Digital Innovation Barriers: Egyptian Travel Agencies' Perspective

حواجز الابتكار الرقمي: منظور وكالات السفر المصرية

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Abstract

In light of developments that the world has been witnessing recently, such as technological advancement, cognitive acceleration, demographic changes, and a global economic recession caused by the COVID-19 pandemic, tourism businesses attempted to adopt new methods to stay up with these changes. One of these methods is digital innovation, which has become a crucial competitive factor due to its ability to enhance the performance of tourism businesses. The study's significance derives from the scarcity of studies that have focused on the obstacles of digital innovation in the tourism sector. Due to the majority of previous studies concentrated on how to apply digital innovation in the tourism business without examining the challenges that are facing the implementation. Therefore, the current study aims to examine the digital innovation barriers (technological, management, psychological, process, financial, cultural, and environmental) that may prevent tourism businesses from innovating. A quantitative approach was used to examine the most influential barriers when a travel agency intends to adopt digital innovation. This research has been based on a survey approach. This survey was conducted with Egyptian travel agencies. The data were analyzed using the Smart PLS to examine the causal relationship between digital innovation barriers and adopting innovation in travel agencies in the presence of moderator variables (business' experience and size). The findings have shown that technological, managerial, and cultural barriers are the most significant obstacles to the application of innovation in travel agencies, as well as that the size of the travel agency is the most influential moderator.

Keywords: Digital Innovation; Barriers; Egyptian Travel Agencies; Tourism.

الملخص

في ضوء التطورات التي يشهدها العالم مؤخرًا ، مثل التقدم التكنولوجي ، والتسارع المعرفي ، والتغيرات الديموغرافية ، والركود الاقتصادي العالمي الناجم عن جائحة COVID-19 ، حاولت العديد من الأعمال السياحية اعتماد أساليب جديدة لمواكبة هذه التغييرات. أحد هذه الأساليب هو الابتكار الرقمي، الذي أصبح عاملاً تنافسيًا حاسمًا نظرًا لقدرته على تعزيز أداء الأعمال السياحية. تنبع أهمية هذة الدراسة من ندرة الدراسات التي ركزت على معوقات الابتكار الرقمي في قطاع السياحة. نظرًا لأن غالبية الدراسات السابقة ركزت على كيفية تطبيق الابتكار الرقمي في مجال السياحة دون دراسة التحديات التي تواجه التنفيذ. لذلك، تهدف الدراسة الحالية إلى فحص حواجز الابتكار الرقمي (التكنولوجية ، والإدارية ، والنفسية ، والعملية ، والمالية ، والثقافية ، والبيئية) التي قد تمنع الشركات السياحية من الابتكار. تم استخدام نهج كمي لفحص أكثر الحواجز تأثيرًا عندما تنوي وكالة السفر اعتماد الابتكار الرقمي. كما أعتمد هذا البحث على نهج المسح. تم إجراء هذا الاستطلاع مع وكالات السفر المصرية. تم تحليل البيانات باستخدام برنامج Smart PLS لفحص العلاقة السببية بين حواجز الابتكار الرقمي واعتماد الابتكار في وكالات السفر في ظل وجود متغيرات معدلة (خبرة الأعمال وحجمها). أظهرت النتائج أن الحواجز التكنولوجية والإدارية والثقافية هي أهم العقبات التي تحول دون تطبيق الابتكار في وكالات السفر ، فضلاً عن أن حجم وكالة السفر هو المتغير المعدل الأكثر تأثيرًا فى النموذج المقترح.

الكلمات الدالة: الابتكار الرقمي؛ الحواجز؛ وكالات السفر المصرية؛ السياحة.

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Introduction

Over the past years, the economic sectors have been faced with a number of significant barriers and challenges, the most significant of which is the inability to achieve the highest profit margins and sales decline in light of global and regional changes (Cainelli et al., 2006; Crespi et al., 2014; Gault, 2018). As a result of the rapid demographic changes, as well as shifting customer needs and expectations, which have a direct impact on sales (Crespi et al., 2014; Richter, 2014; Kohlbacher et al., 2015). This requires the intervention of the marketing department to search for new innovative methods (Alsos et al., 2014; Carvalho & Sarkar, 2014; Hermawati et al., 2020).

Undoubtedly, technology and global economic transformations have contributed to the intensification of competition between tourism business, and achieving a continuous competitive advantage has become the main way to achieve the most important goal (Keller, 2006; Iglesias-Sánchez et al., 2019), which is sustainability (Jiménez-Zarco et al., 2011; Carvalho & Costa, 2011). The competition between tourism business has increased as a consequence of the change and transformation of society's culture, the multiplicity and changing nature of their needs and requirements (Aldebert et al., 2011; Iglesias-Sánchez et al., 2019), and their continuous search for all that is unique and innovative (Keller, 2006). Consequently, the majority of tourism business aim to increase the quality of their services by relying on innovation to meet the needs of their customers (Iglesias-Sánchez et al., 2019; Khudoyberdievich, 2020).

Innovation is expected to play a major role in creating value and boosting the performance of the tourism business (Carvalho & Costa, 2011; Iglesias-Sánchez et al., 2019; Khudoyberdievich, 2020). In order to maintain a competitive position in the tourism market, innovation has become more crucial in the tourism business for improving their operations and services, as well as for its role in facing harsh global economic conditions, especially after the spread of the Coronavirus and the beginning of the Russian-Ukrainian war (Dias et al., 2022; Edgar et al., 2022). According to Cabral (2010), innovation and sustainability have been universally recognized as the most important characteristics of business that should be provided in the twenty-first century. Therefore, the majority of destinations have adopted innovation as a main component of their development strategies (Jiménez-Zarco et al., 2011; Iglesias-Sánchez et al., 2019; Khudoyberdievich, 2020).

