worth US$987 million by 2022, making it the second-largest VC market in Middle East and North, Africa (MENA) after the UAE (Magnitt, 2022). However, entrepreneurial education and ecosystems are still weak and must be developed (Aloulou & Al-Othman, 2021; de la Vega et al., 2017).

Universities play a fundamental role in enhancing and supporting the entrepreneurial ecosystem by increasing educators' knowledge and skills, which are critical to innovation and entrepreneurship (Jami & Gökdeniz, 2020). Since the KSA launched Vision 2030, incubators have increased rapidly, and most KSA universities have established incubators or accelerators (Siddiqui et al., 2021). Hence, the IUM has established accelerator programs to provide opportunities for entrepreneurs to transform their entrepreneurial ideas into sustainable businesses. The research problem is little is known about how universities' accelerators and incubators work in the KSA, what the graduates' experiences were like, and what impact the accelerator had on their business journey. I was motivated to conduct this study to fill this gap in the literature, as scholars have called for more research on university entrepreneurship (Shah & Pahnke, 2014).

The purpose of this study was to examine the IUMAP program and to answer the following three questions:

1. What is the role of the strategic plan of the IUM in promoting entrepreneurship?
2. How would the IUMAP participants describe their experiences?
3. How have their projects progressed two years since graduation?

This study makes a significant contribution to the field because it evaluates the participants' experiences two years after their graduation from the accelerator program to clarify the impact of the IUMAP. The theoretical and applied implications include enriching the knowledge of university entrepreneurship and developing new theoretical frameworks. A study of this nature will assist policymakers and university administrators identify effective strategies for promoting entrepreneurship among students and graduates, improving accelerator program design and implementation, and providing entrepreneurial support.

2.1 Theoretical Framework

2.1.1 Entrepreneurial University Concept:

The concept of the entrepreneurial university has led several universities worldwide to change their strategic plan orientations (Etzkowitz, 2004). An *entrepreneurial university* can be defined as one providing opportunities for innovation, the recognition of opportunities, teamwork, risk taking, and resourcefulness (Kirby, 2002), with support structures for students and faculty members, encouraging new intellectual property and commercial venture development (Etzkowitz, 2003). Moreover, an entrepreneurial university explores alternative sources of funding, such as patents,

contracts for research, and partnerships with private enterprises to achieve its goals (Khorsheed & Al-Fawzan, 2014). University entrepreneurship has been found to be more effective when universities develop business incubators, accelerators, technology parks, patents, franchises, and licensed knowledge generated by research (Bramwell and Wolfe, 2008).

Indeed, universities play a crucial role in developing technology and scientific research and are driving forces behind entrepreneurship (Dinh and Hoang, 2021). By building human capital, universities can be a source of innovation (Khorsheed & Al-Fawzan, 2014; Jami & Gökdeniz, 2020). Overall, entrepreneurial universities seek to enhance the commercialization of research results, for example, by developing new technologies and promoting new business models, ultimately maximizing the effectiveness of research and development operations (Dinh et al., 2016; Dinh and Hoang, 2021). To do this, they must collaborate with public and private organizations (Khorsheed & Al-Fawzan, 2014), as knowledge is the main strategic asset of new firms (Vesperi & Gagnidze, 2018).

2.1.2 The Case of the IUM

The IUM teaches Islamic law, the Arabic language, and scientific subjects, to local and international students. Since 1961, the IUM has been a leader in providing scholarships for Muslim students worldwide (IUM, 2020). Currently, about 16,000 students are enrolled at the IUM, and 11,424 are international students studying on full scholarships. The IUM is one of the world's most diverse universities, with students enrolled from more than 145 countries and 60,000 alumni from more than 170 countries (IUM, 2020). Moreover, 75% of the IUM's students originate from lower-middle and low-income economies. The IUM has 1,434 academic staff and 1,321 employees and offers seventy-seven academic programs: one diploma, sixteen bachelor's, thirty-eight master's, and twenty-two doctoral programs. The IUM offers one of the most generous scholarships in the world. That is, the university offers free tuition, accommodations for single students and families, a monthly allowance, health care, psychological counseling, free year-round flight tickets, sports clubs, extracurricular activities, training courses in various fields, including entrepreneurship and innovation, incubators, and accelerators, and a shuttle service between the IUM campus and the city center, the Prophet's Mosque (IUM, 2020; Alsulami, 2020).

- ### 2.1.3 The IUM's Strategic Plan

IUM envisions itself as a global Islamic beacon for promoting knowledge and service to communities by adhering to excellence and inclusion (IUM, 2020). Its main institutional values are responsibility, quality, diversity, creativity, and integrity. In its strategic plan, the IUM outlines fifteen core objectives based on four pillars: institutional excellence, global graduates, scientific and research excellence, and integration and partnerships. The goals of the IUM's strategy have changed from being mainly focused on teaching Islamic Studies and the Arabic language to being an entrepreneurial university and promoting entrepreneurial culture.

The main objectives related to entrepreneurial universities are (1) creating a creative learning environment, (2) promoting scientific research, innovation, and entrepreneurship, (3) increasing integration and partnership with appropriate institutions, (4) improving the quality of learning outcomes, (5) enhancing sustainable development and partnership with communities, (6) developing products and services that generate profit, and (7) ensuring financial sustainability. To accomplish these

objectives, the IUM launched several initiatives: (1) It reformed the curriculum to include innovation and entrepreneurship. (2) It introduced mandatory entrepreneurship modules to all academic programs. (3) It developed accelerator and incubator programs. (4) It promotes community engagement by openly accepting entrepreneurs from the local community to its accelerator program, regardless of affiliation of the university.

2.1.4 Guerrero-Cano's Framework for Entrepreneurial Universities

This study will benefit from the theoretical framework provided by Guerrero-Cano et al., (2006), who constructed their theoretical framework for entrepreneurial universities based on institutional economic theory. Guerrero-Cano's theoretical framework for establishing an entrepreneurial university is illustrated in Table 1, which summarizes the environmental factors. The framework is divided into two sections. The first concerns formal factors, such as (1) university organizational structures and government policies, (2) university start-up support programs, and (3) the courses and programs in entrepreneurship offered by universities. The second section concerns informal factors, such as (4) attitudes toward entrepreneurship at the university, (5) subjects and programs on entrepreneurship (teaching methodology), and (6) the role models and reward systems at the university.

Table 1

A framework for entrepreneurial universities by Guerrero-Cano et al. (2006)

Formal Factors	Informal Factors
University organizational structure and university government Mission, organizational structures, strategic management, professionalized university manager, independence, flexibility.	*University attitudes toward entrepreneurship* Students, faculty members, academics, and other university employees.
Support measures for university startups Information, consultancy, incubators, centers for new firm creation, science parks, etc.	*Entrepreneurship subjects at university* How—teaching methodology.
University entrepreneurship education programs Doctoral and master's programs and undergraduate courses (what and where—transversally).	*Role models, cases, and university reward systems* Successful students, faculty members, academics, or other university employees. University rewards systems.

