

At the crossroad of digital and tourism entrepreneurship: mediating effect of digitalization in hospitality industry

Digital technologies in hospitality industry

1057

Marcin Suder, Joanna Duda and Rafał Kusa
*Faculty of Management, AGH University of Science and Technology,
Krakow, Poland, and*

Alexandra Mora-Cruz
*School of Business Administration, Technological Institute of Costa Rica,
Cartago, Costa Rica*

Received 11 August 2022
Revised 21 September 2022
Accepted 1 October 2022

Abstract

Purpose – This study aims to explore the role of digital technologies in tourism entrepreneurship. In particular, the main objective of this research is to examine the relationships among proactiveness, innovativeness, digitalization, and firm performance and growth in the hotel industry.

Design/methodology/approach – The data for this investigation were collected from 110 one- or two-star hotels that were operating in Poland during the time of this research. This study employs PLS-SEM to analyze the relationships among the examined variables.

Findings – The results show that digitalization has a significantly positive impact on a hotel's performance. Moreover, digitalization mediates the impact of entrepreneurial behaviors on performance. In particular, digitization is a full mediator for the impact of proactiveness on firm growth and innovation on market performance. Additionally, there is a partial complementary mediation effect of digitalization in the case of impact of innovativeness on firm growth; digitization is not a mediator for the impact of proactiveness on firm growth.

Originality/value – Previous studies have not captured the relationships among entrepreneurship, digitalization, and performance; this study helps to fill the gap and examine these associations in the hospitality industry. The outcome of this study provides valuable insights for hoteliers for understanding the role (and importance) of digitalization in the context of proactiveness and innovativeness.

Keywords Hospitality industry, Digitalization, Performance, Entrepreneurial orientation, Innovativeness, Proactiveness, Risk-taking, Opportunity-seeking, PLS-SEM

Paper type Research paper

Introduction

Tourism has been an entrepreneurial activity since its beginning. The first modern tourist event is an excellent example: Thomas Cook pursued an opportunity that was sourced in new technology (namely, rail transportation) when he organized a 12-mile-long train excursion for a group of tourists in 1841 (Laws, 2020). Since then, numerous entrepreneurs have exploited different opportunities that are inherent in tourism – both in tourist needs and destination attractions. They have used entrepreneurship-specific attributes such as proactiveness,

© Marcin Suder, Joanna Duda, Rafał Kusa and Alexandra Mora-Cruz. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

Funding: The research leading to these results was financed by the statutory funds for the maintenance and development of the research capacity of the Faculty of Management of AGH University of Science and Technology in Krakow, Poland.



innovation, and risk-taking; this posture is understood under the notion of tourism entrepreneurship (Ratten, 2018). An entrepreneurial perspective is also accurate, as the tourism market is quite dynamic and provides numerous opportunities for entrepreneurs (Güzel *et al.*, 2021). Moreover, the tourism and travel industry is represented in 80% of all small and medium-sized enterprises (SMEs) (WTTC, 2021), which are believed to reflect an entrepreneurial spirit to a large extent.

Similar to other entrepreneurial activities, the entrepreneurial process within tourist enterprises depends on entrepreneurs (Koh and Hatten, 2002); their time, energy, passion, intuition, creativity, innovation, and finance help determine the success of their businesses (Güzel *et al.*, 2021). Entrepreneurial opportunity recognition is possible because of an entrepreneur's alertness (Nikraftar and Hosseini, 2016). Along with environmental facilitators such as changes in the tourism market, changes within the industry, and changes in the settings/locations, personal factors such as cognitive beliefs, intrinsic needs, and demographic factors help trigger entrepreneurial motivations (Wang *et al.*, 2019). Besides those entrepreneurs who are growth-oriented, many entrepreneurs in the hospitality and tourism sector are lifestyle-oriented (Fu *et al.*, 2019), which is a characteristic that is specific for tourism. In the last decade, a sharing economy additionally frees entrepreneurship in tourism (Avgeli, 2018). Tourism entrepreneurship can lead to higher firm performance; however, different combinations of constituting factors are required in order to obtain success in different environmental settings (Kallmuenzer *et al.*, 2019).

One of the important characteristics of tourism entrepreneurship is innovativeness (Gomezelj-Omerzel, 2016). The tourism industry welcomes many new entrepreneurial and innovative ventures and business models (Güzel *et al.*, 2021). Innovating in a business model allows one to take advantage of new opportunities and increasing his/her business's performance (Breier *et al.*, 2021). Among other things, innovativeness in the tourism and hospitality industry is associated with the implementation of digital technologies.

Currently, the global economy and society that is experiencing the Fourth Industrial Revolution, which is based on cyber-physical systems and has led to a new stage of development that is often called "Industry 4.0" (Duda and Gąsior, 2022). The implementation of new digital technologies helps enable entrepreneurs to improve the operations of their organizations (Morakanyane *et al.*, 2017; Vial, 2019) and enhances their chances of competing and surviving in the global market in the medium term (Parra-López *et al.*, 2021). Digital technologies are radically changing the processes of production, marketing, and consumption (Teece and Linden, 2017; Zhu *et al.*, 2020). A digital infrastructure offers collaboration and communication capabilities for innovative solutions to organizational problems (Elia *et al.*, 2020). Digital transformation affects a customer's experience (Morakanyane *et al.*, 2017) and all aspects of the customer's life (Reis *et al.*, 2018). Digital technologies can lead to the creation of new products and services (European Commission, 2018). Consequently, the business of numerous companies largely depends on their digital capabilities (Datta and Nwankpa, 2021). Therefore, the governments of many countries support digital innovation in order to help create and develop new ecosystems (Bai *et al.*, 2021; Borowiecki *et al.*, 2021).

Digital technologies create a new space for opportunities and entrepreneurial actions and can affect an opportunity (Nambisan, 2017). Along with the use of digital solutions for pursuing opportunities, the quest for such digital opportunities constitutes digital entrepreneurship. This is associated with digital technology such as new media and the internet (Davidson and Vaast, 2010), but it is also tied to other advancements such as AI (Chatterjee *et al.*, 2021). Entrepreneurs can use digital platforms for developing new products and services (Kraus *et al.*, 2019). Digital entrepreneurship results in the transformation of traditional entrepreneurial venture formats into digital ones (Hair *et al.*, 2012) as well as the emergence of digital business models (Hull *et al.*, 2007). Due to the dynamic development of technology, digital entrepreneurs need to maintain a high degree of innovativeness

(Kraus *et al.*, 2019). Recent studies have shown that digital entrepreneurship enhances business competitiveness, performance, and productivity (Sion, 2019; Zahra, 2021).

Digital technologies have been implemented in tourism as well; these include online travel agencies, accommodation, transport, and destination activities (Buhalis *et al.*, 2019). In the hospitality industry, a wide range of solutions that impact a guest's sensory experiences and behavior are being utilized (Pelet *et al.*, 2021) through features such as smart environments in guest rooms (Sheivachman, 2018). These solutions include sensors, telecoms networks, the IoT, and AI (Salguero and Espinilla, 2018; Ivanov and Webster, 2019). Big data, machine learning, and natural language processing are also being used to support marketing operations (i.e. segmentation and customization) (Filieri *et al.*, 2021). However, the use of these solutions raises new challenges in the area of privacy and data protection (Yallop *et al.*, 2021). Digitalization can enhance the recovery of the tourism industry after the COVID-19 pandemic (which seriously affected the industry) (Škare *et al.*, 2021; Päril *et al.*, 2022); in particular, SMEs have been affected the most (European Commission, 2020).

Despite the numerous studies on digitalization, our understanding of the impact of digitalization on performance is limited and needs further progress (Nambisan, 2017; Kohli and Melville, 2019; Liu *et al.*, 2022), particularly in the entrepreneurial context (Kapron and Meertens, 2017; Luo *et al.*, 2021) as well as regarding tourism entrepreneurship (Ratten, 2020). To our knowledge, the role of digitalization in the entrepreneurial activity of hotels has not been examined.

This study addresses this research gap and aims to explore the role of digital technologies in tourism entrepreneurship. In particular, this study aims to examine those relationships that firm entrepreneurial behavior and digitalization have with firm market performance and growth in the hospitality industry. In this study, entrepreneurial behavior is represented by proactiveness and innovativeness. To achieve its objectives, this study employed the PLS-SEM methodology to examine the relationships among the variables. The sample consisted of 110 one- and two-star hotels that were operating in Poland during the time of our study.

This study strives to contribute to the literature on entrepreneurship, digitalization, and tourism management. The study joins the research that is focused on relationship between organizational entrepreneurship and firm performance. Due to the increasing role of digitalization in business, the intended explanation of its positions regarding entrepreneurial behaviors and a firm's growth and performance can be substantial for the development of the theory. In particular, the study aspires to identify the mediating effects of digitalization in reinforcing an impact of entrepreneurial behaviors (proactiveness and innovativeness) on hotel performance and growth. Moreover, this study intends to support hoteliers during the process of digitalizing their hotels.

The remainder of the article is as follows. First, literature regarding variables is reviewed, and research hypotheses and models are proposed. Second, the research procedure and method are described. Third, the results of the examination are presented and discussed. Finally, the study's limitations are indicated, and potential directions for future research are proposed.

Theoretical background

Entrepreneurial performance in tourism

Firm performance is a multidimensional construct. Business performance can refer to financial outcomes (e.g. profit, return on capital), market results (e.g. market share, brand recognition), or firm growth (e.g. increases in numbers of employees or products offered). To measure a hotel's operational performance, variables such as room occupancy, average daily rate (ADR) and revenue per available room (RevPAR) are considered (Pereira-Moliner *et al.*, 2021).

Many factors influence the performance of a hotel; e.g. its location (Xiao *et al.*, 2012), human resource management (HRM), quality management (QM), sustainability, corporate social responsibility, strategy (Sainaghi *et al.*, 2019; Pereira-Moliner *et al.*, 2021), ownership

structure (Chen and Yeh, 2012), brand, and diversification (Yang *et al.*, 2017; Woo *et al.*, 2019; Kim and Lin, 2021).

