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Exploring the Organizational Antecedents of Gamification Adoption in the Tourism and Hospitality Sectors: Innovation Culture as a Moderator

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Abstract

This study investigates the role of perceived usefulness, ease of implementation, organizational readiness, and perceived strategic value in gamification adoption in the tourism and hospitality sectors in Egypt. In addition, it explores if innovation culture moderates these relationships. The study addresses the limited understanding of how innovation culture influences the adoption of gamification in organizations. While these factors have been linked to gamification adoption, the moderating effect of innovation culture remains underexplored practically. The findings provide insights into how an innovation culture can strengthen or weaken the impact of these factors. Hence, a conceptual model was developed and tested using Partial Least Squares Structural Equation Modeling (PLS-SEM 4) to analyze the proposed model. A pilot study was conducted to test the units of measurement instruments and refine the model before the main data collection. The data was collected by questionnaire from a sample of managers who work in 4-star and 5-star hotels, as well as travel agencies category A in Egypt. All direct effect of the main four factors influence significantly gamification adoption. Regarding to the moderation effects, the role of innovation culture was partially confirmed. Accordingly, the effect of ease of implementation on gamification adoption is significant and independent from the innovation culture level. Theoretically, the study explains how innovation culture can strengthen or weaken the effects of factors influencing gamification adoption. Practically, it offers guidance for organizations on creating a supportive culture to successfully implement gamification.

1. Introduction

According to the available body of literature, gamification has been seriously promulgated in the modern tourism and hospitality industry, as the increased technological adoption dominates it (Elgarhy et al., 2024). Worimegbe et al. (2020) asserted that hospitality organizations can develop a high-quality customer experience with the help of gamification and maintain competitive differentiation in the long term. The use of games as a medium has thus been identified as an eminent driver of tourism demand, where gamification is a new promotion tool and can fit with computerized forms (Nurrahmania & Grahita, 2021). In this academic debate, gamification is promoted as one of the most important marketing strategies,

which can differentiate firms in tourism markets and regulate customer behaviors (Torres et al., 2022).

Buhalis et al. (2019) provided empirical evidence that gamification can be viewed as a positive intervention to enhance tourist interpersonal relationships, improve human resource management, and enhance local community sustainability support. Moreover, Abou-Shouk and Soliman (2021) included gamification among technological advances likely to enhance customer satisfaction and involvement in customer relations in the prospective period. As such, gamification has dominated the modern-day business and management discourse because it shapes customer behavior and internal organizational processes. Using the practice of incorporating game functions in retail or shopping spaces, marketers enhance the customer experience in online spheres and contribute to the increased engagement, retention, and user involvement (Misara et al., 2025). By incorporating key game elements (e.g., mechanics, designs, and incentive structures), organizations can provide specific ways of influencing employee behaviors and achieve their performance through internal activities (competence or enjoyment) and external (leaderboards or rewards) motivational paths (Misara et al., 2025).

Theoretical models have Bravo been proposed to explain the gamification mechanisms of expected changes in user behaviors toward new innovations. Self-determination theory (Gimenez-Fernandez, 2021) and flow theory (Breuer & Ivanov, 2020) are the most quoted, whereas other explanatory paradigms are less developed. Examining the existing literature, Patrício et al. (2018) showed that gamification can enhance tourism innovation by focusing on the conceptualization and early development stages without a specific focus on open innovation. Hence, this paper brings pertinent gamification practices, particularly co-creation with customers, which might benefit open innovation settings. Gamification has become an innovative tool in the hospitality and tourism industry, enabling organizational interaction, customer contact, and digital transformation practices. However, its adoption depends on whether actors identify with interventions as something congruent with strategic and organizational capacities. In support of this position, Deterding et al. (2022) believed that gamification adoption will be easier when said users recognize its usefulness in improving task performance or user experiences.

Technological preparedness, including technological infrastructure, leadership, and employee competence, is a condition that forms the basis for the successful implementation of gamification. Similarly, Zada et al. (2022) argued that the handiest technologies cannot gain adoption in organizations that are not ready or have inadequate capabilities to support them. Schmidt et al (2023) also pointed out that an organizational strategic vision that fits into a vision of gamification stands a chance of having managerial and financial backing. Demographic, technological, and geographical changes and rapid technological advances evidence the need to consider the aforementioned development and include new approaches. This immense growth of gamification in different businesses is an item that should attract scholars' attention to its effects on tourism and hospitality settings. Despite the vast empirical research on the effects of gamification in education, health, marketing, and finance contexts, little effort has been focused on the effects of gamification on microfinancing spheres (Liu et al, 2024).

This paper closes this gap in tourism marketing discourses, where the empirical study of innovative technologies (i.e., gamification) effects on marketing efficiency is identified as problematic. Therefore, this paper's goals will comprise an assessment of the organizational and technological factors that influence managerial willingness to employ the practice of gamification in the tourism and hospitality settings in Egypt. This paper is more precise in that the research questions focus on what role perceived usefulness, ease of implementation,

organizational readiness, and perceived strategic value play in adoption decisions, and whether innovation culture moderates these relations to help better understand how the internal culture can facilitate or stall gamification adoption processes in tourism and hotel organizations.

2. Literature review and hypotheses development

2.1. Gamification in tourism and hospitality settings

Xu et al (2014) provided practical examples of tourism gamification in their paper. First, location-powered apps are enhanced with AR-driven tools to enhance tourist communication. Second, destination management organizations will utilize narrative practices to arouse interest in visitors towards unique destinations. Third, hotel and restaurant outlet operators use gaming mechanisms to make it easier to retain customers by issuing coupons or free meals. Fourth, airlines utilize gamified loyalty programs to improve their passenger loyalty levels. All these efforts illustrate the potential of game elements in attracting customers, engaging co-creation, and reforming purchasing behaviors and loyalty. Buhalis et al. (2019) also proved that gamification may encourage visitors to travel to heritage destinations and lead to sustainable tourism practice. It can therefore improve visitor experiences. At the same time, this contributes to sustainability goals by incorporating game elements. When gamified systems are characterized by tangible awards (i.e., discounts and free tickets), they motivate people to engage and develop enthusiasm, enhancing tourism sustainability (Singh et al., 2025).

