DISCOVERING OPPORTUNITIES CHALLENGES AND IMPLICATIONS AT STARTING UP AN AI-DRIVEN TOURISM BUSINESS: A CASE STUDY AT IGUIDE.AI

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Abstract

The rapid advancement of artificial intelligence (AI) has opened new opportunities while posing critical challenges for startups in the tourism sector, particularly in emerging markets such as Vietnam where digital transformation remains uneven. This study investigates iGuide.ai, an AI-driven virtual tour guide startup that provides personalized recommendations, multilingual support, and interactive cultural storytelling. The purpose of the research is to identify the opportunities, challenges, and implications of launching an AI-based tourism business through the lens of iGuide.ai. A qualitative case study method was employed, combining a systematic literature review with an in-depth analysis of iGuide.ai's technical features, market positioning, and implementation strategies. Findings indicate that iGuide.ai significantly improves tourist satisfaction by enhancing service quality, accessibility, and inclusiveness through real-time tailored guidance and cultural insights. At the same time, the study highlights persistent challenges related to user adoption, data privacy, and scaling resource requirements. The results provide practical implications for startups, managers, and policymakers by demonstrating how AI integration can foster service innovation, strengthen destination competitiveness, and support sustainable tourism development in Vietnam.

Research purpose:
This study investigates the integration of artificial intelligence into tourism services through the case of iGuide.ai, with a focus on how such technologies can enhance accessibility, deliver personalized experiences, and contribute to more sustainable practices within the travel industry.

Research motivation:
Vietnam's tourism sector is undergoing rapid change but continues to face persistent challenges, including inconsistent service quality, limited multilingual support, and increasing pressure for digital innovation. The emergence of generative AI provides new opportunities to bridge these gaps, making iGuide.ai a compelling case for closer examination.

Research design, approach, and method:
A qualitative case study methodology was employed, combining a comprehensive literature review on AI applications in tourism with in-depth interviews with iGuide.ai's management team and key stakeholders. The study focuses on analyzing iGuide.ai's technological features, strategic positioning, and implementation process. Insights were synthesized primarily from direct and online interviews with the enterprise.

Main findings:
The findings show that iGuide.ai offers substantial value by delivering real-time, personalized recommendations, improving multilingual accessibility, and enriching cultural storytelling for tourists. Nevertheless, the study identifies challenges such as limited user adoption, data privacy concerns, and the high investment required for scaling. These results suggest that the effective application of AI in tourism depends on balancing innovation with ethical, operational, and financial considerations.

Practical/managerial implications:
The case provides actionable insights for startups, tourism managers, and policymakers seeking to leverage AI for service innovation. It demonstrates the potential of digital platforms to increase visitor engagement, advance sustainable tourism practices, and enhance Vietnam's competitive positioning in the global tourism market.

Keywords: Startup, artificial intelligence, tourism innovation, iGuide.ai, virtual tour guide, sustainable tourism

1. INTRODUCTION

The global tourism industry is undergoing a significant digital transformation with Artificial Intelligence (AI) playing a vital role in reshaping service delivery and customer experiences. McCarthy (2004) defined AI as "the science and engineering of creating intelligent machines, expecially computer programs". AI is considered both as a field of study and a technology that automates tasks traditionally requiring human intelligence. Nowadays, AI is being applied in various sectors, including finance, healthcare, transportation, and especially tourism, where its potential is significant. Market forecasts predict that AI in tourism will reach approximately USD 2.9 billion by 2025 with an annual growth rate (CAGR) of 15–24% (Zipdo, 2025; Gitnux, 2025), with further potential to grow to USD 11.5 billion by 2028.

The potential of AI in tourism is expressed in three key areas. Firstly, AI persionalizes customer experiences by analyzing big data to offer suitable recommendations for each tours, schedule, or services. Secondly, it optimizes operations and reduces costs by up to 25%, particularly in aviation. In this field, AI supports flight scheduling and maintenance predictions (Zipdo, 2025). Thirdly, AI contributes to sustainable tourism by helping businesses cut down energy and food waste through eco-friendly business models (Reuters, 2025). Moreover, tourism businesses applying AI have reported up to a 40% increase in revenue (Business Insider, 2025; New York Post, 2025)

Although AI is expected to revolutionize the tourism industry, AI adoption faces many challenges, especially for startups. High initial costs, data quality issues, privacy concerns, and market acceptance are major barriers. This study aims to explore these challenges and opportunities through a case study of iGuide.ai – a tourism startup leveraging AI to becoming a smart tourism platform that promotes tours and tourism products for partners. By analyzing the evolution and distinctions across the development stages of iGuide.ai, this research will not only provide deeper insights into the company's innovation journey but also offer valuable lessons on the opportunities and challenges for tourism startups in applying AI as well as businesses operating in the AI sector.

2. LITERATURE REVIEW

2.1. Entrepreneurship Theory

Chesbrough's open innovation theory (2003) represents one of the fundamental framework in modern entrepreneurship research. This theory reshaped the understanding of innovation process, transitioning from the traditional "closed-innovation" model to "open-innovation" model by active interaction and knowledge sharing across organizations. For startups, the open innovations theory has become an indispensable condition for survival. Spender et al. (2017) assertd that the nature of startups are open organizations taking part in innovation processes in their pioneering systematic review of intersection between startups and open innovation. Their analysis of 41 scholarly works reveals that implementing open innovation practices is crucial for startups to overcome "lack of experiences and credibility" and "lack of internal resources" enabling them to gain external knowledge, resources, and capabilities."

Figure 1 illustrates six fundamental pillar in modern entrepreneurship theory that Dahle et al.(2020) introduced when examining the key success factors for startups. This theory not only provides a description but also offers practical guidance, especially in the software sector, where these pillars play a vital role in minimizing waste and accelerating growth.

