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An Empirical Analysis of Factors Motivating Unemployed Individuals to Engage in Digital Entrepreneurship in Oman: Focus on Technological Infrastructure

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Abstract: Technological infrastructure plays a critical role in a country's development and progress, enabling economic growth, innovation, and improving citizens' quality of life. This study explores the potential of digital entrepreneurship and digital transformation in reducing unemployment in Oman. With the increasing reliance on digital technologies, governments need to invest in technological infrastructure that can meet the evolving needs of society. This study investigates the potential of digital entrepreneurship and digital transformation in reducing unemployment in Oman. This study highlights the importance of technological infrastructure in enabling economic growth and improving citizens' quality of life. The findings indicate that digital entrepreneurship offers equal opportunities for both genders, potentially empowering women in entrepreneurship and addressing unemployment challenges. Additionally, the study shows a positive relationship between age and digital entrepreneurship aspirations. To foster entrepreneurship, the study suggests empowering young job seekers with digital knowledge and enabling graduates to create new opportunities for businesses and entrepreneurs. The study found significant effects of "Unemployment in the Sultanate of Oman (reasons and solutions)" on occupation, as indicated by a between-group sum of squares of 8.773, two degrees of freedom, and a mean square of 4.387, with an F value of 11.274, and a significance level of 0.000. On the other hand, the "Digital Entrepreneurship Sector" significantly affected occupation, with a between-groups sum of squares of 4.394, two degrees of freedom, and a mean square of 2.197, and an F value of 10.267 with a significance level of 0.000. Similarly, for the "Entrepreneurship Digital Infrastructure" variable, there was no significant difference between male and female mean scores ($t = -1.516$, $df = 206$, $p = 0.131$). Overall, the results indicate that the digital entrepreneurship sector significantly impacts occupation, while the entrepreneurship digital infrastructure has no significant effect. Additionally, female respondents showed a higher mean score in perceptions of "Unemployment in the Sultanate of Oman (reasons and solutions)" compared to male respondents.

Keywords: digital entrepreneurship; digital transformation; unemployment; Oman; ICT



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1. Introduction

During the coronavirus disease of 2019 (COVID-19) pandemic, technology's role in ensuring seamless operations and facilitating digital transformation across both public and private sectors was evident [1]. The pandemic's onset in 2020 prompted significant shifts in entrepreneurial activities, with the Sultanate of Oman proactively implementing alternative approaches and digital transformations in business management to ensure stability [1]. These efforts, effective in mitigating the pandemic's impact, are anticipated to endure, presenting a range of opportunities for entrepreneurs [1].

Investing in technological infrastructure holds immense importance for national progress, contributing to economic growth, innovation, and improved quality of life [2]. This robust infrastructure empowers individuals and businesses to navigate future challenges in education, healthcare, and commerce effectively [2]. In today's digital age, governments must ensure their technological infrastructure remains up-to-date to meet evolving societal needs [2]. Such investments not only attract foreign investments but also generate business prospects, foster entrepreneurship, and drive job creation and economic expansion [2]. The enhancement of technological infrastructure serves as a pivotal goal, driving innovation, prosperity, and equipping both individuals and enterprises for future challenges [2].

Given the present cognitive, cultural, and economic contexts, the study and analysis of digital entrepreneurship and transformation's role in reducing unemployment in Oman are crucial [1]. In the current economy, effective information use is vital, with digital entrepreneurship and transformation becoming increasingly significant in tackling modern economic challenges [1]. Amidst tough competition and evolving conditions, embracing new technologies and innovative strategies is essential in maintaining competitiveness [1]. Understanding the impact of digital entrepreneurship and transformation on unemployment reduction in Oman can aid in identifying necessary steps to support sector growth and development, including addressing challenges, formulating supportive policies, and investing in technology infrastructure [1]. Analyzing their role is crucial for fostering innovation, economic growth, and enhancing citizens' quality of life [1].

In a study by [3], the potential contribution of digital entrepreneurship and transformation to reducing unemployment in Oman is investigated. The study explores how enhancing technological infrastructure in Oman could promote digital entrepreneurship and transformation, offering insights into associated challenges and opportunities [3]. This examination offers important insights for policymakers, government officials, and business leaders in Oman to make informed decisions about promoting economic growth and addressing unemployment through digital entrepreneurship and transformation [3].

According to [4], digital entrepreneurship presents opportunities, alternatives, and support for job seekers. The authors suggest that when regulations and legislation governing digital entrepreneurship projects are established, they can become a viable source of income, particularly for the unemployed [4].

Information and communication technology (ICT) development in Oman has made substantial strides over the past decade, evident in the mobile phone penetration rate of 154.6% and internet penetration rate of 70.8% as of December 2021 [5,6]. This growth has fostered a favorable environment for e-commerce, online services, and digital entrepreneurship [7,8].

Oman's government has proactively introduced initiatives and policies to stimulate ICT adoption across various sectors like education, healthcare, and commerce [9,10]. Notably, e-learning platforms have been promoted in education, while a comprehensive e-health system has been developed to enhance healthcare-service delivery. Additionally, e-government services, including online visa and payment systems, have been established to improve public service efficiency [9].

Efforts have also been directed towards nurturing the digital entrepreneurship ecosystem, with the establishment of incubators, accelerators, and funding programs [9]. The Sas Accelerator initiative by the Public Authority for Small and Medium Enterprises Development supports startups and SMEs through mentoring, training, and funding.

In conclusion, Oman's sustained investments in ICT infrastructure and digital entrepreneurship are poised to drive economic growth and decrease unemployment [11]. The expansion of ICT infrastructure has paved the way for e-commerce, online services, and digital entrepreneurship to flourish, bolstered by government initiatives that promote ICT adoption across sectors.

The purpose of this study is to uncover the potential of Oman's technological infrastructure in promoting digital entrepreneurship and transformation. Through various

inquiries and investigations, the study aims to answer research questions related to Oman's technological landscape. It also seeks to test hypotheses that explore the relationship between Oman's technology and digital entrepreneurship and transformation. This study strives to contribute to the existing discourse and paves the way for a digital future for Oman.

