

# ADVANCING ENTREPRENEURSHIP AND BUSINESS INNOVATION THROUGH SAUDI PUBLIC LIBRARIES

## PROMOVER O EMPREENDEDORISMO E A INOVAÇÃO EMPRESARIAL ATRAVÉS DAS BIBLIOTECAS PÚBLICAS SAUDITAS

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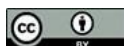
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### Abstract

Libraries in Saudi Arabia play a challenging role in community development by offering training sessions to entrepreneurs, creating collaborative workspaces, and establishing partnerships with organizations in the IT sector. The research examines the potential entrepreneurial benefits of Saudi public libraries for entrepreneurial and business development, aligning with Saudi Vision 2030 to promote advanced knowledge throughout the Kingdom of Saudi Arabia. The research employs a mixed-method research design, including 430 library users, to assess the current entrepreneurial landscape of public libraries while identifying various opportunities and challenges faced by library users. The quantitative analysis was conducted by administering a survey questionnaire, while thirty participants were interviewed through semi-structured questions to assess their perceptions regarding entrepreneurial

### Resumo

*As bibliotecas na Arábia Saudita desempenham um papel desafiador no desenvolvimento comunitário, oferecendo sessões de treinamento para empreendedores, criando espaços de trabalho colaborativos e estabelecendo parcerias com organizações do setor de TI. A pesquisa examina os potenciais benefícios empreendedores das bibliotecas públicas sauditas para o desenvolvimento empresarial e de negócios, alinhando-se à Visão Saudita 2030 para promover conhecimento avançado em todo o Reino da Arábia Saudita. A pesquisa emprega um delineamento de pesquisa de método misto, incluindo 430 usuários de bibliotecas, para avaliar o cenário empreendedor atual das bibliotecas públicas, identificando as diversas oportunidades e desafios enfrentados pelos usuários. A análise quantitativa foi realizada por meio da aplicação de um questionário, enquanto trinta participantes foram entrevistados por*



opportunities and the development of newer businesses. The findings of the study highlight the involvement of digital literacy, e-commerce initiatives, business incubation, co-working spaces, and partnerships within the private sector to enhance collaborative efforts through shared businesses. With such opportunities, libraries can attract greater value to the community by increasing economic growth and ensuring sustainability through sustainable activities. The study suggests future research studies to extend the usage and utilization of online services while improving partnerships with entrepreneurs and adapting to newer entrepreneurship ventures. The research is comprehended as a pilot study for stakeholders and policymakers to digitally tune libraries into knowledge institutions that support innovation and newer ideologies to meet business goals.

**Keywords:** Digital Literacy. Economic. Entrepreneurship. Business Innovation. Public Libraries.

*meio de perguntas semiestruturadas para avaliar suas percepções sobre oportunidades empreendedoras e o desenvolvimento de novos negócios. Os resultados do estudo destacam o envolvimento da alfabetização digital, iniciativas de comércio eletrônico, incubação de empresas, espaços de coworking e parcerias com o setor privado para aprimorar os esforços colaborativos por meio de negócios compartilhados. Com essas oportunidades, as bibliotecas podem agregar maior valor à comunidade, aumentando o crescimento econômico e garantindo a sustentabilidade por meio de atividades sustentáveis. O estudo sugere pesquisas futuras para ampliar o uso e a utilização de serviços online, ao mesmo tempo em que aprimora parcerias com empreendedores e se adapta a novos empreendimentos. A pesquisa é compreendida como um estudo piloto para stakeholders e formuladores de políticas, visando sintonizar digitalmente bibliotecas com instituições de conhecimento que apoiam a inovação e novas ideologias para atingir objetivos empresariais.*

