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The consequences of the COVID-19 pandemic on marketing performance considering the role of technology (Case study: Iranian chain hotels)

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ABSTRACT

The extant paper aims to explore the effects of the COVID-19 pandemic on marketing activities. In this respect, the study adopted Structural Equation Modeling (SEM) using SPSS26 and Smart PLS-3 to analyze the descriptive survey that was distributed among 200 hotel managers. The findings revealed that although the pandemic affected the technology application in the hospitality sector positively, it also has negative impacts on marketing performance. The results also illustrated the considerable effect of technology on marketing performance. Thus, by providing a comprehensive research model, the study calls on hotel managers and executives to reconsider their marketing activities.

Introduction

Just after the outbreak of the Covid-19 across the world, many countries set strict travel bans (tourism restrictions, border closures, etc.) to prevent further spread (Nuseira and Aljumahb, 2020). Most of the countries in the world enforced partial or complete border closures, and the travel ban impacted the majority of the world's population. The hotel industry is among the four main pillars of tourism and traveling which has been severely influenced by this pandemic crisis (Zanker & Kock, 2020; Hemmington & Neill, 2021). Hence, The industry faced the crisis of reduced demand and high costs that threated the profitability (Polemis, 2020). Around 113 countries placed global travel bans since the outbreak of the pandemic until the first half of 2020. The World Tourism Organization has estimated a 60–80% decline in 2020 compared to the previous year, which is 15–20 times more than the case of the 2008 global financial crisis. The World Travel and Tourism Council has estimated that over 100 million jobs in hotel and tourism industries were in danger that over half of them were in Asia (International Trade Center, 4: 1). Then, after the decline of COVID-19 in 2021 and 2022, tourism tripled from January to July 2022 (+172%) compared to the same period of 2021 (UNWTO, 2022).

On the other hand, the profitability crisis in the hotel industry made a decline in the number of workforces (Zou et al., 2020). Hotels also laid off thousands of people to reduce their costs in response to their economic crisis (Khan et al., 2021). Under such circumstances, technology and its capabilities can be a solution for hotels to implement their marketing strategies with minimal costs (Gursoy & Chi, 2020).

Nowadays, traditional marketing strategies are no more adequate to create an advantage to foster sustainable competitive growth since the business environment has become competitive. The emergence of technology-based approaches in traditional marketing necessitates the development of effective strategic marketing initiatives (Hamidi & Safabakhsh, 2011).

The emergence of Digital marketing strategies with the help of technology such as constant monitoring and activity in social media, close investigation of customer feedback on websites and social media, responding to customer feedback, and regular activity on the hotel and tourism websites are assumed to have a considerable impact on the marketing performance of different sectors especially hospitality industry and hotel management (De Pelsmacker et al., 2018). Moreover, technology has made it possible to implement new ideas, approaches, and models in hotel marketing according to customer needs during the coronavirus pandemic (Gursoy & Chi, 2020).

Even before the pandemic, marketers were under pressure to reduce marketing costs and adopt low-cost and more effective methods for marketing activities. However, accurate marketing performance criteria have been overlooked in some companies and organizations (Gao, 2010). Furthermore, scarcely have companies measured the role of

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technology in overall performance of companies. Most of the studies conducted in this field have also neglected the hotel industry (Bouwman et al., 2018). Besides, given the coronavirus outcomes, few empirical studies have been conducted on its impacts on the hotel industry. The rarely conducted studies have also investigated total income and performance rather than the role of technology (khan et al., 2021; Hemmington & Neill, 2021).

Moreover, a glance at the literature review in Iran indicates that no empirical study has been carried out on the relationship between the hotel and the coronavirus pandemic.

The present study fills the research gap in the literature from several aspects. Firstly, although studies have been conducted on the impact of the COVID-19 pandemic on the performance of hotels, no study has investigated the influence of this pandemic on marketing performance. Secondly, despite the positive impacts reported regarding the technology and its role in improving marketing performance, its mediating role in the relationship between marketing performance and the coronavirus pandemic has not been studied. Thirdly, although the COVID-19 pandemic has damaged the hotel industry which is among the most important industries, few comprehensive research has been seen in this area.

Literature review and hypotheses development

The use of technology in marketing means taking the advantage of various types of technological means to offer goods and services to end-users and improve sales rates (Jain & Yadav, 2017: 49). For instance, the use of social media such as Instagram and Facebook can be named as a cost-effective marketing strategy to increase hotel reservations (De Pelsmacker et al., 2018; Chu et al., 2019). Moreover, the use of more advanced technologies like robots or self-service technologies in hotel activities positively affects customers (Kim et al, 2021; Liu and Yang, 2021).

