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Business incubators and accelerators in promoting innovation: Saudi Arabia context

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C H R O N I C L E

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A B S T R A C T

The research aimed to examine the role of business incubators and accelerators in promoting innovation among Saudi entrepreneurs, in support of the Kingdom's Vision 2030 agenda of diversifying the economy and strengthening entrepreneurship. The study population consisted of male and female entrepreneurs in Saudi Arabia, and a random sample of 120 participants with varying educational levels and experiences was selected. The researcher used a quantitative approach based on a questionnaire whose validity and reliability were statistically verified. The results showed that most participants had previously joined incubators and accelerators, and emphasized their significant importance in developing ideas, building relationships, accelerating growth, and supporting projects with training and modern technologies. The research recommended the continuous development of these programs, facilitating government policies and procedures, and increasing entrepreneurs' awareness of the importance of innovation to achieve sustainable economic and social development.

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1. Introduction

Government, culture, human capital, and entrepreneurial organizations such as business incubators, financial institutions, educational institutions, are all interconnected components that make up entrepreneurial ecosystems. For instance, government agencies play a significant role in the economy by offering resources, infrastructure, and strategy. A few characteristics, such as business incubators, are essential to the development of the entrepreneurial ecosystem. According to Theodoraki *et al.,* (2017) business incubators serve as the impetus for many organizations, including chambers of commerce, universities, and schools, to support the entrepreneurial ecosystem and encourage entrepreneurial programs.

Furthermore, entrepreneurs can meet through business incubators, which act as venues for networking and collaboration. By improving chances for cooperation and idea sharing, these professional networks help to foster an inventive atmosphere (Peniaz, 2023). Entrepreneurs can obtain vital financial resources, such as investors eager to fund ventures, through these networks. These relationships are essential for obtaining strategic alliances that support their companies' expansion. By informing entrepreneurs about market demands and prospects, business incubators also play a critical role in assisting entrepreneurs in reaching the market. This advice increases the likelihood of success for entrepreneurs by assisting them in making well-informed judgments about their goods and services. Incubators can foster entrepreneurs' creativity by motivating business owners to use their imaginations and come up with fresh answers to problems they encounter (Rifai, 2023). According to Eltahir *et al.,* (2023), business accelerators and incubators play a major role in transforming misconceptions about entrepreneurs. These incubators assist in changing conventional wisdom and inspiring more men and women to pursue entrepreneurship by presenting the success stories of entrepreneurs who have started profitable companies. Because it shows that initiative and leadership are not limited to one gender, this cultural change is crucial for increasing the involvement of entrepreneurs in the national economy.

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Saudi Arabia's economy, as one of the fast-growing economies (Ahmed, 2024), is increasingly implementing strategies that promote incubators and accelerators. These strategies encourage entrepreneurship and projects, which boost sustainable economic growth by fostering innovation and opening up new job opportunities. Companies on the other hand, use fresh and creative approaches to satisfy the demands of the local market, which helps to make the Saudi economy more competitive. Additionally, business incubators help entrepreneurs develop successful businesses. For example, incubators assist entrepreneurs in efficiently communicating their marketing messages by offering assistance in fields like public relations and marketing, which raises brand visibility and draws in more customers (Alkhaldi, 2019). In Saudi Arabia, business accelerators and incubators are a useful instrument for empowering and assisting entrepreneurs in the business sector. These incubators support entrepreneurs in realising their business goals and overcoming conventional obstacles by offering them tools, advice, and networking opportunities. Because it helps create a more sustainable and varied economic community, investing in entrepreneurship is an investment in the future (Khouj, 2025). For those wishing to launch their businesses, business incubators offer the perfect setting by fusing funding, learning materials, and professional networks that increase the likelihood of success. It is essential to establish a secure and supportive environment for exchanging thoughts and experiences. Institutional assistance is crucial since entrepreneurs frequently encounter particular difficulties in the commercial world, such as social and cultural limitations (Peniaz, 2023).

Even while business incubators and accelerators have been extensively studied, little is known about the institutional factors that influence them in transitional economies like Saudi Arabia. This raises the question about the institutional factors that could influence Saudi Arabia's business incubators. Business incubation initiatives are still developing in Saudi Arabia and are regarded as an essential component of the 2030 Vision for the development of entrepreneurship (BAM, 2019). As well, the study's focus is on the lack of knowledge regarding the effects of business accelerators and incubators on entrepreneurship in Saudi Arabia. Comprehensive studies examining the unique advantages and difficulties faced by entrepreneurs in these settings are lacking, even though incubators and accelerators are becoming more and more common and have the potential to promote entrepreneurship (Khouj, 2025). Accordingly, given the popularity of business incubation and due to the importance of business incubators and business accelerators in promoting Saudi entrepreneurship, this research aims to fill the gap. Thus, the research seeks to investigate the role of business incubators and business accelerators in promoting innovation and entrepreneurship among Saudi entrepreneurship. the main goal is divided into the following sub-objectives:

- Highlighting the relationship between business incubators and innovation among Saudi entrepreneurs.
- Highlighting the relationship between business accelerators and innovation among Saudi entrepreneurs.

Accordingly, the research seeks to find the answer to the main question: “What is the role of business incubators and business accelerators in promoting innovation among Saudi entrepreneurship?” And the main question is divided into the following sub-questions:

Q1: What is the relationship between business incubators and innovation among Saudi entrepreneurs?

Q2: What is the relationship between business accelerators and innovation among Saudi entrepreneurs?

2. Literature review

2.1. Business incubators and business accelerators

Finding a system that would greatly benefit small initiatives or businesses is crucial, especially considering their significance and the difficulties and barriers they face during the early stages of startup (such as a lack of understanding of the managerial process). Business incubators (BIs) are at the forefront of the practical and accessible solutions. BIs is a rather old phrase that dates back to the 1950s. The precise number of incubators around the globe is difficult to estimate, however, thousands have been established worldwide (Aljalahma & Slof, 2022). These incubators are typically linked to technology transfer offices and science or technology parks because the primary function of nearly all BIs is to assist technology-based startups. There is debate concerning what constitutes BI. "A multitenant facility with on-site management that directs acceleration of the successful development of entrepreneurial companies through an array of business support resources and services, developed or orchestrated by incubator management, and offered both in the incubator and through its network of contacts" is a widely used definition. The growth of entrepreneurship is positively impacted by many things. Empirical findings indicate that funding and training initiatives both positively affect the growth of entrepreneurship. Furthermore, entrepreneurship benefits from network services (Selim *et al.,* 2025).

