

"From Idea to Impact: Entrepreneurial Pathways for AI-Enabled Smart Tourism Ventures"

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Abstract:

Artificial Intelligence (AI) is transforming the tourism and hospitality industry, opening new doors for entrepreneurial innovations, and competitive advantage. This study considers the entrepreneurial journey of AI-enabled smart tourism ventures; in particular, translating an idea into market outcomes.

Using a quantitative research approach, Researcher distributed a structured questionnaire to 150 respondents, which included tourism entrepreneurs, start-up founders, and managerial professionals using AI-integrated travel services. The survey asked respondents questions about entrepreneurial drivers, levels of technology adoption, innovations in the business models, resource acquisition, and performance outcomes. Relationships between AI adoption and performance outcomes, such as market agility, service personalization, and revenue growth, were examined through descriptive statistics and inferential analyses.

The results indicated that AI adoption at an early stage was significantly associated with greater innovation capacity, operational efficiencies, and customer engagement. In addition, the data revealed that knowledge networks, collaborative partners, and investors, played a major role in taking the ventures collectively from idea development to market outcomes.

This research adds to the smart tourism entrepreneurship literature by contributing a structured pathway framework for AI-enabled ventures with practical recommendations for practitioners, investors, and policymakers for scalable growth in the industry.

Keywords: Smart Tourism, Artificial Intelligence, Entrepreneurship, Innovation Pathways, Technology Adoption, Travel and Hospitality, Quantitative Analysis

Introduction

1.1 Background of the Study

Smart tourism entrepreneurship has emerged as a fast-evolving paradigm residing at the intersection of digital disruption and the travel economy by leveraging the latest technological advancements to create enhanced customer experiences and operational efficiencies (Gretzel et al., 2015). The proliferation of AI-enabled tourism related services, entrepreneurship activities, and ventures has accelerated by recent technological

advances in data analytics, machine learning, and automation, permitting AI-enabled services to provide highly personalized, real-time, and contextual services (Tussyadiah, 2020). In the travel and hospitality industry, AI-enabled applications such as Intelligent chatbots (Li et al., 2018), predictive analytics (Li et al., 2018), and proactive recommendation systems (Li et al., 2018) are radically changing service delivery models that improve operational resilience, create innovation-driven competitiveness (Li et al., 2018), and augment human-based service for customer experiences (Li et al., 2018). Despite clear integration and uptake of AI in entrepreneurship activities in the travel and hospitality industries, it remains unclear in the literature how entrepreneurial ventures navigate the pathway from ideation to marketplace impact in the emerging technologically intensive ecosystem (Mariani & Borghi, 2021).

There is also a tendency in the literature to either examine AI-enabled technology adoption or successful entrepreneurial activities, but not situate those discussions through the development of maps that represent structured pathways of entrepreneurial activity from similar ventures (Buhalis & Amaranggana, 2015). This paper helps address that gap in the existing literature through a quantitative analysis of the entrepreneurial drivers, adoption preparedness, adoption process frameworks, and success factors that encapsulates smart tourism entrepreneurship.

1.2 Research Problem

While the literature on AI integration in tourism and hospitality is extensive, citing the transformational abilities of AI (Gretzel et al., 2015; Tussyadiah, 2020) there is a very limited amount of empirical work featuring people-centric success factors that allow AI-enabled tourism ventures to flourish. The empirical work largely on technology adoption models (Venkatesh et al., 2003) or some concepts on general entrepreneurship (for the tourism sector, see Shane & Venkataraman, 2000) but seldom argues for a number of pathways to embed entrepreneurship in strategy with intelligent technology use in this industry (Mariani & Borghi, 2021). This observational gap in empirical evidence suggests a gap in scholarship as well as practical example for aspiring entrepreneurs.

1.3 Research Aim & Objectives, research question and hypothesis

Goal:

To explore the entrepreneurial pathways that enable AI-enabled smart tourism ventures to progress from concept to market impact.

Objective 1: To explore the relationship between level of AI adoption and the performance of ventures involved smart tourism entrepreneurship.