Innovation

In a rapidly changing environment, innovation has become essential for survival in the market, and since the survival of the business is a strategic goal, all innovations have become strategic (Keller, 2006; Jiménez-Zarco et al., 2011; Dias et al., 2022). Certainly, a business that lacks the ability to innovate in its field will encounter significant and challenging obstacles, since its competitors are continually innovating and upgrading their goods, services, and processes (Iglesias-Sánchez et al., 2019; Khudoyberdievich, 2020). There's no doubt that the advancement of technology over the last two decades has directly contributed to making innovation and creativity essential dimensions of strategy, alongside cost, quality, and flexibility (Peters & Pikkemaat, 2006; Williams & Shaw, 2011). Therefore, businesses have realized that innovation and creativity are crucial factors for achieving a competitive edge (Divisekera & Nguyen, 2018; Khudoyberdievich, 2020).

Innovation is one of the most important variables affecting a business's ability to grow and continue (Decelle, 2004; Khudoyberdievich, 2020). In light of the expansion of business in their fields and specializations, there has become a desire to provide better products or services to their customers (Hjalager & Nordin, 2011; Divisekera & Nguyen, 2018). Therefore, the researchers have considered that innovation is one of the new concepts that contribute to improving a business's performance (Marasco et al., 2018; Iglesias-Sánchez et al., 2019), regardless of whether it is a service or a good,

since both of them need innovation as a process that transforms innovative ideas into new goods and services (Jiménez-Zarco et al., 2011).

Tourism is a significant driver of innovation, whether through travel agencies' behavior (Hjalager & Nordin, 2011; Díaz-Chao et al., 2016), such as American Express's role in popularizing the use of electronic cards, which had a significant advantage in developing and facilitating tourism activity (Jiménez-Zarco et al., 2011; Yüzbaşıoğlu et al., 2014), or the tourism destination's tendency to develop tourism attractions based on innovations (Marasco et al., 2018; Mu et al., 2021).

To promote sustainable tourism development, the majority of destinations seek to create and exploit available opportunities to implement some reforms in the tourism sector (Yüzbaşıoğlu et al., 2014; Chen et al., 2021), sometimes extending to comprehensive and structural reforms, with the aim of enabling the tourism sector to achieve the best performance and contribution to the gross national product (Xie et al., 2020; Mu et al., 2021). Most travel agencies have resorted to investing in innovation to increase competitiveness (Marasco et al., 2018; Capriello & Riboldazzi, 2019), retain current customers, and attract new ones in order to stay up with global advances and trends in the tourism sector that have depended on artificial intelligence applications in their marketing strategies (Cheng & Cho, 2011; Rusu, 2016; Mu et al., 2021).

Recently, innovation has become recognized in the tourism field as an essential factor to ensure business sustainability (Marasco et al., 2018; Xue et al., 2019; Khudoyberdievich, 2020). Most businesses depend on innovation as an effective tool that enables them to compete in the market (Rusu, 2016; Pencarelli et al., 2021).

Innovation is the process of creating changes to goods, processes, and services (Cheng & Cho, 2011; Elzek et al., 2021). Innovation is often referred to as the ability to develop an idea, work, concept, approach, any method, or anything else in a better, simpler, more useful, and feasible way (Hjalager & Nordin, 2011; Capriello & Riboldazzi, 2019). Innovation has several definitions, according to Running (2000), the definition of innovation is a Latin word, "Novus" that means "*a new idea, a new method, a new device, or the process of creating something new*". While the OECD and Eurostat in 2005 have referred to innovation as "*the implementation of a new or significantly improved product (good or service), process, a new marketing method, or a new organizational method in business practice, workplace organization or external relations*" (Gault, 2018). Innovation is sometimes confused with other terms such as invention and creativity (Kadi et al., 2022).

- **Innovation and Creativity:** Many people consider that creativity is a mental trait that lets a person think outside the box and in an unconventional way. This trait often leads to innovation
- **Innovation and Invention:** Invention is defined as every new, useful, and applicable idea, which means the invention should be new and can be manufactured.

The majority of the literature indicates that innovation activities should be considered "processes" that effect all levels of the business, since innovation is not restricted to a single department (the marketing department) but involves all departments (Rusu, 2016; Capriello & Riboldazzi, 2019; Mu et al., 2021). In order to survive in the tourism market, innovation is one of the business's top priorities in all fields, without exception (Hjalager & Nordin, 2011; Elzek et al., 2021). One of the factors that increases the significance of innovation in the tourism business is competition (Elzek et al., 2021). Therefore, the importance of innovation lies in the fact that it works to achieve the following (Kadi et al., 2022):

- Enhancing interpersonal skills and social interactions through brainstorming programs.
- Improving decision-making quality in order to solve issues within the organization's departments.

- Increasing the quality of services and goods provided.
- Enhancing the economic competitiveness of the organization, stimulating and increasing sales.
- Innovation allows the organization to obtain a partial and temporary monopoly on the market.

Digital Innovation Barriers

Digital innovation is an important issue for practitioners, scholars, and policymakers, especially in tourism destinations (Adeyinka-Ojo, & Abdullah, 2019; Ivan, 2020). Digital innovation is widely described as "the recombination of digital components in a layered, modular architecture to create new value-in-use for users or potential users of a service" (Kadi et al., 2022). It is necessary to point out that the concept of digital innovation barriers is gaining wide popularity too (Dressler & Paunovic, 2019). According to Cambridge (2008), the term "barrier" refers to "anything that prevents individuals from understanding one another or from being together".