Marketing performance refers to the performance of companies operating in the field of marketing such as those involved in the direct advertisement, presence in social media, in-person advertisement, and email marketing, and is evaluated using a set of financial and non-financial tools (O'sullivan & Abela, 2007). Marketing performance assessment is of the most significant ways to determine the overall performance of the business especially under critical situations that in turn may contribute to the success of marketing strategies and sales (Beukes & Van Wyk, 2016).

The influence of technology on marketing performance

The COVID-19 resulted in almost 100% cancellation of hotels worldwide and the global travel fell by 30 percent in just 30 days (Her & Rodrigues, 2021). This made companies and managers reconsider their marketing activities by using technological advancements. In this respect, it has been revealed that new technological approaches like digital marketing could impact the sales, profit and customers in a positive and profitable way (Baharuddin et al, 2022). Han et al. (2021) explored the use of mobile technologies in hotel management and it was found that mobile technology can improve the customer management activities in hospitality. Ahmad et al. (2019) investigated the influence of social media on the performance of various businesses and demonstrated that the use of social media for marketing purposes can leave positive impacts on company performance such as customer motivation to choose the brand (nonfinancial performance) and sales (financial performance). Bouwman et al. (2017, 2018) investigated the influence of digital marketing strategies on business models and demonstrated that big data and information technologies can leave a positive impact on the business models and companies and improve marketing performance. Jain and Yadav (2017) also suggested that companies can achieve higher productivity through small reducing expenditures if they manage taking the advantage of technology to make real-time connections with the customers and provide them advertisements with the right content and at the right time. The COVID-19 outbreak also contributed to the faster penetration of AI and technology into the hospitality industry. Also, Kuo et al. (2017) demonstrated that service innovation using new technological means such as robots can improve hotels' sustainable competitiveness. Thus, the first hypothesis is developed as follows:

Hypothesis 1. The use of technology has a positive influence on hotels' marketing performance.

The influence of the COVID-19 crisis on marketing performance

The business theory suggests that all organizations must consider three types of hypotheses: the hypotheses concerning the organizational environment, those concerning the accomplishment of organizational missions, and those concerning the resources that help attaining the organizational goals. These hypotheses become particularly important under critical circumstances such as the case of the COVID-19. Thus, organizations (whether providing goods or services) should change their business model in case of an economic crisis (Gregurec et al., 2021). In this regard, the fear of the coronavirus and economic crisis prevents the hotels from investing much in innovative marketing strategies which can leave an adverse influence on marketing performance (Gursoy & Chi, 2020). Under unpredicted circumstances such as the COVID-19 pandemic, the uncertainty regarding the future events of the business world prevents hotels from making the right decisions regarding appropriate marketing strategies (Khan et al., 2021; Shahin & Topal, 2018). Several other researchers found that the coronavirus pandemic left direct effects on the economic and financial performance of the hotels (Davahli et al., 2020; Hemmington & Neill, 2021). Khan et al. (2021) found that the two factors of fear of COVID-19 and fear of the economic crisis would result in adverse effect on marketing performance. The second hypothesis is formed as the following:

Hypothesis 2. The COVID-19 pandemic has a negative impact on hotel marketing performance.

The influence of COVID-19 on the use of technology

George et al. (2020) found that the COVID-19 pandemic accelerated the use of digital technologies. For instance, remote technologies, modern payment systems, and cryptocurrency became more widespread. Digital transformation is happening faster than ever in various sectors. Vargo et al. (2021) also realized that use of a variety of 28 types of different technologies ranging from personal computers to laptops, cellphones, and even artificial intelligence has increased during the pandemic. Accordingly, as explained by Jiang & Wen (2020) and (Gregurec et al., 2021), the COVID-19 outbreak can thus be anticipated to accelerate the penetration of AI and modern technology trends into the hospitality industry. The following hypothesis is proposed based on the aforementioned papers and given the importance of the role of COVID-19 pandemic on increasing the use of technology in hotels.

Hypothesis 3. The COVID-19 pandemic has increased the use of technology in hotels.

Research method

The present study is empirical research in terms of goal and is considered a descriptive survey in terms of the data collection method. The research population included all top and middle-level managers of the famous and international 3, 4, and 5-star hotels of Tehran, Mashhad, and Rasht. Based on the mentioned database, 420 managers and executives were determined.