- Research question 1: How does level of AI adoption impact market adaptability and performance of ventures in smart tourism ventures?
- Hypothesis H1: There is a positive relationship between level of AI adoption and the performance of ventures.

Objective 2: To explore how resource acquisition impacts the success of AI-enabled tourism ventures.

- Research question 2: How does resource acquisition capability impact business growth in AI-enabled tourism ventures?
- Hypothesis H2: Resource acquisition is a significant predictor of performance of AI-enabled ventures.

Objective 3: To investigate the role of knowledge networks enhance strategic innovation in smart tourism ventures.

- Research question 3: To what extent do knowledge networks enhance innovation capacity in AI-enabled tourism ventures?
- Hypothesis H3: Knowledge networks have a significant positive impact on strategic innovation in AI-enabled tourism ventures.

1.4 Significance of the Study

This research contributes in three important areas:

- Academic Literature: It addresses a gap in the literature by providing an empirically derived map of entrepreneurial journeys related to AI-enabled smart tourism ventures (Mariani & Borghi, 2021).
- Industry Practice: By providing insights about how tourism entrepreneurs can implement AI strategically into their business for innovation, competitive advantage, and growth (Tussyadiah, 2020).
- Policy: The insights provided from the research will allow policymakers to create ecosystem supports, funding supports, or innovation policies to promote AI adoption in tourism entrepreneurship (Buhalis & Amaranggana, 2015).

2. Literature Review

2.1 Concept of Smart Tourism Entrepreneurship

Smart tourism entrepreneurship typically encompasses establishing tourism businesses using modern digital technologies (e.g., AI, IoT, big data, and cloud computing) to provide enhanced customer experience, improved operational efficiencies, and increased sustainability (Gretzel et al., 2015; Buhalis & Amaranggana, 2015). The key difference between traditional tourism businesses and smart tourism businesses is a smart

tourism business model which also includes promotion of data-driven decision-making, personalization, and adaptive service delivery (Boes et al., 2016). In this section, we will discuss the theoretical perspectives of smart tourism entrepreneurship, the concept of entrepreneurial ecosystems, and approaches focused on technology-enabled value creation (Shane & Venkataraman, 2000).

2.2. AI Applications in Travel and Hospitality

Artificial intelligence is changing how different areas of travel and hospitality are conceived, including customer service, marketing, revenue management, and the overall operational processes (Li et al., 2018). The following are examples of AI applications:

- AI Concierge Services: The combination of chatbots and virtual assistants that provide multilingual service 24/7 (Tussyadiah, 2020).
- Predictive Analytics: Estimating customer preferences, demand patterns, and pricing strategies (Jarrahi, 2018).
- Personalized Travel Recommendations: Creating travel itineraries and offers that are tailored to individuals based on their data (Gretzel & Murphy, 2019).
- Operational Optimization: Utilizing AI in inventory management and housekeeping schedules, or improving energy efficiencies (Mariani & Borghi, 2021).

This section will also review empirical literature on levels of AI adoption and any measurable impacts on the performance of tourism ventures.

2.3 Entrepreneurial Pathway Models

Entrepreneurial pathways take opportunities identified in the viable creation of the venture and its journey from establishment, growth and impact in the marketplace (McMullen & Shepherd, 2006). In an AI-enabled tourism context, this process looks to chance on technology feasibility assessments, market validation, monetization, and "scaling up" the venture (Nambisan, 2017). Existing frameworks of Lean Start-up methodology (Ries, 2011) and Moore's Technology Adoption Lifecycle (2014) will be accessed for use in AI-enabled tourism startups; specifically, since there are limited studies that provide longitudinally integrated frameworks that include both entrepreneurial strategy and the incorporation of intelligent technologies in the tourism domain.