**Palavras-chave:** Alfabetização Digital. Economia. Empreendedorismo. Inovação Empresarial. Bibliotecas Públicas.

## 1 INTRODUCTION

The role of public libraries in modern societies is redefined through the representation of entrepreneurship [1]. Public libraries are evolving into dynamic hubs for innovation, skill development, and community engagement with the passage of time. In Saudi Arabia, the need for educational institutions like public libraries and other educational hubs persists, which aims to contribute toward economic diversification and social development to develop a knowledge-based economy supported through the Saudi Vision 2030 [2]. Entrepreneurship is the main factor in establishing creativity and innovation within present-day organizations [3]. Public libraries have rendered major responsibilities, including the provision of free services to students of all age groups. Thus, the positive perception of the country towards increasing competition among entrepreneurs furthermore encourages library entrepreneurs to collaborate with multinational organizations. The transition from conventional businesses to modern-day technological businesses requires flexible and innovative initiatives that contemplate

efficacious results. Hence, entrepreneurship roles within public libraries are defined as a process that encourages innovative ideas and opportunities to advance the fiscal growth of the economy and, likewise, public libraries [4].

In Saudi Arabia, public libraries serve as incubators to advance entrepreneurial concepts, ideas, and businesses by using resources, technology-led infrastructure, and community-led outreach programs and campaigns [5]. These libraries empower individuals to explore innovative ideas for businesses while enhancing access to resources and business networks that aim to bridge knowledge gaps [6]. Governmental support aids in enhancing funding sources that help improve the delivery of the service while ensuring sustainability that benefits the reader and the entrepreneur [7, 8]. Therefore, the research aims to investigate Saudi Arabian public libraries and their role in fostering entrepreneurial opportunities for newer businesses, which highlights the need to incorporate entrepreneurship within libraries. These opportunities align with national objectives to enhance library contribution toward advancements in the economy and society [9]. The research underscores global practices utilized by Saudi Arabian libraries to advance the transition and transformation of local approaches while adopting entrepreneurial frameworks. These approaches redirect innovation into libraries to extend community growth. The research contributes to Saudi Arabia's Vision 2030 goals by fostering innovation within public libraries, providing a comprehensive understanding of factors that affect the ability of public libraries to leverage entrepreneurial opportunities for young entrepreneurs [27].

### **1.1 Problem statement**

There is an emerging need to enhance public libraries' role as innovation hubs in Saudi Arabia, yet it persists that they constitute a mere repository of information. Public libraries play an essential role in equipping entrepreneurs with a business mindset to enhance progression and competitiveness in the global economy. Therefore, to mitigate the research gap, the study aims to explore entrepreneurship integration across Saudi Arabian public libraries to enhance and develop entrepreneurial opportunities while transforming libraries into educational centers for business innovation and community development. Hence, the technological rendition in Saudi Arabia accentuates public libraries as a global practice to assist public libraries in identifying and developing newer

services that address the evolving needs of society and contribute to the development of the Saudi Arabian economy [27].

## 1.2 Research significance

This study explores the potential of public libraries in Saudi Arabia to provide innovative opportunities for new entrepreneurs by offering unique facilities for expressing their startup ideas, thereby transforming public libraries into effective centers for supporting innovation and entrepreneurship in Saudi Arabia [12]. According to Stanley and Oghenetega (2021) and Mohammed et al. (2022), public libraries with entrepreneurial programs have shown great success in empowering individuals with business skills and resources to assist entrepreneurs in building their own businesses [13, 14]. In addition to that, public libraries also foster creativity to encourage diversification in their services, such as funding, improving the services, and remaining sustainable in the era of the modern world [15]. Furthermore, public libraries tend to address some specific needs of entrepreneurs by offering services such as workshops for digital literacy, maker spaces, and even specialized research support, especially for young entrepreneurs [16]. With the rapid increase in the importance of a well-educated society across the globe, there is a need to explore the rapid change and progress towards education in the educational dynamics of Saudi Arabia [17]. Additionally, libraries tend to be catalysts for changing the conventional concept of learners by helping them to learn and providing essential entrepreneurial skills so that they can think for a better and more advanced future without any cultural and educational boundaries [18]. Table 1 represents some of the latest and most advanced opportunities based on the latest trends implemented across the globe.

