

THE ROLE OF ENTREPRENEURSHIP AND INNOVATION IN SUSTAINABLE TOURISM DEVELOPMENT

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Abstract: This paper explores the relationship between entrepreneurship, innovation and tourism development using the concept of sustainable development. Sustainable innovation creates sustainable entrepreneurship and therefore leads to the growth in sustainable tourism. The paper analyzes the different case studies of the Jordan country and brings out key insights about the impact of sustainability on tourism development. The study uses a quantitative research design based on a structured questionnaire. The questionnaire distributed to tourism entrepreneurs, small and medium-sized enterprises, and community-based tourism initiatives across Jordan. A descriptive statistics, regression analysis, and moderation testing through SPSS are used to evaluate the direct and indirect effects of the study variables. The results showed a statistically significant positive impact on sustainable tourism development in both entrepreneurship and innovation. Also, the findings also highlight the importance of experiential knowledge and local practices in fostering innovation within the tourism sector. Although there is limited information on the topic of sustainable tourism in Jordan since the early 2000s, results have started to draw obvious links between tourism sustainability, innovation, and entrepreneurship. Tourism is one of the most important sectors in the Jordan economy and its applicability has only grown even amid the economic challenges that the country has experienced in the recent times. Moreover, local communities are essential, since successful and competitive tourist destinations depend on the inclusion of all aspects of sustainability such as economic, social and environmental. The study confirms that sustainable tourism development in Jordan depends on the effective integration of innovation, entrepreneurship, supportive infrastructure, and community engagement. These findings offer valuable insights for policymakers and tourism stakeholders seeking to enhance resilience, competitiveness, and sustainability in the tourism sector.

Keywords: Sustainable tourism development, entrepreneurship, innovation, Jordan

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INTRODUCTION

The travel entrepreneur industry is a relatively new classification within the travel industry (Murniati et al, 2021; Urbano et al, 2019). This classification combines the positive aspects of travelling with a broader business skill-set. The Tourism Industry is currently one of the largest and most rapidly expanding industries globally, which represents a tremendous opportunity for entrepreneurial experiences to be developed from tourism innovations (Nelson et al., 2006). Developing tourism as an entrepreneurial business, offers numerous social/economic advantages to communities, creates employment opportunities, promotes local businesses and fosters cultural exchange and learning between communities (Bader et al., 2023). It also results in multiple sustainable outcomes with actions being structured according to what is likely to be a priority for the Peruvian government at present and into the future, including cultural heritage preservation, environmental conservation and local involvement in tourism development (Incio Chavesta et al., 2025; Khasawneh, 2020).

Moreover, entrepreneurship could be an effective agent in the financial and local development of disadvantaged areas (Taha et al., 2024). Also, Tourism entrepreneurship could potentially compliment traditional developmental thinking in that it provides novel ways to solving organizational problems (Mpofu, 2024). In particular, the tourism businesses have this potential for Jordanian rural economies. They can 'harvest' local economies, conserve cultural practices and promote wellbeing of the local community (AlAli et al., 2024; Jashari & Osmani, 2024). Khurana et al. (2025) states that the reason for tourism entrepreneurship is to ensure new opportunities, effective use of resources and create a different way of customer service provision, in parallel with profit gain. But the tourism game is a cutthroat one (Murniati et al, 2021). It's based on seasons because it's always impacted by things beyond our control (Bader et al., 2023). In fact, tourism relied on

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experiences that were difficult to measure (Sundbo, 1995). This leaves it as ripe for entrepreneurship. On the other hand, technological development is revolutionizing traditional touristic experiences and opening new ways to capitalize them. Nevertheless, there is also an absence of a pervasive argumentation addressing the special attributes of tourism and entrepreneurship theories (Khurana et al. (2025). From this scenario, a type of tourism- entrepreneurship appears as an effective alternative both flexible and low-cost to promote the available natural and cultural resources in the rural environment encouraging the development of sustainable economic activities (Anzules-Falcones et al., 2024).

Cases in point highland eco-lodges, cultural heritage tourism and a local handicraft market—point to how locally based tourism ventures are brought forth that contribute to direct income for these populations along with maintaining the genuineness and cultural authenticity of these areas (Utami et al., 2023). Empirically, more evidence indicates that tourism can act as an alternative source of economic diversification, especially when it is orientated to the principles of sustainable development that conserves the integrity of the natural environment and enhances social cohesion within local communities (Martini et al., 2020). Moreover, tourism to most developing countries is placed at the center of economic development (Murniati et al., 2021), however, the industry usually fails to perform well in such countries because of insufficient financial tools and capital bases (Murniati et al., 2021). Conversely, the economically more powerful and larger investments have a higher capacity to maintain their tourism and hospitality sectors in case of crisis (Weidenfeld, 2018; Dagdag, 2021). On the other side, Mamirkulova et al. (2025) explore how environmental infrastructure contributes to residents' quality of life and emotional attachment in Lenger, a mountainous tourism destination in southern Kazakhstan. Drawing on Social Exchange Theory, the study argues that residents evaluate tourism development based on perceived benefits, not only in economic terms but also in social and environmental improvements.

Also, although the COVID-19 pandemic significantly reduced tourism activities around the world, it is expected that tourism will gradually recover and return to previous levels as countries implement various measures such as quarantines, vaccination programs, and travel bubbles (Al-Makhadmah & Khasawneh, 2021; Wu et al., 2021). In Petra, tourism is very important in the local economy and thus economic development in the COVID-19 pandemic was especially difficult (Jashari et al., 2024; Al-Makhadmah et al., 2021). Compared to the richer states, Jordan did not have enough capital to offer significant loans or relief to boost the sector even though it relied on tourism (Jordan Economic Forum, 2021).

The national tourism strategy in Jordan has been keen on the need to enhance domestic tourism to mitigate the susceptibility of the sector as a single entity (Ministry of Tourism and Antiquities (MoTA, 2021). However, foreign tourists nevertheless make a large share of the tourism activity, which exposes the industry to exogenous shocks and uncertainties (The World Bank, 2022). In the case of the developing economies, overdependence on unstable sectors like tourism has become a major issue in this regard, and thus there is a clear necessity to have well-formulated strategies that are bound to sustain and keep them going when such disruptions occur (Alawamleh et al., 2023).

The paper therefore attempts to address this gap by proposing a conceptual framework that transactions on tourism entrepreneurship, its significance, and the primary infrastructure and challenges it encounters. It also examines the major considerations in entrepreneurial success in tourism. Besides this, the paper mentions the importance of infrastructure like technology and digital tools in enhancing growth and competitiveness in contemporary tourism companies. Besides, innovation and entrepreneurship constitute primary variables that will be tested in the study. Consequently, the paper enhances learning about the functioning of tourism entrepreneurship and innovation in practice through blending the theory and practical examples. The discussion concludes with future research recommendations, which emphasize the need of sustainable business operations and application of digital innovation in enhancing tourism operations.