A business incubator is an institution that supports the expansion of startups and new companies by offering services that enable them to get over the challenges they may encounter in the early stages of their operations. In its most literal sense, “a business incubator is a building that houses tenant companies that are in their initial phases” (Pals, 2006 p. 6). Business incubators provide services that assist startups in overcoming the first challenges they may encounter because they frequently lack the networks, resources, and expertise. When launching a firm, these challenges are likely to arise. These challenges include space, accounting, legal, financial, and computer services, among other crucial business needs.

Regulatory compliance, technology commercialization, management team development, advising entrepreneurs, and offering thorough business training programs to attract investors are some of the usual services provided by business incubators. Along with offering networking opportunities, services also include matching businesses with strategic partners, helping with business fundamentals, conducting market research, and giving access to guarantee programs, loan funds, and bank loans (Rifai, 2023). During and after incubation, business incubators offer networks and expertise. There are many different kinds of business incubators, such as virtual incubators, e-business incubators that assist startups that require funding and advising, medical incubators for healthcare organizations, and commercial incubators (Khouj, 2025). Both general business incubators and culinary arts incubators, which concentrate on the food industry, offer the information and other resources that businesses need to succeed. Technology-based projects are supported by technology incubators. Startups in their early stages of growth are the focus of business incubators and accelerators.

Among other advantages, business incubators have a historical record of fostering entrepreneurial endeavors, revolutionizing industries, generating employment, investing in technology, and attaining economic diversity and expansion. As a result, incubators are now a crucial component of the framework for industry, small companies, government, and private sector development, which is actively creating the frameworks and regulations required to launch, support, and maintain these entities. Early stage entrepreneurs who are interested in creating goods, luring investors, or building relationships with the industry represented by big businesses are increasingly using accelerators. A shift toward knowledge-based economies that rely on highly processed and technologically advanced goods is indicated by the changes occurring in the global economy. The competitiveness of businesses, including startups, is determined by this process. The old business perspective has evolved as a result of global competitiveness, dynamic and fast technological change, growing digitization, and shorter product and service life cycles. The necessity for constant expansion is becoming more and more evident, which is pushing big businesses and corporations to find new strategies to expand or hold onto their market-leading positions in particular industries (Banka *et al.,* 2022).

2.2. Entrepreneurship in Saudi Arabia

Frank H. Knight (1921) and Peter Drucker (1970) stated that “entrepreneurship is about taking risk”. Schumpeter (1965) defined “entrepreneurs as individuals who exploit market opportunity through technical and/or organizational innovation”. For The process by which individuals or groups come up with fresh ideas, develop them, and turn them into profitable endeavors is known as entrepreneurship. Because of its significant contribution to social and economic mobility in societies, entrepreneurship has gained popularity in the business community. Since entrepreneurial endeavors successfully contribute to economic progress, many nations have prioritized entrepreneurship, and many of the world's most developed nations have based their economies on entrepreneurial ventures. Moreover, this strategy has been embraced by number of Arab nations. These innovative endeavors have not made a big difference in expanding export rates, opening up new markets, diversifying output, absorbing college graduates, or providing new job prospects (Eltahir *et al.,* 2023).

In recent years, Gulf Cooperation Council (GCC) nations have initiated economic transformations and reforms in education, sports, tourism, and entrepreneurship, particularly in the Kingdom of Saudi Arabia (KSA). These effective instruments are regarded as essential measures in the shift towards a knowledge base, more competitive, and entrepreneurial economy (Aloulou & Al-Othman, 2021). The Kingdom of Saudi Arabia has adopted a parallel strategy for economic development, which entails adhering to an oil-centric development model while simultaneously emphasizing the domestic economy and the advancement of small and medium sized enterprises SMEs and entrepreneurship to create employment and value. Saudi Arabia, as the world's largest oil producer, must diversify its economy due to declining energy prices and implement substantial modifications to its economic growth model to create employment opportunities for its increasing population of educated youth and to establish a more sustainable economy (Nurunnabi, 2017). The Saudi economy benefits greatly from entrepreneurship, which is demonstrated in several ways, including economic diversification (BAM, 2019). By fostering innovation and creating new industries, entrepreneurship helps to lessen reliance on established industries like oil. This diversification encourages economic sustainability over the long run. In addition to creating jobs, startups are a significant employer. Data indicates that small and medium-sized businesses (SMEs) account for a sizable portion of all jobs in the Kingdom (Khouj, 2025). The Saudi government is dedicated to advancing entrepreneurship, having earmarked US $19.2 billion to bolster the private sector, mostly aimed at supporting SMEs. Under its Vision 2030 framework, the government has committed to increasing the contribution of SMEs to GDP from 20% to 35% by 2030 (Ashri, 2019). According to Shokeir and Alsukaity (2019), in keeping with the Kingdom's Vision 2030, which seeks to achieve economic diversification and strengthen the position of women in the economy, supporting Saudi Vision 2030 can also encourage entrepreneurship. One important step in accomplishing these objectives is to support entrepreneurial projects led by women. Another crucial aspect of entrepreneurship is cultivating an entrepreneurial culture, which promotes initiative and innovative thinking while also helping to solidify an entrepreneurial culture in Saudi society. Individuals and groups are encouraged to collaborate and be innovative by this culture. Projects that turn a concept into reality by producing and advancing new knowledge are considered entrepreneurial. Research has demonstrated the contribution of entrepreneurial endeavors to the economies of developing nations. Additionally, the Kingdom of Saudi Arabia has prioritized and allocated substantial funding to entrepreneurial endeavors in Vision 2030. Micro-entrepreneurship, which is the creation of a tiny project that provides its owner

with recurring revenue, is one of the numerous forms of entrepreneurial projects that promote entrepreneurial activities (Alkhathami, 2017).

The main goal of Saudi Vision 2030 is to support and grow entrepreneurial endeavors. Established as social and economic organizations, business incubators are committed to supporting entrepreneurs, fostering their ventures, overcoming challenges, and publicizing their endeavors. By offering facilities that allow them to carry out a particular business activity, they are a useful tool for encouraging the establishment of new small firms. They are also some of the most significant new forms of assistance. Since these incubators have specialized frameworks and programs to support entrepreneurs, either directly through their networks or through the services they may offer, they encourage entrepreneurs to begin their entrepreneurial endeavors (BAM, 2019).