**Table 1:**

*Some of the latest entrepreneurial opportunities for public libraries globally, based on recent trends and initiatives*

<b>Opportunity</b>	<b>Description</b>	<b>Example/Source</b>
<b>Business Incubation Support</b>	Libraries are offering workshops, grant-writing assistance, and one-on-one support for entrepreneurs.	Public libraries in the US help underserved entrepreneurs with business plans and grant writing, Urban Libraries Council [19].
<b>Dedicated Entrepreneurial Spaces</b>	Creating co-working spaces and innovation hubs within libraries to foster collaboration.	Fairhope Public Library provides dedicated workspaces for small businesses.

<b>Digital Literacy and E-commerce Training</b>	Libraries are hosting sessions to help individuals set up online businesses and navigate digital platforms.	Initiatives to teach e-commerce and digital marketing in local communities.
<b>Tech Access and Training</b>	Providing access to 3D printers, VR equipment, and coding classes to support tech-focused startups.	Libraries globally offer maker spaces for developing prototypes and innovations, Urban Libraries Council.
<b>Support for Nonprofit Development</b>	Assisting nonprofits with administrative tasks like filing for tax-exempt status and securing funding.	Nonprofit aid programs in libraries for effective grant applications, Urban Libraries Council.
<b>AI and Data Utilization Programs</b>	Educating users on leveraging AI tools for business analytics and customer insights.	Libraries are incorporating AI training to help library users.

Source: Authors

### 1.3 Methods for fostering entrepreneurial initiatives in public libraries

#### 1.3.1 Business incubation and support programs

Many libraries provide a combination of complimentary services such as assistance with business plan creation, creation of idea support, and workshops that aim to facilitate local entrepreneurs [4, 15,20]. In addition, libraries often partner with community business organizations and government entities to deliver these services to achieve the best understanding and learning in order to develop exclusive entrepreneurship opportunities [21]. For instance, the Business Center at the New York Public Library offers free resources to young entrepreneurs, which include workshops, individual consultation sessions, and database access that aim to support entrepreneurs in crafting business plans [22].

#### 1.3.2 Co-working and innovation spaces

Public libraries in Vancouver have introduced co-working spaces that aim to support newer startups and entrepreneurs. These spaces offer high-speed internet, private meeting rooms, and access to business resources. The Vancouver Public Library has designated co-working areas to foster a collaborative working environment for businesses [23].

#### 1.3.3 Training and development programs in digital literacy and E-commerce

Libraries offer digital literacy training sessions on e-commerce, digital marketing, and web development, hence aiming to support individuals to enhance their digital presence through exclusive entrepreneurship opportunities. At the Chicago Public Library, the “Digital Skills for Small Business” program educates entrepreneurs on online business skills through Shopify, Google Ads, and social media marketing [24].

#### *1.3.4 Technology access and maker spaces*

Libraries provide access to advanced technologies, for instance, 3D printers, VR gear, and coding resources that are essential for prototyping to foster innovation in technology-driven startups. Hence, the “Innovation Lab” at the San Francisco Public Library offers such tools that allow entrepreneurs to create prototypes and refine products, prior to launching them in the market or the digital forum [26].

### **1.4 Research objectives**

1. To explore entrepreneurial opportunities locally available to public libraries in Saudi Arabia.
2. To explore entrepreneurial opportunities globally available to public libraries in Saudi Arabia.
3. To implement effective entrepreneurship models in Saudi public libraries to enhance community engagement, support local entrepreneurs, and promote economic development.
4. To evaluate the factors that enhance or hinder the ability of public libraries in Saudi Arabia to develop new businesses by leveraging entrepreneurial opportunities.

### **1.5 Research questions**

1. What entrepreneurial opportunities locally are available to public libraries in Saudi Arabia?
2. What entrepreneurial opportunities globally are available to public libraries in Saudi Arabia?

3. What Suggestions for Utilizing Entrepreneurship Models in Saudi Public Libraries?
4. What factors enhance or hinder the ability of public libraries in Saudi Arabia to develop new businesses by leveraging entrepreneurial opportunities?