2. Research Questions

What are the possibilities of benefiting from Oman's technological infrastructure to increase digital entrepreneurship and digital transformation? Sub-questions include the following:

- What are the key factors motivating unemployed individuals in Oman to pursue digital entrepreneurship?
- How does the quality and accessibility of technological infrastructure influence the decision of unemployed individuals in Oman to pursue digital entrepreneurship, and what role does it play in overcoming potential barriers?
- What are the key challenges faced by unemployed individuals who wish to engage in digital entrepreneurship in Oman, and how can the country's technological infrastructure address these challenges?
- What is the level of awareness among the unemployed population in Oman about the opportunities for digital entrepreneurship, and how can technological infrastructure be leveraged to increase this awareness?
- How can Oman's technological infrastructure facilitate the digital transformation of existing businesses and industries, and how can this impact the country's overall economic development?
- How can Oman's technological infrastructure be optimized to provide accessible and affordable digital services that support the growth of digital entrepreneurship and digital transformation?

3. Research Objective

This study investigates the potential of leveraging Oman's technological infrastructure to increase digital entrepreneurship and transformation. The study aims to address several research questions, including the possibilities of benefiting from Oman's technological infrastructure, the challenges faced by unemployed individuals in engaging in digital entrepreneurship, the level of awareness among the unemployed population about opportunities available for digital entrepreneurship, and how technological infrastructure can facilitate the digital transformation of existing businesses and industries.

The study also aims to test several hypotheses related to the impact of Oman's technological infrastructure on digital entrepreneurship and transformation, the challenges faced by unemployed individuals, and the potential for leveraging technological infrastructure to increase awareness and provide accessible and affordable digital services.

4. Hypotheses

H1. *Older individuals in the Sultanate of Oman have more positive perceptions of entrepreneurship digital infrastructure than younger individuals.*

H2. *Women in the Sultanate of Oman are more likely to experience unemployment due to a lack of digital skills than men.*

H3. *Individuals with higher education levels have more positive perceptions of entrepreneurship digital infrastructure than younger individuals.*

H4. *Entrepreneurs have more positive perceptions of digital entrepreneurship infrastructure compared to younger individuals.*

5. Literature Review

This section demonstrates familiarity with the existing literature, the ability to evaluate previous research critically, and the position, within the broader academic conversation, of technological infrastructure to increase digital entrepreneurship and digital transformation

5.1. Entrepreneurship

Entrepreneurship can be defined as a series of actions encompassing the recognition, formulation, and pursuit of novel prospects, all directed towards the establishment of fresh offerings, services, or business enterprises. This intricate process entails a readiness to engage in informed risks, allocate resources wisely, and navigate through uncertainties, all with the overarching goal of instigating constructive transformations, generating value, and attaining lasting expansion within a fluid and evolving business landscape [12].

Entrepreneurship has evolved to encompass sustainable entrepreneurship, which involves integrating digital technologies into business models to create innovative and sustainable solutions. According to [13], digital technologies play a crucial role in enabling novel configurations of sustainable business. This highlights the importance of embracing digital transformation in entrepreneurship to create new opportunities and promote sustainability in business practices.

The research model developed by [14] aims to explore the factors that influence entrepreneurship and the relationship between these factors including Skills, education and Sustainable development. The model may include variables related to technological infrastructure, digital entrepreneurship, and other factors that affect the development and growth of entrepreneurship. Additionally, the model may incorporate the concept of mediation, which refers to the process by which one variable affects another variable through a third variable. Overall, the research model may provide insights into the complex interplay between various factors that contribute to the success of entrepreneurship and the role of digital technologies in this process. See Figure 1.

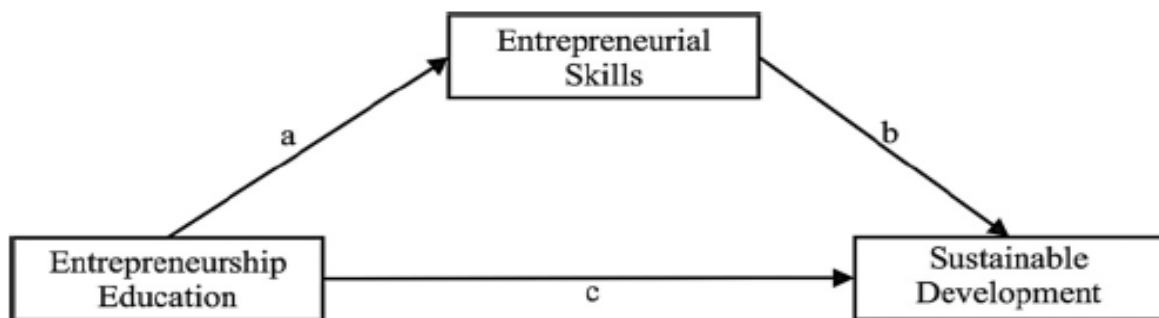


Figure 1. Relationship between entrepreneurship factors [14].

The current trend among digital technology entrepreneurs is to actively utilize digital technology, solutions, and services to create new ventures, which is expanding the boundaries of digital entrepreneurship beyond simply understanding existing systems and relevant applications, according to [15].

Figure 2 illustrates the relationship between entrepreneurship factors.

In this diagram, the characteristics of entrepreneurship are the personal traits and attributes typically associated with successful entrepreneurs, such as creativity, risk-taking, and resilience. These characteristics are believed necessary for individuals to engage in the entrepreneurial process. The entrepreneurial process involves identifying and evaluating business opportunities, developing and implementing business plans, and managing and growing a business over time. A variety of factors, such as access to resources, availability of financing, and market conditions can influence this process.

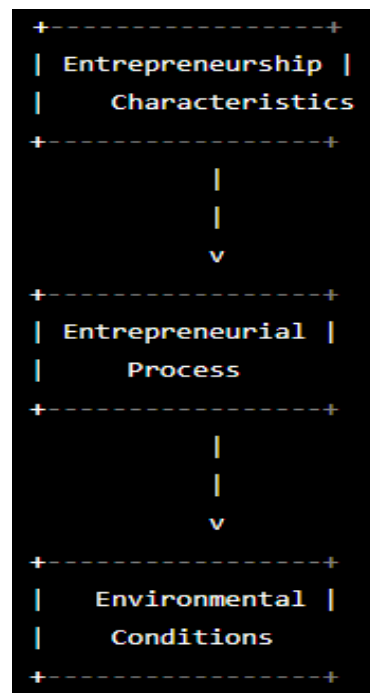


Figure 2. Relationship between entrepreneurship factors.

Finally, the environmental conditions in which entrepreneurship takes place can also impact the success of entrepreneurial ventures. These conditions can include cultural norms, legal and regulatory frameworks, and the availability of infrastructure and support services.