The performance of tourism firms can be positively affected by entrepreneurial behavior (Alrawadieh *et al.*, 2021). Fu *et al.* (2019) found that sales growth, market share, and profitability were among the most-often-observed outputs of entrepreneurial activity in hospitality and tourism studies. Kallmuenzer *et al.* (2019) identified several combinations of entrepreneurial behaviors that can lead to increased firm performance. There is evidence that entrepreneurial orientation (whose dimensions are proactiveness, innovativeness, and risk taking) positively impacts the success of a new product (Kam-Sing Wong, 2014) and the performance of a tourism firm (Palacios-Marqués *et al.*, 2017; Peters and Kallmuenzer, 2018; Tajeddini *et al.*, 2020). However, entrepreneurial orientation can also play the role of moderator (Urban and Maphumulo, 2021).

Proactiveness

Proactiveness (PR) is one of the manifestations of entrepreneurship (Covin and Slevin, 1989). Miller (1983, p. 771) defined a proactive firm as a firm that “is first to come up with ‘proactive’ innovations.” Proactiveness is aimed at introducing new products or services before one’s competitors do (Rauch *et al.*, 2009; Venkatraman, 1989); thus, a firm needs to incorporate a forward-looking course of action (Covin *et al.*, 2016). Consequently, proactive firms are often perceived as leaders by those competitors who follow their examples (Covin *et al.*, 2016).

One of the development trends is digitalization. As proactiveness is about a forward-looking perspective and the anticipation of future opportunities and demand (Venkatraman, 1989; Rauch *et al.*, 2009), we can expect that proactive firms will use digitalization to introduce new products or services before their competitors do. Recent studies have highlighted the role of EO (of which proactiveness is a dimension) in capturing digital opportunities and finding digital solutions (Penco *et al.*, 2022). Proactiveness has an impact on a firm’s performance; in particular, marketing proactivity (Narver *et al.*, 2004; Jaeger *et al.*, 2016) and proactive market orientation (Gotteland *et al.*, 2020) affect a company’s market performance. This can also be observed in SMEs (Lomberg *et al.*, 2017) and tourism firms (Fadda, 2018) – including hotels (Njoroge *et al.*, 2020). Based on the above observations, we posit the following hypotheses:

H1_{pr} Proactiveness positively impacts market performance;

H2_{pr} Proactiveness positively impacts firm growth;

H3_{pr} Proactiveness positively impacts firm digitalization.

Innovativeness

Entrepreneurship is also exhibited with innovativeness (IN). Innovativeness enables a firm to pursue new opportunities (Lumpkin and Dess, 1996). According to Schumpeter (1911), entrepreneurs recognize promising inventions and introduce such inventions to market. Innovativeness is one of the three main dimensions of EO (Covin and Slevin, 1989). This is visible in the hospitality industry as well; according to the study of Hernández-Perlines *et al.* (2019), innovativeness is the most important dimension of entrepreneurial orientation in Spanish hotels. Despite the fact that tourism often used to be perceived as less innovative than manufacturing industries (Gomezeli-Omerzel, 2016), many innovative solutions have been absorbed and developed in the tourism industry over the past decades (Wang *et al.*, 2016). These innovations have mostly been incremental (Grissemann *et al.*, 2013); however, disruptive innovation has also occurred, resulting in changes to market structures (Viglia *et al.*, 2018). One such example is a platform that connects hosts and guests that was introduced by Airbnb (Guttentag and Smith, 2017). Due to the extreme importance of the human component in providing tourist services (which are simultaneously produced and consumed) (Gomezeli-Omerzel, 2016), employee innovative work behavior needs to be enhanced (Chang *et al.*, 2011; Farrukh *et al.*, 2022).

The study of innovative service firms shows that their main characteristics include the existence and efficient use of intangible assets, leader experience (or employee qualification), and an organizational culture toward innovation (Peixoto *et al.*, 2022). Other factors that impact a firm's ability to manage innovation are its management style, leadership, resources, corporate strategy, technology, and knowledge management (Smith *et al.*, 2008). Innovation in hotels can also be influenced by their size (Jacob and Groizard, 2007), location (Vila *et al.*, 2012), and categorization (Orfila-Sintes *et al.*, 2005). Among those external factors that positively impact innovation development are market demand and competition (Anning-Dorson, 2017). The tourism industry is dominated by small firms; these firms often lack sufficient resources, so open innovation can be an option (or even a requirement) for their development (Lichtenthaler, 2011).

Innovations have the potential to positively impact a firm's performance (Camarero and Garrido, 2008; Kallmuenzer and Peters, 2018) and its growth (Petrou and Daskalopoulou, 2009).

In the tourism industry, innovativeness is considered to be a key factor for a firm's competitive advantage (Dang and Wang, 2022) and success (Paget *et al.*, 2010). Additionally, innovation activities can improve quality standards (Melhem *et al.*, 2018). Innovativeness can also influence the digitalization of a firm (Agostini *et al.*, 2020; Penco *et al.*, 2022); however, Gomezelj-Omerzel's 2016 review of research regarding innovation in hospitality and tourism showed that there are many areas in which innovation is still needed. Based on the above considerations, we posit the following hypotheses:

H1_{in}. Innovativeness positively impacts market performance;

H2_{in}. Innovativeness positively impacts firm growth;

H3_{in}. Innovativeness positively impacts firm digitalization.

Digitalization

As stated earlier, digitalization (DIG) augments those areas where opportunities can appear or be created. Moreover, opportunities can be affected by digital artifacts, digital platforms, and digital infrastructures (Nambisan, 2017). These opportunities can trigger entrepreneurial actions that can lead to increases in performance. In particular, IT technology offers the opportunity to create new products, new channels of communication with customers, or even new means of payments; this refers to the tourism sector as well. Besides reservation systems and tourist social media, advanced digital technologies such as machine-learning algorithms (Zhang *et al.*, 2017), blockchain technology (Valeri and Baggio, 2021) as well as AI-based robotics, AR/VR, and chatbots (virtual assistants) are being used in the hospitality industry (Doborjeh *et al.*, 2022).

Numerous studies have indicated that the implementation of digital technologies positively affects a company's operation and performance (Teece, 2018; Chatterjee *et al.*, 2020; Liu *et al.*, 2022). Digital innovations can lead to the increased satisfaction of customers (Gale and Aarons, 2018) and employees (Buechl *et al.*, 2021) as well as increased customer loyalty (Balci, 2021). Additionally, digitalization enables individuals and enterprises to co-create and share value (Nambisan, 2017) and enhance their process-innovation capabilities (Tajudeen *et al.*, 2022). Digital innovations (triggered by the digitalization process) can be an important source of a company's competitive advantage (Volkoff and Strong, 2013; Chatterjee *et al.*, 2020). Digital transformation plays an important role in organizational development (Svahn *et al.*, 2017; Sestino *et al.*, 2020), leading to changes in company business models (Rodriguez-Anton and Alonso-Almeida, 2020; Buechl *et al.*, 2021). However, some studies have reported that the adoption of digital innovations can lead to different results in manufacturing companies (e.g. Hanelt *et al.*, 2021).

Digital solutions play an important role in the tourism sector as well. In particular, digitalization enhances a firm's innovation capabilities (Sigala, 2012) and operational efficiency (Hashim and Murphy, 2007), and they enable the development of new services (Gomezelj-Omerzel, 2016). These solutions can help lead to the economic growth of hotels (Martin-Rojas *et al.*, 2014).

Thus, we propose the following research hypotheses:

H1_{dig.} Digitalization positively impacts market performance;

H2_{dig.} Digitalization positively impacts firm growth.

Previous studies have suggested that the relationship between a hotel's characteristics and performance can be affected by other factors. For example, the relationship between quality management and a hotel's performance is fully mediated by its differentiation competitive advantage (Pereira-Moliner *et al.*, 2021), the relationship between brand diversification and a hotel's performance is moderated by its ownership structure and location (Kim and Lin, 2021), and the impact of internationalization on a hotel's performance is moderated by agglomeration-related factors (namely, differentiation within the cluster, and the location of the cluster) (Woo *et al.*, 2019). The effect of product diversification on a hotel's performance is moderated by its location, diversification expansion rate, and foreign ownership/operation (Yang *et al.*, 2017).

In the digitalization context, Zhao and Kong (2022) observed that the relationship between a firm's openness in specialized searches and ambidextrous digital-process innovation can be mediated through an absorptive capacity and moderated by organizational innovativeness.

The impact of entrepreneurship on performance can also be moderated or mediated by other factors (e.g. Adam *et al.*, 2022; Liu and Wang, 2022; Khan *et al.* (2021) found that entrepreneurial orientation positively moderates the association between organizational learning capabilities and business-model innovation in SMEs, while Chaudhary (2019) and Sen *et al.* (2022) found that entrepreneurial orientation can mediate the relationship between strategic flexibility and firm performance). The studies focused on moderating and mediating effects related to organizational entrepreneurship–performance relationships develops in past years (see examples in). Moreover, entrepreneurship can play the role of moderator or mediator toward other factors that affect performance (e.g. Khan *et al.* (2021) found that entrepreneurial orientation positively moderates the association between organizational learning capabilities and business-model innovation in SMEs, while Chaudhary (2019) and Sen *et al.* (2022) found that entrepreneurial orientation can mediate the relationship between strategic flexibility and firm performance). The studies focused on moderating and mediating effects related to organizational entrepreneurship–performance relationships develops in past years (see examples in Wales *et al.*, 2021). In turn, digitalization can play the role of mediator in the innovation–performance relationship (Tsou and Chen, 2021) or product innovation and servitization (Vilkas *et al.*, 2022). However, service innovation can mediate the connection between intellectual capital components and the competitive advantage, while big data analytics capabilities can moderate this relationship (Alkhatib and Valeri, 2022). Mediation refers to “. . . existence of a significant intervening mechanism between antecedent and the consequent variables” (Venkatraman, 1989, p. 428), and a mediator enables us to specify how (or the mechanism by which) a given effect occurs. Thus, we hypothesize that digitalization can mediate the impact of entrepreneurship on performance based on our previous hypotheses that a) proactiveness, innovativeness, and digitalization can affect a firm's performance and growth and b) proactiveness and innovativeness can affect digitalization. In particular, we propose the following hypotheses:

H4_{pr.} Digitalization mediates the relationship between proactiveness and market performance;

- $H5_{pr}$. Digitalization mediates the relationship between proactiveness and firm growth;
- $H4_{in}$. Digitalization mediates the relationship between innovativeness and market performance;
- $H5_{in}$. Digitalization mediates the relationship between innovativeness and firm growth.

Our hypotheses regarding the associations among proactiveness, innovativeness, digitalization, market performance, and firm growth (including mediating the role of digitalization) are presented in the research model that is depicted in Figure 1.