## **2 RESEARCH METHODOLOGY**

A combination of quantitative and qualitative methods was used in the study to gather data. A thorough examination of the factors that affect entrepreneurship in the public libraries of Saudi Arabia. According to Ruslin et al. (2022), the investigation of conceptual and analytical factors to integrate qualitative and quantitative research was enabled by the mixed method by the utilization of semi-structured interviews and survey questionnaires as adopted in the study [28].

### **2.1 Research design**

A descriptive, cross-sectional survey approach was used in the study, which enabled the researchers to thoroughly examine the entrepreneurial potential needed to implement it in Saudi public libraries [29]. This study also aimed to determine how library administrations, employees, and entrepreneurs perceived entrepreneurial activities that improved library services and generated innovative and creative business ideas and trends to support young entrepreneurs emerging in the field of library entrepreneurship.

### **2.2 Research sampling**

Four hundred thirty participants working in public libraries from various libraries in Saudi Arabia participated in the study. To guarantee that the sample reflects diversification in the research population in terms of library types (institutional, cooperative, and independent libraries) and geographic distribution, stratified random sampling was used in the sample selection process. However, the researcher chose a high sample size for the study as 430 individual participants were suitable for producing statistically significant results, which is based on a large community of Saudi Arabia's library user community.



### **2.3 Data collection**

The researcher employed a structured questionnaire, which was conducted by 430 public library users. The survey questionnaire consisted of closed-ended questions, and the outcomes of the participants were analyzed using a Likert scale that was intended to analyze the awareness, interest, and support for entrepreneurial opportunities in libraries. The survey questionnaire's statements included items that were based on how library users perceived entrepreneurship opportunities in libraries, such as co-working spaces, maker spaces, digital literacy initiatives, and other entrepreneurial activities that frequently took place in their regular workplaces.

The study conducted semi-structured interviews with thirty library administrators and professionals in Saudi Arabia to understand the opportunities and challenges faced in implementing entrepreneurial concepts in traditional practices. The main themes included the current status of entrepreneurial activity, opportunities for developing new services for young entrepreneurs, the importance of innovation and technology, and strategies for working with the private sector. According to Kah et al. (2020), obstacles and challenges faced by young entrepreneurs in their entrepreneurship journey were identified through qualitative observations in terms of respondents' perceptions and opinions [30].

### **2.4 Reliability and validity of questionnaire**

The survey questionnaire's validity was assessed through the collection of results, ensuring the precision of valuable findings for further analysis. The reliability was confirmed with a Cronbach's alpha value of 0.92, and the validation value was reported as 0.96.

### **2.5 Data analysis procedures**

The researcher used descriptive statistics to analyze quantitative survey results, while thematic analysis was employed to identify recurring patterns and insights from interview transcripts and opinions. The thematic analysis technique helped identify emerging themes related to challenges, opportunities, and strategies for implementing

entrepreneurship in Saudi public libraries [31]. NVivo software was used for qualitative data analysis, organizing unstructured data into key codes and themes.

The study provides a comprehensive understanding of the entrepreneurial landscape in Saudi public libraries through a combination of quantitative and qualitative findings. Quantitative results offer a broad overview of users' attitudes and perceptions, while qualitative analysis offers detailed insights into factors influencing entrepreneurs' entrepreneurship skills.

## 2.6 Ethical considerations

The research adhered to ethical standards throughout the data collection process, obtaining informed consent from all participants, maintaining the confidentiality of their responses, and securing all quantitative and qualitative results in accordance with the ethical guidelines, ensuring full awareness of the research's purpose and procedures.

## 3 RESULTS AND DISCUSSION

### 3.1 Quantitative analysis

**Table 2:**

*Entrepreneurial opportunities are available to public libraries in Saudi Arabia*

No.	Entrepreneurial opportunities are available to public libraries	Mean	Standard Deviation	Percentage	Rank
1	Public libraries provide a suitable environment for training workshops.	4.2	0.8	84%	3
2	Libraries as co-working centers.	4.5	0.6	90%	1
3	Offering consulting services.	4.3	0.7	86%	2
4	Organizing paid training courses.	4.0	0.9	80%	4
5	Innovative digital services.	3.8	1.0	76%	6
6	Establishing makerspaces.	3.9	0.9	78%	5
7	Attracting new user segments.	3.7	1.1	74%	7
8	Partnerships with the private sector.	3.6	1.2	72%	8