5.2. Digital Infrastructure Supporting Entrepreneurship in Oman

The government of the Sultanate of Oman has endeavored and worked hard to link the Omani citizen with the global system by creating a basic technology infrastructure in society and the appropriate and encouraging a climate for work in the field of digital entrepreneurship, as represented in the following points [16]:

- Providing telecommunications and internet services throughout the country.
- Inclusion of technology in educational and academic curricula, and combining these curricula with different academic subjects.
- Inviting experts and specialists to present and provide workshops and training courses related to technology and entrepreneurship.
- Providing a secure protection system from the risks of electronic threats that affect digital entrepreneurship.
- Facilitating the provision of technical solutions and technical support to participants in digital entrepreneurship.
- Financing and financial support for the digital entrepreneur with a flexible and easy system.
- And providing all of the requests, requirements, tools, and any relevant technological infrastructure demand for developing and enhancing digital entrepreneurship.

5.3. Digital Transformation in Dealing with Entrepreneurship

The digital infrastructure must change and refresh with new platforms, networks, and systems, and the further development and enhancement of infrastructures are the government's aim and are in the best interest of the any country's development [15].

Digital entrepreneurship that uses digital media as a strategic marketing tool is the basis for the further expansion of the use of technology and digital tools to reach customers

and create a more acceptable experience for them, which leads to the success of digital entrepreneurship [14,17–20].

5.4. Digital Entrepreneurship Business

Digital entrepreneurship refers to the transformation of entrepreneurship through the impact of digital technology on business practices, processes, and people. This includes changes in commercial practices, philosophy, and education [21]. Digital entrepreneurship creates opportunities, alternatives, and facilities that encourage job seekers to engage in entrepreneurial activities.

According to [22,23], organizational culture is essential in guiding the performance of entrepreneurs, by realizing the necessity of communicating organizational values and culture in a smooth manner.

The conversion of traditional entrepreneurship to digital and technological entrepreneurship has gained momentum in recent years, supported by impressive feedback and benefits [15]. Digital entrepreneurship has been embraced as a potential solution to grand social, environmental and health challenges such as climate change and dangerous diseases [24]. According to [15], the business model of the digital entrepreneurship process is illustrated in Figure 3:

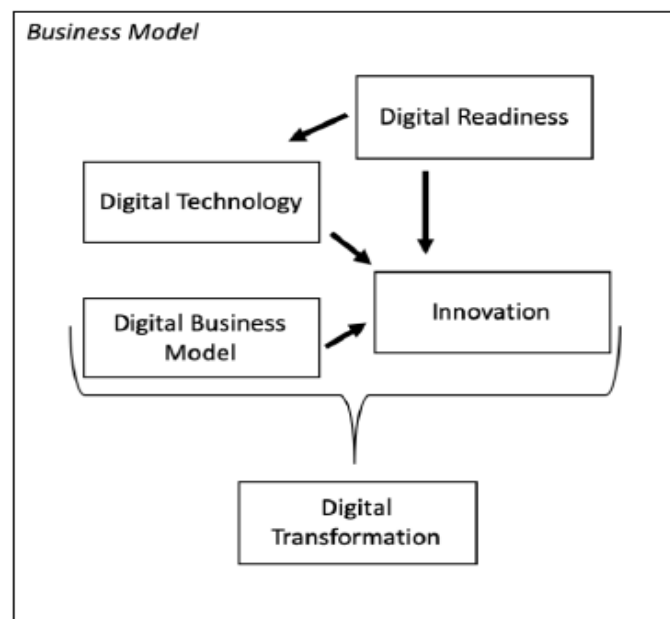


Figure 3. A conceptual framework for digital transformation [15].

According to [21], there is a negative relationship between unemployment and entrepreneurship, with entrepreneurship leading to lower unemployment rates. This is an important finding as it suggests that promoting entrepreneurship can be a valuable strategy for reducing unemployment.

It is also noteworthy that the study investigates the role of digital entrepreneurship and digital transformation in reducing unemployment in the Sultanate of Oman. This is an important area of research, as digital technologies can create new opportunities for entrepreneurship and innovation, which can help reduce unemployment and drive economic growth. This research highlights the importance of promoting entrepreneurship and digital transformation to reduce unemployment and promote economic development.

5.5. The Impact of Digital Entrepreneurship on Employment in Oman

Electronic commerce and digital entrepreneurship have the potential to open up new opportunities for businesses and institutions in Oman, especially during times of economic uncertainty and crisis like the COVID-19 pandemic.

By leveraging digital technologies, businesses can overcome many obstacles, such as administrative and technical challenges, and improve their productivity and performance. This is particularly important for small and medium enterprises, which often lack the resources and expertise to navigate the complexities of digital transformation on their own.

Moreover, the growth of digital entrepreneurship can also help mitigate the impact of unemployment in Oman by creating new jobs and fostering innovation and creativity. As the world becomes increasingly digital, businesses and institutions in Oman must embrace digital entrepreneurship to stay competitive and adapt to their customers' changing needs. Digital entrepreneurship represents a powerful tool for promoting economic growth, reducing unemployment, and driving innovation in Oman. By investing in digital technologies and supporting the growth of digital entrepreneurship, Oman can position itself as a leader in the digital economy and build a brighter future for its people [3,24].

5.6. The Impact of Technology on Reducing Unemployment

Policymakers need to develop strategies and systems to support digital entrepreneurship in order to facilitate the employment of job seekers in this field and reduce the burden on the government in finding job opportunities that keep up with changes and developments [25]. Providing the necessary infrastructure, such as internet services, cloud computing, and mobile banking devices, is also crucial for the growth and sustainability of digital entrepreneurship [25].

The future of digital entrepreneurship is linked to many opportunities and challenges imposed by the current reality. It helps develop and improve its efficiency and marketing optimally and direct job seekers toward digital entrepreneurship. All this requires the development of policies, systems and strategies that help organize this field related to job seekers' employment in digital entrepreneurship. This will reduce the government's burden in finding job opportunities commensurate with changes and developments, and provide sustainability for all groups benefiting from these projects. It is also necessary to look towards providing an infrastructure, which is one of the necessities to guide individuals towards digital transformation, and is composed of internet services, cloud computing, mobile banking devices and equipment necessary for the stability of digital entrepreneurship so that the unemployed and job seekers are encouraged to improve their skills in this field [25].