Many tourism businesses face several challenges and barriers that vary in severity and impact according to the type of barrier, their experience, and size in the market (Meijer, 2015). This reduces the business's ability to use its resources and weakens its market competitiveness (Chesbrough, 2010; Meijer, 2015). The majority of studies classified innovation barriers into seven main categories that have significant influence on a business's ability to innovate: technological, management, psychological, process, financial, cultural, and environmental (Kadi et al., 2022).
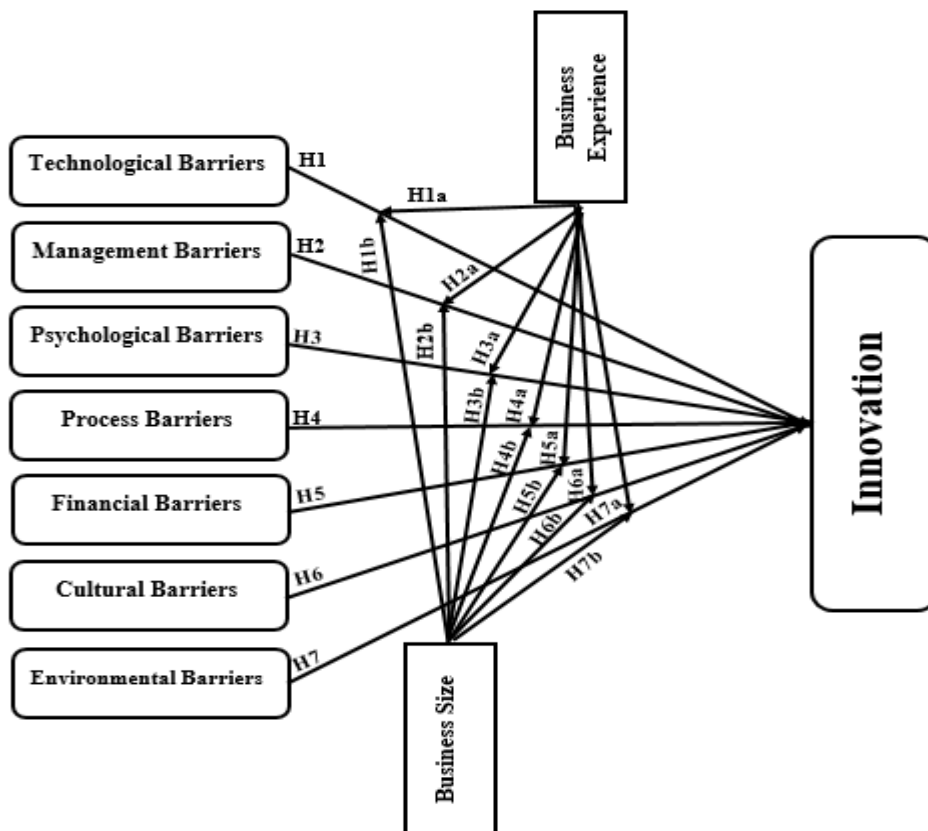

Figure 1: the Conceptual Model

Technological Barriers

The technological barrier is one of the most common obstacles faced by businesses (Kozak, 2009; Talwar et al., 2020). This happens when a business's inability to buy or operate technical equipment becomes a barrier to adopting a new idea (Fu Tsang et al., 2010; Talwar et al., 2020). This obstacle

is inherent in the tourism industry, especially in travel agencies and businesses (Kozak, 2009). Often, employees' expertise is insufficient in research and development and technology because they have not received enough technical training or because they are uninterested in learning new technologies (Talwar et al., 2020). Hence, the technological barrier has been defined as "*the business's inability to acquire and operate technical equipment owing to a shortage, absence, or difficulty in doing so, which would prevent it from adopting the new technology*" (Kadi et al., 2022).

H1: *The technological barriers variable has a positive effect on innovation in the travel agency.*
H1a: *Business experience has moderates the relationship between the technological barriers and innovation.*
H1b: *Business size has moderates the relationship between the technological barriers and innovation.*

Management Barriers

Researchers have noted a number of key indicators that signify management barriers in tourism businesses (Kozak, 2009; Talwar et al., 2020). First, there is not sufficient managerial support for innovation (Fu Tsang et al., 2010). Second, there are insufficient managers and personnel to supervise and implement innovation (Meijer, 2015). Third, technological knowledge management is not inefficient (Talwar et al., 2020). Fourth, collaboration and coordination in innovation are missing, as is a lack of managers and employees skilled at managing and implementing innovation (Kadi et al., 2022).

H2: *The management barriers variable has a positive effect on innovation in the travel agency.*
H2a: *Business experience has moderates the relationship between the management barriers and innovation.*
H2b: *Business size has moderates the relationship between the management barriers and innovation.*

Psychological Barriers

There are many psychological obstacles to applying innovation in the tourism business (Adeyinka-Ojo & Abdullah, 2019; Ivan, 2020). For example, managers do not prefer to innovate because they are afraid of increased labor expenses and decreased profitability (Kadi et al., 2022). In addition, most employees are worried about new marketing innovations (Talwar et al., 2020). Also, most employees are psychologically insecure and distrustful of digital technology (Talwar et al., 2020; Kadi et al., 2022). Psychological issues are a major impediment to innovation in the tourism industry as a whole, especially for the staff who will be in charge of implementing the innovation (Kadi et al., 2022).

H3: *The psychological barriers variable has a positive effect on innovation in the travel agency.*
H3a: *Business experience has moderates the relationship between the psychological barriers and innovation.*
H3b: *Business size has moderates the relationship between the psychological barriers and innovation.*

Process Barriers

Process barriers in travel agencies are represented by several obstacles (Adeyinka-Ojo & Abdullah, 2019; Ivan, 2020). First, innovation implementation requires time-consuming procedures (Talwar et al., 2020; Kadi et al., 2022). Second, integrating innovation is challenging within the organization (Kadi et al., 2022). Finally, innovation requires a set of procedures that are characterized by complexity and overlap among stakeholders (Kadi et al., 2022).

H4: *The process barriers variable has a positive effect on innovation in the travel agency.*
H4a: *Business experience has moderates the relationship between the process barriers and innovation.*
H4b: *Business size has moderates the relationship between the process barriers and innovation.*

Financial Barriers

Researchers have determined many significant indicators that imply financial barriers to being innovative in the tourism industry (Adeyinka-Ojo & Abdullah, 2019). Sometimes travel agencies refuse to spend large funds on innovative instruments because most employees expect a high wage when it uses innovative methods, and when there are no external partners or funders to fund innovation, the financial situation becomes more difficult (Kadi et al., 2022). Therefore, a number of studies have classified these financial barriers as either internal or external (Dressler & Paunovic, 2019). Financial barriers are shown when the travel agency cannot adopt a new idea due to a lack of money or high expenditures (Meijer, 2015; Dressler & Paunovic, 2019).