According to the 420 sampling population, 200 managers of three, four, and five-star hotels were selected by convenience sampling using

the Morgan table, and the necessary information was collected from them by a questionnaire between June to December 2021. In Table 1, the demographic features of the population were presented.

This study concentrates on a convenience sampling method followed by non-probability samples. Convenience sampling is an appropriate way for a researcher to gather information faster and more effectively from the available members (Sekaran and Bougie, 2019).

Measures

All the measurement items were developed based on the review of the most relevant literature on marketing performance and related studies. In this regard, a standard questionnaire containing two sections was developed for data collection. The first section of the research questionnaire included hotel information and respondent data. The second part was related to the variables' questions.

Marketing performance

Marketing performance was measured with the seven items of the O'sullivan and Abela (2007) scale. Questions in this section included two separate parts on the ability to evaluate marketing performance (Q1 to Q5) and marketing consequences (Q6-Q7). A five-point Likert scale was used to answer the questions ranging from 1 (strongly disagree) to 5 (strongly agree).

COVID-19 epidemic

COVID-19 epidemic was measured with ten items of Reznik et al. (2020), Giorgi et al. (2015) and Khan et al. (2021). The two components of fear of the COVID-19 disease(Q1-Q5) and fear of the subsequent financial crisis (Q6-Q10) were used to assess the COVID-19 outcomes. A five-point Likert scale was used to answer the questions ranging from 1 (strongly disagree) to 5 (strongly agree).

Technology

Technology was measured with seven items of Ahmad et al. (2019) and De Pelsmacker et al. (2018). A five-point Likert scale was used to answer the questions ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1
Demographic features of population sample.

		Frequency	Frequency percentage	Cumulative frequency percentage
experience	1 to 5 years	72	0.36	0.36
	6 to 10 years	70	0.35	0.71
	more than 10 years	58	0.29	1.00
Hotel location	Tehran	67	0.335	0.33
	Mashhad	65	0.325	0.66
	Rasht	68	0.34	1.00
Hotel grade	3-star	68	0.34	0.34
	4-star	60	0.30	0.64
	5-star	72	0.36	1.00
Job	Top managers	90	0.45	0.45
	marketing managers	110	0.55	1.00
Education	Diploma	20	0.1	0.100
	Bachelor	130	0.65	0.75
	Master	50	0.25	1.00
Gender	Male	130	0.55	0.55
	Female	70	0.45	1.00
	Total	200	1.00	

Results

Table 2 demonstrates the statistical concepts of the variables including mean, standard deviation, elongation, and skewness. Among these, central indices are a set of parameters describing a statistical distribution and they define the state of the data relative to the center of the distribution. Mean is a suitable central index to demonstrate data centrality. For instance, the mean marketing performance is 3.21 that indicates most of the data are concentrated around this point.

Dispersion indices are other groups of parameters defining the population. Dispersion indices are criteria used to determine the extent of dispersion in data from each other or their dispersion relative to the mean. Standard deviation is among the most important dispersion indices. The higher the standard deviation of a statistical distribution is, the more data are shown as dispersed. Among the variables in the present study, marketing performance had the greatest dispersion with a standard deviation of 0.50. Skewness demonstrates asymmetry in the frequency curve. A skewness coefficient of zero indicates that the population is completely symmetrical; while, positive skewness coefficients indicate a skewness to the right side and a negative skewness coefficients indicate a skewness to the left side. Overall, the data is far from the normal distribution if the skewness and elongation are not in the range of (-2, 2) (however, some statisticians might consider a smaller range). The skewness observed for the variables in the present study is in the range of (-2, 2), which means research variables are normal in terms of skewness and have a symmetrical distribution (George & Mallery, 2010). Also, the values for asymmetry and kurtosis between -2 and $+2$ are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). Finally, the elongation of the variables also is in the range of (-2, 2), which demonstrates that the variables have a normal elongation.

Measurement model

Reliability of the measurement tools

1. Outer loads of the observed variables: the reflective measurement model is homogenous if the absolute value of each observed variable's outer load corresponds to the latent variable. In this research the model has a minimum value of 0.7. For this purpose, the outer loading values were investigated. Some have recommended removing the variables with outer loadings smaller than 0.4 from the measurement model. Also the composite reliability of the reflective measurement model increases after removing it (Hir et al., 2017).
2. Outer loading significance: Results of investigating factor (outer) loading's significance indicated that a hypothesis is confirmed if the obtained corresponding value is larger than the minimum confidence level. This value entails a minimum t statistic of 1.64, 1.96, and 2.58 at 90%, 95%, and 99% significance levels.
3. Cronbach's alpha and composite reliability: Cronbach's alpha is used to assess questionnaires or tests measuring various instruments in which various values can be assigned as the answer to each question. To calculate Cronbach's alpha, the variance of the scores of each set of questions on the questionnaire and the total variance must be calculated. The Cronbach's alpha assumes that the observable variables of the measurement models have the same weights and considers their relative importance to be equal. To address this problem, an index proposed by Werts et al. (1974) that is called composite reliability is used. The factor loadings of the items that are used in this index demonstrate composite reliability better than Cronbach's alpha.