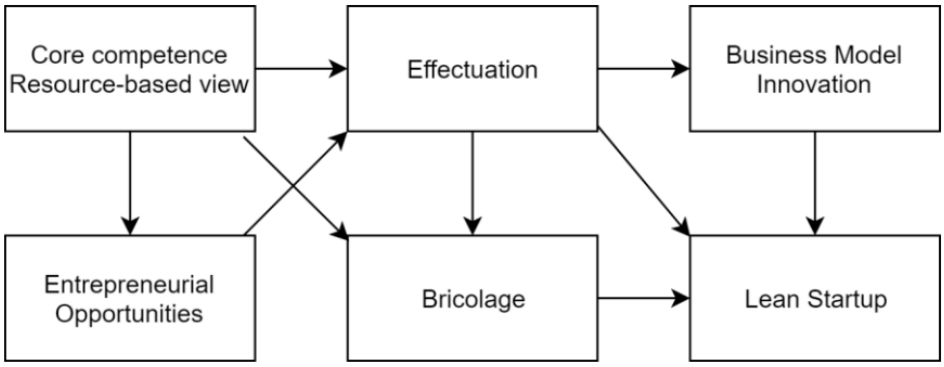


Figure1: Six fundamental pillars of modern entrepreneurship theory

Expanding on the Lean Start-up pillar, Felin et al. (2004) emphasize that these companies need to use scientific methods for hypothesis testing rather than relying on intuition. The authors proposed constructing a business model based on historical data and empirical evidence to make final decisions. As a result, the failure rate of tech startups can be reduced by up to 90%, particularly when AI is integrated in the digital era to simulate potential future scenarios.

In addition to foundational theories, the process of entrepreneurship within tourism has been thoroughly explored through classical and modern literature. Gartner et al (2004) provided a comprehensive framework for the startup journey from idea development and planning to resource mobilization, operations, and scaling. This study highlights the importance of human factors, including motivation and management skills, as well as the impact of the economic environment on the success or failure of businesses. On the other hand, Evers (2003) identifies the practical challenges startups face, including lack of management experience, legal hurdles, and fierce competition.

2.2. Startups in the era of digital transformation

The advent of the digital era has triggered a transformative shift, reshaping the entrepreneurial landscape (Perez, 2004). According to Antonizzi and Smuts (2020), startups in the digital age are defined by three essential elements. Firstly, they are multifaceted organizations that merge three forms of entrepreneurship (business, knowledge, and institutional) operating in a symbiotic manner with a diverse and ever-changing set of participants, rather than relying solely on traditional actors. Secondly, digital startups are heavily rely on digital communication tools and information technology to create and pursue entrepreneurial opportunities from speed of technological development. Lastly, they have ability to connect through digital networks, enabling user support, two-way interaction, and continuous feedback from the community for continiuous improvement.

In the digital transformation era, businesses that adopt digital processes tend to operate with greater efficiency (Ghi, Thu, Huan, & Trung, 2022). Furthermore, Chen, Lin, Chen, Chao, and Pandia (2021) have demonstrated that organizations must cultivate IT capabilities to successfully navigate the digital transformation journey.

Whereas digital transformation was once largely occurred within large enterprises, today, tech startups are experiencing an explosion of digital solutions. In the digital age, startups play a crucial role in driving innovation, economic growth, and social change (Tiwari et al., 2023)."

2.3. Tourism startups and digital technologies

Tourism can be considered a multisectoral and multistakeholder industry (Weidenfeld, 2018), which in recent years has been undergoing significant changes due to the rapid development and introduction of disruptive innovation in the digital sphere (Gursoy et al., 2022) that can bring a paradigm shift within the entire market. The industry has witnessed a rapid

increase in the number of startups, with new businesses emerging in various sectors, such as tourism services, accommodation, dining, and entertainment (Mishra & Gupta, 2020). The tourism sector is dynamic and has multifaceted networks that connect entrepreneurs and support organizations, governments, and local communities to foster entrepreneurship and innovation within the tourism industry.

Technological advancements have driven several trends that create new opportunities, prompting companies to innovate both supply and demand processes. This has, in many cases, facilitated the simultaneous production and consumption (prosumption) of tourism services, aligning more closely with consumer expectations and needs (Ammirato et al., 2022). Tourism start-ups are called upon to re-evaluate, rethink and redefine the entire sector through the development of highly innovative processes and the proposal of services reshaped from a customeroriented perspective.

As innovativeness is one of the main components of start-ups, it is not surprising that a considerable number of the articles analyzed focus on the benefits that the digitization of tourism activities can bring. Mishra and Gupta (2020) pointed out how e-commerce has enabled start-up firms to widen their customer base and provide low-cost services to grow their businesses. The potential provided by tools like mailing lists, online sales platforms, and social networks has significantly enhanced the appeal of tourism services, enabling many startups to expand their market reach and establish an international presence.

According to Aldebert et al. (2011), the application of ICT has brought significant changes to the structure of tourism start-ups, leading to the evolution of innovative activities (Greco, 2022). The development of apps is frequently discussed in the literature due to the diverse technologies they incorporate, such as geolocation and 3D renderings of tourist attractions. As Ammirato (2022) explains, apps enhance sociability, minimize risks, and provide greater consumer convenience through features like price comparison and time-saving capabilities. Filieri et al. (2021) highlighted the importance of AI in tourism, enabling the creation of personalized experiences that strengthen customer relationships and improve revenue generation.

2.4. AI in Tourism: Opportunities and Challenges

n the tourism industry, AI-driven digital tools like recommendation systems and chatbots are more likely to be adopted if tourism professionals believe they enhance productivity and customer satisfaction, while also being user-friendly and easy to integrate into existing systems (Pillai & Sivathanu, 2020; Cimbaljević et al., 2024). Similarly, travelers are more likely to adopt AI-based digital tourism services if they find them useful in enhancing their travel experience and easy to use, which is a clear route for the successful integration of AI in tourism (Yang et al., 2021).