Methodology

Sample

This study’s sample consisted of one- and two-star hotels that were operating in Poland during our research. According to the Central List of Hotel Facilities (Ministry of Sport and Tourism of the Republic of Poland, 2021), there were 680 entities as of November 10, 2021. One-hundred-and-seventeen hotels were randomly selected for the sample. The data were collected during the period of November–December 2021 by a specialized pooling company. To gather the data, an entrepreneur’s self-assessment questionnaire (which is a commonly used tool in small tourist firm surveys (Fu et al., 2019)) was employed. One-hundred-and-ten fully completed questionnaires were received; these represented 14.85% of the target population. Based on formula proposed by Sudman and Bradburn (1982), we estimated a sample error – it is 9.04% (with an assumed 95% confidence level), which is an acceptable value. The characteristics of the sample are presented in Table 1.

Variables

In this study, we examined the relationships among five variables: proactiveness (PR), innovativeness (IN), digitalization (DIG), market performance (MP), and firm growth (FG). All of the variables were indices; each was comprised of several items, and each item was measured with a seven-degree Likert scale. Those coefficients that represented performance,

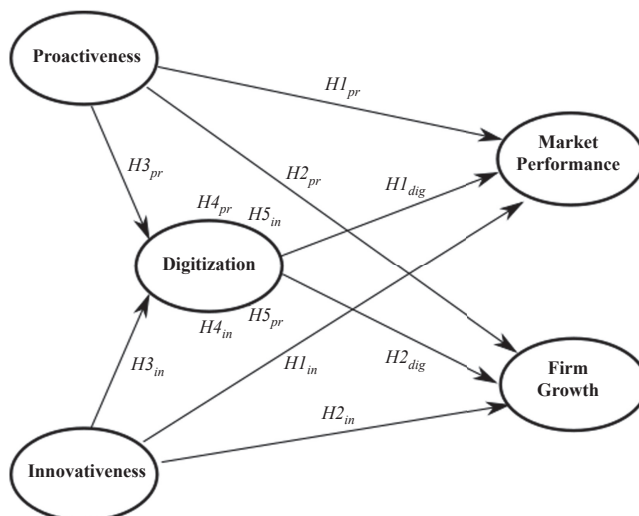


Figure 1. Research model

Table 1.
Characteristics of
sample

Characteristic	Range	Percentage
Age	0–5	7.0%
	6–10	18.8%
	11–20	31.6%
	21–30	30.7%
	above 30	11.9%
Type of enterprise	Micro	51.5%
	Small	44.6%
	Medium	3.9%
Family enterprise	Yes	50.0%
	No	50.0%
Standard category	One-star	27.3%
	Two-star	72.7%
Number of beds	20–50	63.6%
	51–100	22.7%
	more than 100	13.7%
Managing more than one hotel	Yes	23.6%
	No	76.4%
Member of hotel chain	Yes	16.4%
	No	83.6%

proactiveness, and innovativeness were based on previous entrepreneurial orientation scales (Hughes and Morgan, 2007; Kusa *et al.*, 2021); however, they were adapted to the hotel industry. The coefficient of firm growth was adapted from previous studies (Kusa *et al.*, 2022). Finally, the digitalization index was a newly proposed index. Regarding our constructs, common method bias has been controlled through a full collinearity assessment approach. In particular, we employed VIF values for the variables; in each case, this value was lower than 3.3. This indicates that the model is free from common method bias (Kock, 2015). The characteristics of each index (including their reliability) are presented in Table 2.

Method and procedure

Due to the explorative nature of the study and the non-normal data distribution of the Likert scale-based measures, the partial least squares (PLS) technique was applied to structural equation models (SEMs) based on variance. PLS-SEM is a “regression-based” approach that minimizes the residual variances of the endogenous constructs (Hair *et al.*, 2022). This technique works well with the mediation analysis that is presented in this paper (Nitzl *et al.*, 2016; Cepeda-Carrión *et al.*, 2017). SmartPLS software (V.3.3.5) was used to build the models and assess their validity (Ringle *et al.*, 2015).

The analysis was conducted in three steps. First, the reliability of the items was analyzed by evaluating the loads (λ), which explain the variances between each construct and its indicator (Palos-Sanchez and Saura, 2018). Second, the hypotheses were tested through the structural models. Finally, the type and strength of the mediating effect of the digitalization were estimated.

Results

Measurement model evaluation

The measurement model evaluates whether the considered constructs are correctly measured through the indicators (Klarner *et al.*, 2013); therefore, the model must be assessed for its reliability and validity. The results for the measurement model are presented in Figure 2 and Tables 2 and 3.

Constructs	Indicators	Item	Mean	Std. dev	VIF	Construct reliability and validity			
						α	rho_A	CR	AVE
Proactivity (PR)	We excel at identifying opportunities and market needs	PR1	4.34	1.83	2.11	0.84	0.85	0.89	0.68
	We initiate actions to which other organizations respond	PR2	4.54	1.65	1.79				
	We search for new opportunities more intensively than our competitors do	PR3	3.75	1.53	2.20				
	We always try to take the initiative in each situation	PR4	3.75	1.37	2.27				
Innovation (IN)	Our organization seeks out new ways to do things	IN1	4.73	1.37	1.33	0.74	0.77	0.83	0.56
	We actively introduce improvements and innovations in our organization	IN2	3.69	1.63	1.74				
	Innovation is the source of our success	IN3	4.13	1.49	2.02				
	Relative to competing products, those of our business are more innovative	IN4	4.42	1.72	1.35				
Digitalization (DIG)	We use many digital solutions in our activities	DIG1	2.55	1.53	1.70	0.89	0.89	0.92	0.69
	We are more digitalized than our competitors are	DIG2	2.82	1.48	2.68				
	Our results are improving due to digitalization	DIG3	3.14	1.53	4.52				
	Digitalization has enabled us to significantly improve our operation	DIG4	3.45	1.72	4.20				
	We are advanced in terms of the digitalization process	DIG5	2.98	1.62	1.92				
Market performance (MP)	Relative to competing products, our products are more successful in terms of sales	MP1	3.97	1.50	2.20	0.84	0.86	0.89	0.68
	Relative to competing products, those of our business achieve and maintain a higher market share	MP2	3.01	1.44	2.48				
	Relative to our competitors, our income is greater	MP3	2.87	1.40	2.75				
	Relative to our competitors, our profit is greater	MP4	3.23	1.23	2.44				

(continued)

Table 2. Measurement model evaluation results

Constructs	Indicators	Item	Mean	Std. dev	VIF	Construct reliability and validity			
						α	rho_A	CR	AVE
Firm growth (FG)	Our market recognizability has increased this year	FG1	3.94	1.15	1.58	0.86	0.87	0.9	0.7
	Our income has increased	FG2	3.75	1.19	4.79				
	Our profitability has increased	FG3	3.40	1.12	4.84				
	Our business has grown faster than those of our competitors	FG4	3.39	1.09	1.63				

Note(s): α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; rho_A = reliability coefficient; VIF = variance inflation factor

Table 2.

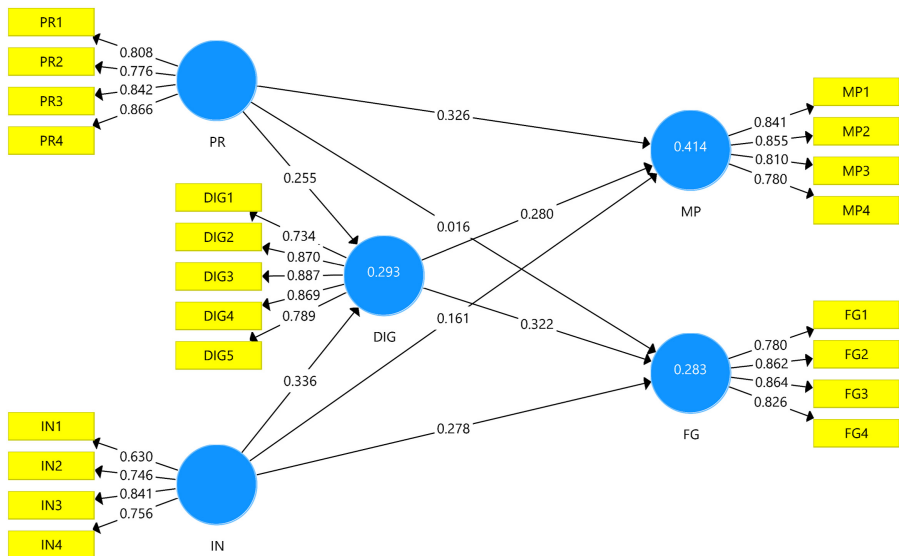


Figure 2. Measurement structural model

Construct	Fornell-Larcker discriminant validity criteria					HTMT discriminant validity criteria				
	1	2	3	4	5	1	2	3	4	5
PR	0.824									
IN	0.672	0.747				0.847				
DIG	0.481	0.507	0.832			0.550	0.588			
MP	0.568	0.522	0.518	0.822		0.657	0.612	0.592		
FG	0.358	0.452	0.471	0.621	0.834	0.401	0.527	0.525	0.699	

Table 3. Fornell-Larcker and HTMT discriminant validity criteria

Figure 2 shows the indicator outer loading for each construct. A value that is above 0.5 is acceptable for an indicator; however, 0.7 is required for more-stringent assumptions. Only one indicator outer loading for the innovation construct was slightly lower than the 0.7 threshold.

The indicators for all of the remaining constructs were greater than 0.7. According to Hair *et al.* (2022), values that are between 0.60 and 0.70 are considered to be acceptable in exploratory research, while values between 0.70 and 0.90 can be considered satisfactory in more-advanced phases of research. The values for internal consistency reliability and convergent validity are presented in Table 2. The acceptance of the reliability of the construct was established with a minimum Cronbach's alpha of 0.6–0.7 (Fornell and Larcker, 1981). Table 2 shows the calculation of this coefficient for the constructs of the proposed model. As shown, all of the latent variables presented values that confirmed their high internal consistency. Regarding redundancy, the values did not exceed 0.95 (Diamantopoulos *et al.*, 2012); therefore, no problems were evident. The rho_A statistic provides a reliability value. As proposed by Dijkstra and Henseler (2015), rho_A should be greater than 0.7 and should lie between the values of composite reliability and Cronbach's alpha; this condition holds for our data (see Table 2). To assess convergent validity, the average variance extracted (AVE) was analyzed, which provides information on how much variance a construct shows. Hair *et al.* (2017) stated that an AVE of 0.50 or greater can be interpreted as more than 50% of the variance of the construct being due to its indicators. The results observed in Table 2 support the convergent validity of the reflective constructs. As can be seen, all of the values exceeded 0.50 (ranging between 0.50 and 0.70); therefore, the constructs met this condition.