H5: *The financial Barriers variable has a positive effect on innovation in the travel agency.*
H5a: *Business experience has moderates the relationship between the financial barriers and innovation.*
H5b: *Business size has moderates the relationship between the financial barriers and innovation.*

Cultural Barriers

The researchers have determined the key obstacles that the firm may use to measure cultural barriers to innovation (Kadi et al., 2022). First, when there are anti-innovation attitudes in the workplace (Adeyinka-Ojo & Abdullah, 2019). Second, employees have an antagonistic relationship with innovation (Meijer, 2015). Third, clients have a conservative mindset and are resistant to innovative ideas (Kadi et al., 2022). Finally, there is insufficient inventive support and empowerment for innovation (Meijer, 2015; Kadi et al., 2022).

H6: *The cultural barriers variable has a positive effect on innovation in the travel agency.*
H6a: *Business experience has moderates the relationship between the cultural barriers and innovation.*
H6b: *Business size has moderates the relationship between the cultural barriers and innovation.*

Environmental Barriers

Sometimes the business climate is not conducive to innovation (Kadi et al., 2022). This occurs when there is no commercial advantage to innovation or when there is no demand for it and clients do not prefer innovative ideas (Meijer, 2015; Kadi et al., 2022).

H7: *The environmental barriers variable has a positive effect on innovation in the travel agency.*
H7a: *Business experience has moderates the relationship between the environmental barriers and innovation.*
H7b: *Business size has moderates the relationship between the environmental barriers and innovation.*

Methodology

Research Instrument

In the current study, regarding the digital innovation barriers, the digital innovation barriers have divided into seven sub dimensions, as mentioned previously. The total number of "digital innovation barriers" items was about 26 items, divided as follows:

First, the technological barriers, which consist of four items that were extracted from prior studies (Fu Tsang et al., 2010; Talwar et al., 2020; Kadi et al., 2022), second, the management barriers, which consist of four items that were quoted from prior studies (Kozak, 2009; Fu Tsang et al., 2010; Talwar et al., 2020), third, the psychological barriers, which have also been examined by using four modified items that were obtained from earlier studies (Talwar et al., 2020; Kadi et al., 2022), fourth, the process barriers, which have also been examined by using three modified items that were obtained from prior literature (Ivan, 2020; Talwar et al., 2020; Kadi et al., 2022), and fifth, the financial barriers, which consist of four items that have been adapted from many prior studies (Meijer, 2015; Adeyinka-Ojo & Abdullah, 2019; Kadi et al., 2022), Sixth, cultural barriers are composed of four items that were taken from previous studies (Meijer, 2015; Kadi et al., 2022), Seventh, environmental barriers are composed of three items that were extracted from other studies (Meijer, 2015; Kadi et al., 2022).

While the innovation construct was composed of nine items drawn from numerous previous studies that focused on innovation in travel agencies (Yüzbaşıoğlu et al., 2014; Díaz-Chao et al., 2016; Mu et al., 2021). Besides, a 3-item scale developed by Xue et al. (2019) was used to measure business experience, and a 2-item scale was used to measure business size (Yüzbaşıoğlu et al., 2014; Díaz-Chao et al., 2016; Kadi et al., 2022). As a consequence, the current study has relied on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree) to evaluate the relationship between variables.

Sampling and Data Collection
The current research has relied on a quantitative method to investigate the relationship between exogenous and endogenous constructs and examine study hypotheses. This research also utilized a survey approach by distributing both hard copies and electronic copies of the questionnaire (an online survey) to the study sample. The survey was conducted between November 15 and December 28, 2022. This survey was conducted with Egyptian travel agencies, category A. The Egyptian Travel Agents Association (ETAA) website provides a thorough listing of these agencies. According to its statistics database, which was released in 2022, Egypt has 1,278 travel agencies (Class A). According to the sample size application, the acceptable sample size is 320 travel agencies. In fact, of the 320 Egyptian travel agencies that received the questionnaire, 207 responded properly, with 113 being removed because too many questions were not answered.

Pilot test
Before carrying on to the stage of gathering actual research data, a pilot study on 34 travel agencies was undertaken to ensure the intelligibility of the questionnaire and to investigate the validity and reliability. The results of the pilot test demonstrated that the majority of the measures that were used to assess the constructs had a mean score higher than 3.0. According to the Likert scale's five-point scale, this score is above average. Nunnally (1978) stated that the study was appropriate if the reliability score for the predictors and measurement items was more than 0.60.