Several studies demonstrate that by establishing business incubators that aid in the early development of new entrepreneurial ideas, Saudi governments can play a major role in shaping laws, programs, and tools that assist the development of entrepreneurial enterprises. This necessitates the creation of business incubators that can support these fledgling enterprises in their efforts to thrive when they face failure. Any business incubator's main objective is to create a successful project. With the ability to function autonomously, business incubators are institutions designed to support entrepreneurial endeavors and provide short-term space to startups (Alkhathami, 2017). By providing resources and financial support, among other means, Saudi incubators are essential in helping entrepreneurs. Incubators provide specialized funding initiatives, such as Monsha'at (Small and Medium Enterprises General Authority), AQADAM a startup accelerator program and Misk Launchpad and Accelerator, to help businesses get the support they need. As Khouj, (2025) affirms that for business owners who might find it difficult to secure money from conventional sources, this financial assistance is essential. Another component of the incubator program's help is skill development. Workshops and training programs aimed at fostering the development of critical abilities, including marketing, creativity, and business management, are provided by incubators in the Kingdom of Saudi Arabia (Salem, 2014). These courses improve business owners' capacity to efficiently oversee their initiatives.

The function of startup accelerators has grown in importance in today's entrepreneurial environment and merits a thorough scholarly investigation. These accelerators are essential players in fostering and developing AI-driven businesses, helping to define the parameters of creative entrepreneurship. The goal of this thorough analysis is to clarify the intricate relationships between startup accelerators and emphasize their vital role in the growth and prosperity of businesses with a technology focus (Aljalahma & Slof, 2022). The intricate network of startup accelerators, which is marked by funding, strategic advice, and mentorship, offers an ideal environment for entrepreneurs to flourish and develop. Additionally, the success stories that emerge from these accelerator programs provide priceless insights into how businesses are changing the business landscape and indicate a paradigm change in entrepreneurial tactics and results. An estimated 2000 startup accelerators will exist worldwide as of 2023, with the USA having the highest concentration of accelerators, nearly 800 in total. This illustrates the USA's dominant position in the global startup scene, which is probably a result of its strong venture capital industry, numerous tech hotspots like Silicon Valley, and a track record of innovative company success (Banka *et al.,* 2022).

Large firms that wish to expand and eventually survive in the marketplace are increasingly required to be innovative and competitive. Innumerable new company models are now beginning to appear. New sectors that rely heavily on digital technologies, often supplied by youthful, creative startups, are replacing aging and dwindling ones. Additional market breakthroughs are changing traditional business models and industries at a never-before-seen size and speed. Businesses must develop and apply more innovations to meet the expanding demands of both individual and institutional clients (Peniaz, 2023). On the other hand, startups, which are young businesses searching for a business strategy that gives them the chance to produce value for their audience, are the source of many of these breakthroughs. These businesses aim to grow their operations to the point where they launch a game-changing product. By setting up their startup acceleration programs or forming partnerships with business accelerators that are active in the market, for instance, large firms are seeking benefits in the marketplace. As a result, accelerators play a crucial role as middlemen in the development and dissemination of external innovations. The great majority of companies in the market are startups, but their financial standing is far worse than that of more established companies, which benefit from innovation and technology (Aljalahma & Slof, 2022).

2.3. The Challenges Faced by Business Incubators and Accelerators in Saudi Arabia

This study describes the institutional obstacles Saudi Arabian business incubators face, how they interact with other institutional players in the entrepreneurship ecosystem, and how these obstacles affect the success and support of entrepreneurship. The following is a summary of these difficulties:

2.3.1. Regulatory - policy and management challenges

Government laws, rules, regulations, and standards that act as guidelines for new entrepreneurial companies are included in the regulatory pillar. Governments frequently use institutional frameworks and regulations to promote entrepreneurship. One well-known example of these arrangements and regulations is business incubators. However, different nations have different policies regarding entrepreneurship, especially those about business incubators. According to this study, the Saudi

Arabian government supports the business incubator sector and the entrepreneurial ecosystem by collaborating closely with businesses and academic institutions. Enhancing economic enablers, like company incubators and accelerators, is one of the Kingdom's Vision 2030 goals. Saudi business incubator faces a challenge when it comes to supporting entrepreneurs at the organizational level. Despite the government efforts to encourage entrepreneurial activity, government policies and laws related to entrepreneurship are changing, and legislative bodies are still underdeveloped.

2.3.2. Normative - social challenges

The social norms, values, and beliefs that impact the degree of entrepreneurial activity and mold human behavior make up the normative dimension of institutional theory. According to the literature, people's aspirations to pursue entrepreneurial endeavors are influenced by their social reference groups, including friends and family. Here, we contend that a culture's social norms and values impact social networks, trust, and information transmission, all of which in turn impact entrepreneurial activity within that culture. For instance, relational trust is high in a society where people have close social relationships with reference groups like family and friends, which promotes information flow and high levels of knowledge sharing. Additionally, according to some academics, societal factors like network building may differ from nation to nation, impacting the networking services provided by various business incubators situated in various nations or areas.

2.3.3. Cognitive - individual challenges

Similar views and interpretations of persons who have similar objectives or cultures are related to the cognitive component. According to our research, Saudi Arabs continue to fear losing things. Another issue is that, despite their best efforts, business incubators still struggle to offer their clients the right services, including programming and mentoring, yet they lack the necessary technical know-how.

3. Methodology

This research will use the quantitative research method, which examines the phenomenon as it exists in reality by surveying the opinions of the study sample through questionnaires. Consequently, employing a quantitative methodology grounded in positivist philosophy is deemed suitable for this study, as it entails the application of scientific techniques to examine social phenomena (Collis & Hussey 2014). The research sample will be randomly selected and will consist of 100-150 male and female Saudi entrepreneurs. Gender, years of experience, and academic level will be taken into consideration for each individual in the study sample. The researcher will develop the study tool (questionnaire) to collect information related to this study. This tool identifies the role of business incubators and accelerators in promoting innovation among Saudi entrepreneurs.