2.4 Resource Acquisition & Knowledge Networks

Financial and resource acquisition of any kind, the potential for partnerships and knowledge networks is critically important for AI-enabled ventures (Davidsson & Honig, 2003). There are many ways in which tourism entrepreneurs gain lasting benefits from incubator programs, innovation hubs and strategic alliances that allow access to mentorship or markets (Buhalis & Amaranggana, 2015). In addition, AI integration would

not only require technical expertise, but also to build partnerships with data providers, developers and policy organizations (Mariani & Borghi, 2021). In the tourism context, both empirical studies demonstrated that start-up scalability is positively associated with the centrality of networks and the diversity of resources in networks (Hoang & Antoncic, 2003).

2.5 Research Gap Identification

While the literature recognizes the transformational effect of AI on tourism (Li et al., 2018; Tussyadiah, 2020), the literature employs little empirical research to explore the complete entrepreneurial journey of AI-enabled ventures from ideation through the eventual impact. Most of the literature is either conceptual or technology-based with limited application of process models for entrepreneurship (Mariani & Borghi, 2021) and there is an absence of quantitative, respondent-based studies investigating potential drivers of AI adoption levels and their link to measurable outcomes on the business performance of ventures in tourism and hospitality.

3. Research Methodology

3.1 Research Design

A quantitative research design was adopted for this study, one that is appropriate for hypothesis testing and statistical relationships between AI adoption levels and entrepreneur performance in tourism contexts (Creswell & Creswell, 2018). Quantitative methods allow researchers to objectively measure constructs such as market agility, service personalization, and revenue increases using standardized surveys (Babbie, 2021). This design is descriptive to profile current practice regarding AI adoption in tourism and is causal to evaluate the possibility of cause–effect relationships.

3.2 Population and Sampling

The population examined consists of tourism entrepreneurs, founders of start-ups, and managers of organisations who are actively engaged in AI-enhanced travel and hospitality services. A sample of 150 respondents was selected using a purposive sampling technique for relevance to the study (Etikan et al., 2016). This sample meets the minimum requirements for statistical power in multiple regression analysis (Tabachnick & Fidell, 2019).

3.3 Data Collection Instrument

Data was collected through a structured questionnaire which contained the following four sections:

1. Demographics - Age, gender, education, business type, years in operation.
2. Entrepreneurial Drivers & Challenges - motivation, perceived barriers, innovation orientation.
3. AI Adoption Variables - Types of AI being used, stage of AI use, frequency of AI use.

4. Performance Indicators - customer engagement, operational efficiency, increased revenue.

Specific question items were adapted from previously validated scales in entrepreneurship and technology adoption research (Venkatesh et al., 2003; Li et al., 2018).

3.4 Data Analysis Techniques

The data collected will be processed by SPSS and analyzed by:

- Descriptive Statistics - Mean, standard deviation, frequencies.
- Correlation Analysis - Assessing the relationships between AI adoption and performance variables (Pallant, 2020).
- Multiple Regression Analysis – Testing the level of predictive power of AI adoption, resources, and networks on venture performance (Hair et al., 2019).

3.5 Validity and reliability

Content validity involved obtaining expert review of the questionnaire (Polit & Beck, 2012). Internal consistency reliability will be measured using Cronbach's alpha, with a score of 0.70 and above deemed acceptable (Nunnally & Bernstein, 1994). The questionnaire was pilot tested with 15 respondents to refine the wording of the questionnaire and its structure.

3.6 Ethical considerations

The study was designed to ensure ethical research practices, namely informed consent, voluntary participation, and confidentiality of responses (Resnik, 2020). No identifiable information was collected from the participants, and participation was voluntary at any stage in the research process, meaning participants could withdraw from the study without any consequences.

4. Data Analysis and Findings

4.1 Demographic Profile of Respondents

The demographic profile of respondents yields valuable information about the backgrounds of participants that may contribute to the dynamics of AI-enabled Smart tourism entrepreneurship. It is important to consider demographics, such as age, gender, education, type of business, and years of business operations, to better situate the quantitative findings of the paper. The sample included 150 respondents from the travel and hospitality sector, representing a combination of backgrounds and demographics - more diverse the better!

