Journal of System Management (JSM)
Online ISSN: 2538-1571, Print ISSN: 2322-2301
Doi: 10.30495/JSM.2023.1990610.1841
10(1), 2024, pp. 133-154

Received: 04/07/2023
Accepted: 12/10/2023

RESEARCH ARTICLE **Open Access**

Virtual Reality (VR) Alongside Social Media Marketing Activities (SMMAs) as a Solution for Management Information Systems (MIS)

Yazdan Shirmohammadi [1*], Parisa Abyaran[2], Mike Peters[3]

Abstract

The importance of social media and the online world in promoting tourism destinations, particularly in the current era where businesses rely heavily on management information systems (MIS), cannot be overstated. The main objective of this research is to explore the impact of Virtual Reality (VR) in conjunction with Social Media Marketing Activities (SMMAs) on tourists' state flow, subjective well-being, and continued use in future visits. The study involved collecting data from 384 visitors using a non-probability convenience sampling method. Specifically, the study examines the use of SMMAs within the context of MIS. The findings demonstrate that VR and MIS are vital tools for digital marketing, with VR, in particular, playing a crucial role in boosting revisit rates to tourism destinations.

Keywords: *Virtual Reality (VR), Social Media Marketing Activities (SMMAs), Management Information System (MIS), Tourism, Destination*

Introduction

Virtual reality (VR) has become an increasingly prominent tool for consumer marketing (Hamad and Jia, 2022). Business analysts propose that development of VR is comparable in importance to that of social media (Morris, 2016). Compared with other types of information technologies, VR has great potential for promoting destinations because of the immersive sensations and social presence that it can provide to users (Beck et al., 2019. Tourism management information systems (MIS) is a system that uses computer technology to provide timely and accurate information and services to tourists, and on the other hand, helps the management of tourism in the decision-making process and daily operations (Zargham and Alborzi, 1998). It can be inferred that the world is facing dramatic changes in all dimensions, especially market competition, technological innovations, and customer needs (Rahimi et al., 2023). These changes have improved business priorities and strategic vision (Aslan and Çınar, 2018). In such a situation, it is argued that tourism through VR can be a temporary replacement for real tourism and provide conditions for real tourism and MIS growth (Campos et al., 2007). Social media networks, as one of the most essential tools, with their capabilities and facilities, have had a profound impact on the social aspects of users in various communities. The new technology of VR has affected both tourism suppliers and tourists (Beck et al., 2019) and has improved their travel experience (Moro et al., 2019). In other words, VR is a new technology that aims at blurring the line between the virtual and real world. In a digital environment, people interact with the virtual world displayed through a headset and experience the feeling

1*. Associate Professor, Department of Business Management, Payame Noor University (PNU), Tehran, Iran (Corresponding Author: y.shirmohammadi@pnu.ac.ir)
2. Master of Executive Management of Payame Noor University (PNU), Tehran, Iran
3. Professor, University of Innsbruck, Department of Strategic Management, Marketing and Tourism

of being there without being physically present (Pizzi, 2019; Loureiro et al., 2020). In other words, by creating a multi-sensory environment, the new VR technology can provide potential tourists with the opportunity to pre-experience the destination (Prodinger & Neuhofer, 2022). Since VR is convenient and more economical to access and as it has no time or space constraints, users often feel pleasure when interacting with it. Recent research shows that VR usage can lead to an increase in subjective well-being and consumers' loyalty (Falahatgar, et al., 2021; Singleton, 2019; Tussyadiah et al., 2018).

Moreover, the easiness, usefulness, and enjoyment perceived by VR users are considered a prelude to their flow state, which leads to their subjective well-being when interacting with this technology, and the continuous use of VR. As a result, the number of real tourists can increase (Walters et al., 2022; Kim & Hall, 2019). The feeling of pleasure and excitement as a form of satisfaction is one of the main reasons why people use the 3D world in tourism (Jeon et al., 2020). The number of users taking advantage of VR is steadily increasing (Walters et al., 2022; Kim & Hall, 2019). Therefore, it can be said that the increasing progress of new technologies and most people's dependence on the virtual world has affected their consumption behaviour toward products and services (El-Said & Aziz, 2021). Virtual communities are slowly and incredibly influencing the tourism industry, and consumers are increasingly trusting information technology (IT) and environments (Abdelraheem et al., 2021). To further investigate this issue, the current study attempts to investigate the impact of SMMAs alongside VR through state flow, subjective well-being, and continued use in future visitation, concurrently with MIS activities. Furthermore, it shows how SMMAs can act as a tool to better introduce tourism destinations alongside MIS activities. Moreover, to explain both the role of VR and SMMAs, this article first discusses the topic and then highlights the activities of MIS to attract tourists.