To verify the validity of the study tool, the SPSS validity method will be used. Before administering the questionnaire to the final sample, the researchers conducted a pilot test to evaluate its feasibility. This involved circulating the questionnaire to twenty-three (23) Saudi entrepreneurs. To ensure the stability of the research tool, the reliability coefficient will be calculated using the internal consistency method according to the Cronbach's alpha equation (Cronbach-Alpha), which measures the degree of consistency in the research sample members' responses to the items in the questionnaire. The research sample will be given absolute freedom to participate or refuse, and all answers and personal data of the study sample will be kept strictly confidential.

4. Results and Interpretation Discussion

The statistical analysis section presents data collected from Saudi entrepreneurs, with the aim of examining the role of incubators and projects in fostering innovation. The analysis is divided into two main sections, the first section covers the preliminary analysis, which includes the demographic characteristics of the study participants and an analysis of the internal consistency of the study tool, the second section addresses the study questions and includes descriptive answers to each question, in addition to analyzing the relationships between variables using the correlation coefficient. The statistical analysis program SPSS was used to conduct all analyses and extract frequencies, percentages, means, standard deviations, and reliability coefficients. We begin this chapter by analyzing the demographics of the sample.

4.1. Preliminary Analysis of Participant Data (Descriptive Analysis)

Preliminary Analysis of Study Participants' Data This section provides a preliminary analysis of the demographic characteristics of those who responded to the survey. The tables include demographic data, such as gender, age, education level, job title, previous experience, and years of experience. This analysis also aims to summarize the composition of the sample used in this study. This section deals with the descriptive analysis of the demographic characteristics of the sample members participating in the study, with a view to identifying the characteristics of the participants, and helps to understand the context of their responses more accurately. The results are presented using statistical tables and include frequencies and

percentages, as shown in Table 1. For data entry and analysis using the statistical analysis program (SPSS), the demographic variables have been encoded with numerical values to facilitate statistical analysis and input. Table 1 shows the codes adopted for each variable.

Table 1
Coding of demographic variables

Variable	Category	Code
Gender	Male	1
	Female	2
Academic Qualifications	High School Diploma	1
	Diploma	2
	Bachelor's Degree	3
	Master's Degree	4
	Doctorate	5
Age	< 25 Years old	1
	25 – 34 years old	2
	35 – 44 years old	3
	>= 45 years old	4
Job Title	Founder	1
	Co-Founder	2
Previous Experience	I Did Not Work	1
	Private Business	2
	Government Business	3
	Other	4
Years of Experience	< 1 year	1
	1 – 4 years	2
	5 – 9 years	3
	>= 10 years	4

These values were used in descriptive analyses

Table 2
Ratios and frequencies of the demographic characteristics of the study sample

Variable	Category	Frequency	Percentage (%)
Gender	Male	73	60.8%
	Female	47	39.2%
	Total	**120**	**100.0%**
Academic Qualifications	High School Diploma	12	10.0%
	Diploma	12	10.0%
	Bachelor's Degree	66	55.0%
	Master's Degree	26	21.7%
	Doctorate	4	3.3%
	Total	**120**	**100.0%**
Age	< 25 Years old	20	16.7%
	25 – 34 years old	60	50.0%
	35 – 44 years old	27	22.5%
	>= 45 years old	13	10.8%
	Total	**120**	**100.0%**
Job Title	Founder	75	62.5%
	Co-Founder	45	37.5%
	Total	**120**	**100.0%**
Previous Experience	I Did Not Work	16	13.3%
	Private Business	43	35.8%
	Government Business	44	36.7%
	Other	17	14.2%
	Total	**120**	**100.0%**
Years of Experience	< 1 year	29	24.2%
	1 – 4 years	65	54.2%
	5 – 9 years	18	15.0%
	>= 10 years	8	6.7%
	Total	**120**	**100.0%**

Table 2 shows the distribution of sample members by Gender, showing that the majority of study participants were males 73 out of 120 participants, or (60.8%) of the total sample are about (100%), the female ratio, on the other hand, was (39.2%) corresponding to 47 participants, this reflects a clear difference in gender representation. The Academic Qualifications of participants in this study are bachelor's degree holders, with a rate of (55.0%) of the total sample, followed by a masters at (21.7%) of the total sample, thus have a High School and diploma at an equal rate of (10.0%), finally performing Doctorate Only (3.3%) of the total sample, this suggests that most of the entrepreneurs involved in this study have a very good academic background, as over three-quarters of the sample have undergraduate, master, or doctoral qualifications, and this may have enhanced participants' ability to understand the questionnaire and interact with content consciously and professionally. For the age variable, the results showed that half of the sample was aged (25 to 34 years) at (50.0%) of the total

sample, then followed by a class (35 to 44 years old) at (22.5%) of the total sample, then the under 25 age group, has (16.7%) of the country's clients, finally participants who were 45 years and over, while only (10.8%) were aged 45 and above indicating that the Saudi entrepreneurs benefiting from incubator and accelerator services are relatively young, mainly in their (20s and 30s). For the job title variable, the table showed that the number of participants with the status (founder) was the largest category at (62.5%) of the total sample, while the co-founders had (37.5%) of the participants, this reflects that the majority of the sample are initial initiators in establishing pioneering enterprises; this enhances the credibility of the responses. Interpreting the Previous experience variable, there is a diversity of participants' professional backgrounds, with (36.7%) of the participants worked in the government sector, and (35.8%) have worked in the private sector, and (13.3%) of the participants had never worked, and (14.2%) chose the "other", heterogeneity of professional backgrounds enhances the richness of data and analyses. For the variable number of years of entrepreneurial experience, over half of the participants had (1-4 years) of experience (54.2%) of the sample, while there are (24.2%) have less than one year's experience, and (15.0%) have experience (5 to 9 years), finally having more than 10 years' experience and having a score only (6.7%) of the country's steamers, this distribution notes that the sample consists mostly of entrepreneurs in their early stages both in the first year and during the first four years of establishment.

4.2. Affiliation with incubators and accelerators

Two key variables related to entrepreneurs' affiliation with business incubators and accelerators were included to provide direct exposure to this experience, enhancing the authenticity of their responses to the study's themes. Analysis of this type of variable is important to understand the proportion of participants who have actual experience with these programs and this enhances the reliability of the data. The responses to these two variables were coded as shown in Table 4.