Also, it supports the creation of novel approaches and skills in technologies, and supports the researcher [5] who embraces new undertakings and transformation in pursuit of chances by opening up an enterprise for the unemployed to join.

Table 1 Provides an overview of research conducted in the technology sector regarding the mitigation of unemployment.

Table 1. Summaries of the studies in the field of technology on reducing unemployment.

Author	Title of Study	Research Methodology	Key Findings
[26]	Robots and jobs: Evidence from US labor markets	Empirical analysis using data from the US Bureau of Labor Statistics	Higher adoption of robots led to lower employment growth and wages, especially for workers in manufacturing and low-skilled jobs
[27]	How Computer system touches Occupations: Technology, Works, skills and Services	Empirical analysis using data from the US Census Bureau and O*NET	Occupations with higher automation scores experienced lower employment growth, and workers in those occupations had lower wages and fewer hours

Table 1. Cont.

Author	Title of Study	Research Methodology	Key Findings
[28]	The Digital Revolution's Fast-moving Influence on Innovation, Productivity, Employment, and the Economy's Transformation	Literature review	The digital revolution has led to job polarization, with high-skilled jobs growing and low-skilled jobs declining, and it has also created new opportunities for entrepreneurship and innovation
[29]	Digitalization and employment: A blessing or a curse?	Empirical analysis using data from the German Federal Employment Agency	Digitalization had a positive impact on employment growth, but the effects varied across industries and regions
[30]	Humans Wanted: Robots Need You	Literature review and survey of 20,000 employers in 42 countries	Employers are struggling to find workers with the right skills for the jobs of the future, and investing in training and upskilling is necessary to bridge the skills gap
[31]	Harnessing the power of the digital revolution	Literature review	The digital revolution has led to job displacement and skill mismatch, but it has also created new opportunities for entrepreneurship and innovation, and it has the potential to create more jobs than it eliminates

6. Research Methodology

Multiple methodological approaches, also known as mixed-method research, involve the intentional combination of different research methods, such as qualitative and quantitative techniques, within a single study to enhance understanding and provide a more comprehensive perspective on a research topic [32].

This study uses multiple methods to gather data and insights from various stakeholders and decision makers in the field of digital entrepreneurship and technology infrastructure in Oman. Using a quantitative approach, such as a questionnaire, can help collect structured data and identify patterns and trends related to digital entrepreneurship and the readiness of the technology infrastructure in Oman. The samples should be carefully selected to ensure that they represent the target population and can provide valuable insights into the investigated topic.

In addition to the questionnaire, involving digital transformation specialists can provide a more qualitative approach to the study, allowing for in-depth interviews and discussions to gather more detailed and nuanced perspectives. The factors determining the readiness of technology infrastructure in Oman should also be carefully considered and evaluated. These factors can include access to funding, availability of skilled labor, regulatory frameworks, and the overall business environment in Oman. Using a multi-method approach can provide a comprehensive and holistic understanding of the state of digital entrepreneurship and technology infrastructure in Oman. It can help inform strategies and policies to support the growth and development of this important sector.

Table 2 summarizes the methodology used in the study, its purpose, data-gathering techniques, the sample, and analysis [32]. It shows that the study employs a multi-method approach, including a quantitative approach (questionnaire) and a qualitative approach (in-depth interviews and discussions) to gather data and insights on Oman's digital entrepreneurship and technology infrastructure. The sample comprises various stakeholders and decision makers in the field. The study analyzes quantitative and qualitative data in an integrated and synthesized manner to identify patterns and trends related to the topic.

Table 2. The points of the research methodology in this study.

Methodology	Purpose	Data Gathering Techniques	Sample	Analysis
Multi-method approach	To gather data and insights on digital entrepreneurship and technology infrastructure in Oman	Quantitative approach (questionnaire) and qualitative approach (in-depth interviews and discussions)	Various stakeholders and decision makers in the field of digital entrepreneurship and technology infrastructure in Oman	Integrated and synthesized analysis of both quantitative and qualitative data to identify patterns and trends

6.1. Design and Implementation of the Research

- The study uses a mixed-method approach, including quantitative and qualitative data-collection methods.
- The quantitative data are collected through a survey questionnaire that is distributed to a sample of unemployed individuals in Oman interested in digital entrepreneurship. The survey collected data on factors such as age, education level, experience, access to technology, and knowledge of digital entrepreneurship.
- The qualitative data are collected through in-depth interviews with a selected group of individuals who have started a digital business in Oman after experiencing unemployment. The interviews focus on their experiences, challenges, and success factors related to digital entrepreneurship and how technological infrastructure played a role in their journey.
- The study also reviews relevant literature on Oman's digital entrepreneurship and technological infrastructure.

6.2. Reliability Analysis

Table 3 displays the results of Cronbach's Alpha reliability analysis for the three dimensions of the questionnaire. The table presents the number of items and the corresponding reliability coefficient for each dimension. The Digital Entrepreneurship Sector dimension consists of 14 items with a Cronbach's Alpha coefficient of 0.784, indicating good internal consistency. The Entrepreneurship Digital Infrastructure dimension consists of 8 items with a Cronbach's Alpha coefficient of 0.803, indicating high internal consistency. The unemployment in the Sultanate of Oman dimension consists of 10 items and has a Cronbach's Alpha coefficient of 0.773, suggesting good internal consistency.

Table 3. Cronbach's Alpha reliability analysis.

Section	Dimensions	No. of Items	Cronbach's Alpha
1	Digital Entrepreneurship Sector	14	0.784
2	Entrepreneurship Digital Infrastructure	8	0.803
3	Unemployment in the Sultanate of Oman (reasons and solutions)	10	0.773
	Total	32	0.873

The overall reliability coefficient for the entire questionnaire is 0.873, indicating high internal consistency and reliability (note that a reliability coefficient of 0.70 or higher is considered “acceptable” in most social science research situations). These findings suggest that the questionnaire is a valid and reliable tool for measuring the constructs of interest. However, it is important to note that further validation studies should be conducted to confirm the validity and reliability of the questionnaire in different contexts and populations.

7. Analysis and Results

This section provides a comprehensive account of the data analysis process and the research outcomes. It aims to present the findings objectively, interpret their significance, and contextualize them within the existing body of knowledge.

7.1. Demographic Analysis

Table 4 presents the demographic characteristics of the participants in the study with frequency and percentage for each category of the following variables: gender, age, degree, and occupation (check the graphs in the appendices).

Table 4. Demographic characteristics.