Table 2 also includes the values of the variance inflation factor (VIF) for each item. According to Diamantopoulos and Winklhofer (2001), values below the cut-off level of 5 assure the absence of the undesirable property of multicollinearity.

To evaluate the discriminant validity, the square root of the AVE of each variable was analyzed; according to Fornell and Lacker (1981), this criterion must be greater than the correlation that each variable has with any other in the model. Henseler *et al.* (2015) pointed out that the lack of discriminant validity is better-detected with the Heterotrait-Monotrait (HTMT) relationship (whose values must be below 0.90). The results of the discriminant validity met both criteria (as is shown in Table 3).

Along with the results that are presented in Tables 2 and 3 and Figure 2, the above analysis proves that the construct that was proposed in the model was correctly constructed (as was the model itself). As the one of the approximate model fit criteria, the standardized root mean square residual (SRMR) was additionally calculated to estimate the level of the model fit (following the guidelines of Henseler *et al.* (2015)). A value of less than 0.10 is considered to be a good fit (or lower than 0.08 in a more conservative version; see Hu and Bentler, 1999). In our model, the SRMR equaled 0.84; this means that an acceptable level of fit was achieved.

The results that are included in the measurement model (presented in Figure 2) enabled us to determine the impact strengths of the individual exogenous variables on the endogenous variables and to what extent they explained their variability. In particular, IN had a stronger effect on DIG (0.332) than it did on PR (0.255). Moreover, these two constructs explained 29.3% of the variance of the DIG construct ($R^2 = 0.293$) (as indicated by the value in the circle). In turn, PR had the strongest effect on MP (0.326), followed by DIG (0.280) and IN (0.161). In all, 41.4% of the variance of the MP construct was explained by three constructs: PR, DIG, and IN. The DIG variable had the strongest impact on the endogenous FG variable. The value of this path coefficient equaled 0.322; for a comparison, this was equal to 0.278 in the case of IN and only 0.016 for PR. Together, DIG, IN, and PR explained 28.3% of the variance of FG ($R^2 = 0.283$). The obtained values of the coefficients gave us the opportunity to determine the strengths of the relationships of the subject as well as the preliminary verifications of the hypotheses put forth. We can conclude (Hair *et al.*, 2022) that PR did not affect FG and that IN did not affect MP because the sizes of the path coefficients were less than 2. Nevertheless, making definite statements about a path coefficient's significance requires us to determine the coefficient estimates' standard error.

Assessment of structural model

Applying the bootstrapping procedure with 5,000 iterations enabled us to verify the statistical significance of the path coefficients marked in Figure 2; in this way, it was possible to verify the research hypotheses. In the model with a mediator, we tested the statistical significance of the path coefficients for both the direct and indirect effects. The results of this analysis are presented in Table 4.

Based on the results that are shown in Table 4, we can conclude that six of the eight-tested direct effects were significant (with *t*-statistic >1.96 and *p*-value <0.05). A statistical significance was not obtained for only two paths: PR → FG, and IN → MP (the *p*-values were greater than 0.05). Following Ramayah *et al.* (2018), we also calculated the corrected confidence interval errors (which are presented in Table 4). If this range does not contain 0, this is a confirmation of the significance of the determined coefficient. In the case of PR's effect on FG and IN's effect on MP, the ranges contained 0; the remaining dependencies did not. This conclusion confirms the assumptions that were formulated during the analysis of the measurement model. Thus, the results confirmed six out of the eight hypotheses regarding direct effects; i.e. H1_{pr}, H3_{pr}, H2_{in}, H3_{in}, H1_{dig}, and H2_{dig}. Hypotheses H2_{pr} and H1_{in} were not confirmed; therefore, the analysis of the direct relationships showed that proactiveness does not significantly directly affect a company's growth, while innovation does not have a significant impact on the market performance of hotels.

Type of effect	Hypothesis	Path	Original sample	Sample mean	Bootstrapping		Confidence interval (bias-corrected)	
					<i>T</i> -statistics	<i>p</i> -values		
direct	H1 _{pr}	PR → MP	0.326**	0.333	2.602	0.009	(0.061, 0.559)	
	H2 _{pr}	PR → FG	0.016	0.022	0.123	0.902	(-0.227, 0.277)	
	H3 _{pr}	PR → DIG	0.255*	0.251	2.483	0.013	(0.056, 0.442)	
	H1 _{in}	IN → MP	0.161	0.161	1.553	0.121	(-0.044, 0.37)	
	H2 _{in}	IN → FG	0.278*	0.28	2.153	0.031	(0.001, 0.498)	
	H3 _{in}	IN → DIG	0.336***	0.349	3.925	0.000	(0.159, 0.487)	
	H1 _{dig}	DIG → MP	0.28**	0.275	2.736	0.006	(0.073, 0.468)	
	H2 _{dig}	DIG → FG	0.322**	0.324	3.329	0.001	(0.111, 0.509)	
	indirect	H4 _{pr}	PR → DIG → MP	0.072	0.071	0.043	0.094	(0.011, 0.181)
		H5 _{pr}	PR → DIG → FG	0.082*	0.08	0.041	0.044	(0.023, 0.198)
H4 _{in}		IN → DIG → MP	0.094*	0.097	0.045	0.037	(0.019, 0.192)	
H5 _{in}		IN → DIG → FG	0.108*	0.115	0.049	0.026	(0.031, 0.215)	

Table 4. Structural model statistics (direct and indirect effects)

Note(s): *** *p*-value <0.001; ** *p*-value < 0.01; * *p*-value < 0.05

In turn, the bootstrapping analysis showed that three of the four indirect effects (assumed in a theoretic model [see Figure 1]) were significant (with the assumed levels of significance). The mediation effect of digitization for the impact of IN on both MP and FG was significant (in both cases, the *p*-value was less than 0.05). On the other hand, the impact of the PR that was mediated by DIG was only significant for the endogenous FG variable and was not significant for MP. However, the latter conclusion was not confirmed in the 95% confidence interval bias-corrected analysis for the indirect effect of PR → DIG → MP, as the range did not contain 0 (0.011,0.181). Therefore, we can conclude that the effects of three out of the four hypotheses about the mediation of digitization (i.e. H5_{pr}, H4_{in}, and H5_{in}) have been confirmed. On the other hand, Hypothesis H4_{pr} was preliminary not confirmed due to the ambiguity of the results (an additional analysis in the forthcoming chapter is meant to confirm the correctness of such a decision).

Table 5 shows additional criteria for evaluating the structural model in PLS (Hair *et al.*, 2022), which are the coefficient of determination (*R*²), the adjust coefficient of determination (*R*²_{adj}), and the cross-validated redundancy (*Q*²) (Geisser, 1974). In addition, the statistical significance of the *R*² and *R*²_{adj} coefficients was verified. The obtained results indicated that the model had a significant predictive significance; namely, the values of the coefficients of determination for all of the endogenous dimensions were greater than 0.1 and were statistically significant (Falk and Miller, 1992), and the Stone-Geisser *Q*² statistics were greater than 0 (Geisser, 1974).

Analysis of mediation effect

Based on the values of the path coefficients (both for the direct and indirect effects) as well as the verification of their significance, it is possible to test the hypotheses about the mediation nature of the DIG construct (see Nitzl *et al.*, 2016; Hair *et al.*, 2022). If mediation is confirmed, it is additionally possible to test whether we are dealing with full or partial mediation (complementary or competitive) (MacKinnon *et al.*, 2007). It is also possible to compare the strength of the mediation for the individual paths.

As suggested by Zhao *et al.* (2010) and Nitzl *et al.* (2016), a mediation effect occurs if a path coefficient for an indirect effect is significant. In addition, we are dealing with full mediation if the path coefficient for the direct effect is not significant; otherwise, we have partial mediation. In partial mediation, a division into complementary partial mediation and competitive partial mediation is taken into account. The former refers to a situation in which the path coefficient signs (for the indirect and direct effects) are the same, while the latter indicates that the mediation is interpreted as being competitive.

Some researchers use Variance Accounted For (VAF) (Hair *et al.*, 2017) to verify the mediation effect and its strength. For a simple mediation, the proportion of the mediation is defined as follows:

$$VAF = \frac{a \times b}{a \times b + c'} \cdot 100\%$$

where *a* × *b* reflects the indirect effect, and *c'* represents the direct effect.

Endogenous constructs	<i>R</i> ²	<i>R</i> ² _{adj}	<i>Q</i> ²
DIG	0.293***	0.280***	0.196
MP	0.414***	0.398***	0.252
FG	0.283***	0.263**	0.166

Note(s): *** *p*-value <0.001; ** *p*-value < 0.01; * *p*-value < 0.05

Table 5. Endogenous construct assessment

The VAF varies between 0 and 100% for models where $a \times b$ and c' have the same sign. Helm *et al.* (2010) proposed that VAF values above 80% indicate full mediation, those between 20 and 80% indicate partial mediation, and those below 20% indicate no mediation effect. Ramayah *et al.* (2018) suggested that the VAF concept may provide some deeper insights into mediation analysis but that it should be interpreted very cautiously without mixing the use of full, partial, and no mediation. Moreover, some researchers (e.g. Hair *et al.*, 2017) have advised the calculation of VAF only when the absolute value of standardized total effect $c = a \times b + c'$ is at least 0.20. VAF also works well if a researcher would like to compare the strengths of multiple mediators in a model on each indirect relationship. In our analysis of the mediator effects, we based it on a previously conducted analysis of direct and indirect effects as well as on the designated VAF values (which are summarized in Table 6).

According to the results of our analysis that are presented in Table 6, it can be concluded that digitization is not a mediator for the impact of proactiveness on market performance. First, the indirect effect is not significant, and second – the VAF = 18.1% (i.e. it is less than 20%).

Based on the analysis of the direct and indirect effects, we conclude that the effect of the full mediation occurs in the case of proactivity on firm growth and innovation on market performance. For both paths, the indirect effect is significant and the direct effect is not. While the conclusion for proactivity was confirmed by the VAF value (which was greater than 80% for the PR → FG path), the VAF was relatively low in the case of the IN → MP path (36.9%); this would indicate partial mediation. Taking the previous considerations into account, we nevertheless conclude that digitization is a full mediator for the impact of innovation on a firm's market performance.