The study's primary objective is to investigate how entrepreneurship and innovation influence the growth of sustainable tourism in Jordan, specifically by examining the role that infrastructure can play as a mediating factor. In addition, this research also seeks to fill a gap in the literature by proposing an integrated conceptual framework of tourism entrepreneurship, innovation, and infrastructure and identifying the critical conditions and challenges that impact the success of entrepreneurial activities within the tourism industry. By doing so, this research highlights the importance of infrastructure, especially technology-based and digital infrastructure for supporting growth, competitiveness and sustainability—on local tourism enterprises in today's business environment. This research empirically examines how entrepreneurial and innovative practices contribute to sustainability within the tourism industry and whether the level and quality of infrastructure enhance or limit this relationship. Focusing on small to medium-sized enterprises (SMEs) within the tourism industry, as well as community-driven tourism initiatives, this research aims to provide evidence-based recommendations for how entrepreneurship and innovation can successfully drive sustainable tourism in developing countries. This research will provide a deeper understanding of the way that entrepreneurship, innovation and sustainable tourism can occur in practice, as well as offer guidance for future academic and policy research on how to promote sustainable tourism development.

The Role of Entrepreneurship in Promoting Development

Murniati et al. (2021) states that entrepreneurship plays an important role in supporting economic growth in Indonesia. As some country rich in beautiful tourist destinations, Indonesia has great potential to create many job opportunities through tourism. The more jobs that are created, the lower the unemployment rate will be. In addition, Jordan has proven this idea. The Jordan Economic Forum (2021) policy paper: entrepreneurship and small and medium-sized enterprises (SMEs) play a pivotal role in most global economies. More specifically, their significance was directly in developing countries. Thus, SMEs represent most businesses worldwide and are major contributors to job creation and economic development (Sinthupundaja et al., 2020). According to data from the Establishment Survey conducted by the Department of Statistics, SMEs in Jordan account for more than 99.5% of the total number of economic enterprises in the Kingdom.

They employ approximately 60% of the total workforce in the country's economic establishments and generate nearly half of all new job opportunities in the Jordanian economy. Furthermore, the 2018 Economic Establishment Census by the Department of Statistics reported that there were 180,680 active economic enterprises across all governorates of the Kingdom. 150,338 enterprises, which represent 90% of all operating establishments, employ between one and four workers (Jordan Ministry of Tourism and Antiquities, 2022). Therefore, sustainable tourism seeks to balance environmental stewardship, cultural heritage, and economic development, and because places that support tourism frequently include rich natural and cultural resources that benefit this balanced approach, rural areas are particularly well suited for this type of tourism. Sustainable tourism practices have emerged as a method for rural area revitalization--especially rural developing areas where tourism is one of the few viable economic options. As observed by Briedenhann & Wickens (2004), tourism tends to emerge as a result of a clustering of attractions and tourism routes connecting discrete local destinations that can generate economic benefits and a higher level of participation from local stakeholders.

The broader categories of sustainable tourism identified in the literature encompass ecotourism, agritourism, and cultural tourism. All of them have their own distinctive merits (Zamfir & Corbos, 2015). Ecotourism is defined as travel more, travel less, and raise awareness of the environment by decreasing the impact on fragile ecosystems, thus making it beneficial for rural areas. Agri-tourism activities may focus on participation in agricultural activities that encourage activities with local farmers. Thus, creating a direct economic connection between tourism and local farmers is significant. In either case, Olmedo et al. (2024) states that community participation and empowerment are key elements and relate to core principles of sustainable tourism development. Moreover, several research indicates that when local communities are involved in planning and managing tourism activities, the longstanding sustainability of tourism is more likely to occur. This is fundamentally because communities own the local resources that attract visitors and are much more interested in protecting, maintaining, and preserving these resources (Utami et al., 2023).

Innovation

Innovative processes as defined by Schumpeter (1934, 1981) are innovation, defined as anything that is new: new products, new methods of production or organization, new international markets to be conquered - all leading in turn to a new problem for entrepreneurs. Innovation Paradigms identified by Knudsen (1995) are three anticipated paradigms: The entrepreneur paradigm, emphasizing the individual innovator; the technological-economic paradigm, focusing on technological progress and an aspect of management or organization that can prevent it from occurring in any given time frame; and The strategic paradigm studied most for modern social development. Sundbo (1995): The latest of these paradigms developed by Sundbo in his quest to measure and compare innovation across countries, however he did not give it a name.

He argued that the strategic paradigm best explains modern innovation and social growth, though all three perspectives can be valid depending on context. To Sundbo's way of thinking, it is like economics: if you are asking what happened yesterday your point of view changes relative to where other people might be, but history can also modify answers made previously due to new information. Later, Sundbo (1998) expanded innovation beyond the production of one thing to include the service sector, emphasizing that innovation can be created by differences in what is output and how products are distributed.

He noted done change as minor and emergent through individual learning or creativity, conforming to Drucker's optional path for research (1986) of social innovation. In addition, innovation can be defined as introducing new and effective ideas that solve particular problems or improve existing systems It covers a wide range of undertakings, for example: operation reengineering, driving down costs, improving communication, or introducing new production techniques.

In addition, the invention, acceptance and implementation of novel ideas describe the process of innovation. They also reflect how capable an organization is of evolving with changes (Hall & Williams, 2008). Moreover, not all innovations need be a brand-new invention. It can also involve rethinking or improving on some existing product or service ahead of the game so that previously unmet needs are met. Just as small changes lead to great effects, so too can the seemingly petty enhancements of convenience, simplicity and accessibility be significant innovations (Geyer, 2012). Thus, the essence of innovation is a difference or change, though there are many other considerations to make. The new idea must be usable, compatible with existing models or systems, simple, and easy to see and try in order for it to take off. In tourism and services, innovation should appeal to the customer while also adding value to the business. It needs to meet customer needs and set the company apart from others. In tourism, innovation takes five main forms: Product, organizational, process, logistic and market innovations. These can be separated from the other or combine to form or enrich tourist sites.

Overall, innovation in tourism does two things: it means creating new products and better services, organization or marketing, management so as to have sustainable strong growth that is both competitive and continues for the long term (Getz & Carlsen, 2005). Also, Dalain et al. (2025) examine how strategic agility influences innovative work behavior in Jordanian public universities. The study is grounded in the idea that higher education institutions operate in a rapidly changing environment and must respond to new academic, technological, and societal demands.