As it is demonstrated in Table 3, the factor loads of all items are over 0.4 which means the measurement model is homogenous and the values of factor loads are acceptable. The t statistic is over 2.58 for all items, which means that the relationship between the items and their

Table 2
Statistical information of variables.

Indicator	Central	Dispersion		Distribution form		
	Average	standard deviations	variance	skewness	Kurtosis	elongation
Marketing performance	3.2161	0.50543	0.255	−0.387	1.784	1.963
Corona epidemic	3.6683	0.47539	0.226	−0.382	0.994	1.607
Technology	3.4152	0.45198	0.204	0.803	1.651	0.099

corresponding variable is confirmed at the 99% confidence level. Results of composite reliability and Cronbach's alpha also demonstrated that these indices had values higher than 0.7 for all latent variables, so the reliability of the measurement tool was confirmed using these two indices (Henseler & Fassott, 2009; Hair et al., 2017).

Validity of the measurement tool

1. Convergent validity: convergent validity refers to the extent that which latent variables are explained by the observed variables (Barclay et al., 1995). The minimum value of 0.5 is an acceptable amount for the average variance extracted which indicates that the observed variables explain at least 50% of the latent variables.
2. Divergent or discriminant validity: Divergent or discriminant validity of a reflective measurement model investigates the distinction between the latent and observable variables in the model. Discriminant validity is complementary to convergent validity and demonstrates the distinction of the indicators of a latent variable from other indicators in the same structural model.
3. The Fornell-Larcker test: This criterion states that a latent variable must have a higher dispersion among its observables compared to other latent variables so one can state that it has high divergent validity. Thus, the root mean of each latent variable must be greater than its maximum correlation considering the other latent variables (Fornell et al., 2006).
4. The heterotrait-monotrait ratio of correlations (HTMT). This criterion assesses the discriminant validity as shown in Table 5. The discriminant validity assessment ensures that a reflective construct has the strongest relationships with its own indicators (e.g., in comparison with any other constructs) in the PLS path model (Hair et al., 2022).

If the HTMT value is below 0.90, discriminant validity is established between two reflective constructs. As Table 5 shows, the obtained values for all components are less than 9.0 and acceptable.

As Table 4 demonstrates, the variance of latent variables in the study indicates that all variables are over 0.5. Thus, the convergent validity of the measurement tool was confirmed using the index of average variance extracted.

According to Table 4, the root mean of each latent variable was greater than its maximum correlation with other latent variables. The divergent validity of the measurement model was confirmed using the Fornell-Larcker test. Also, according to Table 5, the discriminant validity for all components is established.

Given that the results of first-order factor analysis of exogenous and endogenous variables indicated that all constructs had sufficient validity and reliability. Thus, the general structure of the conceptual model of the study is examined in this section to determine whether the data confirm the theoretical relationships hypothesized by the author at the conceptual framework development stage.

Fig. 1 (path coefficients) examines the path coefficients of the variables and the effect of each independent variable on the dependent variable. Path coefficients range between −1 and 1, indicating the greater influence of the independent variable on the dependent variable.

The coefficient of determination indicates the extent to which the variance of the dependent variable is explained by the independent variables. Table 6 demonstrates the coefficients of determination. Another criterion used to examine structural models is the effect size. Cohen (1988) has suggested the values of 0.02, 0.15, and over 0.35 to be poor, moderate, and strong values for this index, respectively.

The adjusted coefficient of determination was 0.824 for marketing performance and 0.729 for technology indicating that around 82% of the changes in marketing performance and 72% of the changes in the use of technology are influenced by the COVID-19 pandemic. Results of investigating the effect size indicated that all of the effects were strong or greater than moderate.

Path coefficient significance (beta): The Path coefficient is among the indexes used to confirm relationships in structural models. Path coefficient significance is a complement to the path coefficient and the beta coefficient of the model demonstrates the direction. A hypothesis or relationship is confirmed if the obtained value for this index is greater than the statistic at the desired significance level. The minimum t statistic of this index is 1.64, 1.96, and 2.58 at 90%, 95%, and 99% significance levels.