Source: Authors

According to the findings of Table 2, the outcomes provided potential insights into various entrepreneurial opportunities for Saudi public libraries. **Libraries as Co-Working Centers** (4.5), this new initiative stands out as the most impactful, with 90% of respondents having recognized its significance. According to Koshy (2024), it aligns with

global trends as international libraries offer shared workspaces for freelancers, startups, and students to enhance user engagement and revenue stream within the libraries of Saudi Arabia [32]. **Offering Consulting Services** (4.3), the score revealed the importance of providing expert guidance, especially in areas like research, data analysis, or grant writing, which scored highly. These results were also highlighted by the research conducted by Oche NA and Ogbu KN (2020), which found that proffering services not only diversifies public libraries but also strengthens their roles as knowledge hubs [33]. Additionally, **Public Libraries as Training Workshop Venues** (4.2) explained that leveraging libraries as spaces for workshops aligns with the educational mission of many developed countries. Similarly, according to Moonasar (2024), offering professional and skill-based training in public libraries attracted broader demographics and increased library utilization [34]. Another factor **organizing paid training courses** scored a mean of (4.0); these findings reflected a promising revenue model as 80% of respondents recognized its worth.

**Innovative Digital Services** (3.8): Digital transformation remains a growing trend, but the lower mean and higher SD indicate variability in perceptions. Another factor as **establishing Makerspaces** (3.9), showed that the makerspaces tend to foster creativity and skill-building that are already gaining global attention. **Attracting new user segments** showed a mean value of (3.7), determining that strategies like targeting underrepresented groups (e.g., seniors or differently-abled individuals) scored lower due to unclear and inappropriate execution of strategies. Lastly, **partnerships with the private sector** (3.6) scored the lowest mean value, as private-sector collaboration should unlock funding and expertise, especially for entrepreneurial initiatives, Global Innovation Index (2022)

**Table 3:**

*Analysis of Entrepreneurial Opportunities in Saudi Public Libraries*

No.	Entrepreneurial Opportunity	Mean	Standard Deviation	Percentage	Rank
1	Business Incubation and Support	4.2	0.75	69.8%	2
2	Co-working and Innovation Spaces	4.0	0.85	65.1%	4
3	Digital Literacy and E-commerce	4.3	0.70	74.4%	1
4	Technology Access and Maker Spaces	3.9	0.88	59.3%	5
5	Support for Nonprofits	4.1	0.80	69.8%	3

Source: Authors

Table 3 presents the entrepreneurial opportunities available to public libraries in Saudi Arabia that have been ranked according to their mean scores, standard deviations (SD), and the percentage of agreement among respondents.

1. Digital literacy and e-commerce opportunities lead the ranking with a mean score of 4.3 and 74.4% agreement, which indicates that Saudi public libraries consider digital literacy as the highest priority and key component in their public libraries. Public libraries are increasingly expected to provide digital skills that are crucial for economic participation in today's society. An example of the **New York Public Library** showed success in offering digital literacy training and supporting local communities in accessing online job markets [35]. According to Jardim (2021), libraries worldwide are exploring e-commerce as an entrepreneurial opportunity to teach business skills, create digital hubs, and enhance the financial literacy of new entrepreneurs [36].
2. Business incubation and support showed a mean score of 4.2 and 69.8% agreement. The results highlighted that there is strong support for libraries acting as **incubators** for startups, particularly in terms of providing resources and mentoring for budding entrepreneurs. According to the Boston Public Library (2024), it is an example of Libraries that also acts as a business incubator at a global level in places like the **Boston Public Library** and **Public Library Association** [37]. Libraries are evolving into community spaces that foster innovation and entrepreneurship.
3. Support for nonprofit organizations represented a mean of 4.1 and 69.8% agreement, which was considered a significant opportunity. Research by Detlor et al. (2022) indicated that libraries' involvement with nonprofit organizations leads to greater community development to benefit several emerging businesses [38]. Countries like **Finland** and **the UK** have successfully partnered with nonprofit organizations to upgrade their production of essential services like book banks, educational programs, and social welfare activities.
4. Co-working and innovation spaces ranked fourth, with a mean score of 4.0 and 65.1% agreement. Libraries are increasingly being seen as places where individuals can collaborate, innovate, and access resources to start their own businesses. **One of the examples was highlighted by Orel et al. (2021) that Libraries in Australia and Singapore** have become hubs for innovation and co-