Table 3
Coding of affiliation with incubators and accelerators variables

Variable	Category	Code
Has Incubator	Yes	1
	No	0
Has Accelerator	Yes	1
	No	0

Table 4
Ratio and frequencies of respondents' affiliation with incubators and accelerators

Variable	Category	Frequency	Percentage (%)
Has Incubator	Yes	101	84.2%
	No	19	15.8%
	Total	**120**	**100.0%**
Has Accelerator	Yes	100	83.3%
	No	20	16.7%
	Total	**120**	**100.0%**

Table 4 displays the distribution of sample participants according to their affiliation with business incubators and accelerators. This is one of the most important tables because it directly relates to the study's main questions. The analysis results showed that (84.2%) of participants had previously joined a business incubator, while (15.8%) stated that they had never joined one. This means that most of the sample participants have actual, direct experience with business incubators, which strengthens the credibility of the assessment of the role of incubators in fostering innovation. This indicates that incubators in the Kingdom of Saudi Arabia have become an essential element in the entrepreneurial ecosystem and are receiving significant interest from entrepreneurs. Regarding business accelerators, (83.3%) of participants were in business accelerators, compared to (16.7%) who had not joined accelerators. This result reveals the widespread presence of business accelerators in the Kingdom of Saudi Arabia. Furthermore, the percentage of affiliation with business incubators (84.2%) slightly exceeded the percentage of affiliation with accelerators (83.3%), reflecting a trend toward accelerators as a subsequent stage to business incubators. The results indicate that more than (80%) of the study participants had actual experience with either a business incubator or a business accelerator, which strengthens the analytical strength of this research.

4.3 Internal Consistency Reliability of the Instrument

Calculating the Cronbach's Alpha coefficient is a key step before conducting a descriptive analysis of study data, and the goal is to check the measurement instrument's internal stability. Homeostasis is meant to mean that statements that fall within one axis are homogeneous in measuring the concept and aligning it with participants' responses. The Cronbach's Alpha is the most common metric used to measure internal consistency of multiple item scales, Its results are presented in Table 5.

Table 5
Internal consistency reliability – Cronbach's Alpha for the variables

Study Variable	Number of Items	Cronbach's Alpha	Level of Reliability
Business Incubators	15	0.943	Very High (Excellent Reliability)
Business Accelerators	12	0.932	Very High (Excellent Reliability)

Cronbach's Alpha results indicate that the instrument used for the study has very high internal stability, Cronbach's alpha coefficient for business incubator axis (0.943), and Cronbach's alpha coefficient for accelerator axis (0.932), both of which are within very high stability, indicating consistency between statements in each axis, and the ability of statements to measure the concept with accuracy and high reliability.

4.4 Main analysis of participant data

This section of the study presents and analyzes the data collected from a sample of Saudi entrepreneurs. The goal is to achieve the study's objectives related to the role of business incubators and accelerators in promoting innovation. The analysis relies on statistical processing using the SPSS statistical analysis program, where averages and standard deviations were calculated, in addition to classifying and ranking statements according to the level of acceptance among sample members. This analysis provides an accurate indicator of the impact of the role of business incubators and accelerators in promoting and encouraging innovation, by evaluating and examining the participants' opinions on each statement, which represents different dimensions of each axis.

4.5 Methodology used to analyze the study questions

The analysis of the questionnaire questions was divided into main axes, with each axis containing a set of statements carefully designed to reflect the dimensions of the variable under study. To evaluate the statements, a specific analytical approach was followed, which consists of calculating the arithmetic mean (mean), a value representing the participants' average evaluation of each statement, reflecting the degree of agreement and general acceptance toward the statement. The standard deviation was also calculated, reflecting the extent of dispersion and variation in opinions regarding each statement; the lower the deviation, the greater the agreement among the sample members in their evaluation of the statement. The rank was calculated, i.e., the order of the statements from highest to lowest based on the arithmetic mean, to determine the most acceptable and influential statements among the participants. The score was calculated based on the coding of the answers, according to a five-point Likert scale. This classification reflects the strength or weakness of the statements among the studied sample. The code was then converted into numerical answers to facilitate statistical calculations, as shown in Table 6.

Table 6
Five – Point Likert Scale – response level and interpretation of means

Score	Response Level	Mean Range	Descriptive Level
5	Strongly Agree	4.20 – 5.00	Very High
4	Agree	3.40 – 4.19	High
3	Neutral	2.60 – 3.39	Moderate
2	Disagree	1.80 – 2.59	Low
1	Strongly Disagree	1.00 – 1.79	Very Low

As shown in Table 6, this classification reflects the strength or weakness of statements in the sample studied, so that "Very High" is considered a strong predictor of the role of business incubators and business accelerators in promoting innovation, and "Very Low" means that more research is needed to find a basis for poor acceptance of the statement.

4.6 Discussion and Results of the Study Questions

The main question of this study is essential for understanding how business incubators and accelerators contribute to fostering innovation among entrepreneurs in the Kingdom of Saudi Arabia, especially in light of the ambitions represented by Vision 2030, which focuses on strengthening the entrepreneurial environment and stimulating innovation as a pillar of economic and social development. Based on the statistical analysis of the results of the two sub-questions, which were carefully studied, a clear and high level of consensus was found among participants regarding the vital role played by business incubators and accelerators in fostering innovation among Saudi entrepreneurs. The results showed that the averages of all statements related to business incubators ranged mean between (3.42 and 3.52) on a five-point Likert scale. This indicates a positive and high evaluation of the role of business incubators in providing a stimulating environment for growth and innovation through technical and training support, building professional networks, and providing the necessary resources that enable entrepreneurs to develop their ideas and transform them into innovative and implementable projects. The results related to business accelerators revealed that the averages for all statements ranged mean between (3.63 and 3.81), which is higher than the averages for business incubators. This reflects a strong awareness of the importance of business accelerators in providing a stimulating environment that contributes to accelerating project growth and stimulating innovation through technical and training support and opening channels for cooperation with major companies. The results also indicate that business accelerators play an effective role in preparing entrepreneurs to quickly address market challenges and enhance their ability to innovate and continuously adapt.