They support that strategic agility positively affects innovative work behaviors. Universities that adapt quickly to change and align resources strategically are more likely to encourage creativity and experimentation among faculty members. The results also show that servant leadership plays a mediating role.

Much of the innovation research work has been built on OECD and Eurostat studies, and is especially evident after the publication of the Oslo Manual (2005). Key areas that have been the focus of attention in studies of innovation in tourism are the question of innovation policy illustrated by Furman, Porter and Stern Carayannis (2002), Grupp Mogege (2004) and Baležentis Balkienė (2014); and what drives innovative activity within economies itself as illustrated by Hollenstein (2003). Other scholars like Tuominen & Ottosson (2004), Hall & Williams (2008) are engaged in questions about how

innovation functions. So they have found that the answer to this question depends upon where one stands within society and at what level does one judge it. This can contribute greatly to the future direction of innovation studies, the authors argue. Thus, Gallouj and Savona (2009) labeled service innovation research on innovation in a certain economic sector. In this context, Hjalager (2010) and Szymańska (2009, 2013) concentrated on innovation within specific industries – especially tourism industries – showing how those industry specifics contribute to services innovation. Innovation is a critical factor in tourism, because it customizes products and services for tourist needs (Cawley & Gilmore, 2008; Getz & Carlsen 2005). Innovation represents in Hjalager's (2010) words a new or different practice.

This definition has been accepted by a number of international scholars in recent years. Meanwhile Zawicki et al. argue that innovation is one of the major sources of growth. New and original efforts can attract clients – in particular tourists – which brings business to companies' coffers. Through innovation, destinations can maintain their competitiveness and attain sustainable growth in tourism (Meyer, 2010; Ashley, 2006). In addition, since tourism entrepreneurs' activities are intensely social and lifestyle-related, they tend to be more receptive to innovation (Peters, 2009).

Also, leaders of entrepreneurial networks in destinations are those most able to unite the interests of all stakeholders and create a beneficial environment for risk-taking, which engenders social innovation (Arnaboldi & Spiller, 2011).

Also, through collaboration, innovative practices can be easily disseminated and adapted elsewhere; every case where this happened is a potential learning point (Matusitz, 2010; Veronneau & Roy, 2009). At the same time, the tourism sector is not devoid of players who are capable of innovation. Altogether new ideas or added value within an enterprise may be inspired by work experiences of its employees (Williams, 2007).

Internationally, cooperation between different countries and industries often results in new forms of innovation in tourism (Ruisinovic, 2008). Based on empirical work dedicated to the entry and exit of firms in an endogenous growth framework, Akcigit & Kerr (2018) show that different forms of innovations specifically explorative and exploitative, affect economic growth. Differentiating between these innovation strategies, which was an idea proposed by March (1991), Exploitative innovation concentrates on strengthening or expanding existing products, services and processes, whereas explorative innovation has a larger range of possible targets. Tushman & Smith (2002) further elaborate, underlying aggressive innovations are more akin to process innovation. Ferdos et al. (2026) investigate the socio-economic and environmental impacts of tourism in Cox's Bazar, Bangladesh, one of the country's most prominent tourist destinations. The aim of this research is to explore how to create sustainable development strategies by finding ways of balancing the economic benefits associated with the expansion of tourism and the need for sustainable development. This study claims that if tourism grows without any form of regulation, it will be damaging to sustainable development through both the absence of environmental protection and a lack of community involvement.

In another study by Oliveira et al. (2025), they look into the relationship between innovative investments and financial viability under the framework of the UN Sustainable Development Goals. This has become a major topic within academic literature, with many being concerned as to whether innovation supports long-term financial viability or creates immediate stress on company results. The results show that financial viability positively influences innovative investment when looking back one and two periods: thus, providing investors with proof of a company's financial stability prior to spending any capital on innovation projects. However, initially investing in an innovative project negatively impacts financial sustainability for both the current and immediately prior periods by putting a financial strain on companies due to initial investment costs associated with new product or operational improvements. Nevertheless, after two time periods the initial negative impact will have turned to a positive benefit, meaning that the long-term financial benefit of innovating is substantial. The results highlight that innovation is not immediately profitable but becomes financially rewarding over time Oliveira et al. (2025).

Finally, one of the most effective ways for encouraging innovation is to work directly with the tourists concerned. By constantly getting feedback from consumers, entrepreneurs can both observe emerging needs and translate them into business opportunities (Shaw et al., 2010). This process is facilitated by digital platforms such as TripAdvisor and other similar web applications, which enable customers to comment on their experiences, give companies real-time feedback for continuous improvement and receive insights that factually support business innovation (Litvin, 2008).

Entrepreneurship Values

Entrepreneurship research is frequently talked about being a field that is relatively new and still in the making. According to some scholars, Low & Macllan (1988) believe that it is only starting to form development, even though some others consider its (Busenitz et al., 2003). Nevertheless, despite its long and extensive history as an academic topic, the issue of entrepreneurship is more preoccupied with money-making. As an emerging or a developed field, entrepreneurship offers the key to successful business, and especially during times of economic insecurity. However, in its youthful or advanced form, entrepreneurship is an essential element in the making of successful business, particularly during economic uncertainty. Actually, entrepreneurial ventures typically have lower risks and allow an active entrepreneur to concentrate on local needs, using limited resources effectively. Entrepreneurs can promote their products and services more effectively with a small amount of capital and modern technology like Internet and digital communication tools. Furthermore, these technological advances mean that operations can be managed with fewer employees- often only one person who operates out of small offices or even from home. In addition, Amangeldi et al. (2025) examine the use of innovative technologies, particularly Geographic Information Systems (GIS), to enhance the tourism experience in Ulytau National Park.

This research is conducted based on the understanding that tourist's expectations have shifted and therefore, tourism destinations must implement environmentally sustainable and technological-based solutions to keep pace with other competitive businesses in tourism. The authors are concentrating on the creation of GIS Map product as a viable way of

increasing route planning and improving visitor orientation and environmental management within the park. It is such adaptability that lends entrepreneurship its permanence and drives the continuing creation of opportunities which are both sustainable and locally owned. Moreover, new discoveries and innovations have been driving new economic opportunities forward. Economic growth is not just a by-product of every firm seeing the same growth or a general increase in productivity due to new technology or greater capital per worker. Economic growth arises mostly from churning and restructuring - the process of replacing less productive firms and jobs with newer, more viable, and productive firms that are better positioned in the same industry. In other words, progress occurs when production moves from firms with weak viability to new successful firms, raising the level of productivity and efficiency in the economy as a whole (Caballero, 2007).