This theoretical framework will help compare the findings of the first question regarding the IUM's strategic plan and its impact on promoting entrepreneurship among its students, faculty, community, and employees.

2.2 LITERATURE REVIEW

Entrepreneurship education and training are lacking in the KSA, which still faces several challenges in promoting entrepreneurial activity (Al-Akkad, 2018; Aloulou & Al-Othman, 2021; Azim & Hariri, 2018; de la Vega et al. 2017). Universities in the KSA do not adequately prepare entrepreneurs to meet market expectations and needs, so major changes are needed, and higher education must be improved immediately (Aloulou & Al-Othman, 2021; de la Vega et al., 2017). The role of universities in developing an entrepreneurship culture is to educate and learn, transfer technology, and collaborate with the private sector (Khorsheed & Al-Fawzan, 2014; Azim & Hariri, 2018).

According to Al-Mamary et al., (2020), developing appropriate strategies and curricula to enhance students' entrepreneurial abilities is the responsibility of Saudi university administrators and policy makers. Alsultan, (2020) examined eighteen of the KSA's universities to determine how entrepreneurship was perceived and applied within them. She found that teaching entrepreneurship at higher educational institutions must be mainstreamed by developing effective teaching and evaluation mechanisms for entrepreneurship instruction. University entrepreneurship programs can help students identify their entrepreneurial potential and improve startup performance, according to Eesley & Lee, (2021).

Students' knowledge and behavior are increased by entrepreneurial education directly and indirectly through entrepreneurial passion and entrepreneurial motivation, as well as through entrepreneurial passion (Alakaleek, et al., 2023; Anwar, et al., 2023). In both developing and developed countries, universities have implemented a variety of training programs and research projects for entrepreneurs corresponding to their needs and facilities (Pihie, 2009), seeking to foster innovation and initiative in students after graduation (Acs, 2006).

To overcome these limitations in the KSA's education system, over thirty-five business incubators or accelerators have been launched within universities (Siddiqui et al., 2021). The KSA's university business incubators (UBIs) are still in their infancy stages (Siddiqui et al., 2021). As an emerging generator of incubators, accelerators are an important component of the entrepreneurial ecosystem and one of the fastest-growing forms of support for entrepreneurship (Bliemel et al., 2019; Cohen et al., 2019; Shankar & Clausen, 2020). Accelerators are usually a few months long and offer intensive programs with numerous services, such as training, mentorship, networking, small amounts of seed capital, and workspaces, in exchange for small equity stakes (Cohen et al., 2019; Cohen & Hochberg,2014).

The concept of accelerators is relatively new (Pauwels et al. 2016), and most publications have studied the phenomenon descriptively (Shankar & Clausen, 2020). This form of organization has been studied empirically; however, the results have been mixed. Accelerators have been found to have positive effects on start-ups in several studies (Hallen et al. 2020). Indeed, accelerator programs facilitate the development of entrepreneurial, cultural, economic, political, and human capital (Bliemel et al., 2019). In contrast, some studies have found that accelerators have minimal or even negative impacts on start-ups (Gonzalez-Uribe & Leatherbee, 2018; Yu, 2020).

Nonetheless, accelerators are important for several reasons. For example, recent research in the KSA has shown that it is difficult for new firms to start because of entry costs and competition from already-established firms (Aloulou & Al-Othman, 2021).

Due to a survey of accelerator graduates, eleven categories of support were considered most valuable after graduation, including education, mentoring, networking, a networking group, equity funding, shared offices, technical assistance, media coverage and public relations, investor relations, reputation, and government interaction (Bliemel et al., 2019).

While there have been increasingly more accelerators at the KSA's universities, little research has explored and evaluated these UBIs, so this study intends to fill this knowledge gap. Furthermore, frameworks for university business acceleration programs are essential and urgent; they benefit Saudi and international organizations.

3. METHODOLOGY

In this study, I examined the experiences of entrepreneurs and accelerator leaders at the IUM rather than extending the study to off-campus groups (for example, VC fund leaders). Many common quantitative indicators cannot capture the complexity of the interactions in entrepreneurial universities due to a lack of models and variables (Martinelli et al. 2008). Therefore, a qualitative case study design was used (Yin, 2013). Moreover, case studies are suitable for evaluating businesses or programs to gain a better understanding of their successes and failures (Yin, 2013; Barkley, 2006). This study uses emerging design, context-based inquiry, and inductive data analysis.

This case study is bounded by a time period (three months, from 11/2022 to 1/2023), two years after entrepreneurs graduated from the program, and by a single case study (the IUMAP community). I interviewed multiple IUMAP administrators based on their expertise in the accelerator system, as suggested by Merriam, (1988) and Yin, (2013). In later interviews, I extended the scope of participants to include entrepreneurs who joined the IUMAP, either as students, faculty members, or members of the local community. To accomplish this, I prepared a semi-structured interview protocol (Appendix A), which was used in this study. For credibility, I asked two qualitative researchers with expertise to provide their opinions on the interview protocol.

The interview focused on six questions: (1) What is the idea of your project, and why did you choose to participate in the accelerator? (2) How did the IUMAP contribute to your project? (3) Could you give me a brief description of your experience with the IUMAP? Positives and negatives? (4) How far has your project progressed, and how has it been evaluated in terms of its estimated value, branches, and employees? Please answer this question based on three stages: before joining the IUMAP, after graduating at the end of 2020, and now in 2023; (5) After graduation from the IUMAP, how did you cope with market challenges? (6) Could you make any recommendations to the IUM's decision makers?

The interviews lasted approximately forty minutes to sixty minutes. I also gathered more information from the document analysis, which included the IUM's strategic plan, annual reports, accelerator newsletters, accelerator reports, and documents from the accelerator program.

• 3.1 Ethical Considerations

This study used a purposive selection of participants who signed consent forms stating that they had read and understood the ethical considerations involved. A committee of the IUM's ethics committee approved the research (N:30/45). Each participant was informed of the nature and purpose of the study, as well as the interview process. Participation was confirmed by all participants. Additionally, 'written informed consent' was obtained and confidentiality was maintained. To maintain the confidentiality and

anonymity of the research participants, I coded them using the following method: entrepreneurs (P1, P4, etc.) and accelerator leaders (L2, L4, etc.). Data were stored on a secure computer for the sole use of the researcher.