2.2. Conceptualizing gamification

Gamification describes applying game design, user qualities, and concepts to stimulate and interest people to engage in non-gaming contexts (Mazarakis et al., 2023). It has been applied in business, governmental, healthcare, and education departments. Kim (2018) pointed out that one of the definitions of gameful design is sometimes observing, borrowing, and adapting game design elements and techniques to non-game contexts. Another meaning of gamification is employing game-thinking and game mechanics to interact with audiences (Alsawaier, 2018). Gamification defines non-gaming app enhancement by adding gaming features and developing games as independent apps. A practical example of gamification in the real world is credit-card reward systems, where individual users earn points each time they operate and turn these points into presents or credit. These reward systems demonstrate practical, real-life gamification implementations (Saleem et al., 2022).

2.3. Perceived usefulness and gamification adoption

Perceived usefulness, introduced by Davis (1989), alludes to individuals' performance enhancement by a particular system or application. When it is used concerning gaming applications, users are more likely to accept an application if they see its utility and usefulness in their leisure interest in gaming. Such utility evaluation influences how users' rate app value and utility in helping them meet games' objectives or enjoying their use (Isa et al., 2024). A strong positive relationship between perceived usefulness and behavioral inclination implies that when users perceive the usefulness of such an application in their gaming, they are likely to adopt it and want to repeat the use. Besides, perceived usefulness has decisive power on technology adoption in multiple fields, and it determines users' tendencies to utilize applications, as shown in gamification tools and mobile technology studies (Yoo et al., 2017; Jun et al, 2020). Users' overall perceptions of technological advantages include what is referred to as perceived usefulness, which incorporates related features, including entertainment, economy, utility, and social benefits in gamified contexts (Liu et al., 2024). Prior researchers proved the positive relationship between perceived

benefit and behavioral intentions (Kanwal et al., 2020; Zhang et al., 2022). De Kerviler et al. (2016) determined that perceived benefit, convenience, and pleasure positively foretell the utilization of mobile payment. Hence, this paper proposes that:

H1: *Perceived usefulness positively affects managers' intention to adopt gamification in hospitality and tourism organizations.*

2.4. Perceived Ease of implementation and gamification adoption

Venkatesh et al. (2003) explained the concept of perceived ease of use as the measure of ease in using the system. The intuitiveness of technology and customer satisfaction with a shopping experience online are also imperative in predicting future online purchases, which are intended to be made in the future (Luo, 2023). The software systems that seemed straightforward and uncomplicated to use and comprehend were considered more useful to the user (Rodrigues et al, 2016). Therefore, the outcome of the employed system was dependent on the ease of use of the system. Evaluating the connection between behavioral intention to use a gaming app and perceived ease of use is the key factor that can help identify the nature of user adoption. The second motivation, noted by Davis (1989), is ease of use; this is how users believe using a given technology is easy and does not cause unwanted complications (Liu et al., 2024). In gaming apps, users who perceive their app as user-friendly and not hard to handle will express a higher behavioral intention to use apps (Roslan et al, 2021). The correlation between perceived ease of use and behavioral intention is also positive and substantial, which means that users who more easily discover gaming apps to be simple to use are those users who are more willing and likely to proceed with using gaming apps and are more willing to use them. Thus, this highlights the essence of having user-friendly designs and simple interactions as essential factors in deciding whether to download and use game apps (Lin, 2022). Hence, this paper proposes that:

H2: *Perceived ease of implementation positively affects managers' intention to adopt gamification in hospitality and tourism organizations.*

2.5. Organizational readiness and gamification adoption

Organizational readiness is characterized by technical support, training, and persistence help, allowing users to adapt to and gain proficiency in new technologies (Venkatesh et al., 2003). Facilitating conditions influence the ease of use of new technological solutions perceived. They are imperative to firms' effective adoption and sustainability of AI chatbots. Thus, adequate training and support should enhance willingness to engage and normalize the learning curve that typifies technology usage. In implementing new technologies, hotel and tourism organizations must ensure that possible customers get exposed to the enabling environment to develop a positive attitude towards new technologies and get them vested in them (Urbani et al., 2024). These facilitating conditions significantly impact technology acceptance (Chatterjee et al., 2023). In this regard, the latest AI technologies rely on combining the existing technological infrastructure with the new solution they are presented with, and ease of integration with this infrastructure. Hence, managers must consider such contextual variables as user perceptions and cultural norms. To successfully integrate gamification in heterogeneous environments and be accepted, managerial tactics have to orchestrate a wide range of enabling circumstances. This integrative approach deals not only with technical and structural preparedness but also with the complex social and psychological factors that support the acceptance of technology and its effectiveness (Septiawan et al., 2023). Therefore, this paper proposes that:

H3: *Organizational readiness positively affects managers' intention to adopt gamification in hospitality and tourism organizations.*

2.6. Perceived strategic value and gamification adoption

Perceived value refers to the subjective evaluation of benefits received from products or services and is closely connected with how customers evaluate their characteristics (Chiu et al., 2014). Perceived value has emerged as a significant evaluation method of services and tourism inquiry (Naqvi et al., 2021). In turn, Torres et al. (2022) defined several types of perceived values of gamification based on users' motivation, which include utilitarian, hedonic, and social ones. Utilitarian, hedonic, and social values reflect usefulness and ease of use, entertainment and playing around, and receiving and making impacts on others, respectively, and exemplify how customers may perceive multi-dimensional value in their interaction with others (Abd Elmaksoud et al, 2024). The essential chapters of gamification include rewards, increased user engagement, enabling interpersonal communication between online users, inspiring the exchange of ideas, and social interactions among individuals (Yu & Huang, 2022). Whereas utilitarian value is more objective than hedonic value, the latter is described as subjective in the sense that it encompasses delight, pleasure, thrills, sensory arousal, and entertainment brought about by or through game play (Abd Elmaksoud et al, 2024). This kind of experience is valued on its merit; customers can play games simply because they are fun, regardless of the consequences of such experiences (Wolf, 2019). Hence, this paper proposes that:

H4: *Perceived strategic value positively affects managers' intention to adopt gamification in hospitality and tourism organizations.*

2.7. Perceived usefulness, innovation culture and gamification adoption

According to recent empirical studies, innovation culture significantly moderates the relationship between perceived usefulness and gamification usage intentions in organizational practices, focusing on the dynamic services like the hotel and tourism sector (Khan et al., 2024). Organizations with cultures that reward experiments, training, and innovation allow employees to change their evaluation of technological usefulness into use behaviors. On the other hand, environments with which such a culture is not associated can produce significant opposition to tools that can bring quite helpful value. Schmidt et al. (2023) indicated that perceived usefulness substantially impacts intending behavior when subjected to innovation-supportive environments in digital transformation initiatives. In turn, Luo. (2023) stated that organizational readiness to innovate has a strong, positive effect on using gamified systems in hospitals.