Variable	Categories	Frequency	Percentage
Gender	Male	136	65.4%
	Female	72	34.6%
	Total	208	100%
Age	18–25	16	7.7%
	26–35	50	24.0%
	36–50	127	61.1%
	51+	15	7.2%
	Total	208	100%
Degree	Certificate XII (General Education Diploma)	29	13.9%
	University diploma	16	7.7%
	Bachelor’s degree	104	50.0%
	Master’s degree	37	17.8%
	Ph.D	14	6.7%
	None	8	3.8%
Total	208	100%	
Occupation	An employee	136	65.4%
	Entrepreneur	45	21.6%
	A job seeker	27	13.0%
	Total	208	100%

The gender distribution reveals that 136 participants (65.4%) were male, while 72 (34.6%) were female. Concerning age, the majority of participants were 36–50 years (127 participants, 61.1%), followed by the age range of 26–35 years (50 participants, 24.0%). Only a small proportion of participants were in the age range of 18–25 years (16 participants, 7.7%) or 51 years and above (15 participants, 7.2%).

Regarding educational qualifications, the highest proportion of participants had a bachelor’s degree (104 participants, 50.0%), followed by master’s degree holders (37 participants, 17.8%) and those with a Certificate XII (General Education Diploma) (29 participants,

13.9%). The remaining participants had a Ph.D. (14 participants, 6.7%) or no formal education (8 participants, 3.8%).

Finally, the occupation of the participants revealed that the majority were employees (136 participants, 65.4%), followed by entrepreneurs (45 participants, 21.6%) and job seekers (27 participants, 13.0%).

7.2. Digital Entrepreneurship Sector

According to the data presented in Table 5, respondents generally do not have a strong desire to create their digital entrepreneurship project, have not tried digital entrepreneurship during their studies, and do not have traditional entrepreneurship experience. However, they agree that digital entrepreneurship has contributed to improving the entrepreneurship sector in Oman, that the public and private sectors encourage job seekers to engage in digital entrepreneurship, and that the digital transformation has led to increased awareness, knowledge, and dealing with modern technologies. The spread of the COVID-19 pandemic has also changed the outlook for dealing with technologies in digital entrepreneurship. Overall, the respondents are neutral towards digital entrepreneurship, with a mean score of 3.34.

Table 5. Digital entrepreneurship sector.

	Statement	Mean	Std.	Decision	Rank
q1.1	Do you have the desire to create your own project in digital entrepreneurship?	1.32	0.467	Strongly Disagree	14
q1.2	Have you tried digital entrepreneurship during your studies?	1.72	0.452	Strongly Disagree	12
q1.3	Do you have traditional entrepreneurship experience?	1.52	0.501	Strongly Disagree	13
q1.4	There is a difference in the rapid for completion of transactions between digital entrepreneurship and traditional entrepreneurship.	4.15	0.954	Agree	1
q1.5	Digital entrepreneurship has contributed to improve the entrepreneurship sector in the Sultanate of Oman.	4	0.922	Agree	4
q1.6	The public sector and the private sector encourage job seekers in the Sultanate of Oman to engage in digital entrepreneurship.	3.68	1.043	Agree	9
q1.7	The digital transformation in entrepreneurship has led to an increase in awareness, knowledge, and dealing with modern and the latest technologies.	3.98	0.950	Agree	5
q1.8	The spread of the coronavirus has changed the outlook for dealing with technologies in digital entrepreneurship.	4.08	1.089	Agree	2
q1.9	It encourages Omani youth, especially job seekers (unemployment), to start digital entrepreneurship projects.	3.88	1.102	Agree	7
q1.10	Do you have service initiatives and projects related to digital entrepreneurship	3.03	1.160	Neutral	11
q1.11	I encourage the creation of a new digital entrepreneurship project in order to develop the traditional project.	4.07	1.010	Agree	3

Table 5. *Cont.*

	Statement	Mean	Std.	Decision	Rank
q1.12	Digital entrepreneurship has provided you with technological participation, knowledge, creativity, and innovation of new entrepreneurial methods.	3.65	1.057	Agree	10
q1.13	You were able to provide customers and clients from outside your geographical scope while using modern technologies in your project.	3.7	1.001	Agree	8
q1.14	I encourage my family and colleagues to go into creating digital entrepreneurship projects.	3.97	1.054	Agree	6
	Overall	3.34	1.029	Neutral	

7.3. Entrepreneurship Digital Infrastructure

Table 6 presents data on digital entrepreneurship infrastructure. The respondents have a neutral stance on whether they are satisfied with the digital infrastructure provided to entrepreneurs, if there is an integration of digital infrastructure resources for entrepreneurship with other service providers, and the cost of providing suitable digital infrastructure requirements in digital entrepreneurship. However, they agree that entrepreneurship digital infrastructure resources have increased the income level of the entrepreneur and that internet and network services, as well as the availability of modern technologies, have provided convenience in managing their projects. Additionally, they agree that digital entrepreneurship requirements make it easy to obtain products related to their needs and requirements to manage their projects.

Table 6. Entrepreneurship digital infrastructure.

	Statement	Mean	Std.	Decision	Rank
q2.1	Are you satisfied with the digital infrastructure provided to entrepreneurs?	3.29	1.174	Neutral	6
q2.2	Entrepreneurship digital infrastructure resources have increased the income level of the entrepreneur.	3.45	1.107	Agree	3
q2.3	There is an integration of digital infrastructure resources for entrepreneurship with other service providers.	3.35	1.019	Neutral	4
q2.4	The cost of providing suitable digital infrastructure requirements in digital entrepreneurship.	3.34	0.970	Neutral	5
q2.5	Have you presented ideas to improve the provision of the basic needs and requirements of digital entrepreneurship?	3.12	1.026	Neutral	7
q2.6	Internet and networks service and the availability of modern technologies provided you with the ability to manage your project and follow it up at any time and place.	3.54	1.137	Agree	2
q2.7	You underwent training courses and workshops before you started and during your management of your project in digital entrepreneurship.	2.99	1.167	Neutral	8
q2.8	Digital entrepreneurship requirements make it easy to obtain products related to your needs and requirements to manage your project.	3.58	0.994	Agree	1
	Overall	3.334	0.202	Neutral	

The respondents have a neutral stance on whether they presented ideas to improve the provision of the basic needs and requirements of digital entrepreneurship, and whether they underwent training courses and workshops before they started and while managing their project in digital entrepreneurship. Overall, the respondents are neutral towards Entrepreneurship Digital Infrastructure with a mean score of 3.334.