By combining the results of the study's two sub-questions, we can conclude that business incubators and accelerators form an integral pillar that contributes to strengthening the innovation ecosystem in the Kingdom. Incubators provide a solid foundation and sustainable support for idea development, while accelerators help drive projects toward rapid growth. This integration supports the Kingdom's drive to create a dynamic, innovative entrepreneurial environment that enhances entrepreneurs' chances of success and contributes to social and economic development. This study confirms a strong, positive relationship between business incubators and accelerators in supporting and promoting innovation, reflecting the success of national programs and policies in this area.

Research Question 1: *What is the relationship between business incubators and innovation among Saudi entrepreneurs?*

This question is one of the main pillars of Saudi Arabia's entrepreneurial system, the role of business incubators. Business incubators are a fertile environment that supports the growth of entrepreneurial ideas and helps turn them from an idea and concept into realistic projects that can be implemented in the market. Innovation is a central focus of contemporary economic development. This question aims to identify the role business incubators play in promoting innovation among Saudi entrepreneurs. This was done by analyzing study participants' responses to a range of paragraphs. The 15-statement business incubator axis is designed to measure the contribution of business incubators to promoting and encouraging innovation. Based on data collected from the (120) participants in the sample, the data were entered into the SPSS and extracted the averages and standard deviations for each axis statement along with Likert's 5-scale approval notation, classification of mean scores, and ranking of each statement based on the mean value as shown in Table 6. Table 7 shows a statistical breakdown of sample members' views on the extent to which business incubators promote innovation among Saudi entrepreneurs.

Table 7
Mean, Standard Deviations – for the business incubators axis

Item No.	Statement	Mean	Standard Deviation	Rank	Level
1	The incubator helps develop initial ideas and transform them into more mature ideas.	3.46	0.634	12	High
2	The incubator develops the ability to crystallize ideas and transform them into practical procedures and applications.	3.47	0.607	11	High
3	The incubator offers workshops and training courses that enhance creativity and innovation skills.	3.42	0.643	14	High
4	The incubator provides tools and helps entrepreneurs examine the effectiveness of their ideas practically.	3.48	0.635	9	High
5	The incubator provides technological solutions that help enhance the innovative characteristics of businesses	3.49	0.622	5	High
6	The incubator opens the door to learning from and benefiting from successful entrepreneurial experiences in the labor market.	3.50	0.622	3	High
7	The incubator provides experts from various fields who help entrepreneurs enhance the added value of their projects compared to existing projects in the market.	3.49	0.608	5	High
8	The incubator enhances entrepreneurs' tendency to learn through trial and error as a basis for enhancing their ability to innovate.	3.51	0.580	2	High
9	The incubator facilitates entrepreneurs' access to any information that helps them create new product features that meet the actual needs of customers.	3.49	0.580	5	High
10	The incubator provides a collaborative work environment and periodic workshops that enhance the exchange of knowledge and expertise and generate new ideas.	3.50	0.648	3	High
11	The incubator enables entrepreneurs to build a network of relationships that supports their ability to implement innovative ideas.	3.52	0.580	1	High
12	The incubator provides opportunities to present innovations to investors to obtain funding that contributes to their development.	3.49	0.648	5	High
13	The incubator provides an experimental environment for entrepreneurs, allowing them to receive feedback that contributes to the development of creative ideas.	3.43	0.632	13	High
14	The incubator enhances entrepreneurs' awareness of their intellectual property rights and how to register their innovations.	3.42	0.588	14	High
15	The incubator supports innovative ideas through competitions and incentive prizes.	3.48	0.594	9	High
	Overall	**3.48**	**0.615**	**-**	**High**

Table 7 presents the results of the analysis of the business incubators axis, which aims to measure the role of business incubators in promoting innovation among Saudi entrepreneurs through (15) statements. The results indicate that the averages ranged between (3.42) and (3.52), which falls within the “Agree” category according to the approved classification.

This indicates that the study participants highly agree that business incubators play a positive role in promoting innovation among Saudi entrepreneurs. The standard deviation, which ranged between (0.580 and 0.648), indicated a relatively low degree of variance, indicating that the participants' opinions were close. These results indicate that statement (Q11) which states “The incubator enables entrepreneurs to build a network of relationships that supports their ability to implement innovative ideas”, received the highest average score of (3.52), this indicates a high awareness among entrepreneurs of the importance of the networking role played by business incubators in promoting innovation. Statements (Q6) which states " The incubator opens the door to learning from and benefiting from successful entrepreneurial experiences in the labor market",(Q8) which states “The incubator enhances entrepreneurs' tendency to learn through trial and error as a basis for enhancing their ability to innovate”, and (Q10) which states “The incubator provides a collaborative work environment and periodic workshops that enhance the exchange of knowledge and expertise and generate new ideas”, also had relatively high means of (3.50) and above, these statements revolve around promoting experiential learning, providing a collaborative work environment, and providing the opportunity to benefit from successful experiences in the market. This reflects that business incubators provide a rich environment that prepares entrepreneurs. Statement (Q3) which states “The incubator offers workshops and training courses that enhance creativity and innovation skills”, and statement (Q14), which states “The incubator enhances entrepreneurs' awareness of their intellectual property rights and how to register their innovations”, had the lowest means, with values of (3.42) each, these statements addressed the role of business incubators in providing workshops to promote innovation and creativity and educate entrepreneurs about intellectual property rights. Although the mean value was in the “Agree” category, there is a need to further enhance these roles within business incubator programs. Statement (Q1) which states “The incubator helps develop initial ideas and transform them into more mature ideas”, had a mean value of (3.46), indicating a high level of agreement among sample members, this reflects their belief in the role of business incubators in crystallizing initial ideas and developing them into more mature projects, ready for practical implementation on the ground. Statement (Q2) which states “The incubator develops the ability to crystallize ideas and transform them into practical procedures and applications”, had a mean value of (3.47), indicating that entrepreneurs believe that business incubators contribute to transforming ideas into actionable steps and enhancing the viability of implementing innovations on the ground. Statement (Q4) which states “The incubator provides tools and help entrepreneurs examine the effectiveness of their ideas practically”, had a mean value of (3.48), indicating entrepreneurs' awareness of the value of the technical support provided by business incubators, including tools and resources that help improve and test ideas based on real-world experience. Statement (Q5) which states “The incubator provides technological solutions that help enhance the innovative characteristics of businesses”, had a mean value of (3.49), indicating that business incubators play an important role in facilitating access to technical solutions that enhance the competitive advantages of projects and contribute to the development of innovation elements. Statement (Q7) which states “The incubator provides experts from various fields who help entrepreneurs enhance the added value of their projects compared to existing projects in the market”, had an average score of (3.49), indicating the effectiveness of involving experts in the mentoring and guidance process, which increases quality and innovation in projects supported by business incubators. Statement (Q9) which states “The incubator facilitates entrepreneurs' access to any information that helps them create new product features that meet the actual needs of customers”, had an average score of (3.49), indicating the role of business incubators in facilitating access to market and technical information, which helps entrepreneurs design a product that precisely meets customer needs. Statement (Q12) which states “The incubator provides opportunities to present innovations to investors to obtain funding that contributes to their development”, had a mean value of (3.49), demonstrating the role of business incubators in connecting entrepreneurs with investors, which enhances the chances of transforming innovations into scalable and funded projects. Statement (Q13) which states “The incubator provides an experimental environment for entrepreneurs, allowing them to receive feedback that contributes to the development of creative ideas”, had a mean value of (3.43), reflecting satisfaction with the nature of the experimental environment within business incubators, which enables entrepreneurs to receive feedback that contributes to improving their innovative ideas. Statement (Q15) which states “The incubator supports innovative ideas through competitions and incentive prizes”, had a mean value of (3.48), reflecting entrepreneurs' belief in the incentives and competitions organized by business incubators that help them provide innovative solutions.