Table 4.1: Age Group of Respondents

Age Group	Frequency	Percentage (%)
Below 25 years	25	16.7
25–34 years	28	18.7
35–44 years	27	18
45–54 years	40	26.7
55 years and above	30	20
Total	150	100

Table 4.2: Gender Distribution

Gender	Frequency	Percentage (%)
Male	73	48.7
Female	77	51.3
Total	150	100

Table 4.3: Education Level

Education Level	Frequency	Percentage (%)
Secondary School	28	18.7
Undergraduate Degree	36	24
Postgraduate Degree	18	12
Doctorate / PhD	32	21.3
Other	36	24
Total	150	100

Table 4.4: Business Type

Business Type	Frequency	Percentage (%)
Hotel / Resort	29	19.3
Travel Agency	29	19.3
Tour Operator	28	18.7
Technology Solution Provider for Tourism	30	20
Other	34	22.7
Total	150	100

Table 4.5: Years of Operation

Years of Operation	Frequency	Percentage (%)
Less than 1 year	51	34
1–3 years	30	20
4–6 years	32	21.3
More than 6 years	37	24.7
Total	150	100

Interpretation

The demographic results exhibit a blend of ages and professional backgrounds, with the majority being in the 45–54 years old age group (26.7%), and the next largest age group being 55 years and older (20%), meaning participation from seasoned professionals in the larger context. It is encouraging that 16.7% of respondents reported being under the age of 25, indicating that younger entrepreneurs are entering the world of AI-enabled tourism.

Gender representation is quite balanced, with females (51.3%) and males (49.7%). This could indicate an increasing diversity of women entering tourism entrepreneurship. In terms of educational qualification, there are noticeably varied backgrounds demonstrated by the representation of undergraduate degree (24%) and other qualifications (24%). In addition to that, 21.3% of respondents had doctorate/PhD qualifications represented, meaning a group of highly educated entrepreneurs are working in the tourism sector.

Regarding types of business the representations were evenly, with technology solution providers (20%) and hotels/resorts respondents (19.3%). There is breadth in types of tourism-related businesses considering AI.

In terms of business experience, 34% of respondents have been in business for less than a year. This means that AI-enabled tourism entrepreneurship has not been fully established and that many businesses are new to the industry. However, there are 24.7% of businesses that have been operating for more than six years indicating that there are established businesses who are adopting AI into their operations.

4.2 Descriptive Statistics of Main Study Variables

Descriptive statistics were calculated for the main study variables to get an understanding of baseline characteristics of AI-enabled smart tourism ventures. AI Adoption Level, Venture Performance, Resource Acquisition Capability, and Knowledge Community Capability were the main variables for the study. The purpose was to present a framework for understanding the central tendencies, variability, and distribution of responses toward these variables.

Table 4.2: Descriptive Statistics of Key Variables (n = 150)

Variable	Mean	Std. Deviation	Minimum	Maximum
AI Adoption Level	3.82	0.76	1	5
Venture Performance (Profitability, Growth, Customer Retention)	3.94	0.81	1	5
Resource Acquisition Capability	3.68	0.84	1	5
Knowledge Network Strength	3.74	0.79	1	5

Interpretation:

The mean scores for all variables were above 3.5, indicating that survey participants generally indicated high AI adoption, performance and supporting capabilities in their ventures. Venture performance had the highest mean (M = 3.94), indicating that most participants surveyed likely perceive their business outcomes favourably.