Recent research by Daskalopoulou et al. (2023) indicates that social entrepreneurship is a mechanism for producing significant and sustainable solutions to social problems. Others like Sinthupundaja et al. (2020) and De Lange & Dodds (2017) elaborate the same issues of social entrepreneurship and its impact on sustainable development specifically on the social side. Several studies show that entrepreneurs in developed contexts act on the small scale on behalf of social value creation, indicating a potential connection between personal values and social entrepreneurship values (Pathak, 2021).

Social entrepreneurship is primarily driven by the intention to create societal values. The motivation to pursue this goal stems from the desire to help others through an altruistic value system (Vuorio et al., 2017). At a fundamental level, the values of culture shape our understanding of what is good and what is bad, as well as allow for the development of a common vision (Brieger & De Clercq, 2019). The actions of individuals are also influenced by their values when making decisions and evaluating how to act (Biberhofer et al., 2019). When someone has a positive relationship with the environment, typically the reason for this will be based on fundamental values, including empathy and altruism (Vuorio et al., 2017). There is a growing emphasis globally on sustainable development and a connection between the three pillars of responsible entrepreneurship: economic, social, and ecological (Ivaşciuc & Ispas, 2023). In contrast to traditional entrepreneurs who are more fixated on seeking profit, sustainable entrepreneurs aspire to achieve economic success while making a positive impact on social and ecological dimensions and thus contribute to balancing economic, social and ecological sustainability (Vuorio et al., 2017; Tang, 2020). While sustainable entrepreneurs uphold their social and ecological values and behave in accordance with their social entrepreneurship vision and goals, combining financial success with social and environmental progress, they also protect stakeholder interests and contribute to sustainability for the entire organization. An additional aspect of values is that they represent entrenched principles that form a critical component of individuals' self-concept and impact their decision-making and behaviors (Schwartz, 1992).

Values describe what a group perceives as desirable or acceptable and help guide people in the process of decision-making regarding goals, action, and acceptable means to achieve them (Ahmad et al., 2020). In organizations, shared values foster a sense of shared identity and inform routine decision-making and reinforce strategic direction (Aznar Fernández-Montesinos & Bernárdez, 2020). In fact, values are not merely abstract principles; they shape how humans tackle their lives in order to influence how they act or believe. Although personal values are shared by all, they change as a result of social and cultural displacements to give individuals some degree of certainty about how they may decide in the future. Their general form enables people to combine their values to guide behavior in multiple contexts, which connects the individual's journey to improving a community's quality of life in the long run. Cultural values, in particular, influence the ethical entrepreneurial bent by enabling the entrepreneur to seek objectives that go beyond monetary gain (Urbano et al., 2019).

Therefore, sustainable entrepreneurs must see this relationship among values as paramount. To combine economic interests with socially and environmentally responsible entrepreneurial performance, or the triple bottom line requires values to be integrated into entrepreneurial practice (Yasir et al., 2022). In this balancing act, entrepreneurship becomes a conduit of individual satisfaction and the satisfaction of the collective.

In addition, Durrah et al. (2026) examine the role of community-based tourism (CBT) in advancing sustainable development within the context of Oman's national diversification strategy under Vision 2040. Oman has "recognized an increasingly urgent need to reduce reliance on oil revenues and considered tourism (especially community-based tourism) to be a strategic alternative to natural resources so as to promote inclusive and balanced growth." The authors of the current study hope to assess the contribution that "the different dimensions of community-based tourism have on sustainable development outcomes" and what the impact of community-based tourism could be for local communities.

Promoting Entrepreneurship and Innovation in Tourism and Hospitality

Patel & Pavitt (1994) define a "National Innovation System (NIS)" as an interrelated system of institutions, incentive structures and capabilities in a country that affect the "learning rate" and "path" of technological innovation and development. Patel & Pavitt argue that while a well-organized national innovation system creates opportunities for rapid growth and advancement within a country, a poorly organized and fragmented national innovation system hinders technological innovation (Freeman, 1987). In Metcalfe's (2022) view, innovation systems are generally regarded as a method of coordinating relationships between universities, industries, and research organizations to better develop and evaluate new innovations collaboratively. At first glance, innovation and entrepreneurship in tourism and hospitality may seem to mean using existing resources in creative ways. However, their real importance lies in creating interest and improving how services are delivered. Tourism businesses must handle their resources efficiently and apply cultural identity of the location and the community to create experiences that facilitate consumer trust (Martini & Buffa, 2020).

As a tourist, the customer anticipates a hassle-free, consistent, and genuine encounter in his or her trip. Innovation and entrepreneurship assist in bridging the gap between the expectations of the tourist and the local realities including cultural difference, language barriers, or other logistical problems (Utami et al., 2023). Using the example of currency change,

security in places with high populations, or socializing with local groups, all these issues can be addressed with innovative problem-solving and business ventures. The two factors, when used together, can greatly help to lessen dissatisfaction and enhance tourist experience. Tourists will be reluctant to use their money on basic services such as photo, however when offered an interesting and enjoyable service experience say a themed photo area, they will be more inclined to utilize.

On the same note, the example of setting up eco-lodges or forest hotels constructed using natural materials and using the traditional architectural approach, yet offering the local cuisine, demonstrates how innovation and entrepreneurship can turn the local resources into the special tourism products (Lupi et al., 2017).

Finally, the effectiveness of promotion, the quality of the services and retention of customer confidence are the keys to the success and successiveness of such initiatives. In the end, the combination of innovation and entrepreneurship will lead to the creation of value through visitor satisfaction and sustainable tourism growth (Taha et al., 2024).

The infrastructures and Policy Frameworks of tourism development.

The infrastructure must be of high quality to ensure that the upcoming start-ups and already established firms with a high growth potential are not held back by the limitations presented by poor transport and communication systems. Policy frameworks and infrastructure are crucial in bridging the relationship between variables of innovation and entrepreneurship and sustainable tourism development in Jordan. Infrastructure is the primitive physical and organizational systems required in the tourism industry to operate effectively- transport systems, accommodation units, utilities and digital systems. Policy structures are made up of laws, regulations, strategies and institutional structures that influence the way tourism is developed and managed (Alakaleek et al., 2025). These are the elements of strategic planning by the government in Jordan. Based on the Jordan Vision 2025 in the Jordan Sustainable Tourism Sector Report, the agenda includes the development of tourism-related infrastructure and enhanced enabling environment by enhancing human resources, promotion and marketing as the pillars of the sustainable tourism development (Jordan, Tourism sector, 2025). In addition, recent tourism policy analysis in Jordan shows that the pillars of sustainable tourism development include coordination of stakeholders, effective policies and infrastructure support (King Abdullah II Official Website, 2023). The policy structures and infrastructure are considered to be mediator between innovation/entrepreneurship (independent variables) and sustainable tourism development (dependent variable). When entrepreneurs come forward with new tourism products or services, they need a good infrastructure like roads, internet facilities, sustainable energy, waste disposal and proper policy provisions which allow them to create businesses, invest and regulate their businesses. The increasing hotel rooms and facilities in the Petra region and the diversification of tourism products and service delivery by the government can serve as an example of how infrastructure investment and policy support can transform entrepreneurial concepts into practical tourism-based businesses (Jordan Times, 2025).