Besides, Khan et al. (2021) stated that innovation culture promotes technological readiness and increases the efficacy of gamified engagement techniques at high rates of perceived usefulness. Thus, innovation culture is a keystone moderating element and success factor in using gamification to realize digital transformation. Simultaneously, Huang and Zhang (2024) presented that gamification adoption intentions become particularly high when perceived usefulness and innovation culture are present in hospitality settings. Digital transformation studies in the hospitality industry on larger scales between the last two highlighted that such organizations with innovation-based organizational cultures are an influential facilitator of the digital transformation in terms of promoting perceived usefulness transformation to real usage. Therefore, previous arguments confirm that a positive workplace culture in which innovation is appreciated is one of the key factors that enhance the effects of perceived usefulness in anticipating intentions to use gamification. Hence, this paper assumes that:

H5: *Innovation culture moderates the relationship between perceived usefulness and gamification adoption intention.*

2.8. perceived ease of implementation, innovation culture and gamification adoption

According to Luo (2023), having an innovation-supportive culture, which is characterized by openness to change, support of experiments, and stimulation of creative thinking, makes employees exhibit an increased willingness to follow their perception of the facilitation of implementation when considering using gamification. Gimenez-Fernandez et al. (2021) proved that innovation-supportive environments significantly strengthen the effects of perceived ease of implementation on gamification adoption in service organizations. According to Khan et al. (2024), innovation culture strengthens the linkage between perceived usefulness and the inclination of hotel employees to be involved in gamified systems with proactive leadership. In addition, a bibliometric review conducted by Schnell et al. (2022) highlighted that innovation-related organizational values are essential in transforming perceived advantages of digital instruments into real intentions to adopt those tools. Hence, these results support the idea that innovation culture can be a moderator that moderates the relationship between the perceived ease of gamification adoption intentions in tourism and hospitality settings and strengthens or reduces it. Hence, this paper assumes that:

H6: *Innovation culture moderates the relationship between perceived ease of implementation and gamification adoption intention.*

2.9.Organizational readiness, innovation culture and gamification adoption

The body of recent literature has shown that the pivotal role of innovation culture as a moderator of the interactions between organizational readiness and intentions to adopt gamification is relevant in hospitality settings (Gimenez-Fernandez et al, 2021). The extent of organizational readiness (e.g., technological infrastructure notion, leadership facilitation, and employee readiness) has been considered a significant technology adoption predictor. However, how readiness is converted to actual organizational adoption behavior depends mainly on the prevailing organizational culture. Hence, Khan et al. (2024) found that the hospitality settings characterized by an innovation-oriented culture enhanced the impact of readiness states on acceptance of innovated gamified apps; an innovation-oriented culture increases experimentation and suppresses reluctance to change. Luo (2023) found that supportive innovation environments in service industries enhanced the association between structural preparedness and the intention to adopt digital engagement tools. Therefore, these arguments reaffirmed that innovation culture as a decisive moderator strengthens the effect of organizational readiness on adopting gamification intentions. Thus, this paper argues that:

H7: *Innovation culture moderates the relationship between organizational readiness and gamification adoption intention.*

2.10. Perceived strategic value, innovation culture and gamification adoption

Perceived strategic value refers to the degree to which the management in an organization perceives that technologies are beneficial to its long-term competitive advantage, operational efficiency, or market differentiation. However, these perceptions do result in adoption unless organizational culture accommodates innovation. Khan et al. (2024) explained that hospitality community cultures around innovation enhance the strategic drivers' effect on customer attitudes toward gamification adoption. These results are also confirmed by Schmidt et al (2023), who stated that the importance of innovation culture is to enhance how the perceived business value influences behavioral intentions of adopting digital tools. Prior studies have confirmed that innovation culture is a moderator since it strengthens the correlation between perceptions of strategic value and gamification system adoption intentions. Hence, perceived strategic value remains a vital antecedent in adoption.

However, the existing literature recommends that no distinct relationship can be as strong until organizations promote an innovative environment where a flexible and experimentation-oriented culture that employs creativity in solving problems is encouraged. Regarding cultural support around change and transformational values, Alshammari et al. (2024) believe this will be a key driver of strategic digital endeavors. The analysis shows that the perceived strategic importance of such initiatives cannot lead to their adoption without a well-built innovation culture. Similarly, Cao et al. (2025) documented firms with adhocracy or innovation-driven culture in dynamic service settings have better digital transformation potentialities and produce stronger product innovation outputs. Accordingly, this paper assumes that:

H8: *Innovation culture moderates the relationship between perceived strategic value and gamification adoption intention.*