Data analysis
The collected data were imported into the SPSS package program, and the data were analyzed using the Smart PLS software version 3.3. The convergent and discriminant validity of each construct was investigated using partial least squares structural equation modelling (PLS-SEM) (Hair et al., 2014; Lowry & Gaskin, 2014). In order to achieve the study's objectives, PLS-SEM was used to examine the causal relationship between digital innovation barriers and innovation in travel agencies in the presence of moderator variables (business' experience and size) that have been examined using the previous literature (Chin, 1998; Ringle et al., 2015).
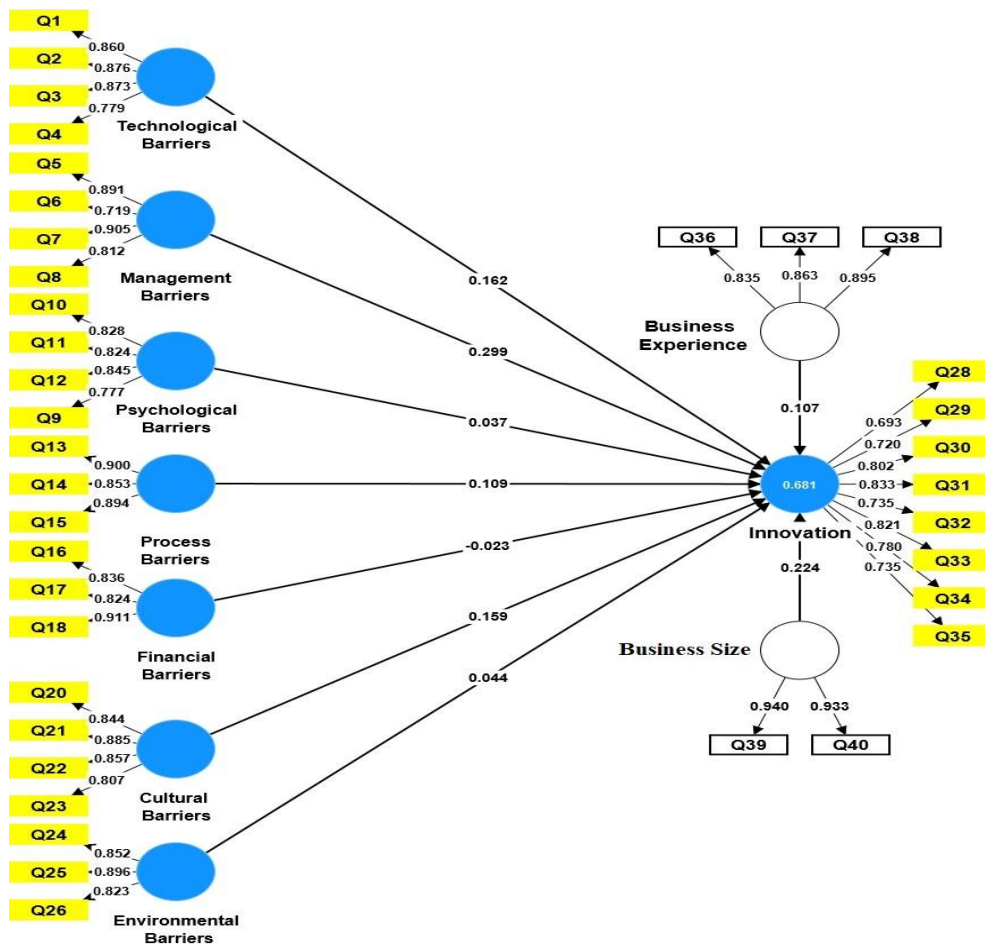
Figure 2: PLS Path Coefficient Algorithm

Findings

Model Validity

In the current study, all constructs depended on a set of measures modified which have adopted in prior studies in order to test the validity of the proposed model. In order to assess the convergent validity, it was important to validate certain structural model criteria, as shown in previous Figure 2 and following Table 1. To ensure the validity of the proposed model, Barclay et al. (1995) have confirmed that the factor loading values for each item should be more than 0.70, which implies that any items having a value less than 0.70, such as "Q19" and "Q27" in Figure 2 and following Table 1, have been removed. After deleting some items, the factor loading values for each construct have ranged between 0.703 and 0.941. Moreover, the Cronbach's alpha (α) values should be exceed 0.70 for each construct in the current proposed model (Nunnally & Bernstein, 1994). The Cronbach's Alpha values for each construct have ranged from 0.801 to 0.904. Furthermore, Fornell and Larcker have recommended that the composite reliability (CR) for all latent constructs should be more than 0.60 (1981). The composite reliability (CR) of all constructs ranged between 0.871 and 0.935. In the last phase, the Average Variance Extracted (AVE) values were investigated to assess the convergent validity of the proposed model, and all construct values were above 0.50 (Fornell and Larcker, 1981). Taking these findings into consideration, it is possible to conclude that the current proposed model has convergent validity.

Table 1: The Findings Structural Equation Model (SEM) Regarding the Proposed Model

Constructs/measured items		Convergent validity		Construct reliability			Source
		Factors loading	Results	AVE[a]	α[a]	CR[a]	
Digital Innovation Barriers							
The Technological Barrier				0.719	0.870	0.911	(Talwar et al., Kadi et al., 2020; 2022)
Q1	The firm lacks equipment, tools, and computers.	0.861	Accept				
Q2	Employees' expertise is not insufficient in research and development, and technology.	0.874	Accept				
Q3	Employees have not received enough technical training.	0.873	Accept				
Q4	The Employees are uninterested in learning new technologies.	0.781	Accept				
The Management Barrier				0.697	0.853	0.901	(Kozak, 2009; Talwar et al., 2020; Kadi et al., 2022)
Q5	Leaders recognizes employees who seek to submit innovative ideas.	0.891	Accept				
Q6	There is sufficient managerial support for innovation.	0.718	Accept				
Q7	There are insufficient managers and personnel to supervise and implement innovation.	0.905	Accept				
Q8	Collaboration and coordination in innovation are missing.	0.812	Accept				
The Psychological Barrier				0.670	0.837	0.890	(Adeyinka-Ojo & Abdullah, 2019; Ivan, 2020; Kadi et al., 2022)
Q9	Employees don't prefer change in the workplace or in their services.	0.776	Accept				
Q10	Employees are worried about new marketing innovations.	0.827	Accept				
Q11	Managers do not prefer to innovate because they are afraid of increased labor expenses and decreased profitability.	0.824	Accept				
Q12	Most employees are psychologically insecure and distrustful of digital technology.	0.846	Accept				
The Process Barrier				0.779	0.858	0.914	(Talwar et al., 2020; Kadi et al., 2022)
Q13	Within the organization, integrating innovation is challenging.	0.898	Accept				
Q14	Innovation requires a set of procedures that are characterized by complexity and overlap among stakeholders.	0.855	Accept				
Q15	Innovation implementation requires time-consuming procedures.	0.894	Accept				
The Financial Barrier				0.629	0.801	0.871	(Meijer, 2015; Dressler & Paunovic, 2019; Kadi et al., 2022).
Q16	insufficient financing for training and innovation in practice.	0.793	Accept				
Q17	firm refuses to spend large funds on innovative instruments.	0.807	Accept				
Q18	Employees might expect a high wage when firms use innovative methods.	0.865	Accept				