3.2 Study Participants

A total of thirteen entrepreneurs and six accelerator administrators were invited to participate in this study. Of these, ten entrepreneurs were accepted, along with four accelerator administrators who were interviewed. The entrepreneurs interviewed included five students, three local entrepreneurs, and two university employees. By combining data from both the demand and supply sides, it is possible to gain a better understanding of how entrepreneurship support works (Pauwels et al. 2016). To reduce either subject bias about their experiences or my bias in interpreting the collected data, I followed the suggestions of Barkley, (2006) and North, (2005) to increase the number of individuals in the case study and triangulate the sources of the interviews and a document analysis related to the IUM's strategic plan. To ensure the accuracy of the interview transcriptions, I had the participants read and check them.

- **3.3 Data Analysis**

A professional hired for the job recorded and transcribed interviews. The transcripts were analyzed thematically using MAXQDA software (qualitative data analysis software), mainly for analyzing and organizing the data by coding them line by line to find the initial codes and then grouping them to develop emerging themes. Themes were identified for each transcript by applying a cross-case analysis approach to find similarities and differences (Yin, 2013).

4. FINDINGS

Q1. What is the role of the strategic plan of the IUM in promoting entrepreneurship?

- 4.1 The IUM Accelerator Program (IUMAP)

The IUM launched a non-profit initiative in late 2019 targeting students and employees of the IUM, as well as the local community of Madinah. This initiative provides a business incubator, accelerator, and competition. The accelerator program aims to promote innovation and entrepreneurship, improve awareness of entrepreneurship, and qualify and support participants in turning their ideas into real investments.

Since the first phase of IUMAP ended in 2020, I have focused on it, and by the time of this study, the projects had been on the market for about two years (9/2022 to 2/2023), allowing me to assess whether the accelerator is beneficial. This was the first time IUM offered a similar program. According to L3, "Our goal was to educate students about entrepreneurship and promote awareness, but some faculty members said we were an IUM. Because faculty members were unmotivated, students found it difficult to attend workshops and courses. Students and faculty members began to get involved with the initiative after receiving support from high-level administrators and the community."

- 4.2 IUMAP Participants

Students, faculty members, and entrepreneurs from the Madinah community were also involved in the accelerator. L4 indicated that "since most IUM students are from abroad, it is important to introduce them to the local community to use its knowledge and expertise." The selection process began with inviting entrepreneurs to apply online for a place in the accelerator. More than 140 proposals were received during the first round, followed by interviews in the second round. Thirteen projects qualified for the

accelerator for the first phase and represented a variety of fields, including technology, engineering, entertainment, education, food, and games. Prize-winning projects received funding and had the option of moving to the business incubator for ten months.

In response to my question about which projects would fit within the scope of this program, the leaders provided a broad description of a fast-growing start-up that solves a client's problem creatively and has high growth potential. Projects were selected based on several criteria: an innovative solution and business model, scalability and growth potential, high risk, interest from investment groups, and team skills.

Q2. How would IUMAP participants describe their experiences?

- 4.3 IUMAP Services
- 4.3.1 Workshops, Training, and Consultations

All IUM accelerator participants received several services, including access to training, workshops, consultations, general events, public talks by key speakers, and offices with a friendly environment. Over twenty-two workshops and consulting sessions were held, and more than nineteen trainers transferred their expertise to the accelerator's participants for over a hundred hours, providing them with invaluable experience.

Training and consulting sessions were offered to either groups or individuals. All participants agreed that the workshops were high quality and professional. P7 explained, "[A] significant part of these workshops covered feasibility studies, marketing, human resources accounting, developing ideas, calculating break-even points, and estimating costs." P9 said, "I had some knowledge about these topics, but I gained a deeper understanding by reflecting, discussing, and practicing." P5 added, "I benefitted more from the training related to improving market research and challenging my ideas." More clarification was provided by P4, who said the following:

> Through the accelerator, we learned from experienced trainers and consultants about whether my idea meets a market need or has a financial return. A feasibility study is followed by how to calculate financial values and correct my path. Next, how should we build our team, and how do we develop the working process? Finally, how do I prepare my elevator pitch for investors?

Through these workshops and consulting sessions, entrepreneurs could find their path and sharpen their skills.

- 4.3.2 Providing a Shared Workspace

IUMAP provides shared workspaces for entrepreneurs, which is a significant factor in starting businesses. P10 explained, "(The accelerator) provided me with an office, as start-ups don't have revenues yet, and I couldn't afford to rent an office. Since I had never set up a company, IUMAP embraces people without previous experience, predicting the success of their ideas." P3 confirmed, "Instead of working from home or a garage, the IUM provided us with a motivating and engaging working environment." P4 stated, "We grew our business significantly because of the accelerator and operators' environments. It is a professional place that I consider five stars in everything." L1 commented, "The shared working space was crucial to the entrepreneurs learning from peers, competing against each other, collaborating, and having mentoring easily available. Additionally, some entrepreneurs stayed at the workspace most of the day, which led to success."

4.4 IUMAP Essentials

Although the respondents described the positive impacts of IUMAP, they also noted areas for improvement. Most participants indicated that the accelerator could do a better job, such as promoting their projects to investment funds, providing logistical support, such as supplying an incubation certificate to help them with the Ministry of Investment, and giving technical support to programmers. Moreover, some consultants may not specialize in the same field as their business, but rather have general entrepreneurial knowledge. Finally, targeting students may not be feasible.

4.4.1 Introducing Projects to VC Investment Funds

The IUMAP attempted to connect entrepreneurs with investors; however, the entrepreneurs were seeking more. P10 said, "I don't think this is a negative thing, but it could be improved for the next accelerator, such as IUM leaders introducing our projects to VC investment funds through planned meetings." As he explained, some projects had limited funds, which led them to shut down, while others needed money for growth. "I know there are few VC investment funds in our area, but we need IUMAP to link us with them." P9 confirmed, "The connection with investors is what I wanted. There was a small tour with some investors, but their orientation was technical, which was not meeting my project focus." L3 replied, "We planned to introduce the IUM projects to multiple investors, but we could not, due to the COVID-19 pandemic, which greatly limited these activities."

4.4.2 Providing Logistical, Legal, and Technical Support

The IUMAP's consultants provided advice on legal and regulatory issues, such as how to open a business, register a company, and draw up legal contracts, according to L2. However, the students sought more support, such as promoting their businesses in public places. P7 said, "I was expecting to obtain more support, like promoting our projects in malls and train stations, which would have helped us build our brand reputation." P5 added, "We need from the accelerator a certificate of incubation for the Ministry of Investment, which will help our business." P2 said, "I had software problems in my application, so I was hoping someone would help me to solve it in the accelerator since programmers are a crucial part of our tech projects. The leader of the accelerator linked us with some local programmers; however, they were not helpful." Importantly, the participants in the study raised these issues; correspondingly, these issues are essential to ensure that the accelerator works as intended.