This study contributes to the consumer behaviour and tourism and technology literature by examining the relationships between state flow, subjective well-being and continued use considering the effects of SMMAs and VR. This study is significant because previous research has failed to examine these relationships simultaneously.

We have taken a localized approach to our research, with the aim of identifying factors that are particularly relevant to Iran and that play a key role in shaping its tourism industry. Through our research, we seek to provide a nuanced understanding of the Iranian tourism market, its intricacies and challenges, as well as the opportunities available to stakeholders within this space.

Literature Review

Theoretical foundation of the study

Baskerville and Myers (2002) showed that MIS as "the development, service, and application of information systems by individuals, organizations, and community." Also, Becta (2005) described an information system as "a system consisting of the network of all communication media used in an organization". Filip (2007) in their study defined MIS as "the study of information systems with a focus on their use in business and management". The definitions mentioned above indicated that MIS emphasized the development, application and validation of relevant theories and models in an effort to encourage quality work in the area. Handzic (2001) also considers the effect of information availability on people's ability to process and use information in short- and long-term planning and in decision-making tasks. He revealed that the better the availability of information, the better the impact on both efficiency and accuracy of business decisions. In the current business environment, firms need to make changes in order to survive, which can be in the form of innovations that are in a gradual to completely radical range (Souto, 2015). Moreover, Zeng and Yi Man (2021) showed

that the emotional value, cognitive value, economic value and satisfaction are endogenous latent variables and intermediate control variables. These influencing factors directly or indirectly affect post-trip behaviour intention. The experiential value influences behavioural intentions through satisfaction in ecotourism and leisure tourism, etc. Moreover, the study of French et al. (2017) confirmed that trust is significantly related to social capital in the context of social network research. Their study also provides an understanding of the value of social media for the collaborative economy and the elements that improve customer engagement for the development of smart tourism. SMMAs are considered the key driver in the development of VR (Chen & Lin, 2019; Suanpang, 2020). Guttentag (2010) considered using VR in the tourism industry as important in six areas: planning and management, marketing, entertainment, access, education and heritage protection. Mohamed and Naby (2017) argue that VR improves the tourist's awareness, and understanding the nature of tourism services and destinations and as a powerful marketing tool, can be effective in the decision-making process and destination selection. In addition, Beck et al. (2019) highlighted that the development of VR technology could be helpful as a marketing tool for promotion and communication in the pre-travel phase. Doty et al. (2020), and Berhanu and Raj (2020) believed that using the Internet is very useful for social interaction, facilitating social conflicts, and reducing isolation.

Scott et al. (2009) stated that the social interaction of tourists is considered a critical factor in the tourist experience. They believe that new perspective on the relationship between destination and tourist is required. For instance, destinations should be considered as a basis on which tourists create their experiences via interaction with the destination. Seo and Park (2018) showed that trendiness is the most essential component of SMMAs, and they further noted that airline SMMAs has a significant effect on brand awareness and brand image. Moreover, their results showed that brand awareness considerably affects commitment and brand image significantly affects online word-of-mouth and commitment. Also, in her study of insurance services, Sano (2015) used interaction, customization, trendiness, and perceived risk as the four components of SMMAs. Accordingly, Godey et al. (2016) defined trendiness as providing the latest information about products or services. The level of customization indicates the extent to which a service reflects the needs of customers to satisfy their tastes (Schmenner, 1986). Social media customization is based on direct contact with users, which is different from general advertising media (Kiyomarsi et al., 2021). It is possible to provide optimized information produced separately by different sources for customers, and this customization is used as a strategy to create positive perceived control and customer satisfaction (Ding & Keh, 2016; Nam & Yeo, 2011). In another study, Gao et al. (2017) concluded that pleasure motivation plays a crucial role in creating a sense of satisfaction and word-of-mouth. Social media customization is also a tool for companies to share the uniqueness of their brands and improves preferences and loyalty to those brands (Martin and Todorov, 2010). Furthermore, online entertainment pages provide a unique opportunity for tourism executives to benefit from positive partnerships between the brand and the consumer (Shirmohammadi & Abyaran, 2020). Bogicevic et al. (2019) examined the effect of VR technology on creating consumer tourism experiences before they visit the destination. Their findings show that a preview by VR leads to a further expansion of the mental image. Kim and Hall (2019) showed that characteristics such as perceived easiness, perceived usefulness and perceived enjoyment from technology are necessary for a person to be in a state of flow. When a technology has these capabilities, it is accepted by people. They also concluded that flow state was strongly associated with subjective well-being. Vathanophas et al. (2008) defined two determining factors in