Q19	There are no external partners or funders to fund innovation.	0.699	delete				(Meijer, 2015; Adeyinka-Oj[...] & Abdullah, 2019; Kadi et al., 2022).
The Cultural Barrier				0.720	0.870	0.911	
Q20	Insufficient inventive support and empowerment.	0.842	Accept				
Q21	The firm has a negative attitude toward innovation.	0.884	Accept				
Q22	Employees have an antagonistic relationship with innovation.	0.858	Accept				
Q23	Clients have a conservative mindset and are resistant to innovative ideas.	0.809	Accept				
The Environmental Barrier				0.736	0.821	0.893	(Meijer, 2015; Kadi e[...] al., 2022).
Q24	There is no demand, and clients do not prefer innovative ideas.	0.851	Accept				
Q25	There is no commercial advantage to innovation.	0.897	Accept				
Q26	There are many barriers to entrance into the tourism market, as well as needs and constraints.	0.824	Accept				
Innovation				0.567	0.904	0.922	(Yüzbaşıoğlu et al., 2014; Díaz-Chao et al., 2016; Mu et al., 2021)
Q27	Your firm organizes trips based on anticipated demand from clients.	0.687	delete				
Q28	To reduce your clients' confusion, your firm is a creative imitator rather than a pioneer in innovation.	0.703	Accept				
Q29	Your firm seeks to present trips that are similar to those of other firms rather than attempting to be the first to present innovative trips.	0.727	Accept				
Q30	Adopt innovative trips from other companies rather than surprising clients with new, bold ideas.	0.812	Accept				
Q31	Your firm's strategy is to adopt current, successful trips, rather than create fresh, innovative ideas.	0.837	Accept				
Q32	Your firm seeks to impress the customer with new and daring ideas that place it ahead of competitors.	0.714	Accept				
Q33	Your firm invests in R&D to create new services and trips.	0.802	Accept				
Q34	Your firm enables customers to plan their trips based on their prior tourist experience.	0.759	Accept				
Q35	Your firm like to interact with customers to co-create value for our trips.	0.722	Accept				
Business Experience				0.748	0.831	0.899	(Xue et al., 2019)
Q36	The firm has a lengthy history in the tourist industry.	0.836	Accept				
Q37	The firm is one of the region's oldest tourism businesses.	0.862	Accept				
Q38	The firm has an excellent reputation in the tourist industry.	0.896	Accept				
Business Size				0.878	0.861	0.935	(Yüzbaşı oğlu et al., 2014;
Q39	The firm has several branches in various locations.	0.941	Accept				

Q40	In terms of employment, the firm is one of the major tourism enterprises.	0.933	Accept						

Notes: (a) Average variance extracted (AVE), Cronbach's (α), and composite reliability (CR).

The discriminant validity values of the proposed model are shown in Table 2. The table results have demonstrated that the square root of the average variance extracted from each construct is greater than all other values in the relevant row (Henseler et al., 2009; Hair et al., 2011). Based on these findings, it was emphasized that the proposed model achieved discriminant validity (Fornell & Larcker, 1981).

Table 2: Discriminant Validity Fornell–Larcker Criterion

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Business Experience (1)	**0.865**									
Cultural (2)	0.357	**0.849**								
Environmental (3)	0.500	0.587	**0.858**							
Financial (4)	0.242	0.561	0.345	**0.793**						
Business Size (5)	0.453	0.537	0.516	0.408	**0.937**					
Innovation (6)	0.514	0.602	0.543	0.497	0.647	**0.753**				
Management (7)	0.428	0.384	0.376	0.393	0.402	0.654	**0.835**			
Process (8)	0.182	0.373	0.204	0.652	0.297	0.461	0.383	**0.883**		
Psychological (9)	0.284	0.517	0.443	0.590	0.526	0.578	0.511	0.463	**0.819**	
Technological (10)	0.461	0.571	0.568	0.425	0.613	0.678	0.526	0.355	0.575	**0.848**

Note: Bold values are the square root of AVE, and off-diagonal reflects the correlation between variables.

From reviewing the literature, the Heterotrait-Monotrait ratio (HTMT) is considered another powerful criterion for evaluating the discriminant validity of the proposed model. Henseler et al. (2015) state that the Heterotrait-Monotrait ratio should be smaller than 0.90, as clarified in the following Table (3).

Table 3: Heterotrait–Monotrait Ratio (HTMT)

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Business Experience (1)										
Cultural (2)	0.422									
Environmental (3)	0.603	0.690								
Financial (4)	0.296	0.670	0.423							
Firm Size (5)	0.534	0.618	0.612	0.489						
Innovation (6)	0.589	0.676	0.623	0.582	0.733					
Management (7)	0.504	0.445	0.446	0.471	0.470	0.735				
Process (8)	0.214	0.428	0.237	0.783	0.342	0.518	0.440			
Psychological (9)	0.329	0.598	0.529	0.720	0.614	0.655	0.607	0.545		
Technological (10)	0.537	0.645	0.666	0.501	0.706	0.748	0.601	0.397	0.662	

Hypothesis Tests

Notably, the validity of the proposed model is also tested by examining the strength of the path coefficients between constructs and the percentage of variance that has previously been discussed (Hair et al., 2014). It is worth noting that partial least squares structural equation modelling (PLS-SEM) does not need an overall goodness-of-fit index like structural equation modelling (SEM) by Amos. As illustrated in Table 4, The empirical results have shown that hypotheses H1, H2, and H6 have been accepted, while hypotheses H3, H4, H5, and H7 have been rejected.

Table 4: Outcome of Structural Model Examination

H	Paths	β Values	T Values	P Values	Decision
H1	Technological Barriers -> Innovation***	0.254	4.050	0.000	Supported
H2	Management Barriers -> Innovation***	0.335	5.523	0.000	Supported
H3	Psychological Barriers -> Innovation NS	0.065	1.005	0.315	Unsupported
H4	Process Barriers -> Innovation NS	0.107	1.567	0.117	Unsupported
H5	Financial Barriers -> Innovation NS	-0.021	0.280	0.780	Unsupported
H6	Cultural Barriers -> Innovation**	0.193	2.796	0.005	Supported
H7	Environmental Barriers -> Innovation NS	0.116	1.867	0.062	Unsupported

Notes: ***$p < 0.001$, **$p < 0.01$, (*) $p < 0.05$, NS not significant.