- 4.4.3 Skilled Entrepreneurs

It is worth asking whether the IUMAP's students can manage a company to ensure that an accelerator program is successful. The amount of money and time that students can spend at a university may make it difficult for them to be entrepreneurs and to manage their own companies, according to one interviewee. P3 explained:

> IUMAP receives students with no previous work experience and asks them to start their own companies. These projects are likelier to fail. How does a university student who is new to the market come up with a distinctive idea? The ideas presented by university students seem beautiful and suitable for an accelerator, but on the market, the story is different. The accelerator leaders should hire project managers who can oversee the students and give them directions.

L1 replied, "Although IUMAP aimed at providing training and direction for participants, we did not intend to manage the projects in place of entrepreneurs, and we understood that not all projects would succeed." In my view, as a researcher, respondents perceived their project as a failure if it failed to enter the market and attract funding. This may have led to the belief that, as recent graduates, they cannot run a business. Consequently, the accelerator must accept only talented and skilled entrepreneurs.

4.4.4 Become a Partner

- The IUMAP program has a key objective, which is not to acquire a percentage of ownership in any of the companies in the accelerator program, as the program is a non-profit initiative. Undoubtedly, however, it would be an excellent idea to enter into a deeper partnership with the entrepreneur, which would enable one to invest in their company with a small amount of money in exchange for a small percentage of their revenue. In the opinions of P6 and P4, the university should build a VC fund that will finance the company received by the IUMAP to acquire a small percentage and invest in the seed stage as a partner, similar to Stanford or other international universities, which will result in a greater contribution to the IUM's finances.

- 4.5 IUMAP's Impacts

The IUMAP had direct and indirect positive impacts on entrepreneurs. A variety of skills were learned, and much knowledge was exchanged. Professional experience was gained, with the motivation to win rewards, create relationships with the business community, and market the entrepreneurs and their projects.

5.5.1 Improving Business Models

The accelerator developed business ideas and models. For example, P1 indicated, "While studying at the IUM, I opened a physical store that was quite expensive, so I joined the accelerator. Upon completion of the accelerator, I shifted my business model by developing a franchise model and a mobile application. My company grew from hundreds of customers to more than 300,000." According to P9, "We chose to offer services to companies B2B rather than opening branches and operating the entire process." As P2 stated, "The accelerators' trainers helped me find flexible employees rather than full-time employees."

To sharpen entrepreneurs' skills, the workshops enabled students to develop their abilities in a variety of areas, including creative and rational thinking, effective communication, team building, business model building, and project management, according to L2 and L4. P4 explained, "I had been struggling to increase revenues, and then I was advised by a consultant to shift our payment method from a single payment before purchasing to monthly installment payments, which increased revenues."

4.5.2 IUMAP Awards

The IUMAP provided six awards at the end of the demo day program, with the total value being almost US $100,000. P3 said, "Our motivation was to win the award, which will allow us to invest in our project and grow." Working with the aim of winning can encourage entrepreneurs to focus on their projects and learn quickly to meet the jury's criteria. L2 indicated, "We used different strategies to motivate entrepreneurs, and while winning a monetary prize was one of the main effects, it wasn't the main one. In

addition to opening up new opportunities for entrepreneurs and their projects, winning would also boost their reputations. The winner receives the prize in three stages based on their achievements and key performance indicators (KPIs)."

- 4.5.3 Marketing the Projects

It is believed that the indirect impact of the IUMAP is to create a reputation for these projects, market them, and create awareness about those entrepreneurs and their projects among marketing professionals in a broader sense (P1, P2, P7, P10, L2, and L3). In this study, half of the individuals stated that they had gained a huge benefit from graduating from the IUMAP since it functioned as a free marketing campaign for them, which was an unexpected result of IUMAP graduation. P1 explained, "The IUMAP supports us as a marketing arm, like the media that covered the closing ceremony and the announcement of the winners (our project was one of the first-place winners), including TV, the local newspaper, and social media celebrities who interviewed us."

4.5.4 Engagement with the Business Community

Another unexpected and indirect positive impact was building relationships between the entrepreneurs and the business community. The IUMAP helped participants increase their chances of engaging with the local community by making the IUMAP available for local entrepreneurs not affiliated with the IUM. Due to this engagement, participants' startup companies were acquired by a local company that was part of the IUMAP. Alternatively, interviewees were hired by these companies, as they are talented entrepreneurs. Respondents became suppliers or customers for one another and collaborated. P8 explained, "Because we are not affiliated with the IUM, we benefit from the IUMAP, as we acquired a company during the accelerator based on observing and evaluating the team's ability." P5 added, "As a member of the IUMAP, we could have relationships with local entrepreneurs who have the same interests. This has benefited us both directly and indirectly."

4.5.5 Promoting Entrepreneurship as a Culture

All interviewees highlighted the IUMAP's key objective to create an entrepreneurial culture among its students, faculty, employees, and local community members. There was a link between the objectives of the IUM Strategic Plan and the promotion of an entrepreneurial culture. L1 explained that the IUM has worked on four levels to promote the entrepreneurial culture: (1) workshops, training, and events for all the university's members; (2) using the university's social media to spread knowledge about entrepreneurship; (3) building relationships with the local community; and (4) they held a demo day and invited the governor of Madinah province, Princes Faisal bin Salman Al Saud, which was covered by the regional media.

Q3. How have their projects progressed two years since graduation?

- **4.6 Challenges the Entrepreneurs Faced after Being in the Market**

- The IUMAP enhances entrepreneurs' skills and business ideas, but the real challenges lie in the market when they scale up their companies. Regarding such challenges, most respondents reported lacking investor interest, well-established corporations dominating markets, unsuitable ideas, difficulty reaching new clients and investors, changes in Saudi markets after the government increased fees and the VAT, and COVID-19. P10 elaborated:

> Our biggest challenge was financial support, demonstrating the difference between what you think while in the accelerator and what you see on the market.

> My belief is that customers stopped buying our security system during and after COVID-19. Although we had to pay for our expenses, the return did not cover the costs. The technology solution we created was well designed, but we had trouble marketing it because of its complexity. The market is challenging, but we still fight to grow.

P4 added, "Many entrepreneurs may not have a holistic view of the market and do not understand the competitive nature of the market." Other subjects critiqued consultants who did not provide a real picture of the market. P8 said, "Some consultants were not helpful, in my opinion. We were given general guides to motivate us, with information that was generic and not specific to my field, and we needed someone to work with us closely and not just give us general guidance."