their model, which are perceived usefulness and perceived easiness. In their study, perceived usefulness is the degree to which a person believes that using an information system improves his or her performance whereas, perceived easiness is the degree to which a person believes that using an information system does not require effort. Also, perceived easiness and perceived usefulness have a positive effect on an individual's attitude and willingness to use and accept information systems. Xia and Shen (2018) exploited an integrated technology-based approach to examine the online experience by combining design features and social factors. The results of their research show that perceived usefulness and perceived easiness are essential factors that enhance the online experience of users with smart applications. Overall, previous studies in this field suggest that the adoption of VR technology affects subjective well-being; therefore, planners, activists, and tourism policy-makers need to consider the capabilities of VR and MIS together. This is important because Chen and Lin (2019) believe that the experience and the state of flow in people when using VR have a significant effect on stimulating tourists to a real visit of a destination. Earlier research underlined that emotional marketing, brand awareness and word-of-mouth advertising have a positive and significant effect on the intention to buy (Ismagilova et al. 2020, Anwer et al., 2021). In addition, Mariani et al. (2016) stated that the word-of-mouth advertising through social media networks such as Facebook, Twitter and YouTube play an essential role in attracting more tourists to the tourism destination with the most desirable image, forming the attitude of tourists and their behavioural tendencies.

SMMAs in the context of VR

With the expansion of MIS, social media has become increasingly popular as it allows people to interact freely with others and offers multiple ways for marketers to interact with consumers (Appel et al., 2020; Hudson et al. 2015; Weill, and Olson, 1989). The number of social media has increased rapidly in recent years and they have enabled social activities in online and global virtual space, created different and new substrates for different companies and brands (Pelet et al., 2017; Fan et al., 2019; Suanpang, 2020). MIS is a system that collects different data from information systems inside the organization. Also, it processes them and provides a tool for managers to view and explore the information they need (Karim, 2011). In tourism, creating a connection and interaction between consumer behaviour and brands through social media is a very complex and challenging task (Leung et al., 2015; Kozak et al., 2018). Therefore, social media are networks that offer and promote tourism destinations by allowing users to create and share content in a short time and cost (Munar, 2012; Kim et al., 2017; Majidian et al., 2021). Social media provide a lot of information for tourists about attractions and tourist facilities before the trip. In studies of McGowan et al. (2012) and Curran and Lennon (2011), society's attitude towards social media platforms, easiness of use, their usefulness, user friendly as well as enjoying and entertaining have been mentioned as the most influential factors in the attitude and behaviour of people in using social media (McGowanet al., 2012; Curran & Lennon, 2011). Considering the above discussion, the following hypotheses can be developed:

H1: MIS has a positive effect on more use of SMMAs.

H2: MIS has a positive effect on the perceived easiness of SMMAs

H3: MIS has a positive and significant effect on the perceived usefulness of SMMAs

H4: MIS has a positive effect on the perceived enjoyment of SMMAs

H5. SMMAs have a positive effect on perceived easiness.

H6. SMMAs have a positive effect on perceived usefulness.

H7. SMMAs have a positive effect on perceived enjoyment.

Virtual reality (VR)

Traditionally, visiting a place demands a physical presence in that destination. However, with the advent of new technologies, virtual visits received recognition. The feeling of physical presence in one place can be induced in the virtual visitor as much as possible. The purpose of VR is to bring the virtual presence of users closer to the sense of real presence in tourist destinations and encourage people to travel physically to the destination (Kim et al., 2014; Assaker, 2020). This is possible with the help of VR glasses, a combination of media and technology that enables people to interact with the simulated computer environment when using it (Herz & Rauschnabel, 2019). VR is moving into a phase of further innovation and new applications for technology (Kardong-Edgren et al., 2019). In this technology, visual content and other different meanings are produced entirely by the computer (Pizzi et al., 2019; Tussyadiah et al., 2018; Falahatgar., 2021). Virtual travel can also be an alternative to visiting inaccessible places that humans aspire to reach. In addition, virtual visits to many sensitive tourist sites can help maintain the sustainability and longevity of the facility (e.g., buildings such as cathedrals, environmentally conservation areas, etc) (Manghisi et al., 2018). One of the most popular VR experiences is the "Virtual Tour Multimedia Information Solution", which is 360-degree panoramic pictures of different parts of a tourist attraction. Users can view their surroundings 360-degrees by selecting the desired location of the introduced tourist attraction (Li, 2017). In summary, VR cannot replace real tourism, but it can create additional value for (potential) travelers (El Beheiry et al., 2019).