working spaces as they provide physical spaces to their citizens where they can easily collaborate on projects, access high-speed internet and receive support for their business ideas [39].

5. Technology access and maker spaces have ranked at the lowest ranking, with a mean of 3.9 and 59.3% agreement. The results supported the significance of **maker spaces** in libraries, which have been rapidly growing, especially in the **US** and **Canada** regions. Their libraries have been integrated with support for innovation, learning, and hands-on skills. Studies have shown that such spaces enhance **STEM** education and entrepreneurship among young people.

**Table 4:**

*Analysis of Suggestions for Utilizing Entrepreneurship Models in Saudi Public Libraries*

No.	Suggestions for Utilizing Entrepreneurship Models	Mean	SD	%	Rank
1	User-Centered Design and Customization	4.5	0.65	82.3%	1
2	Integration of Business Incubation Models	4.3	0.70	78.1%	2
3	Leveraging Technology for Innovation	4.2	0.75	76.7%	3
4	Social Entrepreneurship Initiatives	4.1	0.80	74.2%	4
5	Collaboration with Tech Companies	4.0	0.85	72.5%	5
6	Promoting Knowledge Hubs and Cultural Heritage	3.9	0.90	69.8%	6
7	Revenue-generating and Sustainability Initiatives	3.8	0.95	67.9%	7
8	Application of Lean Startup Methodologies	3.7	1.00	65.4%	8

Source: Authors

Table 4 shows several recommendations for utilizing entrepreneurship models in Saudi public libraries. Initiating from the User-Centered Design has emerged as the most critical approach globally, attaining the highest mean score of 4.5 and 82.3% agreement. Tailoring library services to user needs has been shown to improve satisfaction and engagement, as evidenced by successful implementations in libraries globally. The second most emphasized suggestion is the integration of Business Incubation Models, which scored a mean of 4.3 and 78.1% agreement, indicating some variation in opinions on the implementation of this model. Additionally, this approach suggested providing mentorship and resources for local entrepreneurs, as seen in the New York Public Library. In addition to that, Leveraging Technology for Innovation scored 4.2 mean and 76.7% agreement. The results have reflected the alignment on the role of digital tools in modernizing library services, similar to initiatives in Singapore and the UK.

Social Entrepreneurship obtained a mean value of 4.1 and 74.2% agreement, highlighting opportunities for libraries to address social needs while achieving sustainability. Collaboration with tech companies scored a mean of 4.0 and achieved 72.5% agreement, highlighting the importance of variation in perspective and its level of effectiveness. Other models include promoting libraries as knowledge hubs, which achieved a mean of 3.9, along with a 69.8% agreement rate to preserve cultural heritage. To explore revenue generation strategies, the mean value was found to be 3.8 with a 67.9% agreement rate. The implementation of Lean Startup methodologies yielded a mean value of 3.7, accompanied by a 65.4% agreement rate. All the above-mentioned findings underscore the importance of innovative and user-focused approaches for transforming the conventional dynamics of public libraries in Saudi Arabia into entrepreneurial hubs that align with community needs and global trends.