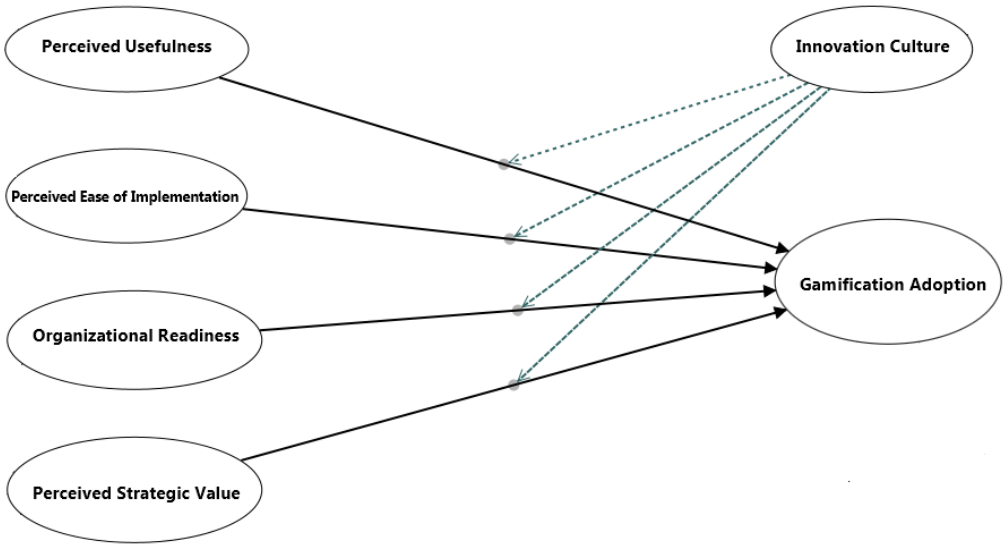

Fig. (1) Structural model

Source: Prepared by authors

3. Methodology

3.1. Research design

The study adopts a quantitative approach to investigate the factors that influence of gamification adoption in the tourism and hospitality industry in Egypt. The study uses a descriptive strategy to examine the roles of gamification perceived usefulness, ease of implementation, organizational readiness, and perceived strategic value in shaping gamification adoption decisions. Furthermore, the study discovers whether innovation culture moderates these relationships.

A deductive approach was used, starting from theoretical background and hypotheses based on previous literature to practical testing through a structured questionnaire. This approach is suitable for studies aimed to analyze cause-effect relationships.

3.2. Population and Sampling

The target population of this study contains managers who work in 4-star and 5-star hotels, as well as travel agencies category A in Egypt. These two segments of the tourism and hospitality sector were firmly selected due to their high levels of operational complexity, technological infrastructure, and financial capabilities, which make them more suitable for adopting advanced strategies such as gamification.

In addition, the study focuses on managerial-level respondents because of their direct involvement in decision-making processes related to service development, marketing innovation, customer experience, and digital transformation. Their visions are therefore vital to understand organizational readiness and strategic intention toward gamification adoption.

Hence, total population consists of 1,378 entities, including 1,222 Category A travel agencies (Egyptian Travel Agents Association ETAA, 2024) and 156 four and five-star hotels located in Cairo (Egyptian Hotel Association EHA, 2024).

Therefore, a purposive sampling is used to reach qualified managerial-level respondents in Cairo. The sample contains managers responsible for strategic and/or technological decisions in hotels and travel agencies in Cairo.

Cochran's formula was applied with a confidence level of 95% (Z = 1.96), a margin of error of 5% (e = 0.05), and an estimated response distribution (p = 0.5). The calculated sample size is:

N = Study Population= 1378

Z= 0.95 = 1.96

d = 0.05

p = 0.50

$$n = \frac{N \times p(1-p)}{\left[\left[N-1\times\left(d^2 \div z^2\right)\right]+p(1-p)\right]}$$

n = 381

Consequently, a minimum sample size of 384 respondents is considered enough to represent the target population and ensure results generalizability. To confirm fair representation from both key tourism segments, the sample was equivalently assigned. Out of the total population (1,378 entities), 88.7% were Category A travel agencies and 11.3% were four and five-star hotels. Hence, the final sample of 381 participants was distributed proportionally, with 337 respondents from travel agencies and 44 from hotels.

Participants were recognized and contacted through industry directories, official tourism databases, LinkedIn, and professional networks.

3.3. Pilot study and back-translation approach

A pilot study was done to confirm the simplicity, reliability, and social suitability of the questionnaire before launching the main one. A sample of 40 managers from category A travel agencies and four and five-star hotels in Cairo contributed in the pilot test, representing over 10% of the target sample size. Participants evaluated the simplicity, wording, and survey items importance.

Minor language changes were made, mostly to items related to Perceived Ease of Implementation and Perceived Strategic Value to improve simplicity and contextual fit.

In addition, the original questionnaire was in English, a back-translation process was conducted by tourism bilingual experts to ensure semantic and conceptual similarity. Academic reviewers also validated the revised version for content and face validity.

This process helped to improve the questionnaire and ensured its suitable for Arabic-speaking tourism managers in Egypt.

3.4. Data Collection Instrument

A structured, self-administered questionnaire was developed to measure the main constructs of the study. The items were adapted from previously validated scales in tourism, hospitality, and organizational behavior literature to confirm theoretical consistency and content validity. Definitely, three items were used to measure each construct: Perceived usefulness (Xi & Hamari, 2019; Koivisto & Hamari, 2014), Perceived Ease of Implementation (Koivisto & Hamari, 2014; Xi & Hamari, 2019), Organizational readiness (Ifinedo, 2011; Alshamaila et al., 2013), Perceived strategic value (Koivisto & Hamari, 2019; Jia & Yu, 2025), gamification adoption (Koivisto & Hamari, 2019; Xi & Hamari, 2019; Abou-Shouk & Soliman, 2021), and Innovation culture (Hurley & Hult, 1998; Siguaw et al., 2006; Alegre & Chiva, 2008). All items were measured using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), allowing the capture of understated variations in attitudes and behavioral propensities amongst managers.

The questionnaire also included demographic questions such as gender, age, job title, and years of experience in the tourism and hospitality sector. The questionnaire was distributed through both online and offline channels to increase the response. Online distribution included email invitations and LinkedIn targeting, WhatsApp groups, while printed copies were delivered to hotel and agency managers in major tourism hubs. A cover letter explains the study's purpose, confidentiality, and voluntary participation was attached to all versions. Data collection occurred over a period of 6 weeks.

Data collection took place between July and August 2025. The survey link was distributed through multiple channels: official emails to hotel and tourism managers, related to professional tourism associations, and through cooperation with industry unions and chambers.