Fig. 2 demonstrates the significance of path coefficients. The obtained results from this figure have been explained in the result section.

Model predictive power or CV Red is another criterion used to investigate structural models. This index seeks to examine the model's ability to have blindfolding prediction. The Q^2 index is the most distinguished and popular criterion used to measure this ability, based on which the model must predict the indicators of reflective indigenous latent variables. Positive variables obtained for this test indicate the favorable quality of the structural model (Henseler & Fassott, 2009). The three values of 0.02, 0.15, and 0.35 have been introduced as weak, moderate, and strong for respectively (Henseler & Fassott, 2009).

Table 7 indicates that the model's predictive power for dependent variables was strong.

Overall fitting of the structural equations model

Models investigated through software with a variance-based approach such as the Smart PLS lack a general index to review the whole model. It means that there is no index to examine the entire model as in the case of covariance-based approaches. However, various studies in this field have proposed the index of GOF introduced by Tenenhaus et al. (2005). This index considers both the measurement and structural model at the same time and examines their quality. This index is calculated manually as mean common values and mean R^2.

$$GOF = \sqrt{\overline{communalities} + \overline{R^2}}$$

This index is the square root of the multiplication of average common values and the average coefficient of determination. Since the value of this index depends on the two aforementioned indices, it ranges between zero and 1. Wetzels et al. (2009) have proposed the three values of 0.01, 0.25, and 0.36 as weak, moderate, and strong values respectively.

Given the value obtained for GOF was 0.472 that is higher than the strong value proposed by Wetzels et al. (2009), the model is strongly fit and the overall fitness of the model is thus confirmed as it is seen in Table 8. The favorable value for the root square of the standardized mean squared mean is a maximum of 0.08. The value for this index was 0.071 in the present study that is a favorable value and confirms the overall fitness of the model as presented on Table 9.

Table 3
Results of measuring the reliability of the model.

	items		first time			second time		Dimensions		Total	
			Factor load	Statistics t	P Values	Factor load	Statistics t	P Values	Cronbach's alpha (α)	Composite reliability	Cronbach's alpha (α)	Composite reliability
COVID-19 epidemic	Fear of COVID-19	Q1	0.546	7.848	0.000	0.858	36.223	0.000	0.7	0.805	0.7	0.805
		Q2	0.498	7.168	0.000							
		Q3	0.469	6.208	0.000							
		Q4	0.676	14.592	0.000							
		Q5	0.668	11.869	0.000							
	Fear of economic crisis	Q6	0.767	19.722	0.000	0.958	183.984	0.000	0.903	0.929		
		Q7	0.862	43.614	0.000							
		Q8	0.862	52.667	0.000							
		Q9	0.813	33.632	0.000							
		Q10	0.765	27.463	0.000							
Marketing performance	Ability to evaluate marketing performance	Q11	0.819	23.766	0.000	0.982	298.962	0.000	0.918	0.938	0.934	0.947
		Q12	0.853	40.888	0.000							
		Q13	0.884	43.458	0.000							
		Q14	0.823	27.026	0.000							
		Q15	0.88	44.329	0.000							
	Marketing implications	Q16	0.806	25.732	0.000	0.906	49.369	0.000	0.828	0.921		
		Q17	0.866	39.292	0.000							
Technology		Q1	0.848	35.675	0.000						0.894	0.919
		Q2	0.851	34.523	0.000							
		Q3	0.803	23.329	0.000							
		Q4	0.774	21.631	0.000							
		Q5	0.829	27.472	0.000							
		Q6	0.854	40.834	0.000							
		Q7	0.506	7.091	0.000							

Results & discussion

(1) The use of technology has a positive effect on hotels' marketing performance

The results of testing this hypothesis indicated that the path coefficient of the influence of technology on hotel marketing performance was 0.598 which represents a positive value. The t statistic of this relationship was 8.195 which is significant at the 99% confidence level (P-value $\leq$ 0.01). Thus, the null hypothesis is rejected and the alternative hypothesis is confirmed. This indicates that the use of technology has a significant and positive impact on hotel marketing performance.

(2) The COVID-19 pandemic has a negative effect on hotel marketing performance.

The results of testing this hypothesis indicated that the path coefficient of the influence of the COVID-19 pandemic on hotel marketing performance was −0.343 which is a negative value. The t statistic of this relationship was 4.615 which is significant at the 99% confidence level (P-value $\leq$ 0.01). Thus, the null hypothesis is rejected and the alternative hypothesis is confirmed, indicating that the COVID-19 pandemic has a significant and negative impact on hotel marketing performance.