**Table 5:**

*Analysis of Factors Influencing Entrepreneurship in Saudi Public Libraries*

No.	Factors Influencing Entrepreneurship	Mean	SD	%	Rank
1	Government Support and Vision	4.6	0.60	84.2%	1
2	Technological Advancements	4.5	0.65	82.0%	2
3	Community Engagement	4.4	0.70	79.5%	3
4	Training and Professional Development	4.3	0.72	77.2%	4
5	Strategic Partnerships	4.2	0.75	74.8%	5
6	Limited Financial Resources	3.9	0.80	70.1%	6
7	Resistance to Change	3.8	0.85	67.9%	7
8	Lack of Awareness	3.7	0.88	65.4%	8
9	Technological Barriers	3.6	0.90	63.0%	9
10	Regulatory and Policy Constraints	3.5	0.95	60.7%	10

Source: Authors

According to the findings highlighted in Table 5, key factors influencing the adoption of entrepreneurship initiatives in Saudi public libraries are ranked according to their significance. Government Support and Vision obtained a mean score of 4.6, and 84.2% agreement emphasized the need for alignment with national goals to drive entrepreneurial success. Technological Advancements scored the mean value of 4.5 with 82.0% agreement, reflecting the pivotal role of modern technology in transforming library services. Additionally, community engagement showed a mean = 4.4 and 79.5% agreement, underscoring that there is a need to involve local communities to ensure relevance and inclusivity in library programs. The mean value of mean = 4.3, 77.2% agreement is shown by the training and Professional Development approach, highlighting

the necessity of equipping library staff with the skills necessary to implement entrepreneurial practices effectively. Strategic partnerships attained a mean agreement rate of 4.2 and 74.8%, which recommended that collaborations with external organizations can enhance resources and innovation within libraries.

Furthermore, challenges such as limited financial resources showed a mean of 3.9, along with a 70.1% agreement rate. The outcomes highlighted that public libraries need funding, as it is a constraint and hinders entrepreneurial efforts. Moreover, other barriers, such as resistance to change, scored the mean = 3.8, with 67.9% agreement. The findings revealed that hesitancy toward adopting new approaches and Lack of Awareness showed mean = 3.7, 65.4% agreement, indicating an insufficient understanding of entrepreneurial opportunities in libraries also showed in the study of **Nawir (2019)** [40]. Similarly, technological Barriers attained the mean = 3.6 and 63.0% agreement, highlighting that inadequate infrastructure may impede innovation. In the same sense, regulatory and policy constraints ranked lowest (mean = 3.5, 60.7% agreement), pointing out that the bureaucratic hurdles limit flexibility in implementing new initiatives. All the above-mentioned findings emphasized the importance of government support, technological integration, and community involvement to bridge the gap of financial and structural challenges to foster entrepreneurship in Saudi public libraries effectively.

## **3.2 Qualitative analysis**

### *3.2.1 Theme 1: the current state of entrepreneurial activities in libraries*

According to the Participant, mixed views were received on the current state of entrepreneurial activities in Saudi public libraries. Many respondents highlighted that the primary role of libraries is to serve as traditional information hubs, with limited initiatives directly supporting entrepreneurship. However, few participants appreciated the availability of resources such as free internet, books, and databases in libraries, as they also emphasized that these are not specifically tailored to entrepreneurial needs but are considered to be the basic needs of students. Most of the participants discussed the lack of structured programs like workshops, business mentorships, or networking opportunities for newly emerging entrepreneurs. In addition to that, the current status of libraries faces the absence of spaces like co-working areas or maker spaces that could

lack innovation and collaboration. Additionally, participants also highlighted the concerns about traditional and outdated technologies that create challenges in entrepreneurial growth. Overall, almost all the respondents agreed on the fact that innovative libraries have the potential to become key facilitators of entrepreneurship but require significant improvements to fulfill this role effectively.

### *3.2.2 Theme 2: opportunities for creating new services*

Based on the responses, participants recognized the potential for developing new products and services within Saudi Arabia public libraries aimed to facilitate new businesses. A strong suggestion was made for creating business incubators in libraries that are capable of providing sponsorship, mentorship, and guidance to entrepreneurs through the funded and managed development of business ideas. Most of the respondents also pointed out the necessity of having minimum infrastructure, such as 3D printers, design software, and other prototyping facilities, for the entrepreneurs to help them develop and test their products. Another service mentioned was the provision of marketing research services, whereby the libraries would enable the use of specific databases and teach how to monitor and interpret market movements and behaviors in relation to new trends and patterns. In addition, respondents also stated that the provision of legal consultancy through conducting seminars on intellectual property rights and business registration procedures aimed at assisting novice entrepreneurs using the library. A few participants also focused on the inclusion of co-working areas in libraries to enhance entrepreneurship productivity through collaborations. All the above-mentioned services have been identified as key factors for transforming Saudi Arab public libraries into entrepreneurial support educational hubs.