7.4. Unemployment in the Sultanate of Oman (Reasons and Solutions)

Table 7 presents data on the reasons and solutions for unemployment in the Sultanate of Oman. The respondents agree that the increase in university and college graduates has led to an increase in the number of job seekers, and that there is a lack of professional skills and experience for job seekers contributing to the high unemployment rate among young people. They also agree on the need to establish and adopt specialized centers to organize job opportunities within the community to reduce unemployment, provide appropriate financial support, and follow up on its implementation plan for job seekers wishing to establish their entrepreneurial projects.

Table 7. Unemployment in the Sultanate of Oman (reasons and solutions).

	Statement	Mean	Std.	Decision	Rank
q3.1	The increase in university and college graduates has led to an increase in the number of job seekers.	4.14	1.067	Agree	1
q3.2	The lack of professional skills and experience for job seekers has contributed to the high unemployment rate among young people.	3.5	1.308	Agree	7
q3.3	There is low confidence from customers and consumers in the owners of local entrepreneurial projects.	3.43	1.118	Agree	9
q3.4	There is a lack of effective institutions specialized in attracting, guiding, qualifying, and following up with job seekers.	3.78	1.183	Agree	5
q3.5	There is a need to establish and adopt specialized centres working to organize job opportunities within the community to reduce unemployment.	4.1	1.127	Agree	2
q3.6	The demand for specific jobs, especially government jobs, and the lack of support for the professional and applied side of the job market increased unemployment.	3.68	1.202	Agree	6
q3.7	There is an influence of social values and habits on the lack of initiative and experience among many young people looking for work.	3.38	1.165	Neutral	10
q3.8	Many job seekers do not have digital experience in managing and organizing entrepreneurial projects.	3.5	1.171	Agree	7
q3.9	There is a need to find a mechanism to facilitate and simplify procedures in order to convince job seekers to establish and manage their entrepreneurial projects.	3.94	0.978	Agree	4
q3.10	The government provides appropriate financial support and follows up on its implementation plan for job seekers wishing to establish their entrepreneurial projects.	4.01	1.052	Agree	3
	Overall	3.75	0.290	Agree	

Furthermore, the respondents agree that the lack of effective institutions specialized in attracting, guiding, qualifying, and following up with job seekers contributes to unemployment, and that there is a need to find a mechanism to facilitate and simplify procedures to convince job seekers to establish and manage their entrepreneurial projects. They also agree that the demand for specific jobs, especially government jobs, and the lack of support for the professional and applied side of the job market increased unemployment.

The respondents are neutral on the influence of social values and habits, the lack of initiative and experience among many young people looking for work, and many job seekers who do not have digital experience managing and organizing entrepreneurial projects. Overall, the respondents agree on the scale with a mean score of 3.75.

7.5. Hypothesis Testing

7.5.1. Gender

Table 8 presents the results of an independent sample *t*-test to compare the mean scores of male and female respondents on three scales related to digital entrepreneurship and unemployment in the Sultanate of Oman. The table provides information on the sample size, mean, standard deviation, *t*-value, degrees of freedom, and significance level for each variable for both male and female respondents.

Table 8. Independent sample *t*-test.

Group Statistics	Gender	N	Mean	Std. Deviation	t	df	Sig.
Digital Entrepreneurship Sector	Male	136	3.3262	0.47154	−0.552	206	0.581
	Female	72	3.3651	0.50587			
Entrepreneurship Digital Infrastructure	Male	136	3.2803	0.62147	−1.516	206	0.131
	Female	72	3.4340	0.81846			
Unemployment in the Sultanate of Oman (reasons and solutions)	Male	136	3.6507	0.66399	−2.961	206	0.003
	Female	72	3.9278	0.59817			

For the variable “Digital Entrepreneurship Sector”, the mean score for male respondents was 3.3262 with a standard deviation of 0.47154, and the mean score for female respondents was 3.3651 with a standard deviation of 0.50587. The *t*-test results showed no significant difference between the mean scores of male and female respondents ($t = -0.552$, $df = 206$, $p = 0.581$).

For the variable “Entrepreneurship Digital Infrastructure,” the mean score for male respondents was 3.2803 with a standard deviation of 0.62147, and the mean score for female respondents was 3.4340 with a standard deviation of 0.81846. The *t*-test results showed no significant difference between the mean scores of male and female respondents ($t = -1.516$, $df = 206$, $p = 0.131$).

For the variable “Unemployment in the Sultanate of Oman (reasons and solutions),” the mean score for male respondents was 3.6507 with a standard deviation of 0.66399, and the mean score for female respondents was 3.9278 with a standard deviation of 0.59817. The *t*-test results showed a significant difference between male and female respondents ($t = -2.961$, $df = 206$, $p = 0.003$), indicating that female respondents had a significantly higher mean score than male respondents on this variable.

Overall, the independent sample *t*-test results suggest no significant gender differences in perceptions of the digital entrepreneurship sector and entrepreneurship digital infrastructure. However, there is a significant gender difference in perceptions of unemployment in the Sultanate of Oman, with female respondents having a higher mean score than male respondents.

7.5.2. Age

Table 9 presents the results of an Analysis of Variance (ANOVA) examining the effect of three different variables (Digital Entrepreneurship Sector, Entrepreneurship Digital Infrastructure, and Unemployment in the Sultanate of Oman) on the outcome of age. The between-group sum of squares, degrees of freedom, mean square, *F* value, and significance level are reported for each variable.

Table 9. ANOVA regarding age.

Group Statistics	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Digital Entrepreneurship Sector	Between Groups	1.125	3	0.375	1.623	0.185
	Within Groups	47.133	204	0.231		
	Total	48.258	207			
Entrepreneurship Digital Infrastructure	Between Groups	3.961	3	1.320	2.781	0.042
	Within Groups	96.853	204	0.475		
	Total	100.814	207			
Unemployment in the Sultanate of Oman (reasons and solutions)	Between Groups	1.849	3	0.616	1.451	0.229
	Within Groups	86.688	204	0.425		
	Total	88.538	207			

For the Digital Entrepreneurship Sector variable, the between-group sum of squares is 1.125, with three degrees of freedom, and a mean square of 0.375. The F value is 1.623, with a significance level of 0.185, indicating no significant effect of the Digital Entrepreneurship Sector on Age.