According to Kirtil and Askun (2021), the integration of AI in the tourism industry offers significant opportunities, as it can enable growth between 7% and 11.6% of total revenue in the sector. This growth can be achieved through various AI applications. Filieri et al. (2021) focus on case studies from Europe, emphasizing practical applications such as personalized recommendation systems based on traveler behavior, 24/7 support chatbots, and machine learning-based models for predicting tourism trends. Erdős et al. (2025) provide a comprehensive overview of the rapid development of AI in tourism, with applications in smart hotels (room management optimization), augmented reality tourism, and data analytics for demand forecasting.

However, the rise of AI in tourism also brings a range of challenges. To fully harness the potential of these technologies, factors such as data complexity, algorithmic biases, financial concerns, and social ethical considerations are challenges highlighted by Samara et al. (2020) in their study. Additionally, concerns about privacy and data security, the ethical

implications of AI decision-making, and the replacement of jobs by automated systems are critical issues that require attention (Kraus et al., 2021; Lu, 2022)."

3. METHODOLOGY

This study adopts a qualitative research method with a case study design, focusing on the startup iGuide.ai. This is a platform integrating artificial intelligence in the tourism sector in Vietnam. This approach provided a detailed understanding of the formation context, implementation strategies, as well as the practical opportunities and challenges of integrating AI into tourism services. The case study method aims to explore how iGuide.ai operates through two key phases in its development, from the idea stage to the deployment of the minimum viable product (MVP). It provides provides valuable insights and lessons that can serve as a reference for other startups in the tourism industry.

To complement this, this study uses theoretical comparison (Lean Startup, Platform Business Model) to contrast the data collected from iGuide.ai with previous works on AI in tourism and tech entrepreneurship. This approach highlights the specific characteristics of the Vietnamese market and the new contributions to the startup landscape in digital era.

Furthermore, data were collected through semi-structured interviews to ensure the depth and multidimensionality of the findings. The interview guide was developed around several key thematic areas, including the context of idea formation, startup and technology development strategies, the process of launching and implementing the technology, practical challenges during deployment, and future orientations. Interviews were conducted in multiple rounds, combining both in-person and online formats. The interviewees included the Founder of iGuide.ai, Mr. Le Duc Anh, along with team members responsible for technical development, design, and platform operations. In total, six participants were interviewed: one legal expert, one tourism expert, and three technology specialists, in addition to the Founder. The in-person interviews took place at iGuide.ai's office (No. 90, Alley 89 Tu Lien, Hong Ha Ward, Hanoi), while follow-up discussions were carried out via phone and email to clarify or validate additional information. Collecting diverse perspectives from different roles within the company helped strengthen the credibility of the data and provided an authentic reflection of the AI integration process in startup operations..

4. ANALYSIS OF THE FORMATION AND DEVELOPMENT PROCESS OF IGUIDE.AI

4.1 Context and motivation for the startup

The case of iGuide.ai illustrates the emerging opportunities and inherent challenges of applying AI to the Vietnamese tourism industry, especially in the post-pandemic recovery phase of the industry. Founded in 2023, iGuide.ai is envisioned as a smart travel platform for Free and Independent Travelers (FITs), aiming to deliver personalized, seamless, and data driven travel experiences. In addition to enhancing user satisfaction, the platform also aims to contribute to efficient resource management and inclusive economic participation through a sharing economy framework, connecting travelers with local service providers.

The company's mission directly reflects the structural shortcomings in the Vietnamese tourism ecosystem, notably the fragmentation and inconsistency of information, disjointed travel itineraries, and lack of personalization mechanisms. To address these systemic gaps, iGuide.ai is designed around four interdependent pillars: An AI-driven multilingual information and recommendation engine; A digital marketplace that connects travelers with verified service providers across accommodations, dining, transportation, entertainment, and more; An automated system to support and execute personalized journeys; and Integrated logistics and support services that ensure continuity throughout the travel journey.

The concept was born from real-world observations of travelers' pain points—fragmented data ecosystems, disjointed booking processes, and limited real-time support. To address this, iGuide.ai applied AI in a modular architecture, allowing

the individual subsystems—language processing, semantic search, contextual recommendations, and service alignment—to operate independently while still collaborating within a unified framework. This modularity enhances technical scalability, cost-effectiveness, and adaptability, allowing the platform to evolve to meet both user and market dynamics.

The development of iGuide.ai is closely tied to the growth of Vietnam's tourism, which is expected to record over 100 million domestic trips and 12.6 million international arrivals by 2023. This growth is accompanied by an increasing demand for multilingual digital platforms and the growing popularity of self-guided and technology-enabled travel behavior.

In its early stages of operation, iGuide.ai encountered several limitations typical of newly established AI businesses, including over investment in technical development, high personnel costs, limited financial capacity, and underdeveloped digital infrastructure. However, in the next phase of innovation, the company made a strategic reorientation – moving from horizontal expansion to vertical optimization, with an increased focus on automation, data standardization, and market reputation.

This adaptation process generated important management insights: the risks associated with premature scaling, the need for workflow automation to enhance operational resilience, and the strategic role of an integrated AI framework in strengthening both customer engagement and organizational performance. Through this iterative evolution, iGuide.ai demonstrates how AI startups in emerging markets can turn early-stage constraints into strategic enablers, thereby establishing a solid foundation for sustainable digital transformation and service innovation in the travel sector.

4.2 Implementation Strategy

Based on the challenges identified earlier, iGuide.ai's implementation strategy focused on pragmatic and adaptive approaches to address issues of data fragmentation, service connectivity, and user personalization. Guided by the Lean Startup (Build–Measure–Learn) methodology and platform-based business model, the company prioritized depth over scale, refining core functions and validating user experiences before scaling. This depth-first approach enabled iterative improvement, ensuring that each stage of development contributed to both economic sustainability and user-centric design.