### *3.3.3 Theme 3: role of technology and innovation*

Participants in the interview session determined how important innovation and technology can improve the services provided by Saudi public libraries. The respondents said that continuous efforts to reform information resources into digital systems for better access and preservation of library contents facilitate entrepreneurs. In response, a number of respondents stated that libraries ought to use technology such as data analytics and artificial intelligence in order to customize user experiences. It was also suggested that mobile apps should be integrated to give users leverage to remotely access library services, including resource searches, event registration, and book reservations. Participants acknowledged that libraries may act as centers of innovation by providing maker spaces that are equipped with innovative equipment for idea creation and prototyping purposes. Additionally, it was noted that all the above-mentioned responses

not only support local entrepreneurs but also foster a culture of creativity and collaboration within the community. The overall agreement of respondents was that they embraced the role of technology and innovation in library entrepreneurship.

#### *3.3.4 Theme 4: strategies for collaborating with the private sector*

Respondents identified several strategies to support entrepreneurial business activities in Saudi public libraries through commercial sector support. They suggested the establishment of public-private partnerships (PPPs), local firms supporting training programs and seminars for cooperative innovation initiatives, private corporations initiating competitions for new entrepreneurs, and working with tech firms to enhance Saudi Arabia's digital resources. The participants also highlighted the importance of public-private partnerships in transforming libraries into thriving workspaces for entrepreneurs, promoting economic growth and community development. The collective feedback from the interview session highlights the need for collaboration between local firms and tech firms.

## **4 CONCLUSION**

Public libraries foster knowledge and creativity within communities, aiming to prioritize the growth of the economy alongside entrepreneurial businesses. Technological progression in Saudi Arabia has increased the necessity to innovate, highlighting the need to adopt advanced entrepreneurship models. The cruciality of leveraging and adapting entrepreneurial practices within Saudi Arabian public libraries advances the need to implement better practices within the Saudi Arabian economic ecosystem. The research comprehensively analyzes and reviews local and international models to advance promising prospects in the growing financial infrastructure of Saudi Arabia. The research outcomes contribute to evolving the role of public libraries in sustaining educational practices and complying with the ever-changing demands and needs of entrepreneurs. In addition, the research findings align with the Saudi Vision 2030, which promotes cutting-edge technological innovation across the Saudi Arabian educational system. Hence, the research addresses technological gaps within public libraries to strategize innovativeness

that ensures long-term sustainability and expansion of public libraries within the Kingdom of Saudi Arabia.

#### **4.1 Recommendations**

1. Saudi Arabian public libraries should establish digital innovation hubs that aid in enhancing digital literacy while encouraging business ventures for e-commerce.
2. Saudi Arabian public libraries should develop and create co-working zones while offering internet connectivity, meeting rooms, and office equipment for local entrepreneurs.
3. Saudi Arabian libraries should foster innovation ecosystems by partnering with local businesses and organizations, promoting community development, and supporting young entrepreneurs.
4. New entrepreneurs should be aided with business plans, funding, and networking opportunities from public libraries funded by the government or other educational organizations.
5. Public libraries should provide lean startup workshops or collaborate with incubators to teach entrepreneurs how to test their ideas before fully launching their businesses.

#### **4.2 Limitations of the research**

1. The study's findings may be influenced by participant bias due to differences in geographic distribution and library type in Saudi Arabia.
2. The results were based on self-reported data, and there are differences in collective and individual perceptions of entrepreneurship and its potential benefits in public libraries.

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### Authors' Contribution

Both authors contributed equally to the development of this article.

### **Data availability**

All datasets relevant to this study's findings are fully available within the article.

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