(3) The COVID-19 pandemic has increased the use of technology in hotels.

The results of testing this hypothesis indicated that the path coefficient of the influence of the COVID-19 pandemic on the use of technology in hotels was 0.858 which is a positive value. The t statistic of this relationship was 37.150 which is significant at the 99% confidence level (P-value $\leq$ 0.01). Thus, the null hypothesis is rejected and the alternative hypothesis is confirmed, indicating that the COVID-19 pandemic has a significant and positive impact on the use of technology in hotels.

Also, Sobel Test is performed for calculating the mediating role and the effect of using technology on marketing performance during COVID-19(Corona Epidemic).

Sobel test

$$Z - value = \frac{a \times b}{\sqrt{(b^2 \times s_a{}^2) + (a^2 \times s_b{}^2)}}$$

$$Z - value = \frac{(0.854) \times (0.598)}{\sqrt{((0.598)^2 \times (0.0039)^2) + ((0.854)^2 \times (0.0064)^2)}} = 8.598$$

$$VAF = \frac{a \times b}{(a \times b) + c}$$

$$VAF = \frac{(0.854) \times (0.598)}{(0.854) \times (0.598) + (0.343)} = 0.598$$

Because the VAF is between 20% and 80%, it is a partial mediation (Hair et al., 2013).

Conclusion

The increasing technological developments in the contemporary world highlight the need to study the consequences of the COVID-19 pandemic on marketing. In other words, the need for developing marketing activities and the role of technology has become more tangible than ever before due to the recent global pandemic.

The present paper sought to investigate the influence of using technologies on marketing performance considering the role of the COVID-19 pandemic. Marketing strategies based on digital technologies can have an overall positive impact on the marketing performance of hotels since they help users visit social media pages more often and review the

Table 4
Fornell-Larker test and mean variance extracted.

	Fear of economic crisis	Fear of COVID-19	Ability to evaluate marketing performance	Technology	Marketing implications	AVE
Fear of economic crisis	0.851					0.724
Fear of COVID-19	0.675	0.745				0.555
Ability to evaluate marketing performance	0.758	0.614	0.867			0.753
Technology	0.825	0.617	0.864	0.789		0.623
Marketing implications	0.768	0.617	0.810	0.722	0.924	0.853

Table 5
HTMT test results.

	Fear of economic crisis	Fear of COVID-19	Ability to evaluate marketing performance	Technology	Marketing implications
Fear of economic crisis					
Fear of COVID-19	0.692				
Ability to evaluate marketing performance	0.755	0.811			
Technology	0.349	0.691	0.722		
Marketing implications	0.786	0.357	0.698	0.847	

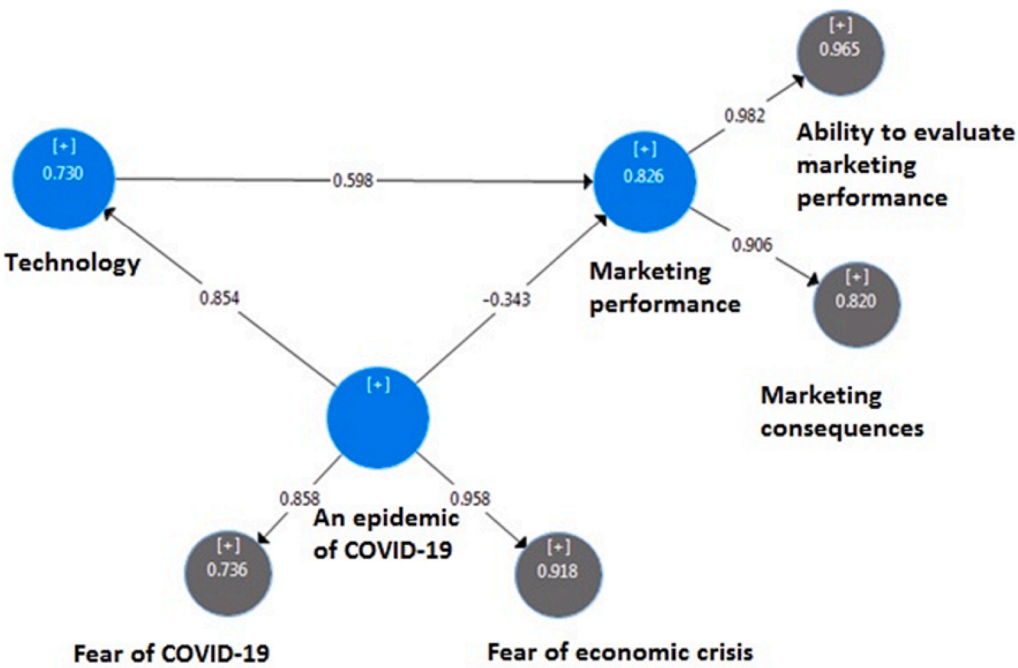

Fig. 1. Structural model coefficients.