For the Entrepreneurship Digital Infrastructure variable, the between-group sum of squares is 3.961, with three degrees of freedom, and a mean square of 1.320. The F value is 2.781, with a significance level of 0.042, indicating a significant effect of Entrepreneurship Digital Infrastructure on Age.

For Unemployment in the Sultanate of Oman (reasons and solutions), the between-group sum of squares is 1.849, with three degrees of freedom, and a mean square of 0.616. The F value is 1.451, with a significance level of 0.229, indicating no significant effect of unemployment in the Sultanate of Oman (reasons and solutions) on age.

In conclusion, based on the (ANOVA) results, only the Entrepreneurship Digital Infrastructure variable significantly affects age. In contrast, the Digital Entrepreneurship Sector and Unemployment in the Sultanate of Oman (reasons and solutions) variables do not have a significant effect. It is important to note that the study does not provide information on the specific age range or type of age variable used in the analysis.

7.5.3. Degree

Table 10 presents the results of an ANOVA examining the effect of three different variables (Digital Entrepreneurship Sector, Entrepreneurship Digital Infrastructure, and Unemployment in the Sultanate of Oman) on the degree outcome. The between-group sum of squares, degrees of freedom, mean square, F value, and significance level are reported for each variable.

For the Digital Entrepreneurship Sector variable, the between-group sum of squares is 0.615, with five degrees of freedom, and a mean square of 0.123. The F value is 0.522, with a significance level of 0.760, indicating no significant effect of Digital Entrepreneurship Sector on Degree.

For the Entrepreneurship Digital Infrastructure variable, the between-group sum of squares is 3.526, with five degrees of freedom, and a mean square of 0.705. The F value is 1.464, with a significance level of 0.203, indicating no significant effect of Entrepreneurship Digital Infrastructure on Degree.

For Unemployment in the Sultanate of Oman (reasons and solutions), the between-group sum of squares is 1.443, with five degrees of freedom, and a mean square of 0.289. The F value is 0.669, with a significance level of 0.647, indicating no significant effect of unemployment in the Sultanate of Oman (reasons and solutions) on degree.

Table 10. ANOVA regarding degree.

Group Statistics	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Digital Entrepreneurship Sector	Between Groups	0.615	5	0.123	0.522	0.760
	Within Groups	47.643	202	0.236		
	Total	48.258	207			
Entrepreneurship Digital Infrastructure	Between Groups	3.526	5	0.705	1.464	0.203
	Within Groups	97.288	202	0.482		
	Total	100.814	207			
Unemployment in the Sultanate of Oman (reasons and solutions)	Between Groups	1.443	5	0.289	0.669	0.647
	Within Groups	87.095	202	0.431		
	Total	88.538	207			

In conclusion, based on the ANOVA results, none of the three variables examined (Digital Entrepreneurship Sector, Entrepreneurship Digital Infrastructure, and Unemployment in the Sultanate of Oman) significantly affect the outcome of degree. It is important to note that the study does not provide information on what the outcome of degree specifically refers to.

7.5.4. Occupation

Table 11 presents the results of an ANOVA examining the effect of three different variables (Digital Entrepreneurship Sector, Entrepreneurship Digital Infrastructure, and Unemployment in the Sultanate of Oman) on the outcome of occupation. The between-group sum of squares, degrees of freedom, mean square, F value, and significance level are reported for each variable.

Table 11. ANOVA regarding occupation.

Group Statistics	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Digital Entrepreneurship Sector	Between Groups	4.394	2	2.197	10.267	0.000
	Within Groups	43.864	205	0.214		
	Total	48.258	207			
Entrepreneurship Digital Infrastructure	Between Groups	0.165	2	0.083	0.168	0.845
	Within Groups	100.649	205	0.491		
	Total	100.814	207			
Unemployment in the Sultanate of Oman (reasons and solutions)	Between Groups	8.773	2	4.387	11.274	0.000
	Within Groups	79.764	205	0.389		
	Total	88.538	207			

For the Digital Entrepreneurship Sector variable, the between-group sum of squares is 4.394, with two degrees of freedom and a mean square of 2.197. The F value is 10.267, with a significance level of 0.000, indicating a significant effect of the Digital Entrepreneurship Sector on Occupation.

For the Entrepreneurship Digital Infrastructure variable, the between-group sum of squares is 0.165, with two degrees of freedom, and a mean square of 0.083. The F value is 0.168, with a significance level of 0.845, indicating no significant effect of Entrepreneurship Digital Infrastructure on Occupation.

For Unemployment in the Sultanate of Oman (reasons and solutions), the between-group sum of squares is 8.773, with two degrees of freedom, and a mean square of 4.387.

The F value is 11.274, with a significance level of 0.000, indicating a significant effect of unemployment in the Sultanate of Oman (reasons and solutions) on occupation.

In conclusion, based on the ANOVA results, the Digital Entrepreneurship Sector variable and unemployment in the Sultanate of Oman (reasons and solutions) variable have a significant effect on occupation, while the Entrepreneurship Digital Infrastructure variable does not have a significant effect. It is important to note that the study does not provide information on the specific occupation outcome.

8. Discussion

The present study aimed to investigate factors motivating unemployed individuals to engage in digital entrepreneurship in Oman, with a focus on technological infrastructure. Results showed that the questionnaire used in the study was a reliable and valid tool for measuring the constructs of interest. Demographic analysis revealed that most participants were male, aged between 36–50 years, and held a bachelor's degree. Most participants were employees, followed by entrepreneurs and job seekers.

The findings suggest that respondents hold neutral attitudes towards digital entrepreneurship, with a mean score of 3.34. The study found that entrepreneurship digital infrastructure positively impacted income levels, but there is still room for improvement in the provision and integration of digital infrastructure resources. The study highlights the need for specialized institutions and centers to guide and support job seekers, and provide financial support and simplified procedures to encourage entrepreneurial projects and reduce unemployment.

This study conducted hypothesis testing to examine the potential effects of gender, age, degree, and occupation on perceptions of digital entrepreneurship and unemployment in Oman. The results show no significant gender differences in perceptions of the digital entrepreneurship sector and digital entrepreneurship infrastructure. However, there was a significant gender difference in perceptions of unemployment in Oman, with female respondents having a higher mean score than male respondents on this variable.