4.7 Evaluation of the IUMAP's Participating Projects Over Time

In evaluating the IUMAP's impact on entrepreneurs' projects, I encouraged them to assess their progress according to Ester,'s (2017) criteria for measuring start-up success, such as funding, scalability, and social impact (e.g., employment). Table 2 summarizes the 10 projects that graduated from the IUMAP based on the information provided by the participants. To gain a track record, the three stages of evaluation were applied as follows: Stage 1, before they joined the IUMAP; Stage 2, after they graduated; and Stage 3, now, in 2023. Although these estimates are not those of a professional evaluation company, they give an overall picture of whether they are struggling or growing.

Ten projects were examined overall (Table 2), with an estimated value before joining the IUMAP (Stage 1) of SAR 6,915,000, comprising three branches and fifty-seven employees. In Stage 2, the estimated value was SAR 18,730,000, comprising seven branches with ninety-nine employees. In January 2023 (Stage 3), the companies' total value was SAR 70,000,000, with ten branches and 202 employees.

Table 2

Evaluation of participating projects of the IUMAP over time

		State of projects before joining the IUMAP (Late 2019)			State of projects after graduating from the IUMAP (3/2020)			Current state of the projects (2023)					
	Sector	Value of project (SAR)	No. of branches	No. of employees	Value of project (SAR)	No. of branches	No. of employees	Value of project (SAR)	No. of branches	No. of employees	Awards won	Funds acquired (SAR)	State of project
1	Entertainment	1,500,000	1	9	5,000,000	1	12	30,000,000	6	40	Second-place winner 40K (track 1)	4.5 M for 25% crowdfunding	Grew
2	Food delivery	0	Online	1	0	Online	3	0	Online	0	None	0	Stopped
3	e-Commerce, second-hand goods	5,000	Online	4	50,000	Online	4	0	Online	0	Second-place winner	0	Stopped
4	Consulting for HE students	100,000	Online	7	180,000	Online	26	1,000,000	Online	110	None	0	Struggled
5	Education	10,000		3	500,000		4	1,000,000		6	None	0	Struggled
6	Historical Museum –VR	6,000,000	1	17	9,000,000	1	17	17,000,000	1	17	None		Struggled

	State of projects before joining the IUMAP (Late 2019)			State of projects after graduating from the IUMAP (3/2020)			Current state of the projects (2023)					
Sector	Value of project (SAR)	No. of branches	No. of employees	Value of project (SAR)	No. of branches	No. of employees	Value of project (SAR)	No. of branches	No. of employees	Awards won	Funds acquired (SAR)	State of project
Food: Bakery	300,000	1	19	500,000	3	30	5,000,000	4	30	Third-place winner	Sold for 5 million	Acquired
Smart homes	0	Online	0	5,700,000	1	3	40,000,000	3	23	First-place winner	Investorsacquired 20% in return of 8 million	Grew
Entertainment + café	500,000	1	6	2,600,000	1	9	5,000,000	1	10	None	0	Grew
Network security	0	online	0	200,000	1	3	1,000,000	1	6	None	0	Grew
Total	**6,915,000**	**3**	**57**	**18,730,000**	**7**	**99**	**70,000,000**	**10**	**202**		**17.5 million**	

As part of the IUMAP program's competition between the ten projects, four were selected as the top winners of the IUMAP's awards demo day in 2020, which provided a push for them to enter the market. Two succeeded in attracting a first round of investors, receiving about SAR 12,500,000, while one was acquired by a large company. Four of the 10 projects remain on the market and consider themselves growing businesses. However, three were struggling and could not grow as expected, and two shut down operations for financial or operational reasons.

According to this evaluation, 50% of the IUMAP's projects have grown and succeeded, while 50% are struggling to grow or have failed. The IUMAP was considered a success because the value of these projects increased by 91%, especially given that the IUMAP is operating for the first time and is a non-profit initiative.

5. Discussion

5.1 The IUM as an Entrepreneurial University

The purpose of this study was (1) to examine the IUM strategic plan's initiative, a practical accelerator for entrepreneurship, (2) participant experiences, and (3) projects' performance. In comparing the findings of this study to the formal factor of Guerrero-Cano et al.'s (2006) theoretical framework of an entrepreneurial university, this study found that the IUM developed its strategic plan to focus on entrepreneurship and promote its culture through a variety of initiatives, which could be considered a formal factor. Research suggests that entrepreneurial universities have changed their strategic plans (Etzkowitz, 2004). The second formal factor was supporting entrepreneurship, and IUMAP fit this role by launching accelerators and incubators. The third formal factor was providing an education program, which the IUM also supports. In the IUM, entrepreneurship education is a mandatory module. A university's entrepreneurial education should develop skills that apply across multiple contexts (Shah & Pahnke,, 2014). Only these modules are offered at the KSA's universities at present, since most universities offer only entrepreneurship courses to business students (Azim & Hariri, 2018).

Regarding the informal factors of Guerrero-Cano et al.'s (2006) theoretical framework, this study found reluctance among university faculty at the beginning of the IUMAP. However, this was resolved by support from high-level administrators and the general movement toward a diversified economy in the KSA. The second informal factor,

regarding how to teach methodology, was not the focus of this study. Formal factors 1 and 2 need more research and investigation. The third factor included the rewards system, competitions, and celebrations, the students' success, and most of these factors were achieved by the IUMAP. Hence, entrepreneurship competitions can have a significant impact on entrepreneurs' efforts (Pihie, 2009).