This sample size (n = 443) exceeds the minimum required sample size (381). The large sample ensures adequate statistical power and strengthens the generalizability and reliability of the study findings among Egyptian hotel and tourism managers. A total of 360 questionnaires were returned (a response rate of 81.3%). Hence, this is an adequate response rate for surveys in tourism and hospitality research, which are self-administered and voluntary. A total of 20 responses were excluded from those collected due to the presence of outliers in the data and are excluded from the datasets.

Data were analyzed using SmartPLS 4.0, a variance-based structural equation modeling (SEM) which is appropriate for multiple constructs, mediating/moderating relations, and formative or reflective measurement models (Hair et al., 2020). Moreover, it can assess reliability, validity (including discriminant and convergent validity), path coefficients, hypothesis testing and evaluating the research framework.

4. Results

4.1. Respondent profile

As shown in table (1) the descriptive analysis of the demographic data shows that the majority of respondents were male (74.7%), compared to 25.3% female, representing a male domination in managerial positions within the tourism and hospitality sectors in Cairo. According to age, the largest percentage was between 30 and below 40 years old (45.3%), followed by 40 to below 50 (30.3%). Based on work experience, most participants had between 6 to less than 9 years' experience, with 33.5%, and 32.9% having more than 9 years.

This shows that the participants are knowledgeable and are able to provide good opinions about the adoption of modern technologies such as gamification in their organizations.

Table 1. Respondent profile (n = 340)

Category	Frequency	%
Gender		
Male	254	74.7
Female	86	25.3
Age group (years)		
Below 30	30	8.8
30-below 40	154	45.3
40-below 50	103	30.3
50 and above	53	15.6
Work experience		
Below 3	30	8.8
3-below 6	84	24.7
6-below 9	114	33.5
More than 9	112	32.9

Source: Prepared by authors

4.2. Measurement model estimation

The measurement model was first assessed to confirm construct reliability and validity (Hair et al., 2019). Hence, to confirm the unidimensional of the measurement items, factor loadings were examined (Sarstedt et al., 2021). As shown in Table 2 and Figure 2, all item loadings exceeded the recommended minimum threshold of 0.70, indicating that each item effectively represented its basic construct (Hair et al., 2020). This finding supports strong item-level of reliability, as expected in a strong measurement model.

Subsequently, convergent validity was evaluated using Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's alpha values. All constructs reported AVE values above 0.50, CR values greater than 0.70, and Cronbach's alpha values more than 0.70 (see Table 2), which confirming internal consistency and the constructs' ability to account for the variance in their indicators effectively. These results provide strong evidence of convergent validity (Hair et al., 2020).

Moreover, discriminant validity of the constructs was evaluated using the Fornell-Larcker criterion. As shown in Table (3), the square root of the AVE for each construct (diagonal values) was greater than its correlations with any other construct (off-diagonal values). For example, the AVE square root of *Gamification Adoption* (0.914) exceeded its correlations with *Perceived Usefulness* (0.033) and *Innovation Culture* (0.693). This pattern was consistent across all constructs, indicating satisfactory discriminant validity (Fornell & Larcker, 1981).

Furthermore, to assess discriminant validity more strictly, the Heterotrait-Monotrait (HTMT) ratio of correlations was applied (Hair et al., 2019). As shown in Table 3, all HTMT values were well below the conservative reference value which is 0.85 (Guenther et al., 2023), supporting the discriminant validity of the constructs and confirming that each construct measures a conceptually different field (Hair et al., 2020). As a result, the study proceeded confidence to the structural model analysis and hypothesis testing (Hair et al., 2019).

Table 2. Reliability and validity analysis

Construct	Items		Factor loading	CR	Alpha	AVE
Perceived usefulness	**PU1**	I think using gamification could really improve the quality of the services we provide.	0.976	0.935	0.896	0.828
	PU2	Adding gamification would probably make our customers more involved with what we offer.	0.939			
	PU3	Overall, I feel that gamification could bring real benefits to our business.	0.806			
Perceived Ease of Implementation	**EI1**	I believe our staff would pick up on using gamified tools without much difficulty.	0.751	0.834	0.724	0.627
	EI2	The process of adopt gamification seems simple and manageable.	0.833			
	EI3	I don't think it would take a lot of technical effort to implement gamification.	0.788			
Organizational readiness	**OR1**	our organization already has the right systems in place to support gamification.	0.848	0.881	0.797	0.712
	OR2	We've got employees with the skills needed to adopt gamification.	0.872			
	OR3	I believe we have enough financial resources to invest in gamification if needed.	0.810			
Perceived strategic value	**SV1**	Gamification could give us an edge over our competitors.	0.760	0.855	0.756	0.663
	SV2	I see gamification as a smart move to help us innovate and improve our services.	0.843			
	SV3	Gamification fits well with our long-term plans and goals as an organization.	0.836			
gamification adoption	**GA1**	Being innovative is a big part of how our organization operates.	0.949	0.938	0.900	0.835
	GA2	People here are encouraged to come up with creative ideas and solutions.	0.959			
	GA3	We're always open to trying out new technologies and approaches.	0.828			
Innovation culture	**IC1**	I think we'll start using gamification soon in our marketing or services.	0.985	0.982	0.972	0.948
	IC2	If I had the chance, I'd definitely support using gamification at work.	0.947			
	IC3	I believe our organization is likely to adopt gamification in the near future.	0.988			

Source: Prepared by authors.

Table 3. *Discriminant validity Fornell-Larcker criterion*

	1	2	3	4	5	6
1.Ease of Implementation	**0.792**					
2.Gamification Adoption	0.137	**0.914**				
3.Innovation Culture	0.152	0.693	**0.974**			
4.Organizational Readiness	0.554	0.293	0.198	**0.844**		
5.Perceived Strategic Value	0.502	0.184	0.140	0.835	**0.814**	
6.Perceived Usefulness	0.578	0.033	0.040	0.327	0.284	**0.910**

Source: Prepared by authors.