METHODOLOGY

In this study, we use quantitative research design and theoretical constructs of entrepreneurship, innovation, and tourism development to explore the effect that entrepreneurship and innovation have on sustainable development of tourism with infrastructure as an accompanying variable. The questionnaire was given to tourism entrepreneurs, small and medium-sized businesses, and community-based tourism initiatives. It contains portions for age, sex (1=male; 2 = female), innovative practices, entrepreneurial practices including infrastructure level of service which are scaled according to a five-point Likert scale. To establish the methodological framework for this study, two theories were chosen: Schumpeter's innovation theory and entrepreneurship theory (Metcalfe, 2022). The study attributes great importance to the role of entrepreneurs in introducing new ideas and making money from helping others succeed in their own businesses. After analyzing the collected data, the researchers found that infrastructure quality plays a role in tourism development and provides a basis for future sustainable development. With innovation and entrepreneurship treated as independent variables, infrastructure quality is a mediator between the two aforementioned variables and some positive outcomes in tourism development. SPSS was used to process the data, where the descriptive statistics were calculated, multiple regression analysis undertaken and mediating effect between innovation and entrepreneurship for tourism development ascertained using Baron & Kenny (1986). It is critical the Research Ethics are adhered to by ensuring all participants have given voluntary consent to participate and protecting their confidentiality from any disclosure by Research Investigators, Interviewers, etc. By following this method of establishing confidentiality between participants (and researchers) and assigning no identifiable information, the direct and indirect impacts of infrastructure, innovation, and entrepreneurship on sustainable tourism development in rural areas may be analyzed.

In to comply with the established Ethical Standards for scientific research, the researcher will ensure that each participant has willingly given consent to participate, as well as ensuring the participant's confidentiality and the use of the data for only research purposes, and no participants' identities will be disclosed through published research outcomes. By following the steps outlined above, the researcher will create a methodological framework for the analysis of both direct and indirect impacts of entrepreneurship, innovation, and quality of infrastructure on sustainable tourism development and thus support the results of this research as valid, reliable and ready to be published in a peer-reviewed scientific journal in Scopus.

Study population and sample

The study population consisted of workers in the tourism sector public and private in north the Hashemite Kingdom of Jordan, a random sample of (211) was selected from the total population, the following is the distribution of the study sample members: Table 1 and Figure 1 shows that the study sample members were distributed unevenly across various demographic and personal variables, reflecting the actual population of the study.

Table 1. Demographic characteristics of the study sample members

Variable	Variable levels	Repetition	percentage
Age	20-29	127	60.2%
	30-39	58	27.55
	40-49	26	12.3%
	Total	211	100%
Gender	male	160	75.8%
	female	51	24.2%
	Total	211	100%
Education	HI SCHOOL	39	18.5%
	DIPLOMA	78	37%
	BACHELOR	80	37.9%
	GRADUATE	14	6.6%
	Total	211	100%
Experience	5 OR LESS	62	29.4%
	6-10	76	36%
	11-15	52	24.6%
	16-20	15	7.1%
	21 & ABOVE	6	2.8%
	Total	211	100%
Nationality	JORDANIAN	192	91%
	OTHERS	19	9.0%
	Total	211	100%

Research Tool: To achieve the study objectives, a research Tool was developed: a questionnaire to measure the role of entrepreneurship and innovation in developing sustainable tourism, with infrastructure as a moderating variable.

The Tool consisted of two sections. The first section reviewed the demographic variables of the study sample (age, gender, education, experience, nationality, and time spent), while the second section included the items representing the dimensions of the research Tool, which are:

- Innovation (7) Items.
- Entrepreneurship (7) Items.
- Infrastructure (7) Items.
- Sustainability (8) Items.

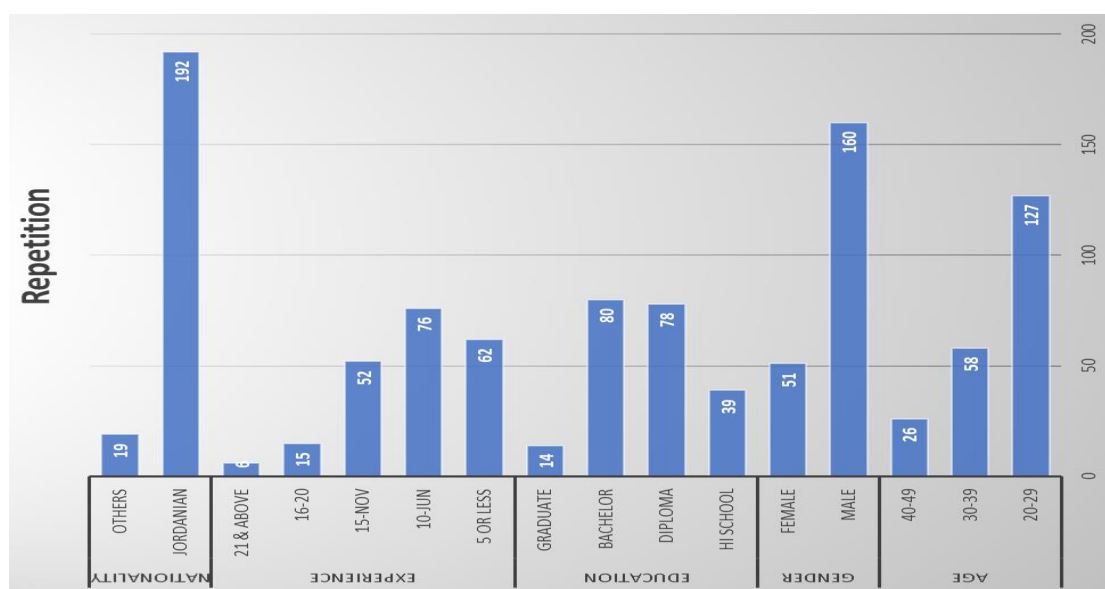


Figure1. Demographic characteristics of the study sample members

Tool Validity

The content validity of the study Tool was verified by presenting it to a group of experts and specialists in the field of [field name] to obtain their opinions on the validity of the items and their suitability for the intended purpose. Items that received an 85% agreement rate from the experts were selected. The construct validity of the study Tool was also verified by calculating the correlation coefficients of the item scores with the dimension to which they belong and with the total Tool score, as follows: Table 2 shows that the correlation coefficients for the scores of the items related to innovation ranged between (0.172-0.400), while the correlation coefficients for the scores of the items related to entrepreneurship ranged between (0.254-0.460), the correlation coefficients for the scores of the items related to

infrastructure ranged between (0.526-0.697), and the correlation coefficients for the scores of the items related to Sustainable ranged between (0.547-0.740). All of them were statistically significant at the significance level of 0.01, except for the first item for innovation, which was significant at the significance level of 0.05. Thus, it can be concluded that all the items have construct validity and are suitable for answering the study questions.