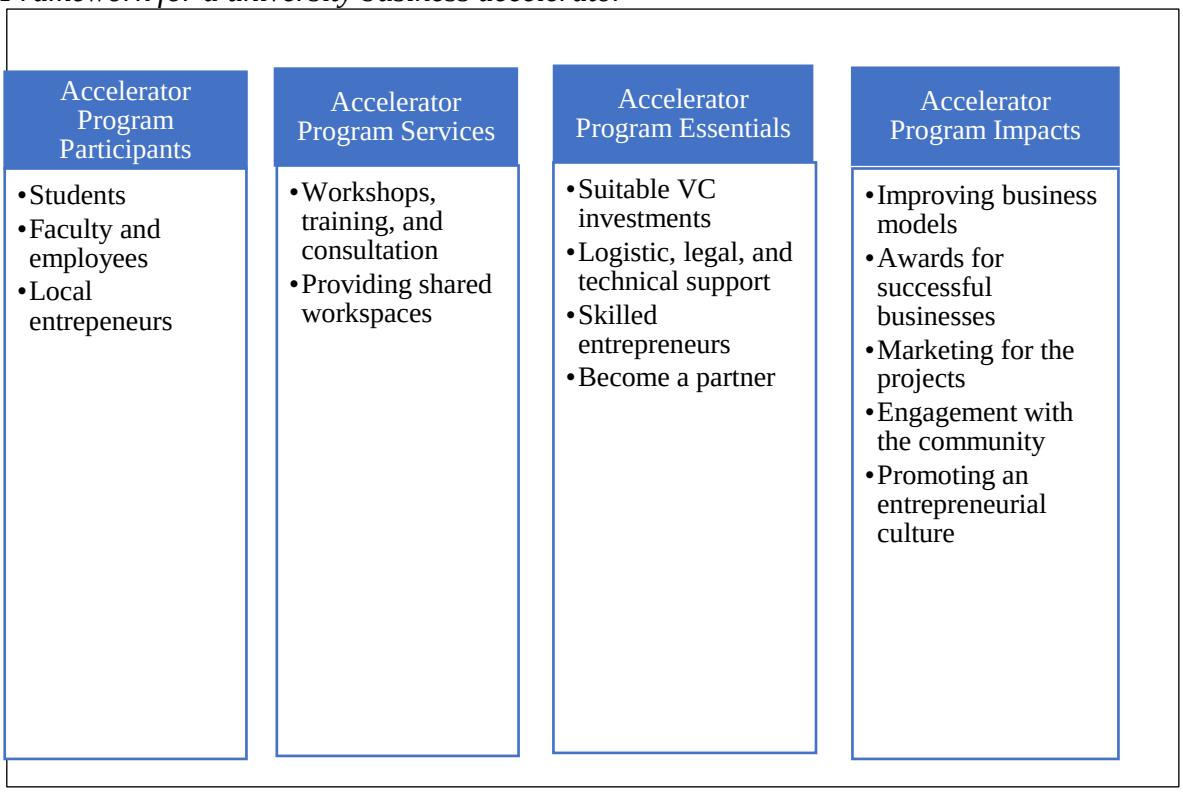
Engagement between entrepreneurs from the local community outside the university and the IUM's students, faculty members, and employees was a key contribution to this study. This contribution can be considered an additional informal factor to the theoretical framework developed by Guerrero-Cano et al. (2006). See Appendix B. Making the IUMAP available to the local community significantly enhanced entrepreneurs' abilities. Arguably, the local community's participation in the university's accelerator will not benefit students or faculty and will reduce their space and opportunities. This study, however, suggests that by bringing local entrepreneurs into the university environment, students and faculty can gain a better understanding of business environments, sharpening their skills and increasing their competitiveness. Ester, (2017) confirmed this conclusion, reporting that accelerators can be excellent venues for meeting corporations and entrepreneurs in industry.

5.2 Framework for a University Business Accelerator

Based on the findings of this study, I developed a framework for a university business accelerator that could be applied at any university (Figure 1). This framework builds on the benefits of the IUMAP program and aims to solve its limitations. Importantly, these limitations are discussed in the essentials section of the proposed framework (Figure 1). The participants mentioned these essential issues during the interview process, so I believe they would be a significant component of any university's business acceleration program.

Figure 1

Framework for a university business accelerator



Due to this study, we gained insight into participants' experiences in the IUMAP and the performance of their projects. These experiences have both positive and negative impacts. This study proposes a theoretical framework for university business accelerators. It starts with building the strategic plan for the university, then emerging initiatives to promote entrepreneurship, and then launching the accelerator. The IUMAP's participants comprised three groups: (1) students, (2) faculty and employees, and most importantly, (3) local entrepreneurs. One of the main contributions of this study is the addition of community involvement outside the university as an informal factor in Guerrero-Cano et al.'s (2006) theoretical framework. Having the IUMAP accessible to the local community has markedly enhanced entrepreneurs' abilities.

The accelerator provided many services, including workshops, training, consultation, and shared workspaces. The findings show that these services at the IUMAP were highly professional—usually. These concerns raise issues related to consultation quality in general, as every project has its own needs. Markley & Barkley, (2003) indicated that no single model that supports entrepreneurs fits every project, so IUMAP consultations should be focused on individual projects' needs to develop paths to assist entrepreneurs.

Many limitations of the IUMAP were found, including limited access to VC investment funds and limited logistical support, legal assistance, and technological support. Markley & Barkley, (2003) argued that partnerships are crucial to success, so the IUMAP must link entrepreneurs with VCs. Ahmed et al. (2022) confirmed the positive influence of networking support, capital support, and training programs on sustainable entrepreneurial growth. Dams et al. (2013) found that accelerator programs increase entrepreneurs' chances of receiving VC financing. It would be beneficial for both sides—VC funds and entrepreneurs— to work side by side with entrepreneurs, either through management guidance or hands-on support (Markley & Barkley, 2003).

In addition, one argument targeted whether students could become successful entrepreneurs, and some entrepreneurs faced challenges once they entered the market. It is expected that the survival rate for all entrepreneurial companies will be unavailable. Even when students did not demonstrate notable progress after graduating from the IUMAP, they developed their skills and had a better chance of succeeding in the future. Since these companies have shorter accelerator durations, they are subject to more risk and uncertainty, as they require substantial funding and time to develop their pathways to success (Luke et al. 2019). In other words, entrepreneurial universities play an important role in seeking long-term impacts by building a community of entrepreneurs that will help develop the ecosystem. Furthermore, skilled entrepreneurs should be selected for accelerators to increase their success rates.

The positive side IUMAP includes awards, developing entrepreneurs' business model, marketing their projects, engaging with the local community, and promoting an entrepreneurial culture. In addition to increasing their survival rate, this award conveys to the VCs that they have passed some criteria and could be recognized by an official body, the university. These awards also market their projects to VCs and customers. Through university accelerators, VCs can select the start-ups that are likeliest to succeed and minimize the risk of failure (Cohen & Hochberg, 2014). Newly hosted companies' performance and prospects have been found to be positively affected by quality accelerator programs (Canovas-Saiz et al. 2021) and to enrich entrepreneurs' networks (Shah & Pahnke, 2014). Moreover, to strengthen commercialization attitudes in universities, an entrepreneurial culture must be promoted (Shah & Pahnke, 2014).

The final result proved dramatically that the IUMAP had helped 50% of the projects succeed, while the other 50% were struggling or had stopped operations. Accelerator performance indicators are positively related to firm survival (Canovas-Saiz et al. 2021; Shah & Pahnke, 2014). The accelerator was considered a success because the growth of these projects' value was 91%, quite an accomplishment for a university non-profit initiative in its first phase. The number of startups that fail is estimated to be at least six out of ten (Ester, 2017). While some founders cannot prioritize their efforts in the right areas, the main reasons they fail are inadequate resources, unrealistic expectations of the market, an unattractive product, or a market that is not ready for an entrepreneur (Ester, 2017). In this study, the reasons for failures varied, including a lack of investor interest, mature markets with established corporations, ideas that did not fit the market, difficulty reaching new clients and investors, changes in the KSA's market due to increased fees and the VAT, and COVID-19.