The findings have clarified that technological barriers (H1) ß = 0.254, t = 4.050, p < 0.000, management barriers (H2) ß = 0.335, t = 5.523, p < 0.000, and cultural barriers (H6) ß = 0.193, t = 2.796, p < 0.005, have positively influenced innovation in the travel agencies. Hence, the H1, H2, and H6 hypotheses have been accepted. On the other hand, the psychological barriers (H3) ß = 0.065, t = 1.005, p < 0.315, process barriers (H4) ß = 0.107, t = 1.567, p < 0.117, financial barriers (H5) ß = -0.021, t = 0.280, p < 0.780, and environmental barriers (H7) ß = 0.116, t = 1.867, p < 0.062 have negatively influenced innovation in the travel agencies. Therefore, the H3, H4, H5, and H7 hypotheses have been rejected.

Moderation Effect

The bootstrap method was used to examine the moderating effects of digital innovation barriers. Table 5 and Figure 3 illustrate the influence of each digital innovation barrier as a moderate variable on the relationship between exogenous variables that are represented by digital innovation barriers (technological, managerial, psychological, process, financial, cultural, and environmental barriers) and innovation the travel agencies as an endogenous variable.

Table 5: Moderate Effects (Business Size)

Hypothesis	Standardized coefficients (beta)	T-Value (bootstrapping)
H1b: Technological Barriers -> Innovation	-0.016	0.232 NS
H2b: Management Barriers -> Innovation	0.003	0.043 NS
H3b: Psychological Barriers -> Innovation	0.108	1.426 NS
H4b: Process Barriers -> Innovation	-0.031	0.391 NS
H5b: Financial Barriers -> Innovation	0.046	0.563 NS
H6b: Cultural Barriers -> Innovation	-0.059	0.741 NS
H7b: Environmental Barriers -> Innovation	-0.114	2.216 *

Level of significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

According to the table findings, it has been determined that business size has a significant effect on the relationship between environmental barriers as an exogenous variable and the innovation in travel agencies as an endogenous variable (ß = - 0.114, p < 0.10). Hence, the hypothesis H7b has been accepted.
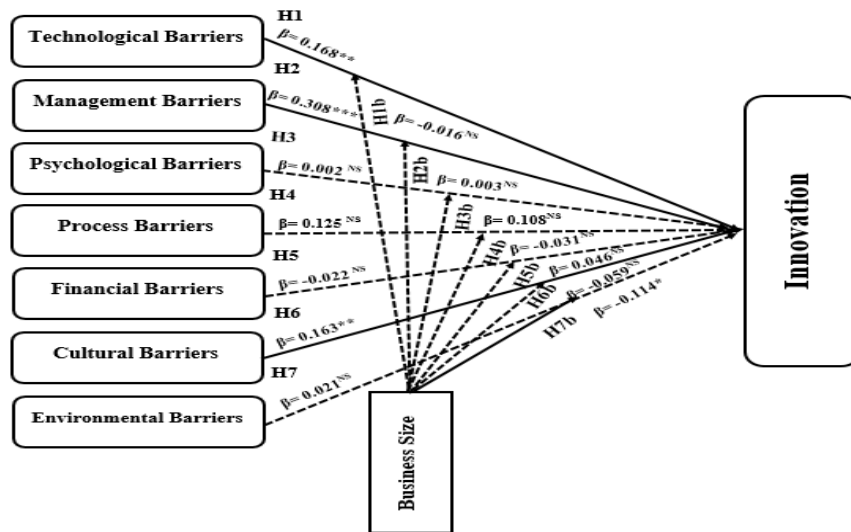
Figure 3: Business Size as Moderate Variable

On the contrary, study findings revealed that business experience as a moderator variable has no significant effect on the relationship between all digital innovation barriers as exogenous variables and the innovation in travel agencies as an endogenous variable. Hence, the hypotheses H1b, H2b, H3b, H4b, H5b, H6b, and H7b have been rejected. As shown in the following table (6) and figure (4).

Table 6: Moderate Effects (Business Experience)

Hypothesis	Standardized coefficients (beta)	T-Value (bootstrapping)
H1a: Technological Barriers -> Innovation	0.007	0.102 [NS]
H2a: Management Barriers -> Innovation	- 0.011	0.171 [NS]
H3a: Psychological Barriers -> Innovation	- 0.011	0.134 [NS]
H4a: Process Barriers -> Innovation	0.072	1.145 [NS]
H5a: Financial Barriers -> Innovation	0.035	0.506 [NS]
H6a: Cultural Barriers -> Innovation	- 0.062	0.804 [NS]
H7a: Environmental Barriers -> Innovation	- 0.018	0.244 [NS]

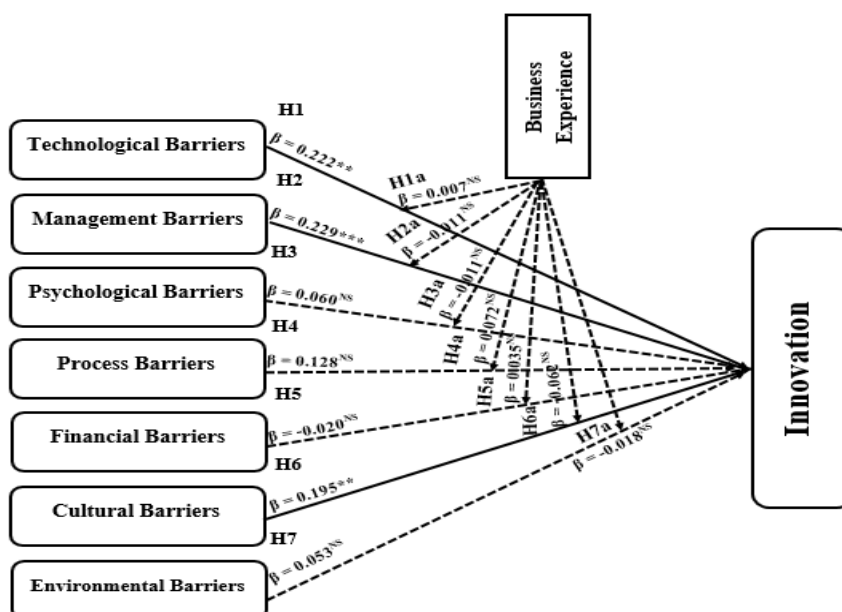**Level of significance: *** p < 0.01; ** p < 0.05; * p < 0.10.**