Table 4. *Discriminant validity HTMT*

	1	2	3	4	5	6	3 x 5	3 x 6	3 x 4	3 x 1
Ease of Implementation										
Gamification Adoption	0.163									
Innovation Culture	0.165	0.738								
Organizational Readiness	0.674	0.348	0.223							
Perceived Strategic Value	0.649	0.214	0.163	0. 531						
Perceived Usefulness	0.743	0.045	0.048	0.386	0.369					
Innovation Culture x Perceived Strategic Value	0.382	0.185	0.147	0.306	0.201	0.204				
Innovation Culture x Perceived Usefulness	0.287	0.142	0.126	0.310	0.243	0.024	0.589			
Innovation Culture x Organizational Readiness	0.408	0.316	0.261	0.400	0.262	0.206	0.262	0.605		
Innovation Culture x Ease of Implementation	0.376	0.225	0.199	0.449	0.333	0.217	0.741	0.781	0.798	

Source: Prepared by authors.

4.3. Structural model estimation

According to Hair et al. (2019), the structural model is evaluated by using the coefficient of determination (R^2), which replicates the model's explanatory power. The R^2 value for **Gamification Adoption** is **0.526**, which indicates that 52.6% of the variance in the dependent construct is explained by the model's predictors. This level of explanatory power is considered significant (Sarstedt et al., 2021). In addition, Cohen's f^2 values measure the size of separate construct effects. Hence, the results confirm that the model contains both small and large effect sizes, which support the hypothetical significance of the model constructs.

Furthermore, the **direct effects** results (see Table 4) provide full support for hypotheses H1:H4. particularly, **Perceived Usefulness** has a significant positive effect on Gamification Adoption (β = 0.258, t = 4.793, p < 0.001, f^2 = 0.075), indicating a small to medium effect. This finding suggests that the more benefits are perceived from gamification, the more chance to adopt it.

Likewise, **Perceived Ease of Implementation** has the strongest direct effect on Gamification Adoption (β = 0.446, t = 10.969, p < 0.001, f^2 = 0.437), as it has a large effect size. This confirms that decreasing complication and increasing simplifying of the adoption process, it significantly motivates the gamification adoption process.

In addition, **Organizational Readiness** also proved a significant impact on Gamification Adoption (β = 0.279, t = 2.947, p = 0.002, f^2 = 0.142), reflecting a moderate effect size. This result highlights the importance of organizational readiness and resources availability in facilitating the gamification adoption process.

Moreover, **Perceived Strategic Value** presented a significant (β = 0.212, t = 5.866, p < 0.001, f^2 = 0.015), reflecting a moderate effect size. This result support H4. Although its impact is weaker than other constructs, it still plays a significant role in the the gamification adoption decision when it is connected to the organization goals.

Accordingly, the results which are related to **moderation effects** reveal partial support for the moderating role of **Innovation Culture**. Hypothesis H5 was supported, as Innovation Culture significantly moderated the relationship between Perceived Usefulness and Gamification Adoption (β = 0.336, t = 3.299, p = 0.005), representing that in environments with a strong innovation culture, the effect of usefulness perception becomes more obvious.

However, H6 was **not supported**, as the interaction between Innovation Culture and Ease of Implementation is not have a significant result (β = 0.032, t = 1.138, p = 0.067). This indicates that the influence of ease of implementation on gamification adoption remains reliable regardless of the organization's innovation culture.

Hypotheses H7 and H8 are supported. Particularly, Innovation Culture moderated positively the relationship between Organizational Readiness and Gamification Adoption (β = 0.212, t = 2.358, p= 0.018), as well as the relationship between Perceived Strategic Value and Gamification Adoption (β = 0.573, t = 11.263, p < 0.001). These results indicate that organizations with a stronger culture of innovation have more motivation from internal readiness and strategic organization goals to adopt gamification.

Table 5. Results of direct effects

Direct effects					
Relationship	β	*t*-value	*p*-value	Effect size (f^2)	Remark
H1: **Perceived Usefulness → Gamification Adoption**	0.258	4.793	0.000	0.075	Significant
H2: Perceived Ease of Implementation → **Gamification Adoption**	0.446	10.969	0.000	0.437	Significant
H3: Organizational readiness → **Gamification Adoption**	0.279	2.947	0.002	0.142	Significant
H4: Perceived strategic value → **Gamification Adoption**	0.212	5.866	0.000	0.015	Significant
R^2=0.526					

Moderation effects				
Relationship	β	*t*-value	*p*-value	Remark
H5: **Innovation Culture x Perceived Usefulness -> Gamification Adoption**	0.336	3.299	0.005	Significant
H6: **Innovation Culture x Ease of Implementation -> Gamification Adoption**	0.032	1.138	0.067	Not significant
H7: **Innovation Culture x Organizational Readiness -> Gamification Adoption**	0.212	2.358	0.018	Significant
H8: **Innovation Culture x Perceived Strategic Value -> Gamification Adoption**	0.573	11.263	0.000	Significant

Source: Prepared by authors

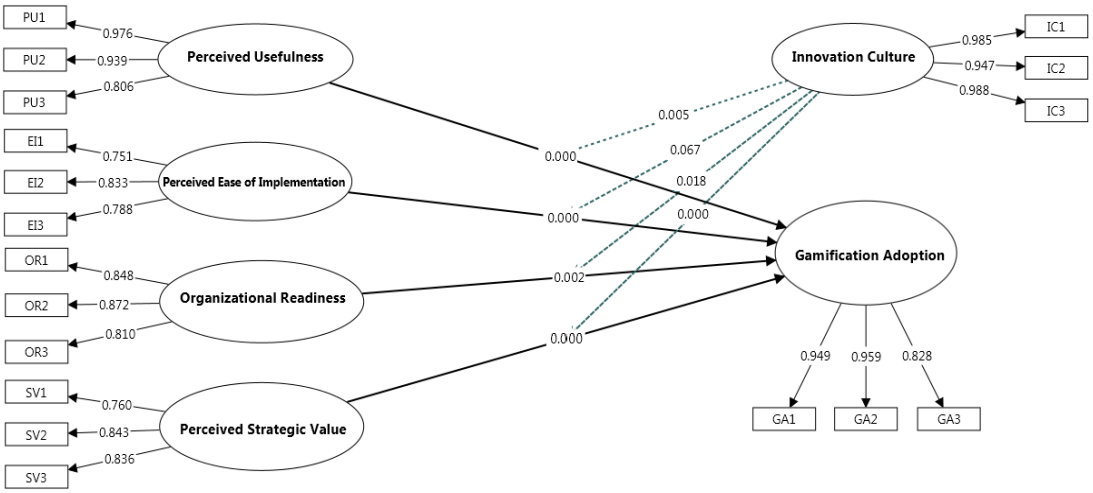

Fig. (2) Structural model findings

Source: Prepared by authors

5. Discussion

The study aims to investigate the role of perceived usefulness, ease of implementation, organizational readiness, and perceived strategic value in adoption gamification in the tourism and hospitality sectors in Egypt. In addition, it explores if innovation culture moderates these relationships or not.