The IUMAP has funded diverse projects, but they lack a central theme. While some are successful, this approach is criticized for not aligning with the university's strengths. A more strategic approach could combine technology with areas like Arabic or Islamic finance. However, this work method is also criticized for not targeting strategic aspects (Pauwels et al. 2016). Instead, as an example, it might combine technology with Arabic or Islamic finance to build on the IUM's strengths.

6. CONCLUSION AND IMPLICATIONS

This study found that the IUM's strategic plan emphasizes entrepreneurship and that several initiatives are being developed to achieve these goals. The IUMAP has given students and employees the opportunity to become entrepreneurs, boosted their motivation to become entrepreneurs, rewarded them, marketed their projects, and helped them build solid business networks. Nevertheless, many limitations were found, including limited access to VCs, logistical support, and legal and technological assistance. In addition, one argument focused on whether it was possible for students to become successful entrepreneurs and whether entrepreneurs had to overcome challenges once they entered the market.

The findings of this study, particularly the proposed framework for a university business accelerator, can be applied to other economic development organizations seeking to develop effective entrepreneurial universities. Moreover, universities, as non-profit accelerators, must work more on enhancing their capabilities, linking with VC groups, and establishing ecosystems that support sustainability. The interesting lesson here is that universities must become both more diverse and more entrepreneurial and spread such cultures through activities, curricula, and other initiatives. The final result notably illustrated that the IUMAP was considered a successful initiative, as it helped 50% of the projects succeed, while the other 50% were struggling or had stopped operations.

6.1 Implications

There are implications for policy makers. For example, policy and decision makers should take several courses of action at the university's high and executive levels. First, entrepreneurship modules should be included in all academic programs, not just business schools. Second, accelerator should link entrepreneurs with academic and business experts to improve project ideas before they are brought to the market. Third, providing shared workspaces is significant for entrepreneurs on multiple levels, such as sharpening their skills and acquiring knowledge in a short time. Fourth, the IUM should

invest in promising projects, particularly those related to the IUM's strategic plan's main objectives: "investing and increasing the sources of revenue," which was supported by Pauwels et al. (2016). Fifth, projects should be divided along two paths: those in their conceptual stage and those that have entered the market.

6.2 Limitations and Future Research Directions

This study was limited to examining the IUM as a single case study. Another limitation came from the few participants in the IUMAP. In addition, it was not possible to evaluate the IUM's other initiatives, such as (1) reforming curricula and their impacts and (2) introducing new compulsory innovation and entrepreneurship modules in the first year of all academic programs. More research must investigate these areas and the relationship between the university's accelerator and VC. In addition, students', faculty's, and employees' attitudes toward entrepreneurship and its teaching methods merit more research.

Funding information: The researcher wishes to express his sincere gratitude to the Deanship of Scientific Research at the IUM for the support provided to the research project 30/45.

REFERENCES

Acs, Z. (2006). How Is Entrepreneurship Good for Economic Growth? *Innovations*, *1*(1), 97–107.

Ahmed, N., Li, C., Qalati, S., Rehman, H., Khan, A., & Rana, F. (2022). Impact of Business Incubators on Sustainable Entrepreneurship Growth with Mediation Effect. *Entrepreneurship Research Journal*, *12*(2), 137–160. https://doi.org/10.1515/erj-2019-0116

Alsulami, N. (2020). We Have Something to Share! How Saudi Universities Turn the Challenges of International Students into Opportunities: A Case Study of the Islamic University of Madinah. *Presented at the 31st ISANA Annual Conference*.

Al-Akkad, J. (2018). Aligning the Appeal of Entrepreneurs to Investors: Why Is There a Need for an Optimal Entrepreneurship Training Module in the Kingdom of Saudi Arabia to Better Engage Entrepreneurs with Investors. *Unpublished doctoral dissertation*. Durham University.

Alakaleek, W., Harb, Y., & Harb, A. (2023). The impact of entrepreneurship education: A study of entrepreneurial outcomes. *The International Journal of Management Education*, *21*(2), 100800.

Al-Mamary, Y., Abdulrab, M., Alwaheeb, M. A., & Alshammari, N. G. M. (2020). Factors Impacting Entrepreneurial Intentions Among University Students in Saudi Arabia: Testing an Integrated Model of TPB and EO. *Education + Training*, *62*(7/8), 779–803. https://dx.doi.org/10.1108/ET-04-2020-0096

Aloulou, W., & Al-Othman, N. (2021). Entrepreneurship in Saudi Arabia. *In Entrepreneurship in the Gulf Cooperation Council Region: Evolution and Future Perspectives*. 111–145. https://doi.org/10.1142/9781786348081_0006

Alsultan, H. (2020). Strategic Change in the Kingdom of Saudi Arabia: The Entrepreneurial University Concept in Practice. *Unpublished PhD thesis*. The University of Manchester, United Kingdom.

Anwar, I., Ahmad, A., Saleem, I., & Yasin, N. (2023). Role of entrepreneurship education, passion and motivation in augmenting Omani students' entrepreneurial intention: A stimulus-organism-response approach. *The International Journal of Management Education*, *21*(3), 100842. https://doi.org/10.1016/j.ijme.2023.100842

Azim, M., & Hariri, A. (2018). Entrepreneurship Education and Training in Saudi Arabia. *In Entrepreneurship Education and Research in the Middle East and North Africa (MENA): Perspectives on Trends, Policy, and Educational Environment*. 193–214. https://link.springer.com/chapter/10.1007/978-3-319-90394-1_11

Barkley, D. (2006). The Value of Case Study Research on Rural Entrepreneurship: Useful Method? *In Presented at the Joint ERS-RUPRI Conference on Exploring Rural Entrepreneurship: Imperatives and Opportunities for Research*. Washington, D.C.

Bliemel, M., Flores, R., De Klerk, S., & Miles, M. P. (2019). Accelerators as Start-up Infrastructure for Entrepreneurial Clusters. *Entrepreneurship & Regional Development*, *31*(1-2), 133-149. https://doi.org/10.1080/08985626.2018.1537152

Bramwell, A., & Wolfe, D. (2008). Universities and Regional Economic Development: The Entrepreneurial University of Waterloo. *Research Policy*, *37*(8), 1175-1187. https://doi.org/10.1016/j.respol.2008.04.016

Canovas-Saiz, L., March-Chordà, I., & Yagüe-Perales, R. (2021). A Quantitative-Based Model to Assess Seed Accelerators' Performance. *Entrepreneurship & Regional Development*, *33*(3-4), 332–352.