The overall average value for the business incubators axis was (3.48), indicating a high degree of agreement among the participating sample members with the statements related to the role of business incubators in promoting innovation. This reflects that Saudi entrepreneurs have a positive and broad awareness of the role of business incubators in developing their innovative capacity, whether in terms of generating ideas, providing a supportive environment, offering necessary resources, or providing guidance and direction. The conclusion is that there is a strong, positive relationship between business incubators and innovation, contributing effectively to supporting the entrepreneurship ecosystem in the Kingdom of Saudi Arabia.

Research Question 2: *What is the relationship between business accelerators and innovation among Saudi entrepreneurs?*

This study seeks to identify the roles of the entrepreneurship ecosystem in the Kingdom of Saudi Arabia. This question addresses a focus that effectively supports entrepreneurs: business accelerators. Business accelerators are among the most important institutional tools, aiming to accelerate the growth of emerging projects by providing the necessary resources, expertise, guidance, and market connections within a short period of time. This is also achieved through intensive programs implemented over a period of weeks or months. Project accelerators provide unique opportunities to develop products, test

ideas, and launch them to the market with high preparedness and confidence. This study sought to understand the relationship between the participation of entrepreneurs in Saudi Arabia in business accelerator programs and the level of innovation they exhibit and achieve in their projects. To achieve this goal, this focus was designed and included (12) statements measuring the extent to which business accelerators influence innovation in various aspects, such as developing marketing plans, providing financial and technical support, collaborating with major companies, and addressing market challenges. Based on data collected from the (120) participants in the sample, the data were entered into the SPSS and extracted the averages and standard deviations for each axis statement along with Likert's 5-scale approval notation, classification of mean scores, and ranking of each statement based on the mean value as shown in Table 6.

Table 8 shows a statistical breakdown of sample members' views on the extent to which business accelerators promote innovation among Saudi entrepreneurs.

Table 8
Mean, Standard Deviations – for the Business Accelerators Axis

Item No.	Statement	Mean	Standard Deviation	Rank	Level
1	The accelerator helps develop a marketing plan for projects, ensuring their success within a short period.	3.63	0.607	12	High
2	The accelerator helps entrepreneurs access capital to fund innovations.	3.70	0.603	8	High
3	The accelerator provides a stimulating timeframe that helps create a high-pressure environment that encourages innovation and rapid development.	3.73	0.561	5	High
4	The accelerator provides the technology and resources necessary to enhance the innovative advantage of projects compared to their competitors.	3.78	0.572	2	High
5	The accelerator facilitates knowledge exchange and the sharing of previous experiences.	3.74	0.587	4	High
6	The accelerator provides the appropriate human expertise to map the entire lifecycle of innovative projects, ensuring continuous development.	3.81	0.569	1	High
7	The accelerator enables projects to address potential threats and transform them to create added value.	3.70	0.574	8	High
8	The accelerator provides ongoing technical and technological support to projects to ensure they achieve their market objectives.	3.73	0.565	5	High
9	The accelerator provides opportunities to collaborate with large companies to adopt and disseminate innovations beyond the local context.	3.66	0.572	11	High
10	The accelerator provides the necessary training to design creative proposals for its innovative products.	3.70	0.574	8	High
11	The accelerator supports projects' ability to embrace open innovation.	3.77	0.561	3	High
12	The accelerator enhances projects' ability to quickly adapt to market changes and respond innovatively to dynamic market demands.	3.72	0.582	7	High
	Overall	**3.72**	**0.585**	**-**	**High**

Table 8 presents the results of the analysis of the accelerators' role in fostering innovation among Saudi entrepreneurs. This analysis was conducted using (12) statements designed to measure various dimensions of the support provided by accelerators to projects in the critical and rapid stages. As shown in the table, the average values ranged between (3.63) and (3.81), all falling within the "Agree" category on a five-point Likert scale. This clearly indicates that the study participants agree that accelerators play a highly positive role in fostering innovation and developing entrepreneurial projects in the Kingdom of Saudi Arabia. The standard deviation values ranged between (0.561 and 0.656), indicating that the variance of participants' opinions was relatively low. This indicates a degree of homogeneity and general agreement among sample members regarding the effective impact of accelerators in fostering innovation. This variance enhances the credibility of the results and reflects a shared understanding of the accelerators' experience among beneficiaries. Through this valuable analysis, statement (Q6) which states “The accelerator provides the appropriate human expertise to map the entire lifecycle of innovative projects, ensuring continuous development”, received the highest mean score of (3.81), this indicates that study participants recognize the importance of human expertise provided by business accelerators in supporting the entire lifecycle of an innovative project. This enhances the sustainable development of projects and increases their potential for growth and rapid expansion. Statement (Q4) which states “The accelerator provides the technology and resources necessary to enhance the innovative advantage of projects compared to their competitors”, and statement (Q11) which states “The accelerator supports projects' ability to embrace open innovation”, and statement (Q5) which states “The accelerator facilitates knowledge exchange and the sharing of previous experiences”, received the highest mean scores, ranging from (3.74) to (3.78), these statements focus on creating a competitive technological environment that supports openness to innovation and the exchange of expertise, this illustrates the fertile environment that business accelerators create to accelerate projects and accelerate the pace of innovation and creativity. Statement (Q1) had the lowest mean value of (3.63), and the statement reads "The accelerator helps develop a marketing plan for projects, ensuring their success within a short period", although

it still falls within the “Agree” category, this indicates that there is room to develop programs related to marketing planning within business accelerators, and to integrate strategies that ensure project success in record time.