Reliability of the study Tool

The reliability coefficients of the study Tool were estimated using Cronbach's alpha test for the dimensions of the study Tool and for the Tool as a whole, as shown in Table 2.

Table 2. Construct Validity of the Study Tool

Innovation		entrepreneurship		infrastructure		Sustainable	
Item no	Pearson Correlation	Item no	Pearson Correlation	Item no	Pearson Correlation	Item no	Pearson Correlation
1	.172*	1	.346**	1	.561**	1	.649**
2	.232**	2	.460**	2	.665**	2	.610**
3	.276**	3	.254**	3	.526**	3	.547**
4	.345**	4	.305**	4	.600**	4	.740**
5	.400**	5	.282**	5	.697**	5	.625**
6	.400**	6	.327**	6	.651**	6	.614**
7	.339**	7	.315**	7	.665**	7	.665**
						8	.592**

Table 3. Reliability of the Study Tool

variable	Items NO	Cronbach's Alpha
Independent	innovation	0.640
	entrepreneurship	0.687
Moderator	infrastructure	0.739
Dependent	Sustainable	0.784

Table 3 shows that all the estimated Cronbach's Alpha reliability coefficients exceeded 60%, which is considered an acceptable value in this type of human study. Sekaran & Bougie (2016) indicated that reliability values less than 60% are considered weak, while values greater than 60% up to less than 70% are considered acceptable, and values greater than 70% up to less than 80% are considered good. Values greater than 80% are considered excellent.

Therefore, it can be confirmed that the reliability values of the study instruments fell within an acceptable level and can be relied upon to answer the study questions.

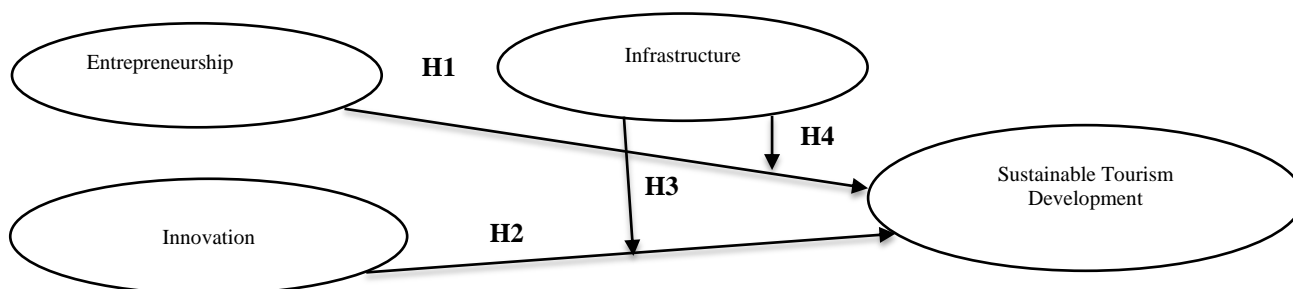


Figure 2. Conceptual Framework

RESULTS AND DISCUSSION

To achieve the study's objectives, the statistical hypotheses were tested as follows:

H₁: Entrepreneurship has a significant effect on sustainable tourism development.

To test this hypothesis, simple linear regression analysis was used as follows:

Table 4. Simple linear regression analysis of entrepreneurship on sustainable tourism development

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	Sig.	R	R ²
	B	Std. Error	Beta						
1	(Constant)	2.005	.307	6.538	.000	41.395	.000 ^b	.407 ^a	.165
	entrepreneurship	.490	.076	6.434	.000				

a. Dependent Variable: Sustainable

Table 4 shows the importance of the model adopted to identify how entrepreneurship influences the development of sustainable tourism since the F-test value was found to be lower than 0.05. The table indicates also that there is statistically significant impact of entrepreneurship on sustainable tourism development as indicated by the t-test value, which was also less than 0.05. The correlation coefficient (R) shows that there is a moderate positive linear relationship since the value of

the correlation coefficient is 0.407. Schober et al (2018) considered a correlation coefficient of between 0.40 0.69 as moderate. The coefficient squared of the correlation coefficient indicates that the entrepreneurship predicts sustainable tourism development by 16.5 percent. Thus, the formula of the sustainable tourism development prediction with the help of the entrepreneurship is the following: Sustainable =2.005+0.490* entrepreneurship.

H₂: Innovation has a significant effect on sustainable tourism development.

To test this hypothesis, simple linear regression analysis was used as follows:

Table 5. Simple linear regression analysis Innovation on sustainable tourism development

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	Sig.	R	R ²	
	B	Std. Error	Beta							
1	(Constant)	1.745	.243		7.177	.000	84.693	.000 ^b	.537 ^a	.288
	Innovation	.559	.061	.537	9.203	.000				

a. Dependent Variable: Sustainable

Table 5 demonstrates the significance of the model used to examine the impact of innovation on sustainable tourism development, as evidenced by the F-test value, which is less than 0.05. The t-test values support the conclusion that Innovation Influences Sustainable Tourism Development. Its statistical significant result scores at 95% confidence level (p < 0.05). The correlation coefficient of R = 0.537 shows a moderate, positive linear correlation between Innovation and Sustainable Tourism Development. Schober et al (2018) defined a correlation coefficient between 0.40 and 0.69 as moderate. The squared coefficient of the correlation indicates that innovation explains 28.8% of the variance in sustainable tourism development. Therefore, the equation for predicting sustainable tourism development through innovation is as follows:

$$\text{Sustainable} = 1.745 + 0.559 * \text{Innovation}.$$

H₃: Infrastructure significantly moderates the relationship between entrepreneurship and sustainable tourism development.