The findings of the structural model estimation provide strong practical support for the proposed research framework. All direct effect hypotheses (H1:H4) were supported, which indicate that perceived usefulness, ease of implementation, organizational readiness, and perceived strategic value significantly influence gamification adoption. Regarding to the moderation effects, the role of innovation culture was partially confirmed. The moderating effect was significant in three out of four hypothesized interactions (H5, H7, and H8), which reinforce that innovation culture environments motivate the adoption of gamification. Accordingly, the only unsupported hypothesis (H6) recommends that the effect of ease of implementation on gamification adoption is significant and independent from the innovation culture level.

The findings of this study line up with previous literature, revealing a positive relationship between perceived usefulness and gamification adoption. This supports earlier research

suggesting that individuals who recognize the benefits and enhanced performance of gamified systems are more likely to adopt them (Liu et al., 2024; Malik et al., 2024). this is also consistent with previous studies in the tourism domain, as perceived usefulness was found to influence users' intention directly to engage with gamified experiences (Malik et al., 2024). Moreover, the result strengthens arguments in marketing contexts where individual motivational factors are seen to influence both perceived usefulness and user satisfaction (Aguiar-Castillo, 2019; Malik et al., 2024). Although some studies have stated negative relations between user motivation such as escape and exposure and both perceived usefulness and behavioral intention, these findings appear to be influenced by situational factors and do not deny the overall positive role that perceived usefulness plays in gamification adoption (Malik et al., 2024). Therefore, the current findings emphasize that enhancing sense of usefulness can be a critical factor in the success of gamified applications, particularly when they facilitate knowledge transfer and encourage user engagement (Pasca et al., 2021).

In addition, the study confirms that perceived ease of use plays an important role in the gamification adoption, especially in organizational situations such as hospitality and tourism, where managers are more likely to use the systems, they adopt simple and accessible system. This finding corresponds to advance research, which has emphasized the effect of perceived ease of use on managers' intention to continue using technological systems (Tam et al., 2020; Singh, 2020; Roslan et al., 2021). Several studies have also mentioned that ease of use has a strong impact on women in the working environment, which suggests the importance of spontaneous design in supporting comprehensive technology adoption (Koivisto & Hamari, 2014). In addition, in mobile education and health services, usability has been placed positively from the users' point of view to the system, which strengthens its role as the most important driver of the engagement (Xi & Hamari, 2019). Ensuring that it is easy to navigate the gamified platforms, not only encourage adoption, but also contribute to more positive learning experiences, more satisfaction and better results (Lin, 2022). In addition, individual motivational dimensions, which highlighted in use and satisfaction theory, affect significantly how users have easy benefit and use in gamified marketing applications, which strengthens their impact on adoption decisions (Malik et al., 2024).

In addition, the study approvd that organizational readiness has a significant impact in shaping managers willing to adopt gamification, in terms of infrastructure or human resources. When organizations have suitable technical abilities, management support, and trained personnel, it becomes easier to implement gamification (Septiawan et al., 2023). Hence, this is constant with several studies. As, Alshamaila et al. (2013) stated that Technology Organization Environmental structure (TOE) structure, which highlights the rlation between technical, organizational and environmental factors for using technology. Top management support, organization size and qualifications are factors that have proven to be impressed significantly by taking decisions. Also, Chatterjee et al. (2023) agreed that facilities like infrastructure, training, and addressing challenges such as data quality or knowledge are important to form managers attitudes toward digital tools like gamification. Hence, the evaluation of readiness makes organizations plan better for gamification, optimize resource sharing, and support managers in making updated decisions (Adeyemi et al., 2021; Hmoud et al., 2024). Accordingly, Septiawan et al. (2023) permitted that when organization managers see gamification as a possible and valuable innovation, this increase the successful integration with technology like gamification.

Moreover, there is a positive relation between perceived strategic value and managers' intention to adopt gamification. This finding highlight that when managers see gamification as a tool that adds actual value to organization goals, they become more motivated to

integrate it into their strategies. These outcomes are constant with prior studies which emphasized the importance of perceived value to shape managers intention to use gamified systems, particularly in mobile commerce contexts (Yu & Huang, 2022). Also, in the tourism and hospitality sectors, gamification has been shown to increase customer loyalty and engagement, with perceived value emerging as a vital component in evaluating its effectiveness (Abd Elmaksoud et al., 2024). Other research also supports the notion that cooperating between the strategic and practical value of gamification is important for its successful adoption, especially between decision-makers who view it as a method to line up with larger organization objectives (Ferreira & Roseira, 2018; Petridis et al.,2014). Additionally, studies based on affordance and perceived value theories have pointed out that gamification strengthens user motivation and delivers value through engaging, goal-driven experiences (wolf, 2019; Jia & Yu, 2025). Together, these findings reinforce the idea that strategic value perception is not only a driver of managerial adoption but also a bridge between motivation and long-term engagement with gamified systems.

Furthermore, the study highpoints the moderating role of innovation culture in relation to organizational factors and gamification adoption. The interaction effects seen in four hypotheses indicate that the presence of a strong innovation culture can either increase or weaken the effect of large predictors with the intention of using gamification. The results advise that innovation culture reinforces the positive relationship between perceived usefulness and gamification adoption. This result is in line with previous studies as when there is organization innovation culture, it is more expected that managers adopt the gamification (Schmidt et al., 2023). Hence, in the environment where innovation is encouraged, the perceived benefits of gamification (e.g., efficiency, commitment) are increased, which leads to more possible usage. However, the effect of the cultural innovation cannot be ignored; Huang and Zhang (2024) found that the changing cultural directions may vary to the perceived usefulness of gamification.