Overall, the results reflect a high level of satisfaction and agreement among Saudi entrepreneurs regarding the significant role business accelerators play in the Kingdom of Saudi Arabia in promoting innovation. This role goes beyond providing financial and technological support, but also offers specialized training, connections with supportive networks, and advisory assistance that enhance innovation and creativity. Statement (Q3) which states “The accelerator provides a stimulating timeframe that helps create a high-pressure environment that encourages innovation and rapid development”, and statement (Q8) which states “The accelerator provides ongoing technical and technological support to projects to ensure they achieve their market objectives”, both had an average score of (3.73), these statements revolve around providing a time environment that stimulates innovation, promoting exchange, and providing continuous technical support. This indicates that business accelerators are not limited to theoretical aspects but also provide a practical environment that accelerates the development of ideas. Statement (Q10) which states “The accelerator provides the necessary training to design creative proposals for its innovative products”, and statement (Q7) which states “The accelerator enables projects to address potential threats and transform them to create added value”, and statement (Q12) which states “The accelerator enhances projects' ability to quickly adapt to market changes and respond innovatively to dynamic market demands”, and statement (Q2) which states “The accelerator helps entrepreneurs access capital to fund innovations”, had almost similar averages (3.72-3.70), this reflects a high level of agreement among participants regarding the role of business accelerators in facilitating access to funding, addressing threats and transforming them into opportunities, providing training to develop innovative products, and promoting rapid adaptation to market requirements. Statement (Q9) which states “The accelerator provides opportunities to collaborate with large companies to adopt and disseminate innovations beyond the local context”, also had an average score of (3.66), this statement relates to providing an opportunity to collaborate with major companies and assisting in developing successful marketing plans within a short period. This average falls into the “Agree” category, but it reflects the real challenges of linking accelerators with major entities or quickly achieving marketing success in a short period of time.

The overall statistical values indicate that the overall average for the statements related to business accelerators was (3.72). This value falls within the “Agree” category according to the five-point Likert scale. This indicates a high degree of agreement among the study participants regarding the positive role business accelerators play in supporting innovation among Saudi entrepreneurs. The standard deviation was (0.585), indicating a relatively low degree of variance among the participants' responses. This means that the participants' opinions are similar in their assessment of the role of business accelerators in promoting innovation. These results reinforce the existence of a positive relationship between business accelerators and innovation. The values reflect entrepreneurs' awareness of the importance of business accelerators in providing an environment that offers technical support, intensive training, facilitating access to the market, and building a network for effective collaboration. All of these elements create an innovative environment. We can say that business accelerators play a significant role in accelerating the growth of entrepreneurial projects and enhancing their capacity for innovation in the Kingdom of Saudi Arabia.

5. Comparison Between the Current Study Finding and Previous Research

The results of the study showed a strong, positive relationship between both business incubators and accelerators and enhancing innovation among Saudi entrepreneurs. This is consistent with the findings of many previous studies. For example, the results of the current study are consistent with the study by (Eltahir *et al.,* 2023) which confirmed the role of business incubators in changing stereotypical concepts and encouraging entrepreneurship through success stories and institutional support. This was reflected in the results of the current study through the high average evaluation of participants' assessment of the role of business incubators in building trust and providing guidance. The results of the current study are also consistent with the results of (Khouj, 2025) which demonstrated that business incubators contribute to empowering female entrepreneurs in particular and provide them with a suitable environment for innovation.

Regarding business accelerators, the results of the current study are consistent with (Banka *et al.,* 2022) who indicated that business accelerators contribute to accelerating project growth by providing financial and technical support and market expertise. This was reflected in the high average ratings of study participants for the role of business accelerators in facilitating access to capital and developing future plans. On the other hand, some limited differences emerged with studies such as Salem (2014), which focused on the impact of general business incubators on economic development without directly addressing innovation as a primary focus. The current study, however, focused on innovation as a primary objective. The current study also differs from some Western models, such as that cited by (Peniaz, 2023), in terms of the institutional and cultural context. This makes the results of the current study more relevant to the environment in the Kingdom of Saudi Arabia. Accordingly, the results of the current study reinforce the literature on the importance of business incubators and accelerators, and add a local dimension related to the Saudi context and the Kingdom's Vision 2030. This opens the door for future studies with more detail on this aspect.

6. Conclusion

In light of the findings of this research, it is clear that business incubators and accelerators play a vital role in supporting innovation among Saudi entrepreneurs. Participants' opinions showed a high level of agreement that these programs provide a supportive environment filled with resources, training, and expertise, enabling them to transform ideas into viable innovative projects. This contributes to promoting entrepreneurship and achieving the goals of Saudi Vision 2030. They also demonstrated a high level of satisfaction with the services provided, whether in terms of building professional networks, providing technical solutions, or accelerating project growth. This highlights the importance of integration between incubators, which provide a solid foundation and ongoing support, and accelerators, which propel projects toward rapid growth and sustainable innovation.

7. Recommendations

- Continue to develop incubator and accelerator programs and update their services to align with the requirements of the Saudi market and rapid technological changes.
- Facilitate government policies and procedures related to entrepreneurship, ensuring entrepreneurs can easily access incubator and accelerator services without administrative complications.
- Raising awareness of the role of innovation by organizing workshops and media campaigns that highlight success stories and encourage young people to embrace entrepreneurship.
- Enhancing cooperation between incubators, accelerators, and major institutions to create partnership and investment opportunities that contribute to the growth of small and medium-sized enterprises.
- Providing specialized training programs focusing on administrative, technical, and marketing skills to ensure entrepreneurs are better prepared.
- Conducting additional field research to measure the long-term impact of incubator and accelerator programs and identify opportunities for continuous improvement.

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