To test this hypothesis, linear regression analysis was used to test the interaction through Model 1 in PROCESS with the Infrastructure variable as the moderating variable, as follows:

Table 6. An interaction test to examine the effect of the moderating variable, Infrastructure, on the relationship between entrepreneurship and sustainable tourism development

Model Summary						
R	R-sq	MSE	F(HC3)	df1	df2	p
.4856	.2358	.1967	15.9326	3.0000	207.0000	.0000
Model						
	coeff	se(HC3)	t	p	LLCI	ULCI
constant	3.9582	.0382	103.5625	.0000	3.8828	4.0335
entrepreneurship	.3300	.1303	2.5319	.0121	.0730	.5870
Infrastructure	.3051	.1024	2.9804	.0032	.1033	.5069
Int_1	.0860	.1691	.5086	.6116	-.2474	.4195
Product terms key:						
Int_1	:	entrepreneurship x	Infrastructure			
Test(s) of highest order unconditional interaction(s):						
R2-chng	F(HC3)	df1	df2	p		
X*W	.0023	.2587	1.0000	207.0000	.6116	

Table 6 shows that the moderating variable (Infrastructure) has no statistically significant effect on the relationship between entrepreneurship and sustainable tourism development. This is supported by the significance level (Test(s) of highest-order unconditional interaction(s)), which is greater than 0.05. The moderating variable added only 0.23% of the explained variance to the previous model, a relatively low value. In contrast, the preceding table shows a statistically significant Moderate Positive Linear Relationship (0.4856) between entrepreneurship and sustainable tourism development with the moderating variable (Infrastructure). Therefore, the equation for predicting sustainable tourism development through entrepreneurship, with the moderating variable (Infrastructure), is as follows:

$$\text{Sustainable} = 3.9582 + .33 * \text{entrepreneurship} + .3051 * \text{Infrastructure}$$

DISCUSSION

As the above findings show, it offers a significant empirical data on the contribution made by entrepreneurship, innovation and the infrastructure towards the development of sustainable tourism in Jordan. The findings confirm the key role of entrepreneurship and innovation in Schumpeterian theory (Schumpeter, 1983) in which entrepreneurs are change agents through their creative recombination that provide new opportunities and inflammation of structural change (Schumpeter, 1934; Sundbo, 1998). In line with this theoretical background, the statistical result indicates that entrepreneurship plays a major positive role in the development of sustainable tourism and this is the reason why it would explain 16.5% of its variance. This relationship, though small in scale, indicates the ability of Jordanian tourism entrepreneurs, especially SMEs, to find opportunities, mobilization of limited resources, and transformation of local

assets into economic value, as suggested by Taha et al. (2024) and Anzules-Falcones et al. (2024). This is in line with the literature that says rural and tourism economies tend to be dependent on necessity-based entrepreneurship based on the local culture, heritage, and resourcefulness (Cooney & Licciardi, 2019; Mottiar et al., 2018). Nevertheless, the somewhat moderate effect size also indicates that entrepreneurship cannot be used individually to bring about sustainable tourism transformation. Local entrepreneurs often have the disadvantages of fewer resources, a smaller range of markets, and obstacles in operations, which are well-studied in Jordan (Alawamleh et al., 2023; Jordan Economic Forum, 2021). Such limitations can ensure the potential of the entrepreneurial activity to convert into sustainable tourism results is not exhausted without enhanced institutional support and better-operating conditions.

In addition, innovation on the other hand was the best predictor of sustainable tourism development as it explains 28.8 percent of its variation. This empirical fact supports the view of Schumpeter that innovation is the main driver of economic growth, and Sundbo (1995, 1998) view that innovation in the service industry, particularly tourism, goes beyond product into new experiences, new service models, new logistics, and new digital communications.

The results are corroborated by other studies of the world that have indicated that innovation in tourism improves destination competitiveness, services differentiation and promotes long term sustainability (Hjalager, 2010; Meyer, 2010; Cawley & Gilmore, 2008). In Jordanian setting where tourism is mostly dependent on intangible experience and cultural authenticity, innovation allows the entrepreneurs to repackage local heritage, design new visitor experience, and translate it to the changing global demand. In such a way, it is evident to observe that the close connection between the issues of innovation and sustainability also demonstrates the increased presence of digital tools in creating tourism dynamics. TripAdvisor, online booking systems, social media marketing, among other platforms identified by Shaw et al. (2010) and Litvin (2008) will enable small businesses in Jordan to access wider markets. It additionally enables to collect customer feedback in real-time and continuously enhances the quality of services. In this regard, such mechanisms are relevant especially in places such as Petra. In particular, they increase the expectations of tourists that demand quality assurance, safety, cultural genuineness, and comfort. The results reinforce the idea that tourism innovation can act as an intermediary between the expectations and reality of rural destinations to reduce the discrepancies between the expectations and reality of the service and enhance customer satisfaction (Utami et al., 2023; Martini & Buffa, 2020).

Against all odds, infrastructure did not moderate the interplay between entrepreneurship and sustainable tourism development as it had a significant direct impact. This implies that infrastructures, such as transport systems, digital networks, accommodation capacity, utilities, although necessary in the development of tourism, are not always positive in the capacity of the entrepreneur to impact on the sustainability. This observation aligns with the fact that according to researches carried out on the developing economies, the infrastructure is usually a facilitating factor and not an interactive force (King Abdullah II Website, 2023). The national plans of Jordan such as Vision 2025 put forward to enhance tourism infrastructure as a condition to entrepreneurship, rather than cause a shift in the entrepreneurial behavior. The direct impact realized in this paper confirms that infrastructure is a pillar that supports tourism development, but its mediating or moderating nature might have to undergo a further institutional incorporation before it is statistically significant. The general theoretical input of the research is that it incorporates values of entrepreneurship in sustainable tourism development. The interpretation and the literature indicate that innovation and entrepreneurship are enhanced when they are supported by the social, environmental, and cultural values.

According to the studies conducted by Vuorio et al. (2017), Brieger & De Clercq (2019), and Urbano et al. (2019), such values as empathy, altruism, and stewardship are associated with making entrepreneurs more focused on promoting the well-being of the community rather than on financial goals. Jordan rural tourism businesses including eco-lodges, handcraft stores, and experiences are usually indicative of such value-driven incentives. Conceptual and empirical support of theoretical compatibility of value-based entrepreneurship and sustainable tourism is thereby strengthened.

Generally, the results confirm multidimensional approach towards sustainable tourism development in Jordan. Innovation is the most potent engine, entrepreneurship gives meaningful though minimal contributions, and infrastructure is an enabling condition of existence. This lack of moderating effects implies that systemic processes, such as policy frameworks and market structures and institutional coordination may require improvement before the interaction between variables increases. The findings are also representative of the larger body of literature that highlights the importance of integrated approaches to sustainable tourism in developing environments involving the connection between entrepreneurship, innovation, infrastructure, policy and community involvement (Briedenhann & Wickens, 2004; Olmedo et al., 2024; Martini et al., 2020). Altogether, it should be noted that the empirical data confirms that the future of sustainable tourism in Jordan lies in building the innovation capacities, facilitating entrepreneurial processes, investing in infrastructure, and integrating the tourism development in the community values and national strategic plans. The study supports its conceptual basis while highlighting important aspects that should be addressed by future research and policy initiatives. The integration of entrepreneurial values with sustainable tourism development discourse is one of the important theoretical contributions made by this study.