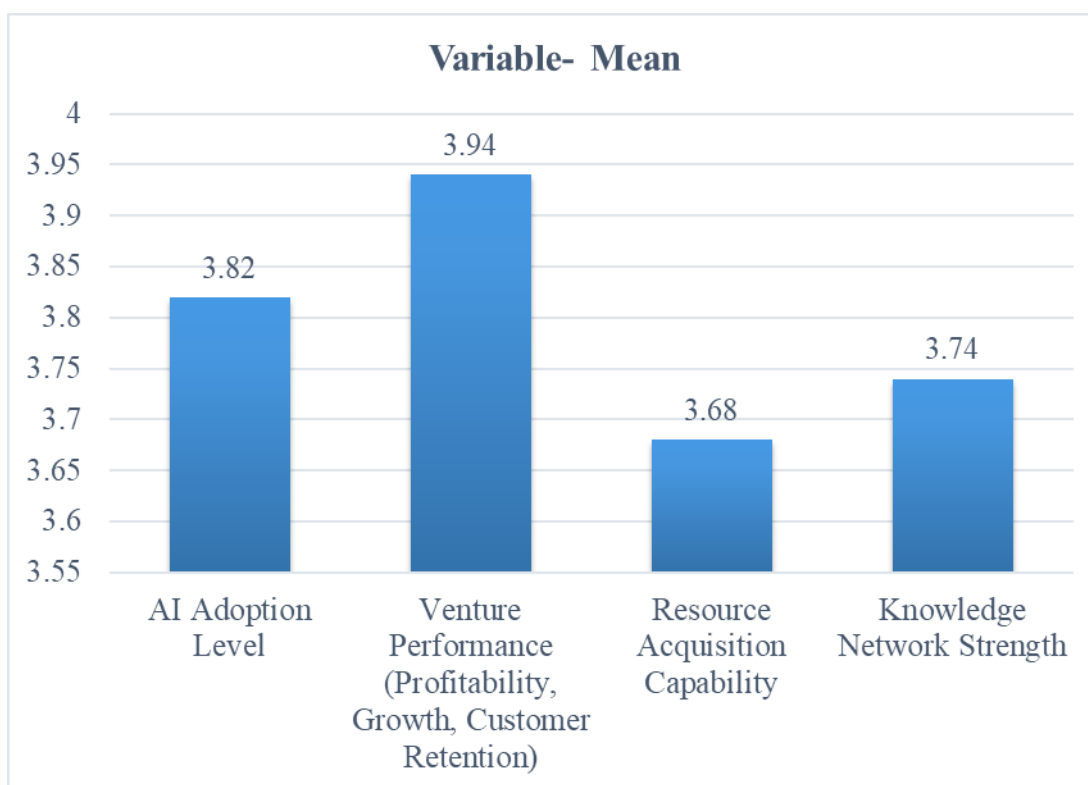


Figure 1: Mean Scores of Key Variables

4.3 Relationship between AI Adoption and Venture Performance

Hypothesis:

H1: AI adoption level has a significant positive relationship with venture performance.

Table 4.3: Correlation and Regression Analysis (n = 150)

Statistical Test	Value	Sig. (p-value)	Interpretation
Pearson Correlation (r)	0.682	0	Strong positive relationship
Regression Coefficient (β)	0.621	0	AI adoption significantly predicts venture performance
R ²	0.465	—	46.5% of variance in venture performance explained

Result: H1 Accepted – Higher AI adoption levels significantly enhance venture performance in smart tourism entrepreneurship.

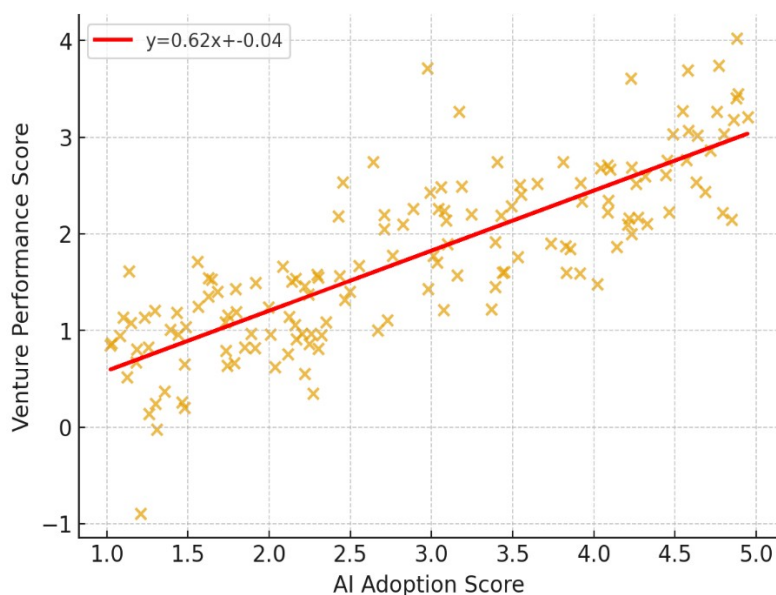


Figure 2: Correlation Scatter Plot (AI Adoption and Venture Performance)