To address the widespread problem of data inconsistency in the Vietnamese tourism ecosystem, iGuide.ai has developed an industry-wide classification (taxonomy) system that leverages open data from the Vietnam National Administration of Tourism (VNAT), data collected from experts, and in-depth analysis of local service attributes such as time system (calendars), geographic information system, and related services. This classification strengthens the accuracy, consistency, and semantic interoperability of the data, thereby improving the reliability of AI-generated recommendations. By using this classification, the system and all stakeholders reduce bias and increase accessibility for both domestic and international travelers - thereby strengthening multi-service, multi-event and multi-regional inclusiveness.

In parallel, iGuide.ai has adopted a sharing economy model to strengthen cooperation with local stakeholders, including accommodation providers, transport operators, tour operators, entertainment venues and F&B businesses. Through a unified digital marketplace, iGuide.ai expands the range of available services while empowering local businesses to reach international customers. iGuide.ai also contributes to the development of sustainable community-based tourism, in line with Vietnam's long-term digital transformation goals in the tourism sector..

The implementation followed an "Experiment–Learn–Expand" cycle, progressing through structured milestones that

reflect iGuide.ai's iterative and data-informed evolution:

- **Idea Formulation (2022 – early 2023):** Conceptualizing the platform and validating the problem–solution fit.
- **MVP 0.1 – Automatic SEO Optimization:** Enhancing content discoverability and visibility through automated indexing.
- **MVP 0.2 – AI-Based Multilingual Capabilities:** Integrating neural machine translation to support eight languages (Vietnamese, English, French, German, Russian, Korean, Chinese, and Slovak).
- **MVP 0.3 – Taxonomy and Contextual Framing:** Developing a structured metadata framework for intelligent search and semantic recommendations.
- **MVP 0.4 – Information Portal Integration:** Consolidating multilingual data discovery and personalized content delivery within a single interface.
- **MVP 0.5 – Marketplace Enhancement:** Introducing the **"**one need – multiple responses" booking model, which enables users not only to connect with preferred service providers but also connect with AI-curated alternative providers that best match their preferences creating a effortless, seamless and intelligent booking experience within a unified digital ecosystem.

Throughout this process, iGuide.ai faced many challenges. Technological barriers included limited data sets, high infrastructure costs, and the need to improve the practicality of AI applications. Human resource constraints stemmed from the lack of experts skilled in both AI and tourism technology. Market challenges related to user adoption, competitive pressure from large online travel agencies (OTAs), and fragmented partnerships. In addition, legal and regulatory complexities related to business operations, e-commerce licensing, and AI governance also posed additional obstacles in Vietnam's growing digital landscape.

In the early stages, the project encountered performance constraints due to high personnel costs and lack of technical infrastructure. However, during the innovation phase, iGuide.ai implemented a strategic restructuring - focusing on depth rather than rapid expansion, automating internal processes, improving data standardization and marketing credibility. This shift has brought some important lessons for emerging AI startups: avoid premature scaling, prioritize automation to optimize operations, and enhance user experience.

Continuous improvements to the infrastructure have improved recommendation accuracy, personalization quality, and operational performance. Internal evaluations show high user satisfaction, with over 80% of respondents rating the quality of information and language support as "Good". Looking ahead, iGuide.ai aims to leverage these insights to enhance personalization capabilities, strengthen partnerships with tourism authorities, and prepare for phased expansion into the broader market.

Ultimately, iGuide.ai's implementation journey illustrates how AI startups in emerging markets can turn initial challenges into strategic assets – building a solid foundation for scalable innovation, sustainable tourism, and comprehensive digital transformation in Vietnam's tourism industry.

4.3 Analyzing the stages of development through the six core pillars of entrepreneurship as outlined by Dahle Yngve

The implementation and evolution of iGuide.ai can be comprehensively analyzed through the six core pillars of modern entrepreneurship proposed by Dahle et al. (2020), namely (1) Core Competence and the Resource-Based View (RBV),

(2) Effectuation, (3) Lean Startup, (4) Business Model Innovation, (5) Entrepreneurial Ecosystem, and (6) Social Capital. This framework provides a multidimensional lens for understanding how iGuide.ai strategically navigated uncertainty, leveraged internal capabilities, and adapted to Vietnam's dynamic tourism environment. The analysis distinguishes two major stages in the startup's journey:

1. Stage I – Experimentation and Validation (2022 – mid-2023)
2. Stage II – Innovation and Scaling (mid-2023 – present)

Each stage illustrates how theoretical principles were operationalized in practice, highlighting iGuide.ai's strengths, limitations, and adaptive learning across data, market, human resource, and regulatory challenges.

Stage 1: Experimentation and Validation (2022 – Late 2023)

The first stage of iGuide.ai's development was characterized by experimentation and validation laying the technical, conceptual, and strategic foundations for its subsequent evolution. This period focused on identifying market gaps in Vietnam's tourism sector, which suffered from service fragmentation, inconsistent data quality, and limited personalization. Drawing upon datasets from the Vietnam National Administration of Tourism (VNAT), international & local market research, the company sought to design a multilingual and AI-powered platform capable of bridging these structural deficiencies.

The initial product development followed a sequential MVP roadmap that emphasized experimentation through lean iterations. MVP 0.1 (mid-2023) introduced automated SEO optimization to enhance digital visibility on global search engines, improving discoverability and organic reach. MVP 0.2 (late 2023) expanded on this foundation by integrating multilingual support enabling iGuide.ai to serve a linguistically diverse audience across East Asia and Europe, in contrast to domestic competitors confined to bilingual (Vietnamese–English) environments. However, limitations in data accessibility, platform scalability, as well as the focus of resources on product development have limited the system's expansion in this phase in terms of both the number of regular users and the number of system participants. In this phase, the number of participants providing data to the system is a group of 10 part-time volunteers. They have provided information on more than 4,000 subjects with detailed structures of more than 11 tourism categories in Vietnam. And with this initial amount of data, the system has launched its first versions..