Finally, we come to the conclusion that there was a complementary partial mediation effect after analyzing the coefficients for the IN → FG path, as both the direct and indirect effects were statistically significant and had the same sign. Moreover, the VAF = 28% value indicates this type of mediation.

Based on the characteristics of each mediation path (presented in Table 6), we can verify our hypotheses regarding mediating effects of digitalization. In particular, H4_{pr} has not been confirmed, H5_{pr} and H4_{in} have been confirmed, and H5_{in} has been partially confirmed (due to the observed complementary mediation).

Discussion

The study's results confirm that entrepreneurial behaviors affect a hotel's performance. This is in line with numerous studies that have evidenced such an impact in tourism firms (e.g. Palacios-Marqués *et al.*, 2017; Peters and Kallmuenzer, 2018; Tajeddini *et al.*, 2020; Arawadieh *et al.*, 2021). However, the results indicate that different entrepreneurial behaviors are effective depending on the performance type (market performance versus firm growth). This somehow confirms the findings of Kallmuenzer *et al.* (2019), who observed that different combinations of entrepreneurial behaviors can lead to an increase in a firm's performance.

Path	Direct effect (c')	Indirect effect ($a \times b$)	VAF	Relevant hypothesis	Hypothesis confirmation
PR → MP	0.326**	0.072	18.1%	H4 _{pr}	Not confirmed
PR → FG	0.016	0.082*	83.7%	H5 _{pr}	Confirmed
IN → MP	0.161	0.094*	36.9%	H4 _{in}	Confirmed
IN → FG	0.278*	0.108*	28.0%	H5 _{in}	Partially confirmed

Note(s): *** p -value < 0.001; ** p -value < 0.01; * p -value < 0.05

Table 6.
Summary of mediating
effect test

The current results regarding proactiveness confirm its impact on tourism firm performance, which was previously reported by Fadda (2018) and Njoroge *et al.* (2020). Specifically, this study unveils that proactiveness affects market performance while not having a significant influence on firm growth. In turn, innovativeness positively impacts firm growth, while it does not significantly affect market performance. This augments our understanding of the importance of innovativeness in the hospitality industry, which was previously reported by Kallmuenzer and Peters (2018) and Hernández-Perlines *et al.* (2019). The results of this study highlight the role of innovative solutions for the long-term development of the tourism industry (Wang *et al.*, 2016). Both proactiveness and innovativeness affect digitalization; this confirms the previous findings regarding the role of EO (Penco *et al.*, 2022) and innovativeness (Kraus *et al.*, 2019; Agostini *et al.*, 2020; Penco *et al.*, 2022) in the digital development of a company.

The current study corresponds with numerous studies regarding the relationship between digitalization and performance (Teece, 2018; Chatterjee *et al.*, 2020; Liu *et al.*, 2022). In particular, it confirms the role of digital technologies in the hospitality industry (which has been reported in previous studies; e.g. Zhang *et al.*, 2017, and Doborjeh *et al.*, 2022). Specifically, digitalization positively affects both hotel growth and market performance; this observation confirms the findings of other studies that were focused on the digitalization–performance relationship in the tourism sector (Hashim and Murphy, 2007) as well as digitalization’s impact on hotel growth (Martin-Rojas *et al.*, 2014). Additionally, this study’s findings correspond with studies that have demonstrated the role of digital entrepreneurship in increasing a firm’s performance (Sion, 2019; Zahra, 2021).

This study confirms that the effect of performance antecedents can be mediated by other factors (as has been indicated in recent studies on the hospitality industry; e.g. Woo *et al.*, 2019, Yang *et al.*, 2017, Kim and Lin, 2021, and Pereira-Moliner *et al.*, 2021). This study shows that the relationship between entrepreneurial behaviors and a hotel’s performance can be mediated by digitalization. This observation corresponds with the study of Tsou and Chen (2021), who reported the mediating role of digitalization in the innovation–performance relationship. The results of this study can explain the ambiguity regarding the effectiveness of implementing digital solutions (Hanelt *et al.*, 2021) – according to our results, the types of results as well as any associations with other factors need to be considered to fully understand the role of digitalization.

Conclusions

Summary of findings

Our study confirms the positive impact of an entrepreneurial approach (embodied in proactiveness and innovativeness) on a hotel’s market performance and firm growth. The results confirm the positive role that digitalization can play as a mediator in this relationship. Moreover, our findings indicate those configurations (models) of digitalization and dimensions of EO that can lead to market performance and firm growth.

Contribution

This study contributes to the literature on firm digitalization; in particular, it shows that digitalization impacts both market performance and firm growth. Additionally, digitalization is affected by proactiveness and innovativeness. Moreover, this study has unveiled the mediation effect of digitalization on the entrepreneurship–performance relationship in the hospitality industry. The latter findings contribute to the digital entrepreneurship concept.

This study contributes two-fold to the ongoing discussion regarding the impact of entrepreneurship on firm performance. First, this study examines the relationships between

the dimensions of entrepreneurship (proactiveness and innovativeness) and performance (market performance and firm growth) in detail. As a result, it shows that proactiveness impacts market performance and innovativeness impacts firm growth. Second, this study identifies the mediating effect of digitalization. Such an effect enables us to explore the mechanism between an antecedent and a consequent variable; in this case, digitalization specifies how entrepreneurship affects a firm's performance.

In particular, digitalization fully mediates the proactiveness–firm growth association and the innovativeness–market performance link, and it partially mediates the innovativeness–firm growth relationship. Additionally, this study contributes to the literature on entrepreneurial orientation (particularly its multidimensionality – Lumpkin and Dess, 1996), as it has identified the complex interplay of proactiveness and innovativeness (which are EO dimensions) with digitalization.

With its findings, this study contributes to the hospitality management literature. In particular, it highlights the role of entrepreneurship and digitalization in increasing market performance and hotel growth. In the context of tourism entrepreneurship, this study explains the associations among the dimensions of entrepreneurship and performance.

Managerial implications

This study offers implications for managers and policy-makers. Hoteliers can observe that different entrepreneurial behaviors should be activated depending on which results are to be obtained (proactiveness to increase market performance, and innovativeness to achieve firm growth). When a hotel is to improve its digital development, it is worth increasing both proactiveness and innovativeness (which positively affect digitalization). In turn, digitalization impacts both market performance and firm growth. The observed relationships, including the role of digitalization, can be significant for policy-makers who are responsible for supporting business development, in particular within the tourism industry. The development of tourism entrepreneurship can positively impact society, for example, by improving the offer for tourists as well as the living conditions of tourism entrepreneurs. This can be important in the recovery of the economy after the crisis.

Limitations

This examination has some limitations that need to be considered when generalizing its findings. First, the sample represents a part of the hospitality industry (one- and two-star hotels) and a single country (Poland). Consequently, the identified ties among the variables may not be valid in other industries or other segments of the hospitality industry. In a similar manner, they can be irrelevant in other locations (which can be determined by social and economic backgrounds as well as the degree of the digital development of a country).

Finally, the obtained results could have been impacted by the COVID-19 crisis, as the data were collected during the fourth wave of the pandemic that was caused by the virus. As numerous entrepreneurs were seriously affected by the crisis (including hoteliers), they were forced to limit or postpone their investments. Despite the fact that digitalization can seem helpful for mitigating the impact of a crisis, these limitations in investments can refer to digitalization as well. Consequently, similar surveys from before and after the COVID-19 crisis could provide differing results.

Recommendations for future studies

Based on the limitations indicated above, we can recommend at least three avenues for future research. First, similar studies can be replicated within other segments of the hospitality industry (as well as in other industries). Second, studies that focus on other locations (that are

different in terms of their degrees of social, economic, and digital development) can augment our understating of the investigated relationships. Third, a similar study can be conducted in the future under different market conditions (e.g. during economic prosperity) when entrepreneurs are more capable of investing in digitalization.

References

- Adam, S., Fuzi, N.M., Ramdan, M.R., Mat Isa, R., Ismail, A.F.M.F., Hashim, M.Y., Ong, S.Y.Y. and Ramlee, S.I.F. (2022), "Entrepreneurial orientation and organizational performance of online business in Malaysia: the mediating role of the knowledge management process", *Sustainability*, Vol. 14 No. 9, p. 5081.
- Agostini, L., Galati, F. and Gastaldi, L. (2020), "The digitalization of the innovation process: challenges and opportunities from a management perspective", *European Journal of Innovation Management*, Vol. 23 No. 1, pp. 1-12.
- Alkhatib, A.W. and Valeri, M. (2022), "Can intellectual capital promote the competitive advantage? Service innovation and big data analytics capabilities in a moderated mediation model", *European Journal of Innovation Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/EJIM-04-2022-0186](https://doi.org/10.1108/EJIM-04-2022-0186).
- Alrawdaih, Z., Altinay, L., Cetin, G. and Simsek, D. (2021), "The interface between hospitality and tourism entrepreneurship, integration and well-being: a study of refugee entrepreneurs", *International Journal of Hospitality Management*, Vol. 97, 103013.
- Anning-Dorson, T. (2017), "How much and when to innovate: the nexus of environmental pressures, innovation and service firm performance", *European Journal of Innovation Management*, Vol. 20 No. 4, pp. 599-619.
- Avgeli, V. (2018), "Sharing economy and entrepreneurship in tourism", in Sotiriadis, M. (Ed.), *The Emerald Handbook of Entrepreneurship in Tourism, Travel and Hospitality*, Emerald Publishing, Bingley, pp. 403-421.
- Bai, C., Quayson, M. and Sarkis, J. (2021), "COVID-19 pandemic digitization lessons for sustainable development of micro-and small-enterprises", *Sustainable Production and Consumption*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1016/j.spc.2021.04.035](https://doi.org/10.1016/j.spc.2021.04.035).
- Balci, G. (2021), "Digitalization in container shipping: do perception and satisfaction regarding digital products in a non-technology industry affect overall customer loyalty?", *Technological Forecasting and Social Change*, Vol. 172, 121016.
- Borowiecki, R., Siuta-Tokarska, B., Maroń, J., Suder, M., Their, A. and Żmija, K. (2021), "Developing digital economy and society in the light of the issue of digital convergence of the markets in the European union countries", *Energies*, Vol. 14 No. 9, p. 2717.
- Breier, M., Kallmuenzer, A., Clauss, T., Gast, J., Kraus, S. and Tiberius, V. (2021), "The role of business model innovation in the hospitality industry during the COVID-19 crisis", *International Journal of Hospitality Management*, Vol. 92, 102723.
- Bueechl, J., Härting, R.-Ch. and Schröder, M. (2021), "Influence of digitization on employee satisfaction in small and medium-sized enterprises", *Procedia Computer Science*, Vol. 192, pp. 2753-2760.
- Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S. and Hofacker, C. (2019), "Technological disruptions in services: lessons from tourism and hospitality", *Journal of Service Management*, Vol. 30 No. 4, pp. 484-506.
- Camarero, C. and Garrido, M.J. (2008), "The role of technological and organizational innovation in the relation between market orientation and performance in cultural organizations", *European Journal of Innovation Management*, Vol. 11 No. 3, pp. 413-434.
- Cepeda-Carrión, G., Nitzl, C. and Roldán, J.L. (2017), "Mediation analyses in partial least squares structural equation modeling: guidelines and empirical examples", in Latan, H. and Noonan, R. (Eds), *Partial Least Squares Path Modeling: Basic Concepts, Methodological Issues and Applications*, Springer, Cham, pp. 173-195.