Figure 4: Business Experience as Moderate variable

Conclusion

Recently, digital innovation has become one of the most important new issues affecting the tourism sector. As a result, this study has focused on examining the barriers that prevent the application of digital innovation to the tourism industry, particularly travel agencies. Because of the disparity in size and experience among travel agencies, this study has focused on the moderating role of business experience and size in affecting the relationship between digital innovation barriers and innovation in travel agencies. This study was carried out on a sample of Egyptian travel agencies. According to Dias et al. (2022), the studies on innovation barriers are insufficient, and additional new studies are essential in this field.

According to the qualitative and quantitative studies that have been conducted by Hjalager and Nordin (2011) and Divisekera and Nguyen (2018), innovation is the most discussed topic in tourism business research. In this study, besides innovation, the innovation barriers that most affect the application of innovation in travel agencies in light of their size and experience have also been examined. Based on the study results, digital innovation barriers may prevent the adoption of innovative ideas in travel agencies. This outcome is consistent with the findings of other studies that have been published (Meijer, 2015; Dressler & Paunovic, 2019; Kadi et al., 2022). Despite the fact that there are studies on the influence of innovation on travel agency performance, a study examining the obstacles of innovation and the moderator effect of travel agency experience and size in the relationship between these variables has yet to be found.

The findings of this study have shown that technological ($\beta = 0.254$, $t = 4.050$, $p < 0.000$), managerial ($\beta = 0.335$, $t = 5.523$, $p < 0.000$), and cultural barriers ($\beta = 0.193$, $t = 2.796$, $p < 0.005$) are the most significant obstacles to the application of innovation in travel agencies. As previously stated, the size of the travel agency has a significant effect on the relationship between environmental barriers as an exogenous variable and travel agency innovation as an endogenous variable ($\beta = -0.114$, $p < 0.10$). The study findings, on the other hand, revealed that travel agency experience, as a moderator variable, has no significant effect on the relationship between all digital innovation barriers and applying innovation in travel agencies.

Discussion

The purpose of this research was to investigate the relationships between several constructs in the proposed model that are critical for implementing digital innovation in travel agencies. The study data provides some theoretical and practical implications for travel agency management and academics doing literary research on innovation issues.

Theoretical Implications

Today, understanding and applying digital innovation is essential for all tourism businesses in order to survive in the competitive climate that tourism destinations face. Digital innovation has a critical role in the travel agency selection process and is highly essential for the tourism business. Due to the fact that the tourism businesses' services are becoming more identical, as well as service substitution is becoming easier, with the rise in competition, digital innovation has become a potent and preferred marketing tool for tourism enterprises. Hence, tourism researchers have become more aware of how important digital innovation is for tourism businesses.

Using a structural equation model, this study investigates the relationship between the effect of digital innovation barriers on applying innovation in travel agencies and the moderator role of travel agency experience and size. As a result of the previous literature review, the study hypotheses that were created on the proposed model have been reached.

The analytical findings demonstrated that the factor loadings of constructs and interactions were appropriate for the structural proposed model. This research scale might be used in future studies. Moreover, the findings revealed that technological, managerial, and cultural barriers have a major influence on the adoption of innovation in travel agencies. This conclusion clearly matches the previous literature (Chesbrough, 2010; Meijer, 2015; Adeyinka-Ojo, & Abdullah, 2019; Ivan, 2020). On the other hand, psychological, process, financial, and environmental barriers have negatively influenced innovation in travel agencies. In terms of these findings, the study results differ from earlier literature.

Practical Implications

In terms of results, the study provides a road map for tourism businesses in this industry. Managers of travel agencies should look for ways to enhance their market position and boost sales. Within travel agencies, integrating innovation is easy. Therefore, travel agencies should have employees that have enough experience in research and development, and technology, as well as receiving enough technical training and learning new technologies.

Travel agencies should have sufficient managers and employees to supervise and implement innovation. Additionally, managers should also support employees who seek to submit innovative ideas. To activate the digital innovation in the travel agencies by effective way, must invest in R&D to create new services and trips, enable customers to plan their trips based on their prior tourist experience, and interact with customers to co-create value for our trips. Travel agencies should have a positive attitude toward innovation and be willing to spend large amounts of money on innovation instruments or get help from external partners or funders to fund innovation. Furthermore, employees should accept change in the workplace or in their services and not be worried about new innovations, feel psychologically secure and trusting of digital technology, and not have an antagonistic relationship with innovation.

Limitation and Recommendations for Future

The present research focuses only on the Egyptian travel agency's (class A) perspective or attitudes regarding digital innovation barriers (technological, management, psychological, process, financial, cultural, and environmental barriers) that could prevent it from embracing innovation.

In future studies, whether the digital innovation barriers differ according to other variables can be assessed (e.g. law and regulations, government facilities, and management methods). Furthermore, in future research, other moderators might be included in the proposed model to impact the relationship between digital innovation barriers and embracing innovation in travel agencies. Furthermore, the rules and regulations of Egyptian travel agencies might function as a moderator among the other factors. In addition to this, more extensive assessments may be done by research using qualitative or mixed approaches (quantitative and qualitative).

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