- ***Core Competence and the Resource-Based View (RBV)***

Within the Resource-Based View (RBV) framework, iGuide.ai focuses on developing internal technology capabilities as key strategic differentiators. During the pilot phase, the company built automated SEO optimization systems and multilingual data channels. "This is a key activity to ensure that individuals, business households, and small businesses themselves, which make up the majority of the Vietnamese tourism sector, can access and expand the market through the internet. iGuide must internally implement testing of accessibility and promotion capabilities in a systematic, automated, and easy way to ensure that service providers, which have too many arising issues in daily operations, can achieve real efficiency through using the system," said Mr. Le Duc Anh, Founder of iGuide.ai. By systematizing and automating SEO and multilingual processing, iGuide.ai has improved operational efficiency and responsiveness to global user behavior.

This infrastructure enabled global efficiency through localized intelligence. AI-driven translation tools allowed both experienced and novice travel providers to improve their visibility and performance in search systems. This approach opened doors for local tourism stakeholders, including small enterprises and individual service providers, who dominate

Vietnam’s tourism supply chain, to reach international markets more effectively.

Through automation and multilingual capabilities, iGuide.ai creates a technological bridge, connecting Vietnam's fragmented tourism services with the needs of global travelers. "This platform helps solve two fundamental and important barriers for small service providers in Vietnam: limited language skills, as well as understanding of how the world's search system works. I believe that by solving these two barriers, international customers can find a real, diverse and colorful Vietnam," Mr. Le Duc Anh noted

- ***Effectuation***

Following Sarasvathy’s (2001) theory of effectuation, iGuide.ai’s early development adopted a means-driven approach rather than a goal-driven one. With limited external funding and mature institutional support, the founding team leveraged available resources, including domain expertise, open tourism datasets, and emerging partnerships, to iteratively shape the product vision. Each minimum viable product (MVP) cycle served as a structured experiment to test hypotheses under uncertainty, prioritizing affordable loss over predictive planning or long-term forecasting.

This effective principle guides iGuide.ai’s startup journey, emphasizing adaptability, experimentation, and hands-on learning. Rather than following a rigid strategic plan, the company took a flexible, resource-driven approach. “We leveraged the expertise and partnerships available in our ecosystem to validate the problems to be solved, conceptualize the components of the big concept and create phased goals to establish and refine specific functionality for each phase,” said Le Duc Anh, Founder of iGuide.ai. This approach drove successive MVP versions, from MVP 0.1 with automated SEO optimization to MVP 0.2 with AI-powered multilingual functionality, each milestone reflects user feedback, data insights, and contextual constraints.

By focusing on problem-solution fit rather than premature scaling, and ensuring short-term goals align with the big concept, iGuide.ai has addressed the uncertainty and resource constraints common to startups in emerging markets. Collaboration with local travel experts, and early adopters has instilled a spirit of co-creation and experiential learning into the company culture. “This iterative, performance-driven approach has fueled our innovation and adaptive resilience in a volatile environment,” commented a technology expert. This framework supports sustainable, opportunity-driven growth in Vietnam’s growing digital travel ecosystem..

- ***Lean Startup***

Following the Lean Startup methodology outlined by Ries (2011), iGuide.ai adopted the Build-Measure-Learn (BML) feedback loop as a core operational philosophy during its early development. This approach focused on rapid experimentation, hypothesis testing, and data-driven learning to minimize waste and validate product-market fit in an uncertain environment. Each platform iteration served as a learning experiment, capturing user feedback, measuring performance, and guiding subsequent refinements.

From 2022 to 2023, iGuide.ai developed this approach through a series of minimum viable products (MVPs). MVP 0.1, which focused on automated SEO optimization, tested search visibility and discoverability on the platform's digital footprint. MVP 0.2, which focused on AI-based multilingual capabilities, evaluated language coverage and global user engagement. "These measurement tools helped us tune our system through real data instead of assumptions. We knew exactly what we were doing better for a specific group of travelers month by month, week by week. At the same time, we knew what the system was doing down the road day by day, hour by hour. Most importantly, we knew why we weren't

doing something," said Le Duc Anh, Founder of iGuide.ai. The Lean Startup methodology also informs iGuide.ai's resource allocation and decision-making, prioritizing incremental investment accounts based on evidence-based learning outcomes. With scale, the team focuses on iterating, analyzing feedback, and making rapid adjustments in response to data. This adaptability is critical in Vietnam's dynamic tourism sector, where changing traveler behavior and regulatory conditions require constant adjustment.

The Lean Startup approach also shaped iGuide.ai's resource allocation and decision-making, prioritizing incremental investments based on validated learning. Instead of large-scale deployments, the team focused on iterative prototyping, feedback analysis, and rapid pivots in response to data. This adaptability was critical in Vietnam's dynamic tourism sector, where shifting traveler behaviors and regulatory conditions required constant recalibration.

By embedding Lean Startup principles, iGuide.ai has built a learning-oriented culture that sees failures as opportunities to improve. "We simply have to be lean to have the opportunity to continue developing the system. Especially when we want to build an AI system in a market that is not so ready," Duc Anh commented. This iterative process strengthens the company's operational resilience and accelerates the innovation cycle, creating a foundation for continuous development in the field of AI-based tourism.

- ***Business Model Innovation***

During the Experimentation and Validation phase from 2022 to late 2023, iGuide.ai implemented Business Model Innovation (BMI) by iteratively designing minimum viable products (MVPs) to establish a scalable and defensible value logic. Rather than following a fixed strategic plan, the team used a sequential prototyping approach, with each iteration testing specific hypotheses about user value and market fit.