Cohen, S., Fehder, D., Hochberg, Y., & Murray, F. (2019). The Design of Startup Accelerators. *Research Policy*, *48*(7), 1781-1797. https://doi.org/10.1016/j.respol.2019.04.003

Cohen, S., & Y. Hochberg. (2014). Accelerating Start-ups: The Seed Accelerator Phenomenon. Working Paper No 2418000. *Social Science Research Network (SSRN)*. https://dx.doi.org/10.2139/ssrn.2418000

Cumming, D. J., & Fischer, E. (2012). Publicly Funded Business Advisory Services and Entrepreneurial Outcomes. *Research Policy*, *41*(2), 467–481. https://doi.org/10.1016/j.respol.2011.09.004

Dams, C., Sarria Allende, V., Cornejo, M., Pasquini, R., & Robiolo, G. (2022). Impact of Accelerators, as Education & Training Programs, on Female Entrepreneurs. *Entrepreneurship Research Journal*, *12*(3), 329–362. https://doi.org/10.1515/erj-2020-0306

de la Vega, I., Roomi, M., Ashri, O., & Coduras Martinez, A. (2017). GEM Saudi 2016/17 National Report. *Global Entrepreneurship Monitor*.

Dinh, V., Hoang, V., & Nguyen, P. (2016). The Role of Entrepreneurship Development in Universities to Promote Knowledge Sharing: The Case of Vietnam National University Hanoi. *Asia Pacific Conference on Information Management 2016: Common Platform to a Sustainable Society in the Dynamic Asia Pacific.*

Eesley, C., & Lee, Y. (2021). Do University Entrepreneurship Programs Promote Entrepreneurship? *Strategic Management Journal*, *42*(4), 833-861. https://doi.org/10.1002/smj.3246

Ester, P. (2017). Accelerator Darlings, Challenges, and Future Plans. In *Accelerators in Silicon Valley* (pp. 119-136). Amsterdam University Press. https://doi.org/10.1515/9789048538683-009

Etzkowitz, H. (2003). Research Groups as 'quasi Firms': The Invention of the Entrepreneurial University. *Research Policy, 32*, 109-121.

Etzkowitz, H. (2004). The Evolution of the Entrepreneurial University. *International Journal of Technology and Globalization, 1*, 64-77.

Gonzalez-Uribe, J., & Leatherbee, M. (2018). The Effects of Business Accelerators on Venture Performance: Evidence from Start-up Chile. *The Review of Financial Studies*, *31*(4), 1566-1603. https://doi.org/10.1093/rfs/hhx103

Guerrero-Cano, M., Kirby, D., & Urbano, D. (2006). A Literature Review on Entrepreneurial Universities: An Institutional Approach. *In 3rd Conference of Pre-communications to Congresses, University of Barcelona.*

Hallen, B. L., Cohen, S. L., & Bingham, C. B. (2020). Do Accelerators Work? If So, How? *Organization Science, 31*(2), 378-414. https://doi.org/10.1287/orsc.2019.1304

Islamic University of Madinah. (2022). The National and International Accreditation of the Programme.

Islamic University of Madinah. (2020). The Islamic University of Madinah's Strategic Plan. English version.

Jami, M., & Gökdeniz, I. (2020). The Role of Universities in the Development of Entrepreneurship. *Przedsiębiorczość – Edukacja [Entrepreneurship-Education], 16*(1), 85-94.

Khorsheed, M., & Al-Fawzan, M. (2014). Fostering University-Industry Collaboration in Saudi Arabia through Technology Innovation Centers. *Innovation, 16*(2), 224-237.

Lukeš, M., Longo, M., & Zouhar, J. (2019). Do Business Incubators Really Enhance Entrepreneurial Growth? Evidence from a Large Sample of Innovative Italian Start-ups. *Technovation, 82-83*, 25-34. https://doi.org/10.1016/j.technovation.2018.07.008

MAGNITT. (2022). Saudi Arabia Venture Capital Report. https://shorturl.at/LjKpb

Markley, D., & Barkley, D. (2003). Development of an Entrepreneurial Support Organization: The Case of the Kentucky Highlands Investment. *Center for Rural Entrepreneurship.*

Martinelli, A., Meyer, M., & Von Tunzelmann, N. (2008). Becoming an Entrepreneurial University? A Case Study of Knowledge Exchange Relationships and Faculty Attitudes in a Medium-Sized, Research-Oriented University. *The Journal of Technology Transfer, 33*, 259-283. https://doi.org/10.1007/s10961-007-9031-5

Merriam, S. (1988). *Case Study Research in Education: A Qualitative Approach*. Jossey-Bass.

Ministry of Education. (2023). *Learn in Saudi Arabia*. https://studyinsaudi.moe.gov.sa/

Monsha'at. (2022). SMEs' Quarterly Report Q2 2022. https://www.monshaat.gov.sa/en/eparticipation/monshaat-reports

North, D. C. (2005). *Understanding the Process of Economic Change*. Princeton University Press.

Pauwels, C., Clarysse, B., Wright, M., & Van Hove, J. (2016). Understanding a New Generation Incubation Model: The Accelerator. *Technovation, 50*, 13-24. https://doi.org/10.1016/j.technovation.2015.09.003

Peters, M. A., & May, T. (2004). Universities, Regional Policy, and the Knowledge Economy. *Policy Futures in Education, 2*(2), 263-277.

Pihie, Z. (2009). Entrepreneurship as a Career Choice: An Analysis of Entrepreneurial Self-Efficacy and Intention of University Students. *European Journal of Social Sciences, 9*(2), 338-349.

Shah, S., & Pahnke, E. (2014). Parting the Ivory Curtain: Understanding How Universities Support a Diverse Set of Startups. *The Journal of Technology Transfer, 39*, 780-792. https://doi.org/10.1007/s10961-014-9336-0

Shankar, R., & Clausen, T. (2020). Scale Quickly or Fail Fast: An Inductive Study of Acceleration. *Technovation, 98*, 102174. https://doi.org/10.1016/j.technovation.2020.102174

Siddiqui, K., Emad Al-Shaikh, M., Bajwa, L., & Al-Subaie, A. (2021). Identifying Critical Success Factors for University Business Incubators in Saudi Arabia. *Entrepreneurship and Sustainability Issues*, *8*(3), 267-279.

Vesperi, W., & Gagnidze, I. (2018). Rethink University System: Toward Entrepreneurial University. *5th B. S. Lab International Symposium University*, 210-211.

Yin, R. (2013). *Case Study Research: Design and Methods*. Sage Publications.

Yu, S. (2020). How Do Accelerators Impact the Performance of High-Technology Ventures? *Management Science*, *66*(2), 530-552. https://doi.org/10.1287/mnsc.2018.3256