- Chang, S., Gong, Y.P. and Shum, C. (2011), "Promoting innovation in hospitality companies through human resource management practices", *International Journal of Hospitality Management*, Vol. 30 No. 4, pp. 812-818.
- Chatterjee, S., Moody, G., Lowry, P.B., Chakraborty, S. and Hardin, A. (2020), "Information Technology and organizational innovation: harmonious information technology affordance and courage-based actualization", *The Journal of Strategic Information Systems*, Vol. 29 No. 1, 101596.
- Chatterjee, S., Chaudhuri, R., Vrontis, D. and Basile, G. (2021), "Digital transformation and entrepreneurship process in SMEs of India: a moderating role of adoption of AI-CRM capability and strategic planning", *Journal of Strategy and Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JSMA-02-2021-0049](https://doi.org/10.1108/JSMA-02-2021-0049).
- Chaudhary, S. (2019), "Implications of strategic flexibility in small firms: the moderating role of absorptive capacity", *South Asian Journal of Business Studies*, Vol. 8 No. 3, pp. 370-386.
- Chen, C.M. and Yeh, C.Y. (2012), "The causality examination between demand uncertainty and hotel failure: a case study of international tourist hotels in Taiwan", *International Journal of Hospitality Management*, Vol. 31 No. 4, pp. 1045-1049.
- Covin, J.G. and Slevin, D.P. (1989), "Strategic management of small firms in hostile and benign environments", *Strategic Management Journal*, Vol. 10, pp. 75-87.
- Covin, J.G., Eggers, F., Kraus, S., Cheng, C.-F. and Chang, M.-L. (2016), "Marketing-related resources and radical innovativeness in family and non-family firms: a configurational Approach", *Journal of Business Research*, Vol. 69 No. 12, pp. 5620-5627.
- Dang, V.T. and Wang, J. (2022), "Building competitive advantage for hospitality companies: the roles of green innovation strategic orientation and green intellectual capital", *International Journal of Hospitality Management*, Vol. 102, 103161.
- Datta, P. and Nwankpa, J.K. (2021), "Digital transformation and the COVID-19 crisis continuity planning", *Journal of Information Technology Teaching Cases*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1177/2043886921994821](https://doi.org/10.1177/2043886921994821).
- Davidson, E. and Vaast, E. (2010), "Digital entrepreneurship and its sociomaterial enactment", *Proceedings of the 43rd Hawaii International Conference on System Sciences*, pp. 1-10.
- Diamantopoulos, A. and Winklhofer, H.M. (2001), "Index construction with formative indicators: an alternative to scale development", *Journal of Marketing Research*, Vol. 38 No. 2, pp. 269-277.
- Diamantopoulos, A., Sarstedt, M., Fuchs, M., Wilczynski, P. and Kaiser, S. (2012), "Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective", *Journal of the Academy of Marketing Science*, Vol. 40, pp. 434-449.
- Dijkstra, T.K. and Henseler, J. (2015), "Consistent partial least squares path modeling", *MIS Quarterly*, Vol. 39 No. 2, pp. 297-316.
- Doborjeh, Z., Hemmington, N., Doborjeh, M. and Kasabov, N. (2022), "Artificial intelligence: a systematic review of methods and applications in hospitality and tourism", *International Journal of Contemporary Hospitality Management*, Vol. 34 No. 3, pp. 1154-1176.
- Duda, J. and Gąsior, A. (Eds) (2022), *Industry 4.0. A Global Perspective*, Routledge, New York.
- Elia, G., Margherita, A. and Passiante, G. (2020), "Digital entrepreneurship ecosystem: how digital technologies and collective intelligence are reshaping the entrepreneurial process", *Technological Forecasting and Social Change*, Vol. 150, 119791.
- European Commission (2018), "*Shaping the Digital (R)evolution in Agriculture*", European Commission, EIP-AGRI, available at: <https://ec.europa.eu/eip/agriculture/en/publications/eip-agri-brochure-shaping-digital-revolution>
- European Commission (2020), "Tourism and transport in 2020 and beyond", COM(2020) 550 final. Brussels, 13.5.2020, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1591191111789&uri=CELEX:52020DC0550>

- Fadda, N. (2018), "The effects of entrepreneurial orientation dimensions on performance in the tourism sector", *New England Journal of Entrepreneurship*, Vol. 21 No. 1, pp. 22-44.
- Falk, R.F. and Miller, N.B. (1992), *A Primer for Soft Modeling*, University of Akron Press, Akron.
- Farrukh, M., Ansari, N.Y., Raza, A., Meng, F. and Wang, H. (2022), "High-performance work practices do much, but H.E.R.O does more: an empirical investigation of employees' innovative behavior from the hospitality industry", *European Journal of Innovation Management*, Vol. 25 No. 3, pp. 791-812, doi: [10.1108/EJIM-11-2020-0448](https://doi.org/10.1108/EJIM-11-2020-0448).
- Filieri, R., D'Amico, E., Destefanis, A., Paolucci, E. and Raguseo, E. (2021), "Artificial intelligence (AI) for tourism: an European-based study on successful AI tourism start-ups", *International Journal of Contemporary Hospitality Management*, Vol. 33 No. 11, pp. 4099-4125.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Fu, H., Okumus, F., Wu, K. and Köseoglu, M.A. (2019), "The entrepreneurship research in hospitality and tourism", *International Journal of Hospitality Management*, Vol. 78, pp. 1-12.
- Gale, M. and Aarons, C. (2018), "Why people matter far more than digital technology or capital", *Strategic HR Review*, Vol. 17, pp. 29-32.
- Geisser, S. (1974), "A predictive approach to the random effect model", *Biometrika*, Vol. 61, pp. 101-107.
- Gomezeli-Omerzel, D.G. (2016), "A systematic review of research on innovation in hospitality and tourism", *International Journal of Contemporary Hospitality Management*, Vol. 28 No. 3, pp. 516-558.
- Gotteland, D., Shock, J. and Sarin, S. (2020), "Strategic orientations, marketing proactivity and firm market performance", *Industrial Marketing Management*, Vol. 91, pp. 610-620.
- Grissemann, U., Pikkemaat, B. and Weger, C. (2013), "Antecedents of innovation activities in tourism: an empirical investigation of the Alpine hospitality industry", *Tourism: An International Interdisciplinary Journal*, Vol. 61 No. 1, pp. 7-27.
- Güzel, Ö., Ehtiyar, R. and Ryan, C. (2021), "The Success Factors of wine tourism entrepreneurship for rural area: a thematic biographical narrative analysis in Turkey", *Journal of Rural Studies*, Vol. 84, pp. 230-239.
- Guttentag, D.A. and Smith, S.L. (2017), "Assessing Airbnb as a disruptive innovation relative to hotels: substitution and comparative performance expectations", *International Journal of Hospitality Management*, Vol. 64, pp. 1-10.
- Hair, N., Wetsch, L.R., Hull, C.E., Perotti, V. and Hung, Y.-T.C. (2012), "Market orientation in digital entrepreneurship: advantages and challenges in a web 2.0 networked world", *International Journal of Innovation and Technology Management*, Vol. 9 No. 6, pp. 1-17.
- Hair, J.F., Hult, T.M., Ringle, C.M. and Sarstedt, M. (2017), *A Primer on Partial Least Square Structural Equation Modeling (PLS-SEM)*, Sage Publications.
- Hair, J., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2022), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 3rd ed., SAGE Publications.
- Hanelt, A., Bohnsack, R., Marz, D. and Antunes, C. (2021), "A systematic review of the literature on digital transformation: insights and implications for strategy and organizational change", *Journal of Management Studies*, Vol. 58 No. 5, pp. 1159-1197.
- Hashim, N.H. and Murphy, J. (2007), "Branding on the web: evolving domain name usage among Malaysian hotels", *Tourism Management*, Vol. 28 No. 2, pp. 621-624.
- Helm, S., Eggert, A. and Garnefeld, I. (2010), "Modeling the impact of corporate reputation on customer satisfaction and loyalty using partial least squares", in Esposito Vinzi, V., Chin, W., Henseler, J. and Wang, H. (Eds), *Handbook of Partial Least Squares. Springer Handbooks of Computational Statistics*, Springer, Berlin-Heidelberg, pp. 515-534.

- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, Vol. 43, pp. 115-135.
- Hernández-Perlines, F., Cisneros, M.A.I., Ribeiro-Soriano, D. and Mogorrón-Guerrero, H. (2019), "Innovativeness as a determinant of entrepreneurial orientation: analysis of the hotel sector", *Economic Research – Ekonomska Istraživanja*, Vol. 33 No. 1, pp. 2305-2321.
- Hu, L.-T. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives", *Structural Equation Modeling*, Vol. 6 No. 1, pp. 1-55.
- Hughes, M. and Morgan, R.E. (2007), "Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth", *Industrial Marketing Management*, Vol. 36, pp. 651-661.
- Hull, C.E., Hung, Y.-T.C., Hair, N., Perotti, V. and DeMartino, R. (2007), "Taking advantage of digital opportunities: a typology of digital entrepreneurship", *International Journal of Networking and Virtual Organizations*, Vol. 4 No. 3, pp. 290-303.
- Ivanov, S. and Webster, C. (2019), "Economic fundamentals of the use of robots, artificial intelligence, and service automation in travel, tourism, and hospitality", in *Robots, Artificial Intelligence and Service Automation in Travel, Tourism and Hospitality*, Emerald Publishing, Bingley, pp. 39-55.
- Jacob, M. and Groizard, J.L. (2007), "Technology transfer and multinationals: the case of Balearic hotel chains' investments in two developing economies", *Tourism Management*, Vol. 28 No. 4, pp. 976-992.
- Jaeger, N.A., Zacharias, N.A. and Brettell, M. (2016), "Non-linear and dynamic effects of responsive and proactive market orientation: a longitudinal investigation", *International Journal of Research in Marketing*, Vol. 33 No. 4, pp. 767-779.
- Kallmuenzer, A. and Peters, M. (2018), "Innovativeness and control mechanisms in tourism and hospitality family firms: a comparative study", *International Journal of Hospitality Management*, Vol. 70, pp. 66-74.
- Kallmuenzer, A., Kraus, S., Peters, M., Steiner, J. and Cheng, C.-F. (2019), "Entrepreneurship in tourism firms: a mixed-methods analysis of performance driver configurations", *Tourism Management*, Vol. 74, pp. 319-330.
- Kam-Sing Wong, S. (2014), "Impacts of environmental turbulence on entrepreneurial orientation and new product success", *European Journal of Innovation Management*, Vol. 17 No. 2, pp. 229-249.
- Kapron, Z. and Meertens, M. (2017), "Social networks, e-commerce platforms, and the growth of digital payment eco-systems in China: what it means for other countries", Better Than Cash Alliance Research Series, Case Study, 19th April, available at: <https://www.betterthancash.org/tools-research/case-studies/social-networks-ecommerce-platforms-and-the-growth-of-digital-payment-ecosystems-in-china>
- Khan, S.H., Majid, A., Yasir, M. and Javed, A. (2021), "Social capital and business model innovation in SMEs: do organizational learning capabilities and entrepreneurial orientation really matter?", *European Journal of Innovation Management*, Vol. 24 No. 1, pp. 191-212.
- Kim, Y.R. and Lin, S.-C. (2021), "The non-linear relationship between brand diversification and hotel owner performance: the roles of ownership structure and location as moderators", *Journal of Hospitality and Tourism Management*, Vol. 49, pp. 235-243.
- Klarner, P., Sarstedt, M., Höck, M. and Ringle, C.M. (2013), "Disentangling the effects of team competences, team adaptability, and client communication on the performance of management consulting teams", *Long Range Planning*, Vol. 46, pp. 258-286.
- Kock, N. (2015), "Common method bias in PLS-SEM: a full collinearity assessment approach", *International Journal of E-Collaboration*, Vol. 11 No. 4, pp. 1-10.
- Koh, K.Y. and Hatten, T.S. (2002), "The Tourism Entrepreneur: the overlooked player in tourism development studies", *International Journal of Hospitality and Tourism Administration*, Vol. 3 No. 1, pp. 21-48.

-
- Kohli, R. and Melville, N.P. (2019), "Digital innovation: a review and synthesis", *Information Systems Journal*, Vol. 29 No. 1, pp. 200-223.
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F.L. and Spitzer, J. (2019), "Digital entrepreneurship: a research agenda on new business models for the twenty-first century", *International Journal of Entrepreneurial Behavior and Research*, Vol. 25 No. 2, pp. 353-375.
- Kusa, R., Duda, J. and Suder, M. (2021), "Explaining SME performance with fsQCA: the role of entrepreneurial orientation, entrepreneur motivation, and opportunity perception", *Journal of Innovation and Knowledge*, Vol. 6 No. 4, pp. 234-245.
- Kusa, R., Duda, J. and Suder, M. (2022), "How to sustain company growth in times of crisis: the mitigating role of entrepreneurial management", *Journal of Business Research*, Vol. 142, pp. 377-389.
- Laws, E. (2020), "Commemorating Thomas Cook", *Tourism Management*, Vol. 77, 104036.
- Lichtenthaler, U. (2011), "Open innovation: past research, current debates, and future directions", *Academy of Management*, Vol. 25 No. 1, pp. 75-93.
- Liu, Y. and Wang, M. (2022), "Entrepreneurial orientation, new product development and firm performance: the moderating role of legitimacy in Chinese high-tech SMEs", *European Journal of Innovation Management*, Vol. 25 No. 1, pp. 130-149.
- Liu, Y., Dong, J., Mei, L. and Shen, R. (2022), "Digital innovation and performance of manufacturing firms: an affordance perspective", *Technovation*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1016/j.technovation.2022.102458](https://doi.org/10.1016/j.technovation.2022.102458).
- Lomberg, C., Urbig, D., Stöckmann, C., Marino, L.D. and Dickson, P.H. (2017), "Entrepreneurial orientation: the dimensions' shared effects in explaining firm performance", *Entrepreneurship Theory and Practice*, Vol. 41 No. 6, pp. 973-998.
- Lumpkin, G.T. and Dess, G.G. (1996), "Clarifying the entrepreneurial orientation construct and linking it to performance", *Academy of Management Review*, Vol. 21, pp. 135-172, doi: [10.2307/258632](https://doi.org/10.2307/258632).
- Luo, Y., Peng, Y. and Zeng, L. (2021), "Digital financial capability and entrepreneurial performance", *International Review of Economics and Finance*, Vol. 76, pp. 55-74.
- MacKinnon, D.P., Fairchild, A.J. and Fritz, M.S. (2007), "Mediation analysis", *Annual Review Psychology*, Vol. 58 No. 1, pp. 593-614.
- Martin-Rojas, R., Garcia-Morales, V.J. and Mihi-Ramirez, A. (2014), "Knowledge-based organization in tourism industry", *Inżynieria Ekonomika – Engineering Economics*, Vol. 25 No. 1, pp. 82-93.
- Melhem, S.B., Zeffane, R. and Albaity, M. (2018), "Determinants of employees' innovative behavior", *International Journal of Contemporary Hospitality Management*, Vol. 30 No. 3, pp. 1601–1620.
- Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, Vol. 29 No. 7, pp. 770-791.
- Ministry of Sport and Tourism of the Republic of Poland (2021), "Central list of hotel Facilities (Centralny wykaz obiektów hotelarskich)", available at: <https://turystyka.gov.pl/cwoh> (accessed 10 November 2021).
- Morakanyane, R., Grace, A.A. and O'Reilly, P. (2017), "Conceptualizing digital transformation in business organizations: a systematic review of literature", *30th Bled eConference Digital Transformation – From Connecting Things to Transforming Our Lives*, Bled, Slovenia, pp. 118-144.
- Nambisan, S. (2017), "Digital entrepreneurship: toward a digital technology perspective of entrepreneurship", *Entrepreneurship Theory and Practice*, Vol. 41 No. 6, pp. 1029-1055.
- Narver, J.C., Slater, S.F. and MacLachlan, D.L. (2004), "Responsive and proactive market orientation and new-product success", *Journal of Product Innovation Management*, Vol. 21 No. 5, pp. 334-347.
- Nikraftar, T. and Hosseini, E. (2016), "Factors affecting entrepreneurial opportunities recognition in tourism small and medium sized enterprises", *Tourism Review*, Vol. 71 No. 1, pp. 6-17.

- Nitzl, C., Roldan, J.L. and Cepeda-Carrión, G. (2016), "Mediation analysis in partial least squares path modeling: helping researchers discuss more sophisticated models", *Industrial Management and Data Systems*, Vol. 116 No. 9, 18491864.
- Njoroje, M., Anderson, W., Mossberg, L. and Mbura, O. (2020), "Entrepreneurial orientation in the hospitality industry: evidence from Tanzania", *Journal of Entrepreneurship in Emerging Economies*, Vol. 12 No. 4, pp. 523-543.
- Orfila-Sintes, F., Crespi-Cladera, R. and Martínez-Ros, E. (2005), "Innovation activity in the hotel industry: evidence from Balearic Islands", *Tourism Management*, Vol. 26 No. 6, pp. 851-865.
- Pärl, Ü., Viin, T. and Piirman, M. (2022), "Estonia and COVID-19 crisis: changes in markets and business models in tourism sector", in Duda, J. and Kusa, R. (Eds), *Entrepreneurship, Innovation, and Crisis: SME Responses to COVID-19 Pandemic*, Routledge, New York.
- Paget, E., Dimanche, F. and Mounet, J.-P. (2010), "A tourism innovation case: an Actor-Network Approach", *Annals of Tourism Research*, Vol. 37 No. 3, pp. 828-847.
- Palacios-Marqués, D., Roig-Dobón, S. and Comeig, I. (2017), "Background factors to innovation performance: results of an empirical study using fsQCA methodology", *Quality and Quantity*, Vol. 51, pp. 1939-1953.
- Palos-Sanchez, P. and Saura, J.R. (2018), "The effect of internet searches on afforestation: the case of a green search engine", *Forests*, Vol. 9 No. 2, p. 51.
- Parra-López, C., Reina-Usuga, L., Carmona-Torres, C., Sayadi, S. and Klerkx, L. (2021), "Digital transformation of the agrifood system: quantifying the conditioning factors to inform policy planning in the olive sector", *Land Use Policy*, Vol. 108, 105537.
- Peixoto, M.R., Paula, F.d.O. and da Silva, J.F. (2022), "Factors that influence service innovation: a systematic approach and a categorization proposal", *European Journal of Innovation Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/EJIM-05-2021-0268](https://doi.org/10.1108/EJIM-05-2021-0268).
- Pelet, J.-É., Lick, E. and Taieb, B. (2021), "The internet of things in upscale hotels: its impact on guests' sensory experiences and behavior", *International Journal of Contemporary Hospitality Management*, Vol. 33 No. 11, pp. 4035-4056.
- Penco, L., Profumo, G., Serravalle, F. and Viassone, M. (2022), "Has COVID-19 pushed digitalisation in SMEs? The role of entrepreneurial orientation", *Journal of Small Business and Enterprise Development*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JSBED-10-2021-0423](https://doi.org/10.1108/JSBED-10-2021-0423).
- Pereira-Moliner, J., Molina-Azorín, J.F., Tari, J., Lopez-Gamero, M.D. and Pertusa-Ortega, E.M. (2021), "How do dynamic capabilities explain hotel performance?", *International Journal of Hospitality Management*, Vol. 98, 103023.
- Peters, M. and Kallmuenzer, A. (2018), "Entrepreneurial orientation (EO) in family firms: the case of the hospitality industry", *Current Issues in Tourism*, Vol. 21 No. 1, pp. 21-40.
- Petrou, A. and Daskalopoulou, I. (2009), "Innovation and small firms' growth prospects: relational proximity and knowledge dynamics in a low-tech industry", *European Planning Studies*, Vol. 17 No. 11, pp. 1591-1604.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H. and Memon, M.A. (2018), *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using SmartPLS 3.0: An Updated Guide and Practical Guide to Statistical Analysis*, 2nd ed., Pearson, Kuala Lumpur.
- Ratten, V. (2018), "Entrepreneurial intentions of surf tourists", *Tourism Review*, Vol. 73 No. 2, pp. 262-276.
- Ratten, V. (2020), "Tourism entrepreneurship research: a perspective article", *Tourism Review*, Vol. 75 No. 1, pp. 122-125.
- Rauch, A., Wiklund, J., Lumpkin, G.T. and Frese, M. (2009), "Entrepreneurial orientation and business performance: an assessment of past research and suggestions for the future", *Entrepreneurship Theory and Practice*, Vol. 33 No. 3, pp. 761-787.