In mid-2023, MVP 0.1 introduced an automated SEO optimization tool to enhance the platform's global reach. This innovation addresses a key challenge in Vietnam's tourism digitalization: the limited visibility of local providers on international search networks. By applying NLP, automatically identifying keyword targets, slugs, and meta data that match the content, iGuide.ai has implemented a data-driven cross-border travel display support tool, not just a service aggregator. "This is an important tool to help local providers who have no knowledge or experience in reaching international customers through search engines. Moreover, this tool is exactly the same as their way of reaching domestic customers, without changing their daily work," said Le Duc Anh, Founder of iGuide.ai. Based on the results achieved from this improvement, MVP 0.2 at the end of 2023 has integrated multi-language integration, added content translation processes and automatic localization for the East Asian and European markets. This marks a strategic shift, transforming iGuide.ai from a locally focused information service to a globally adaptable infrastructure. The multilingual framework redefines the platform's value proposition, allowing both iGuide and participating providers to reach multinational customers.

Through these lean iterations, iGuide.ai has validated two core pillars of its business model: 1. AI-powered and automated user reach across the internet and competitive differentiation through multilingual synchronization. "Multilingual capability is not a unique capability in the tech world, but the seamless integration into one button differentiates us in connecting local providers to global markets," one tech expert commented. This phase laid the foundation for the transition to an integrated, ecosystem-driven platform, turning empirical insights into the foundation for long-term business model innovation.

- ***Entrepreneurial Ecosystem***

iGuide.ai's development relied on a bootstrap innovation model, utilizing the founders' professional and personal networks to access critical ecosystem resources, including tourism expertise, early-stage service providers, and feedback from international travelers. Without formal funding or institutional incubation, this network-driven approach fostered a self-sustaining innovation environment grounded in collaboration and iterative learning.

In Vietnam's limited AI and travel-tech infrastructure, the founding team prioritized direct networking and field collaboration for capacity building. By engaging local tourism experts, hospitality operators, and early participants in the travel value chain, iGuide.ai created a continuous feedback loop. "This allowed us to test and refine ideas under real-world conditions," said Le Duc Anh, the Founder of iGuide.ai. This approach replaced institutional incubation with on-site validation, enabling the team to observe user interactions and operational challenges directly and integrate these insights into product design and system logic.

On-site testing with foreign travelers, particularly in tourism hubs like Hanoi and Ho Chi Minh City, served as both a learning tool and a bridge between digital experimentation and market authenticity. The data and qualitative insights from these interactions informed successive MVP iterations, driving improvements in multilingual usability. "Engaging directly with travelers helped us align our platform with real user needs," noted the tourism expert.

This bottom-up entrepreneurial approach generated value through close user proximity and ongoing dialogue with practitioners, rather than top-down institutional support. By leveraging social capital within their networks, iGuide.ai overcame the structural limitations of Vietnam's emerging startup ecosystem, transforming relational trust and experiential learning into key developmental assets.

- ***Social Capital***

Social capital has supported the early growth and innovation of iGuide.ai, especially given the lack of strong institutional support for AI-based tourism projects in Vietnam. The founding team's extensive network of tourism experts, technology experts, local service providers, and connections with international travelers has created a dynamic ecosystem of knowledge sharing, collaboration, and trust.

The founders' experience in the tourism and digital services sector has facilitated connections with key local stakeholders, facilitating the recruitment of early contributors and beta users. "These relationships have helped us gain real-world insights, such as what travelers will search for in a popular dish like Pho, or what they like. While the data structure of dining locations focuses on Restaurant Brands, sometimes written in Vietnamese and misspelled, or the information is in unstructured data like a photo… As well as other challenges that small and medium-sized suppliers face, which official data or large platforms often ignore," said Le Duc Anh, Founder of iGuide.ai. This tacit knowledge has shaped the design and functionality of the platform.

In addition to collaboration, social capital has also shaped iGuide.ai's organizational culture. The startup's open, trust-based communication, actively promoted through travel talks with MBA students, has encouraged cross-disciplinary dialogue between technology experts and those working in the travel industry. "This hybrid environment combines expertise with technology. Here, I received exchanges on the limits of technology in practical application, the inharmony between current technology and operational practices in Vietnam. I also got to directly share how they could "take advantage" of our technology to solve operational problems. It was a great environment to listen and innovate," Mr. Duc Anh shared. This culture of shared purpose and mutual trust has maintained the momentum of development in the context of scarce resources.

In addition, relationships with foreign tourists and the foreign community have brought a global perspective to product design. These interactions provide direct insights into user expectations outside of Vietnam, enhancing iGuide.ai's focus on cross-cultural usability and information accessibility.

Stage 2: Innovation and Scaling (Mid-2023 – present)

The Innovation and Scaling stage represents iGuide.ai's deliberate progression from experimental validation to systemic growth. Building upon the foundational learning and resource accumulation from Stage 1, this phase focused on deepening technological sophistication, institutionalizing operational processes, and expanding ecosystem engagement. Through the development of MVPs 0.3 to 0.5, iGuide.ai transitioned from a prototype platform to an integrated ecosystem capable of delivering personalized, multilingual, and semantically structured travel services at scale.

- ***Core Competence and the Resource-Based View (RBV)***

During this phase, iGuide.ai advanced its internal competencies from basic automation and data integration to expertise in data standardization, ontology design, and AI-driven personalization. The development of the tourism taxonomy in MVP 0.3 was a pivotal investment, creating an intangible asset that improved data interoperability across Vietnam's fragmented tourism landscape. "This taxonomy gave us a unique edge in organizing and connecting diverse tourism data," said Le Duc Anh, the Founder of iGuide.ai.

By embedding semantic understanding into its recommendation and search engine, iGuide.ai built a distinctive resource, setting it apart from traditional online travel platforms reliant on static listings. The integration of multilingual content pipelines further strengthened its dynamic capabilities, enabling real-time adaptation to diverse linguistic and cultural contexts. These assets, including knowledge architecture, scalable models, and cross-domain datasets, solidified iGuide.ai's sustained competitive advantage in the travel-tech sector.