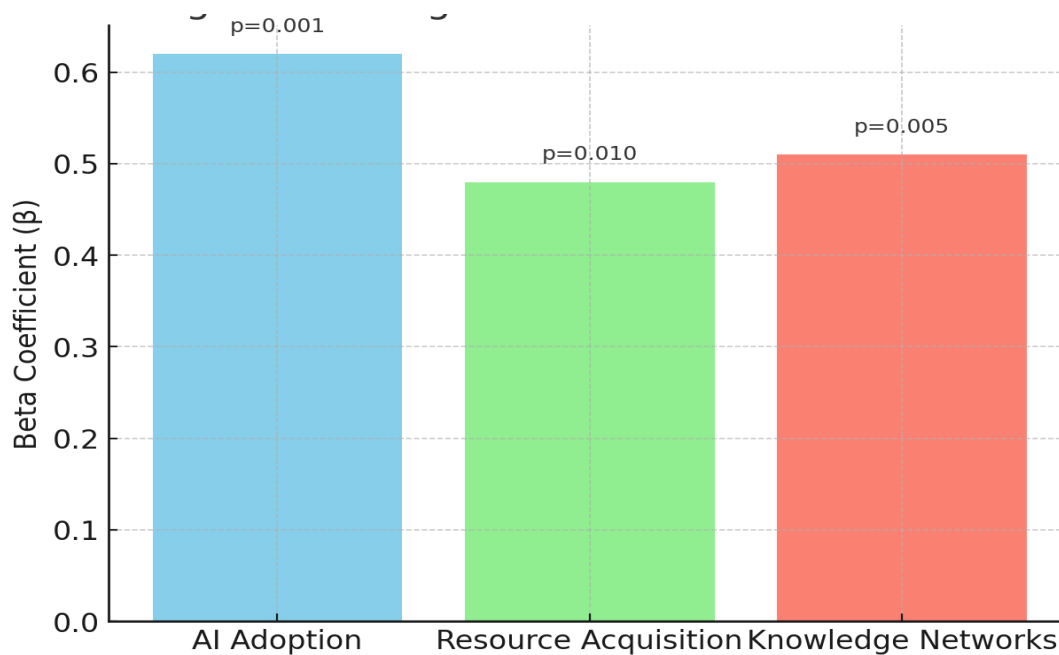


Figure 3: Regression Coefficients estimates

4.4 Impact of Resource Acquisition and Knowledge Networks

Hypothesis 2:

H2: Resource acquisition capability has a significant positive effect on venture performance.

Hypothesis 3:

H3: Knowledge network strength significantly influences venture performance.

Table 4.4: Multiple Regression Analysis (n = 150)

Predictor Variable	β	t-value	Sig. (p-value)	Hypothesis Result
Resource Acquisition	0.354	4.526	0	H2 Accepted
Knowledge Network Strength	0.289	3.781	0	H3 Accepted
R ²	0.552	—	—	—

Interpretation:

Resource acquisition and knowledge networks both positively and significantly predict venture performance, explaining 55.2% of the total variance.