- Reis, J., Amorim, M., Melao, N. and Matos, P. (2018), "Digital transformation: a literature review and guidelines for future research", in Rocha, A., Adeli, H., Reis, L.P. and Costanzo, S. (Eds), *Trends and Advances in Information Systems and Technologies*, Springer International Publishing, Cham, pp. 411-421.
- Ringle, C.M., Wende, S. and Becker, J.-M. (2015), *SmartPLS 3*, SmartPLS GmbH, Boenningstedt, available at: <http://www.smartpls.com>
- Rodríguez-Anton, J.M. and Alonso-Almeida, M.D.M. (2020), "COVID-19 impacts and recovery strategies: the case of the hospitality industry in Spain", *Sustainability*, Vol. 12 No. 20, p. 8599.
- Sainaghi, R., Phillips, P. and d'Angella, F. (2019), "The balanced scorecard of a new destination product: implications for lodging and skiing firms", *International Journal of Hospitality Management*, Vol. 76, pp. 216-230.
- Salguero, A.G. and Espinilla, M. (2018), "Ontology-based feature generation to improve accuracy of activity recognition in smart environments", *Computers and Electrical Engineering*, Vol. 68, pp. 1-13.
- Schumpeter, J.A. (1911), *The Theory of Economic Development*, Harvard University Press, Cambridge.
- Sen, S., Savitskie, K., Mahto, R.V., Kumar, S. and Khanin, D. (2022), "Strategic flexibility in small firms", *Journal of Strategic Marketing*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1080/0965254X.2022.2036223](https://doi.org/10.1080/0965254X.2022.2036223).
- Sestino, A., Prete, M.I., Piper, L. and Guido, G. (2020), "Internet of Things and Big Data as enablers for business digitalization strategies", *Technovation*, Vol. 38, 102173.
- Sheivachman, A. (2018), *Smart Hotel Guest Rooms Are Almost Here*, Skift, February 13th available at: <https://skift.com/2018/02/13/smart-hotel-guest-rooms-are-almost-here/> (accessed 28 February 2022).
- Sigala, M. (2012), "Exploiting web 2.0 for new service development: findings and implications from the Greek tourism industry", *International Journal of Tourism Research*, Vol. 14 No. 6, pp. 551-566.
- Sion, G. (2019), "Smart city big data analytics: urban technological innovations and the cognitive internet of things", *Geopolitics, History, and International Relations*, Vol. 11 No. 2, pp. 69-75.
- Škare, M., Riberio Soriano, D. and Porada-Rochoń, M. (2021), "Impact of COVID-19 on the travel and tourism industry", *Technological Forecasting and Social Change*, Vol. 163, 120469.
- Smith, M., Busi, M., Ball, P. and Van der Meer, R. (2008), "Factors influencing and organisation's ability to manage innovation: a structured literature review and conceptual model", *International Journal of Innovation Management*, Vol. 12 No. 4, pp. 655-676.
- Sudman, S. and Bradburn, N. (1982), *Asking Questions: A Practical Guide to Questionnaire Design*, Jossey-Bass, San Francisco.
- Svahn, F., Mathiassen, L. and Lindgren, R. (2017), "Embracing digital innovation in incumbent firms: how Volvo Cars managed competing concerns", *MIS Quarterly*, Vol. 41, pp. 239-253.
- Tajeddini, K., Martin, E. and Ali, A. (2020), "Enhancing hospitality business performance: the role of entrepreneurial orientation and networking ties in a dynamic environment", *International Journal of Hospitality Management*, Vol. 90, 102605.
- Tajudeen, F.P., Nadarajah, D., Jaafar, N.I. and Sulaiman, A. (2022), "The impact of digitalisation vision and information technology on organisations' innovation", *European Journal of Innovation Management*, Vol. 25 No. 2, pp. 607-629.
- Teece, D.J. (2018), "Profiting from innovation in the digital economy: enabling technologies, standards, and licensing models in the wireless world", *Research Policy*, Vol. 47, pp. 1367-1387.
- Teece, D.J. and Linden, G. (2017), "Business models, value capture, and the digital enterprise", *Journal of Organization Design*, Vol. 6 No. 8, pp. 1-14.
- Tsou, H.T. and Chen, J.S. (2021), "How does digital technology usage benefit firm performance? Digital transformation strategy and organisational innovation as mediators", *Technology Analysis and Strategic Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1080/09537325.2021.1991575](https://doi.org/10.1080/09537325.2021.1991575).

- Urban, B. and Maphumulo, M. (2021), "The moderating effects of entrepreneurial orientation on technological opportunism and innovation performance", *European Journal of Innovation Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/EJIM-12-2020-0509](https://doi.org/10.1108/EJIM-12-2020-0509).
- Valeri, M. and Baggio, R. (2021), "A critical reflection on the adoption of blockchain in tourism", *Information Technology and Tourism*, Vol. 23, pp. 121-132.
- Venkatraman, N. (1989), "Strategic orientation of business enterprises: the construct, dimensionality, and measurement", *Management Science*, Vol. 35 No. 8, pp. 942-962.
- Vial, G. (2019), "Understanding digital transformation: a review and a research agenda", *Journal of Strategic Information Systems*, Vol. 28, pp. 118-144.
- Viglia, G., Pera, R. and Bigné, E. (2018), "The determinants of stakeholder engagement in digital platforms", *Journal of Business Research*, Vol. 89, pp. 404-410.
- Vila, M., Enz, C. and Costa, G. (2012), "Innovative practices in the Spanish hotel industry", *Cornell Hospitality Quarterly*, Vol. 53 No. 1, pp. 75-85.
- Vilkas, M., Bikfalvi, A., Rauleckas, R. and Marcinkevicius, G. (2022), "The interplay between product innovation and servitization: the mediating role of digitalization", *Journal of Business and Industrial Marketing*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JBIM-03-2021-0182](https://doi.org/10.1108/JBIM-03-2021-0182).
- Volkoff, O. and Strong, D.M. (2013), "Critical realism and affordances: theorizing IT-associated organizational change processes", *MIS Quarterly*, Vol. 37 No. 3, pp. 819-834.
- Wales, W.J., Kraus, S., Filser, M., Stöckmann, C. and Covin, J.G. (2021), "The status quo of research on entrepreneurial orientation: conversational landmarks and theoretical scaffolding", *Journal of Business Research*, Vol. 128, pp. 564-577.
- Wang, Y.-S., Li, H.-T., Li, C.-R. and Zhang, D.-Z. (2016), "Factors affecting hotels' adoption of mobile reservation systems: a technology-organization-environment framework", *Tourism Management*, Vol. 53, pp. 163-172.
- Wang, S., Hung, K. and Huang, W.-J. (2019), "Motivations for entrepreneurship in the tourism and hospitality sector: a social cognitive theory perspective", *International Journal of Hospitality Management*, Vol. 78, pp. 78-88.
- Woo, L., Assaf, A.G., Josiassen, A. and Kock, F. (2019), "Internationalization and hotel performance: agglomeration-related moderators", *International Journal of Hospitality Management*, Vol. 82, pp. 48-58.
- WTTC (2021), "Travel & tourism economic impact 2021: global economic impact & trends 2021", available at: <https://wttc.org/Research/Economic-Impact>
- Xiao, Q., O'Neill, J.W. and Mattila, A.S. (2012), "The role of hotel owners: the influence of corporate strategies on hotel performance", *International Journal of Contemporary Hospitality Management*, Vol. 24 No. 1, pp. 122-139.
- Yallop, A.C., Gică, O.A., Moisescu, O.I., Coroş, M.M. and Séraphin, H. (2021), "The digital traveller: implications for data ethics and data governance in tourism and hospitality", *Journal of Consumer Marketing*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JCM-12-2020-4278](https://doi.org/10.1108/JCM-12-2020-4278).
- Yang, Y., Cao, Y. and Yang, L.T. (2017), "Product diversification and property performance in the urban lodging market: the relationship and its moderators", *Tourism Management*, Vol. 59, pp. 363-375.
- Zahra, S.A. (2021), "International entrepreneurship in the post Covid world", *Journal of World Business*, Vol. 56 No. 1, 101143.
- Zhang, B., Huang, X., Li, N. and Law, R. (2017), "A novel hybrid model for tourist volume forecasting incorporating search engine data", *Asia Pacific Journal of Tourism Research*, Vol. 22 No. 3, pp. 245-254.
- Zhao, Y. and Kong, S. (2022), "Firms' openness in specialized search and digital innovation among process-oriented mining enterprises: a moderated mediation model", *Resources Policy*, Vol. 75, 102466.

- Zhao, X., Lynch, J.G. and Chen, Q. (2010), "Reconsidering baron and Kenny: myths and truths about mediation analysis", *Journal of Consumer Research*, Vol. 37 No. 2, pp. 197-206.
- Zhu, Z., Zhao, J. and Bush, A.A. (2020), "The effects of e-business processes in supply chain operations: process component and value creation mechanisms", *International Journal of Information Management*, Vol. 50, pp. 273-285.

Corresponding author

Joanna Duda can be contacted at: aduda@zarz.agh.edu.pl

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com