- ***Effectuation***

In this stage, iGuide.ai's effectuation approach evolved into strategic co-creation. With early proof of concept established, the team leveraged its expanding partner network to enhance product functionality and data coverage. Instead of following rigid expansion plans, they adopted a flexible, means-driven strategy, forging collaborations with content providers, regional tourism offices, and service vendors based on emerging opportunities.

For example, the "one need multiple responses" marketplace model in MVP 0.5 arose from iterative engagement with users and providers, uncovering a market need for adaptive, AI-assisted matching. "This model was a direct result of listening to our partners and users, turning their feedback into a new opportunity," noted one of the technology specialists. This effectual logic sustained iGuide.ai's entrepreneurial agility, transforming resource constraints and feedback into pathways for innovation while anchoring growth in evolving partnerships.

- ***Lean Startup Methodology***

The Lean Startup framework guided iGuide.ai's innovation management during the scaling phase. Each minimum viable product (MVP) release served as a learning checkpoint. MVP 0.3 validated the system's ability to handle and classify complex travel data. We built a classification database of over 20,000 travel destinations, travel businesses, and related activities all over Viet Nam. Validation of more than 2,000 destinations and facilities was completed for publishing on the platform. MVP 0.4 evaluated improvements in user engagement and retention after integrating a multilingual Portal. In this Portal, we were able to implement verification registration to expand the information providers on the platform.

MVP 0.5 has completed the core competencies required to perform the service booking process, as well as the ability to shorten decision-making time and contact suppliers with AI-based recommendations. "These cycles have embedded continuous learning into our core operations, allowing us to innovate in a scalable way while minimizing risk," said Le Duc Anh, Founder of iGuide.ai. Through iterative testing and refinement, iGuide.ai has established a culture of continuous learning, minimizing technological and market uncertainties and promoting sustainable innovation.

- ***Business Model Innovation (BMI)***

During the scaling phase, iGuide.ai restructured its business model, evolving from a multilingual information aggregator to an AI-powered hybrid marketplace platform. The “one demand multiple responses” model introduced a new value logic, positioning the platform as a smart intermediary, dynamically managing, comparing and connecting services, rather than just a passive connector.

This innovation delivers multi-dimensional value: users experience greater efficiency and personalization, while service providers gain enhanced visibility and algorithmic access to the marketplace. “This model has transformed the way we connect suppliers and travelers, creating an easier, faster, seamless and more tailored experience,” said Le Duc Anh, Founder of iGuide.ai. By integrating information discovery with transaction capabilities, iGuide.ai has strengthened its Direct-to-Consumer (D2C) path, fostering a more direct relationship between suppliers and travelers.

This shift marks a strategic move from product-level differentiation to platform-level innovation, opening up new revenue streams and reinforcing important network effects for long-term scalability. “Making it easy for international travelers to search, discover information about Vietnam and relevant services in their own language and transact right on the same platform with the support of AI has differentiated us in the travel tech space.” Duc Anh noted.

- ***Entrepreneurial Ecosystem***

In Stage 2, iGuide.ai’s engagement with the startup ecosystem evolved from informal, network-driven collaboration to structured ecosystem integration. The company began forming partnerships with technology firms and other startups to enhance its platform. "Collaborating with website builders and travel business management systems to link data marked a shift toward open ecosystem integration," said Le Duc Anh, the Founder of iGuide.ai. These strategic connections strengthened the platform’s legitimacy and expanded its influence within the broader travel-tech ecosystem.

- ***Social Capital***

In Phase 2, the trust-based relationships built during Phase 1 transformed into community-driven partnerships and collaborations. These connections provided access to vital resources and co-branding opportunities, crucial for scaling operations. "Working closely with local partners helped us co-create solutions that were culturally and contextually accurate," said Le Duc Anh, the Founder of iGuide.ai. This social capital also promoted collective learning, ensuring service delivery aligned with local nuances. The evolving network structure showed how strong relational ties could replace capital-heavy scaling, strengthening iGuide.ai’s resilience and adaptability in a dynamic business environment.

4.4 The Improvements of iGuide.ai

In the first phase (2022 – late 2023), iGuide.ai focused heavily on technology but faced common startup challenges. High infrastructure costs and massive hiring in the rush to launch put a strain on financial resources and hindered real growth. A weak ecosystem of local partners and customer skepticism towards AI created a significant barrier to scaling. This phase highlighted typical difficulties of startups, which prioritize technology but lack balance with market strategy,

business model and social capital.

In the second phase (early 2024 to present), iGuide.ai has shown a clear transformation, adapting and learning from past challenges. The company began to focus on data standardization and localization, developing industry classifications, and leveraging local regulatory data and live surveys to improve the accuracy of functions that directly affect users. This change not only improved the user experience but also created a competitive advantage by providing more contextual recommendations, such as tailored service recommendations based on each customer's individual preferences and context. The automation of operations further reduced costs, accelerated data processing, and improved service scalability.

Another notable change was the change in the business model. Initially, the platform could only handle a narrow range of providers, but in the second phase, the company adopted a platform business model, creating shared value for both providers and customers. The number of information providers and service providers increased rapidly, expanding coverage across the entire industry. This has strengthened the startup ecosystem, diversified the supply and enhanced the customer experience. Marketing strategies have also evolved from broad approaches to service depth efforts, building trust, emphasizing transparency, fraud prevention to enhance brand reputation.

These improvements have brought clear results: improved recommendation accuracy, a continuous increase in organic customers throughout the development period, the proportion of international users accounts for 70% of the entire system and a significant increase in both the number of countries reached as well as the number of users per country, while the operating costs have increased insignificantly. More importantly, iGuide.ai has not only overcome its initial shortcomings but also repositioned itself in the market. From a limited application, iGuide.ai has become a smart travel platform that is capable of scaling in terms of users, service types and scope. This transformation shows that startups need to focus not only on technology but also on data, business strategy, ecosystem development and social capital. These are the key pillars for long-term sustainability.