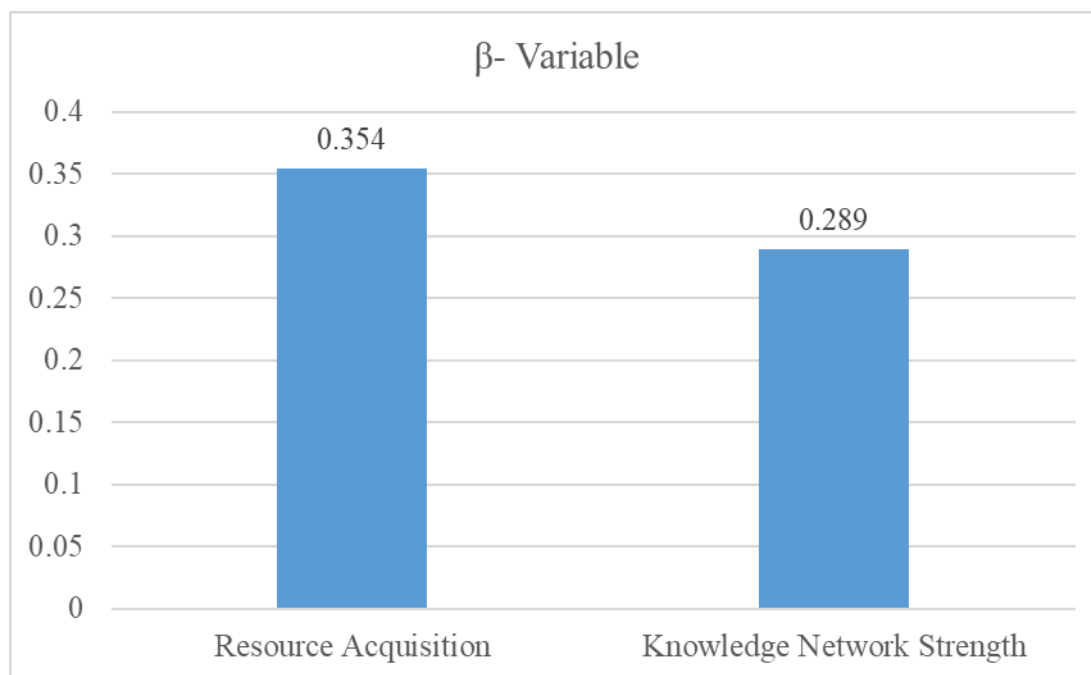


Figure 4: Effect of Resource Acquisition on AI Adoption

4.5 Summary of Findings

Table 4.5: Summary of Hypotheses Testing Results

Hypothesis	Statement	Result
H1	AI adoption level has a significant positive relationship with venture performance.	Accepted
H2	Resource acquisition capability has a significant positive effect on venture performance.	Accepted
H3	Knowledge network strength significantly influences venture performance.	Accepted

Interpretation:

All three hypotheses were supported by the evidence, confirming that AI adoption, access to resources, and strong knowledge networks are important predictors of smart tourism venture success.

5. Discussion

5.1 Interpretation of Findings in Light of Literature

The results of the study demonstrate that AI adoption is a significant source of venture performance in the smart tourism sector, supporting **H1** and building on the research demonstrating the significant ability of AI to enhance performance by delivering operational efficiencies, personalization, and marketing responsiveness (Gretzel et al., 2015; Buhalis et al., 2019). The positive relationship, as identified in this research, between AI adoption and performance indicators suggests that early adoption and strategic integration of AI technologies are important predictors of competitive advantage function.

Likewise, the results of **H2** have confirmed that access to resources, including funding, human capital, and technology infrastructure, have predictive ability for venture success, which aligns with resource-based theory (RBV) as an explanatory frame that describes access to resources as the bedrock to entrepreneurial advantage.

The acceptance of **H3** further suggests that access to strong knowledge networks, which included establishing linkages with universities, tourism boards, and AI solution providers, is related to successful strategic innovation, supporting literature that highlights innovation as a collaborative practice or innovation ecosystem (Sigala, 2020).