Table 6
Determination factor and effect size.

	The coefficient of determination			Effect size	
	The coefficient of determination	Adjusted coefficient of determination		Marketing performance	Technology
Marketing performance	0.826	0.824	Technology	0.555	
Technology	0.730	0.729	COVID-19 epidemic	0.182	2.702

comments of others. It has been revealed that new technological approaches like digital marketing could impact sales and profits and customers in a positive and profitable way (Baharuddin et al., 2022). Overall, digital marketing strategies can influence the marketing performance of hotels and increase their reservation rates given the widespread use of social media since they offer customized services to the users of digital media (De Pelsmacker et al., 2018).In this respect, the result of the present study confirmed the first hypothesis and it showed that the use of technology has a positive influence on hotels' marketing performance.

As mentioned, the challenges of the COVID-19 pandemic require hotels to reconsider their business structure and narrow down their offers. (Lau,2020). Along with previous research, the second hypothesis of this study also confirmed this drawback and explained that the COVID-19 pandemic has a negative impact on hotels marketing performance. Result of this hypothesis is in line with the results of Reznik et al. (2020) and Khan et al. (2021). It goes without saying that the COVID-19 pandemic has left undeniable influences on businesses all around the

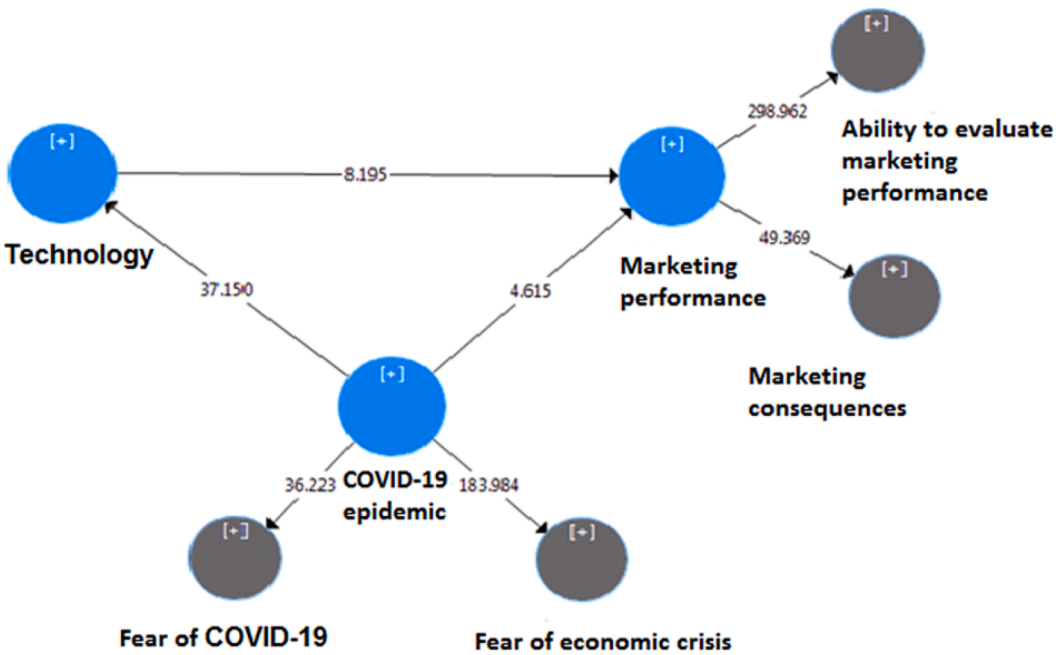

Fig. 2. Significance of structural model path coefficients.

Table 7
Model predictive power.

	Q^2 (=1-SSE/SSO)
Marketing performance	0.551
Technology	0.420

world, and the hotel industry is among the industries that suffer more than other businesses due to the lockdowns and travel bans. Thus, fear of the COVID-19 and its subsequent economic crisis have both weakened the influence of digital marketing strategies implemented by hotels (Reznik et al., 2020).