The ANOVA results showed that the Entrepreneurship Digital Infrastructure variable significantly affected the outcome of age. In contrast, the Digital Entrepreneurship Sector and Unemployment in the Sultanate of Oman (reasons and solutions) variables had no significant effect. Moreover, none of the three variables examined had a significant effect on the outcome of the degree. Finally, the ANOVA results indicated that the Digital Entrepreneurship Sector and Unemployment in the Sultanate of Oman variables significantly affected the outcome of age. In contrast, the Entrepreneurship Digital Infrastructure variable had no significant effect.

The study's findings have implications for policymakers and entrepreneurs interested in promoting digital entrepreneurship and reducing unemployment in Oman. The current study's emphasis on the importance of technological infrastructure and the need for specialized institutions and financial support are consistent with previous research on entrepreneurship in Oman. The study's examination of the potential effects of gender, age, degree and occupation on perceptions of entrepreneurship and unemployment, which adds to the existing literature on the subject. This is supported by [33,34] who stressed that entrepreneurship has had a significant positive impact in recent years on the gross domestic product of major countries with strong economies.

The results of the study agree with the results of the researcher's study of [35] which confirmed that the ICT infrastructure was considered the main component of factors that may affect the success of digital entrepreneurship; therefore, it shows that it positively touches entrepreneurial action and sustainable competitiveness.

The findings are consistent with [36] study, which found that technological infrastructure significantly affected e-commerce adoption and usage in Oman. The study also aligns with [25] finding that perceived support from family, friends, and the government positively influenced entrepreneurial intentions among university students in Oman. Ad-

ditionally, the study aligns with [37] findings that education, experience, and access to financing were significant factors affecting entrepreneurship in Oman.

The results of this study also agree with the findings of a study of [38–41] that entrepreneurs agreed that entrepreneurship is affected by training to develop skills, the culture of learning from work itself, and social and cultural support among entrepreneurs.

However, further research is needed to confirm and extend the present study's findings.

9. Conclusions and Future Work Recommendations

9.1. Conclusions

The study's analysis focused on addressing the established research questions and hypotheses regarding the motivation, challenges, and potential of digital entrepreneurship among unemployed individuals in Oman. The findings underscore the significance of fostering digital entrepreneurship as a means to alleviate unemployment in the country. Several key conclusions emerged from the study, reflecting both the existing context and potential avenues for further exploration:

1. **Motivation and awareness of digital entrepreneurship:** The study demonstrated that raising awareness and promoting digital entrepreneurship among various segments of Omani society, especially students and graduates, could have a positive impact on reducing unemployment. The neutral attitude observed among respondents suggests a need for intensified efforts to convey the benefits and opportunities associated with digital entrepreneurship. Policymakers and stakeholders should prioritize the design and implementation of targeted training programs, workshops, and resource-sharing initiatives to enhance awareness and motivation among the unemployed population.
2. **Role of technological infrastructure:** The study highlighted the crucial role of technological infrastructure in facilitating and supporting digital entrepreneurship. Improvements in digital infrastructure resources were found to positively correlate with increased income levels. However, the study also identified areas where enhancements could be made. Policymakers and relevant institutions should focus on enhancing the accessibility, quality, and integration of digital infrastructure resources, thereby providing a more conducive environment for entrepreneurial endeavors.
3. **Gender disparities and specialized support:** The study's findings indicated significant gender-based differences in perceptions of unemployment. Female respondents expressed a higher level of concern, emphasizing the importance of fostering female entrepreneurship. Policymakers and entrepreneurs should prioritize initiatives that address these disparities, such as providing tailored financial support, simplifying administrative procedures, and establishing specialized centers to offer guidance and support to aspiring female entrepreneurs.
4. **Expansion of research and future studies:** While this study contributes valuable insights into the motivations and challenges surrounding digital entrepreneurship and unemployment in Oman, it acknowledges the need for further research. Future studies should delve deeper into additional factors, including educational backgrounds, prior experience, and cultural influences. By exploring these dimensions, researchers can gain a more comprehensive understanding of the dynamics at play and refine strategies to promote entrepreneurship and curb unemployment effectively.

In conclusion, the study's results underscore the importance of promoting digital entrepreneurship as a strategy to address unemployment in Oman. The study's emphasis on awareness, digital infrastructure, gender inclusion, and the need for ongoing research aligns with the existing literature on entrepreneurship in the country. Policymakers and entrepreneurs can draw on these insights to formulate targeted interventions that advance digital entrepreneurship, reduce unemployment rates, and contribute to Oman's overall economic development. However, it is imperative to recognize the study's limitations, and further research is necessary to validate and expand upon the findings, particularly in terms of the influence of various demographic and socio-economic factors on perceptions of entrepreneurship and unemployment in Oman.

9.2. Point for Future Work

- Entrepreneurial education and training: Conduct research on the design and effectiveness of educational programs and training initiatives that specifically target digital entrepreneurship skills among students and graduates. Evaluate the impact of these programs on fostering entrepreneurial mindsets and increasing interest in digital entrepreneurship.
- Digital infrastructure enhancement: Explore the specific areas of improvement in digital infrastructure resources that can better support and promote digital entrepreneurship. Investigate the potential benefits of enhanced internet connectivity, access to technology, and digital literacy programs for aspiring entrepreneurs.
- Gender and entrepreneurship: Further investigate the gender gap in perceptions of entrepreneurship and unemployment in Oman. Conduct qualitative research to understand the underlying factors contributing to the differences in attitudes and explore strategies to empower and encourage women to participate more actively in the entrepreneurial ecosystem.
- Start-up support ecosystem: Examine the effectiveness of existing specialized institutions and financial support mechanisms in fostering successful digital entrepreneurial projects. Identify the key challenges faced by entrepreneurs in accessing funding and resources and propose measures to improve the start-up support ecosystem.
- Digital entrepreneurship policies: Analyze the existing policies related to digital entrepreneurship in Oman and assess their alignment with the needs and challenges faced by entrepreneurs. Propose evidence-based policy recommendations to create an enabling environment for digital entrepreneurship to thrive.

Overall, this study provides valuable insights into the factors motivating unemployed individuals to engage in digital entrepreneurship in Oman with. Policymakers and entrepreneurs can use these findings to promote entrepreneurship and reduce unemployment in Oman by increasing awareness, improving digital infrastructure resources, encouraging female entrepreneurship, and conducting further research. By focusing on these areas of research, policymakers and entrepreneurs in Oman can gain valuable insights and develop targeted interventions to promote digital entrepreneurship, stimulate economic growth, and reduce unemployment in the Sultanate.

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