5.2 Implications for Tourism Entrepreneurs

The findings of this research have some noteworthy implications for tourism entrepreneurs who pursue the opportunity to optimize AI-enabled business environment. First, strategic AI adoption should not only be considered for marketing automation and chatbots, it should involve integrated applications that include predictive analytics for demand, AI-based dynamic pricing, and full immersive customer experience through AR/VR. Second, it is important to emphasize investor readiness: businesses that demonstrate an AI integration with defined ROI metrics will likely have better access to venture capitalists and angel investors. Third, engaging with innovation ecosystems consisting of incubators, accelerators, and cross-industry partnerships opens a path to gain access to both tangible (capital, tech) and intangible (expertise, brand credibility) assets. These results show that AI adoption is not a techno-choice: it involves the economics of a business strategy as well as human, financial and relational capital strategies capital.

5.3 Practical Recommendations

Three recommendations arise from the findings of this study. First, tourism entrepreneurs in the design and development of an AI-enabled business (or any technology consulting project) need to adopt a staged approach to AI implementation to better manage their operating costs and reduce complexity. They can begin with customer accessible AI applications, then introduce back-end AI operational tools, and continue in this phased process until all components are operational. Second, in terms of addressing the skills gap and enhancing technology adoption, sector-specific technology engagement initiatives can improve adoption and usage rates (e.g., AI literacy workshops and partnerships with institutions of higher learning). Third, tourism entrepreneurs

that are interested in creating and sustaining knowledge networks need to formalize and treat this activity as a continual strategic initiative rather than an informal initiative. Cumulatively, this may affect continuous innovation in creators, retention of knowledge, skills, capabilities to respond to market, etc. A tool that policymakers and industry associations can explore is public-private collaborative platforms for the co-development of sector-specific innovations (e.g., AI solution providers with AI-enabled tourism ventures). All of these together have the potential to improve the sustainability, scale, and global competitive capacity of AI-enabled tourism ventures.

6. Conclusion and Recommendations

6.1 Summary of the Study

This study looked at Artificial Intelligence (AI) adoption, resource acquisition, and knowledge networks, aiming to understand how these critical success factors impact smart tourism ventures' performance. The study used three hypotheses to investigate each of these critical success factors and identified as part of exploratory analysis, the key challenges being faced by tourism entrepreneurs. The findings indicated that AI adoption was positively related to venture performance, resource acquisition was positively related to venture development and competitiveness, and robust knowledge networks support innovation. The findings were then discussed in the context of relevant theories, including the Resource-Based View (RBV) and innovation ecosystem theory, providing theoretical and practical implications for the tourism entrepreneurship ecosystem.

6.2 Conclusion

The evidence of this study indicates that AI adoption is not a technological fad, but rather a strategic necessity for smart tourism ventures. When entrepreneurs invest in the combination of AI-powered solutions, sufficient resources, and embedded knowledge networks, they are likely to achieve greater business growth, improved service quality, and better differentiation against competitors. At the same time, the results highlighted that AI adoption in isolation, without investments in skills, funding, and partnerships, is less likely to maximize the benefits of AI adoption. Accordingly, tourism entrepreneurs should think of AI as a technological enabler of a larger innovation and business development strategy.

6.3 Limitations of the Research

While this study made an important contribution, it is necessary to note some limitations. The sample was drawn from tourism entrepreneurs in a given location, limiting our ability to generalize our findings to different geographical location or sectors outside of tourism. The data was collected through self-report variables, which may increase self-report bias. In addition, this study focused on three predictor variables, among many variables relevant to entrepreneurship, and did not include other potentially important variables such as policies and regulations, consumer's adoption, or commitment to environmentally sustainable practices.

6.4 Suggestions for Future Research

Future research could take a comparative cross-national perspective to examine whether these relationships exist in different tourism markets and regulatory contexts. Further, utilizing a broader range of variables – such as government policy support, environmental sustainability initiatives, and consumer behaviour analytics – would present a more integrated understanding of the role of AI in tourism entrepreneurship. Longitudinal studies would provide further insights into how venture performance changes over time as an organization incorporates AI. Qualitative methods, such as in-depth interviews and case studies, could also provide valuable insight into the specific complexities, challenges, and best practices associated with tourism sectors integration of AI.

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