In addition to mentioned results, George et al. (2020) found that the COVID-19 pandemic accelerated the use of digital technologies. Particularly during COVID-19, the use of technology in the hotel industry has increased vastly. These items are all among the measures that hotels can take the advantage of technology to increase the number of clients. Taken together, the third hypothesis of this research was also confirmed and indicated that the COVID-19 pandemic has increased the use of technology in the hospitality industry. Finally, the results of the present study were consistent with De Pelsmacker et al. (2018), and Ahmad et al. (2019) as well.

The main contribution of present study is to fill the research gaps in the relationship between hotel and its performance and the coronavirus pandemic. The essential findings of this study are as followed: Firstly, although studies have been conducted on the impact of the COVID-19 pandemic on the performance of hotels, no study has yet investigated the influence of this pandemic on marketing performance. Also, a review of the research conducted in Iran indicates that no empirical study has yet been carried out on the relationship between hotel and the coronavirus pandemic. The present study is among the first to investigate the influence of technology on marketing performance during the coronavirus crisis. Secondly, despite the positive impacts reported for technology and its role in improving marketing performance, its mediating role in the relationship between marketing performance and the coronavirus pandemic has not been studied. Thirdly, the COVID-19 pandemic has damaged the hotel industry which is among the important industries.

Further, given the considerable impacts of the COVID-19 on the economic conditions of hotels and the irreparable damages happened to the tourism industry, the results of the present study can help improve hotels' marketing performance during such difficult times. Hotels can no longer rely on traditional marketing strategies. Thus, adopting new strategies that the use of digital technologies such as augmented reality (AR) or virtual reality(VR), Visualization of hotel facilities and services in Metaverse, artificial intelligence and robotics, careful review of user comments on tourism websites and reviewing appropriate feedback has become much easier because of the emergence of new technologies

Table 9
Summary of the results of the hypotheses.

	Assumptions	Path coefficient	Statistics t	P Values	Result
1	Technology -> Marketing Performance	0.598	8.195	0.000	Confirmation
2	Corona Epidemic -> Marketing Performance	−0.343	4.615	0.000	Confirmation
3	Corona Epidemic -> Technology	0.854	37.150	0.000	Confirmation

Table 8
Results of the overall model fit.

Variable	The coefficient of determination	√ The coefficient of determination	Shared values	√ Shared values	GOF
Marketing performance	0.826	0.607	0.718	0.777	0.472
Technology	0.730		0.623		
COVID-19 epidemic			0.501		
The second root of the standardized mean squared mean (SRMR)					0.071

(Khan et al., 2021).

This study will assist companies in planning business analytics and increasing their performance by checking the marketing consequences and the ability to evaluate the marketing performance of their hotel every month during the COVID-19 pandemic or post-COVID-19. This study will add to existing knowledge about previous literature, especially in the Covid-19 pandemic situation.

The results of this study contribute to acquiring a complete understanding of marketing performance of hotels during the COVID-19 pandemic. In case of dealing with uncertainty of fear of COVID-19 and economic crisis's, managers must be able to analyze the market, and technological environment and use modern technology-oriented services. In terms of the influence of technology, it is important to improve marketing evaluations by developing the skills and abilities of managers in new technological trends in hospitality industry, so that they can contribute to increasing innovation. Other findings also suggest that the COVID-19 pandemic increased the use of technology in the hotel industry, which is consistent with the results of Khan et al. (2021).

Limitations and recommendations

Future studies are recommended to examine the long-term impacts of technology-oriented strategies after the end of the current crisis. It is also recommended to investigate the influence of other factors such as organizational innovation and the psychological health of hotel staff as the factors that influence the marketing performance of hotels.

This study has a few limitations that should be acknowledged. First, we relied upon a convenience sample of managers and experts in Iran. It would be valuable to generate this model and test findings with a broader and wider range of samples to remove the generalization. The context of the studied country can also be applied to other countries to compare business performance and marketing performance during the Covid-19 pandemic.

Secondly, this research was conducted under the effect of COVID-19 on marketing activities of enterprises. So, it would be interesting if it is investigated in a post-COVID condition. Also, as the nature of this research is quantitative, future research with different methodologies is recommended.

CRediT authorship contribution statement

Mahsa Akbari: Supervision, Methodology, Software, Conceptualization, Investigation, Project administration, Writing – review & editing. **Saeed Bagheri Anilu:** Data curation, Conceptualization, Writing – original draft. **Mostafa Bigdeli:** Writing – review & editing. **Masoud Rezasoltany:** Visualization, Investigation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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