The findings suggest that the presence of social, environmental and cultural values, in conjunction with entrepreneurship and innovation, strengthens the ability of entrepreneurs to develop new ventures. Empirical studies by Vuorio et al. (2017), Brieger & De Clercq (2019), Urbano et al. (2019) show that values, such as empathy, altruism, and stewardship, can influence entrepreneurs to consider the welfare of their communities as much as they do their economic goals. Most rural tourism development projects in Jordan, including eco-lodges, handicraft production, and culturally-based experiences, are examples where entrepreneurial activity has ethical motivations. Therefore, the concept of value-based entrepreneurship and sustainable tourism is substantiated both conceptually and empirically.

The concluding findings indicate that a multi-faceted approach can help achieve sustainable tourism development for Jordan. Of the three identified variables, innovation is regarded as the most significant factor driving the advancement of sustainable tourism; however, entrepreneurship is also important, albeit with less of an impact, while the key to facilitating such an effort is through adequate infrastructure. The lack of strong moderating influences identified suggests that the need for greater development of broader systemic components (including but not limited to policy coherence, institutional coordination, and market structure) is required before sufficient interaction exists between these three variables. These results are supported by previous research highlighting the necessity for an integrated, collaborative approach to sustainable tourism development in developing countries that brings together entrepreneurship, innovation, infrastructure, policy framework, and community involvement (Briedenhann & Wickens, 2004; Olmedo et al., 2024; Martini et al., 2020).

CONCLUSION

This paper has discussed the interrelations among entrepreneurship, innovation and sustainable tourism development in Jordan and infrastructure has been placed in the middle of the study. Using the theory of innovation as defined by Schumpeter and more recent views on entrepreneurship, the research attempt was aimed at learning how the practices of entrepreneurship and innovative activities can lead to the process of sustainable tourism in a developing-country environment. The findings reveal that entrepreneurship and innovation have a considerable and positive impact on sustainable tourism development, where innovation is a more powerful predictor, creativity, diversification of service, and technology adoption are becoming more important to growing tourism competitiveness and sustainability over time.

The relationship between Entrepreneurialism and the development of sustainability is weaker in comparison to creativity, diversification of service, and technology adoption. The previous studies provide evidence of the challenges faced by Small and Medium Enterprises in Jordan due to the lack of entrepreneurial support systems, which highlights the importance of addressing those barriers in order to foster Entrepreneurship in developing tourism-based economies.

In addition, while creativity, diversification of service, and technology adoption are viewed as significant drivers of sustainable tourism development, the inability of infrastructure to provide the conditions whereby entrepreneurship or innovation can develop sustainable practices demonstrates that while Infrastructure provides an environment for the creation of sustainable tourism, it is not the catalyst for the relationship between these variables.

Finally, the research results indicate that the factors that contribute to sustainable tourism in Jordan are a blend of the ability of individuals to start new business ventures, to implement innovative operations to aid in service delivery, to offer proper connections to the industry through proper tourism infrastructure, and to increase the level of community participation. The research indicates that innovation is currently viewed as the single most important tool for enhancing the sustainability of tourism in Jordan, whereas entrepreneurship will have a significant impact on enhancing the sustainability of tourism provided there is a supportive environment regarding institutions and the associated infrastructure. Policy makers & tourism professionals in Jordan can use this information to improve the resilience & competitiveness for sustainable development of Jordan.

Limitations

There are several important limitations to this study. Most importantly, the methodology of this study uses self-report data collected using questionnaires. Since all questionnaire-based data collection relies upon individual perceptions there is opportunity for a very high degree of response bias from (1) social desirability; & (2) perceptual bias. Although measures were taken to provide respondents with anonymity and clear instructions regarding the survey items, there continues to be a possibility that respondents' actual entrepreneurial or innovative practices within their organizations differ dramatically from their perceptions. Second, the study uses a cross-sectional research design to gather data at one point in time. This design means that the results of the study are based upon correlations and associations rather than causal relationships between entrepreneurship, innovation, infrastructure, and sustainable tourism development. A longitudinal research design would provide a better understanding of how these relationships change over time, particularly within a sector such as tourism, where economic shocks and policy changes have an extremely high influence. Third, the empirical basis upon which the study's findings are rooted is Jordan, so the findings of this study cannot be applied to other national or regional contexts. While Jordan is an example of an appropriate area to study due to its dependence upon tourism and its developing economy, the structurally, culturally, and institutionally different contexts in other nations may have a significant effect on the way entrepreneurship and innovation facilitate sustainable tourism development. Comparative studies between different destinations would validate and enhance the generalizability of the findings.

Recommendations

The results obtained in this paper indicate a number of recommendations that can be cited in regard to promoting the development of sustainable tourism in Jordan using entrepreneurship and innovation. To begin with, tourism institutions and policymakers need to focus on enhancing the innovation capacity within the industry since innovation was found to be the best indicator of sustainable tourism. This also involves offering specialized training programs, developing joint platforms between the entrepreneurs and the academic institutions and assisting in the production of new and innovative tourism products that would add value to the experiences of the visitors.

Second, the intermediate impact of entrepreneurship suggests that there is a need to improve the entrepreneurship support systems, especially through improving access to finance to the SMEs, providing specific capacity-building of business management and online marketing, and promoting the involvement of women in tourism entrepreneurship.

Third, even though the infrastructure was not a key relationship moderator, it exhibited a strong direct effect, showing the need to have better transportation systems, digital connectivity, utilities and infrastructure that is environmentally friendly and sustainable to support the operation of tourism businesses. Also, the tourism policy frameworks should be aligned to the national development strategies through enhancing institutional coordination, integrating sustainability standards into the regulations, and facilitating diversification to eco-, cultural-, and agritourism as resiliency-building strategies. Community involvement also needs to be strengthened because value-based entrepreneurship based on empathy, cultural value, and environmental management is important to long-term sustainability; therefore, local communities should be ensured in the planning and management of tourism projects.

Finally, it's essential to maintain and promote the concept of digital transformation by supporting smaller tourism businesses in adopting online reservations and other digital channels for marketing purposes. Additionally, businesses should provide guests with ways to collect feedback about their experience. Overall, these strategies highlight the importance of improving upon four key, simultaneous aspects of travel growth in Jordan—through an innovative, entrepreneurial approach, effective physical and structural infrastructure, and cohesive policymaking involving multiple stakeholders.

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