Overall, iGuide.ai’s two-phase development process offers valuable lessons: First, the success of a startup, especially an AI startup, depends not only on breakthrough technology but also on balancing technology investment with market strategy. Second, data plays a central role: from initial fragmented data, iGuide has transformed to localized and standardized data, improving accuracy and reliability. Third, building trust with customers and partners through transparency, openness, and collaboration is a viable approach. As a result, iGuide.ai has overcome the initial hurdles and entered a period of steady growth, consolidating its position as a smart travel startup, solving a specific problem and bringing value changes to both customers and providers.

5. CONCLUSIONS AND IMPLICATIONS

This study focuses on analyzing the business model and development strategy of iGuide.ai, an AI-powered tourism startup in Vietnam, with the aim of drawing valuable practical lessons for startups in the tourism industry and other digital technology sectors. The lessons are derived from real-world implementation, covering the challenges faced, the advantages leveraged, and key strategic adjustments that helped transition from failure to sustainable success.

The analysis highlights the strong connection between entrepreneurial frameworks (such as Lean Startup and Platform Business Model) and the practical application of AI. Additionally, this research contributes to previous studies on the success factors of tech startups (Santisteban & Mauricio, 2017; Choi & Kim, 2024). To provide a comprehensive and practical view, the lessons are organized into distinct categories: overall strategy, technology and data, human resources and management, market and partnerships, and legal and sustainability.

Overall Strategy

Prioritizing depth over breadth, or in other words, refining the core product before expanding, is very important, especially when a startup's resources are limited. At the beginning, deciding on a strategic approach through building modules to solve user problems or directly deploying the product in the direction of AI-Agent was a highly controversial decision within the founding team. However, through the process of approaching partner groups, experts, and volunteers, the founding team adjusted from directly deploying AI-Agent and hoping to gradually solve technological challenges to solve user problems. To a more practical and sustainable approach of choosing current practical problems that can be solved immediately, creating value immediately and continuously to maintain direct access and testing with users while maintaining systematic development of the solution requirements of a big picture. From there, the foundational technology modules (such as MVP 0.1 and 0.2) and the strategy of only reaching a small group of partners, experts and selected volunteers were implemented. In this way, iGuide.ai was able to select and quickly solve the core problems with feasible solutions, while improving personalization and standardizing data in line with the current market context. The company has overcome with the results of more than 80% of users expressing satisfaction in surveys, the number of word-of-mouth customers growing steadily and the indicators set for each stage all met or exceeded expectations.

Lessons learned: The approach using the Lean Startup framework (Bortolini et al., 2018), in which rapid hypothesis testing through the Build-Measure-Learn cycle is essential, but must be balanced with a clear target strategy and market strategy.

Technologies and datas

The importance of modular architecture and data normalization to overcome the challenges of fragmented data, especially in emerging markets like Vietnam. iGuide.ai faced difficulties due to the lack of data from most businesses in the tourism sector, difficulties in connecting with existing tourism platforms, leading to the inability to directly deploy AI capabilities, as well as build a sustainable competitive advantage. Therefore, through the standardization and modular architecture approach, company can update individual components without disrupting the entire system. Integrating data normalization allows iGuide.ai to improve consistency, quality, and enable capabilities related to data processing. Although the initial infrastructure investment cost is high, the efficiency gained from this approach has offset the cost. The "one demand - many responses" model has helped reduce booking process and improve user experience.

An important lesson from this stage is the importance of starting MVP, avoiding the temptation to create a comprehensive AI model from the beginning has allowed iGuide.ai to focus on improving product accuracy and operational efficiency. This approach supports existing research on AI in tourism (Filieri et al., 2021), which highlights the importance of big data for success, but also highlights the need to address privacy and transparency challenges to avoid ethical risks (García-Madurga & Grilló-Méndez, 2023)."

Human Resources and Management

The key lesson is to avoid scaling too quickly and instead focus on automation to reduce reliance on scarce resources. iGuide.ai initially faced high costs and slow progress due to its “trial hiring” model and a shortage of AI, NLP, and cross-disciplinary experts. By streamlining processes, eliminating redundancies, and automating tasks, the company avoided short-term hiring needs and improved efficiency. The lesson: Fostering a culture of learning from failure (Pisoni et al., 2021) and facing the core problem instead of scaling is a long-term approach with long-term benefits. This is especially important for startups in general, and AI-based automation can reduce failure rates by up to 90% (Felin et al., 2024).

Market and Partnerships

Building trust from the start is crucial to overcoming skepticism and competition from large OTAs. Initially, iGuide.ai struggled with low adoption rates due to users' familiarity with platforms like Booking and Agoda, and concerns about local products and online fraud. However, shifting to a strategy focused on supplier authentication, fraud prevention, and enhanced personalization solutions (e.g., tailored information recommendations) increased user satisfaction to 80%. Transparency and disclosure of partnership terms contributed to the creation of a differentiated platform ecosystem. Lessons learned: Educate the market on the benefits of AI through experiments, while prioritizing seamless value chains to differentiate, in line with open innovation (Spender et al., 2017) and the role of digital platforms in travel (Marino et al., 2022).

Legal and Sustainability

Early research on international regulatory frameworks is crucial to mitigate risks, especially in markets like Vietnam where regulations on AI, travel, and e-commerce are unclear. iGuide.ai faced legal challenges and implemented GDPR standards on personal data protection, which resulted in unforeseen system adjustment costs. Lessons learned: Build a flexible compliance strategy and leverage government support (e.g., venture capital funds) to reduce digital inequality (Sudaryana et al., 2024).

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