Although ease of implementation is an important factor in using gamification, the moderating effect of innovation culture on this relationship was not found to be significant. A potential interpretation is that in highly innovative cultures, technical obstacles such as complexity or implementation difficulties are less important as employees can already be familiar with continuous change and experiments. As a result, ease of implementation becomes a less decisive factor in using gamification. This agrees with Luo (2023) study which stated that theoretically promising, gamified learning tools were not widely accepted by employees.

This suggests that resistance can still withstand behavior when it is considered easy to use a tool. Therefore, easy implementation alone, even in innovative environment, until accompanied by a broad acceptance mechanism, they may not be sufficient to use gamification.

An important moderating effect of a positive relationship between organizational readiness and the adoption of gamification forces in organizations that actively promote innovation. A culture that supports experimentation, risk and open communication improves the organization's ability to convert readiness to real adoption. It is in line with studies that a risk -taking culture is necessary to handle open innovation and adopt quickly for environmental changes (Gimenez-Fernandez et al., 2021).

Accordingly, the strongest moderating effect was observed in this hypothesis (H8). As innovation culture increases largely the strategic value of gamification, and strengthens the perceived adaptation to long term organization goals. This supports advance research that it

was emphasized that strategic innovation initiatives are more likely to succeed in cultures where compliance (flexibility and activism) are prominent (Cao et al., 2025). In addition, the Gamified competition is shown to promote a culture of innovation, creating a strong cycle where innovation leads to using gamification and vice versa (Schmidt et al., 2023).

5.1. Implications

The empirical evidence derived from recently conducted studies is a strong foundation from which to derive pragmatic suggestions that can be used to promote effective utilization of gamification in tourism and hospitality contexts. First, hotel and tourism organizations must make a concerted effort to develop a strong organizational innovation that is open to experimentation and risk-taking; it should be noted that this infrastructure has been proven to compound the effects of organizational preparedness and perceived strategic value towards adoption of gamified practices. Second, gamification tools should be supported by well-defined strategic goals among hospitality managers (i.e., teams should focus on increasing guest engagement, generating employee motivation, or ensuring competitive differentiation). Once stakeholders understand that gamification can help create long-term value in the organization, adopting it becomes much more realistic. Third, implementation processes are easier when organizational preparedness is enforced by implementing ordered training, enhanced digital capacities, and prolonged managerial supervision. It is enough to give a high perceived usefulness to gamified systems, and employees should obtain confidence in their skills to interact with new technologies. Lastly, governments and tourism authorities ought to be keen on propagating digital transformation processes in the industry by introducing various incentives or models that would facilitate integrating gamified systems in post-pandemic recovery plans. Adopting such recommendations helps tourism and hospitality organizations to make the most out of gamification as an innovation, efficiency, and employee and customer attraction mechanism.

5.2. Limitations and future research

The existing paper provides a subtle picture of the gamification adoption drivers, but a few limitations should be noted. First, this paper is physically limited to Egypt, which poses a potential limitation to the external validity of our findings to other contexts that refer to divergent cultural or economic processes. Future studies might assume cross-cultural designs that can explore the pivotal role of national culture and institutional environments on the relationship among perceived usefulness, organizational readiness, and gamification adoption rates. Second, the existing paper singles out the moderating role of innovation culture; other contextual factors (e.g., digital literacy, top management support, and technological turbulence) should be adopted to refine theory and reach a better grasp of gamification adoption dynamics. Lastly, this paper examines adoption intention and not the operational result of gamification implementation (i.e., organizational performance, customer satisfaction, and employee engagement). Increasing gamification efforts in these performance dimensions can strengthen hotel and tourism businesses' case for using gamification in developing markets.

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العوامل التنظيمية المؤثرة في تبني التلعيب بالسياحة والضيافة: دور ثقافة الابتكار كمتغير معدل

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معلومات المقالة

الكلمات المفتاحية

الفائدة المتصورة والتنفيذ؛ الاستعداد التنظيمي؛ القيمة الاستراتيجية المتصورة؛ تبني التلعيب؛ وثقافة الابتكار.

(JAAUTH)
المجلد ٢٩، العدد ١، (٢٠٢٥)، ص ١١٤-١٣٥.

الملخص

تبحث هذه الدراسة في دور الفائدة المتصورة وسهولة التنفيذ والاستعداد التنظيمي والقيمة الاستراتيجية المتصورة في تبني التلعيب في قطاعي السياحة والضيافة في مصر. بالإضافة إلى ذلك، تستكشف ما إذا كانت ثقافة الابتكار تعدل هذه العلاقات. تتناول الدراسة الفهم المحدود لكيفية تأثير ثقافة الابتكار على تبني التلعيب في المؤسسات. في حين أن هذه العوامل قد ارتبطت بتبني التلعيب، إلا أن التأثير المعدل لثقافة الابتكار لا يزال غير مستكشف عمليًا. لذلك توفر النتائج رؤى حول كيف يمكن لثقافة الابتكار أن تعزز أو تضعف تأثير هذه العوامل. وبالتالي، تم تطوير نموذج مفاهيمي واختباره باستخدام نمذجة المعادلات الهيكلية للمربعات الصغرى الجزئية (PLS-SEM 4) لتحليل النموذج المقترح. أجريت دراسة لاختبار وحدات أدوات القياس وتحسين النموذج قبل جمع البيانات الرئيسية. وتم جمع البيانات من خلال استبيان من عينة من المديرين الذين يعملون في فنادق ٤ و٥ نجوم، بالإضافة إلى وكالات السفر من الفئة أ في مصر. جميع التأثيرات المباشرة للعوامل الأربعة الرئيسية تؤثر بشكل كبير على تبني الألعاب. فيما يتعلق بتأثيرات المتغير المعدل فانه يؤثر جزئيًا على تبني التلعيب. وبناءً على ذلك، فإن تأثير سهولة التطبيق على تبني التلعيب كبير ومستقل عن مستوى ثقافة الابتكار.