The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) implies that perceived usefulness and perceived easiness both refer to users' perceptions and attitudes toward technology. In other words, perceived usefulness refers to the degree to which technology can improve job performance (Kwon et al., 2014; Ramayah & Lo., 2007). Perceived easiness refers to the level or degree to which a person believes that the use of the system is without difficulty and the need for much effort (Ramayah, 2006). When users encounter a new technology, their eagerness to accept and apply it, through their understanding of the usefulness and easiness of using the system is predicted. Characteristics such as the perceived easiness, perceived usefulness, and perceived enjoyment of technology are prerequisites to put the person in a flow state. When a technology has these capabilities, it is accepted by people (Baabdullah, 2018; Disztinger et al., 2017). Perceived usefulness focuses on people's beliefs in the decision-making process and the usefulness of a system. In other words, perceived usefulness refers to a person's belief that using a particular system improves performance (Kwon et al., 2014). In other words, it refers to improving and enhancing the performance of individuals in using a particular system, which many studies have examined its effect on the intention to use (Weill & Olson, 1989; Horst et al., 2007). According to the Technology Acceptance Model (TAM), individuals form their intentions to use information technology based on their cognitive assessment of how technology will improve their performance (Polančič et al., 2010). Accounting on the above discussion, the following hypotheses are developed:

H8: Perceived easiness has a positive effect on flow state.

H9: Perceived usefulness has a positive effect on Flow State.

Perceived Enjoyment

Social media networks are a hedonistic information system that users apply with strong motivation. Because through social media, users step into another world where they can experience a positive feeling by sharing information, writing blogs, playing online games, and interacting with friends (Sun et al., 2014). Studies showed that perceived enjoyment has a positive effect on

perceived easiness and behavioural intention (Calisir et al., 2013). In fact, the feeling of pleasure comes from the excitement of using technology, regardless of the consequences of using it. Thus, the experience of a destination using the intervention of technology such as VR can also be considered an enjoyable activity, as it offers customers a unique way to feel about a destination they have never experienced before (Vishwakarma et al., 2020). Lee et al. (2019) believe that perceived enjoyment is the degree to which the use of information technology as entertainment is perceived. Contrary to the perceived usefulness and perceived easiness which are external motivations, perceived enjoyment is considered an intrinsic motivation for the use of technology. Thus, we can conclude that:
H10: Perceived enjoyment has a positive effect on flow state.

Flow State

One of the situations people experience when interacting with virtual technologies is the flow state and being immersed in that space (Hu et al., 2019). A sense of flow is an experience involving a complete engagement in an activity and the creation of an inner state that results in desirable degrees of user performance (Csikszentmihalyi, 1990; Sherman & Craig, 2019; Jackson, 1995). When a person performs a certain activity with a peak of interest and mental conflict, a state of flow is formed. In this situation, a person does not feel the passage of time and when returns to the normal state, he realizes the state that had lost (Hong et al., 2019). Moreover, flow state is considered as a key factor in the theoretical framework of pleasure to study the behaviour of technology users and can affect the behavioural intention of people who experience this feeling (García-Jurado, 2018). Understanding the flow state control factors can help e-commerce managers to increase customer experience and satisfaction (Hoodi et al., 2023), which help increase purchases, repurchases and disseminate positive word-of-mouth (Herrando et al., 2018). The state of flow that people experience is a result of their use of virtual environment which has a significant effect on motivating virtual tourists to visit a real tourism destination (Chen & Yoon, 2019; Perez-Vega, et al. 2018). Based on the above discussion the following hypotheses can be formed:
H11: Flow state has a positive effect on subjective well-being.
H12: Flow state has a positive effect on continued use.

Subjective well-being

Subjective well-being is a broader category of phenomenon that includes the emotional response of individuals, the scope of satisfaction and global judgment of life satisfaction. It refers to the efforts of individuals to perfection and promotion in the realization of individual talents and abilities (Saayman et al., 2018). Subjective well-being can be defined as the experience of happiness that includes life satisfaction and positive impact. It also includes all the positive and negative assessments people make about their lives (Martínez et al., 2019; Chen et al., 2019). It also consists of two essential components such as emotional well-being, to assess a person's feelings, and cognitive well-being, to measure a person's satisfaction with life (Chen et al., 2019; Gao et al., 2017). Zhou and Zhang (2019) believe there is a direct relationship between virtual technologies and subjective well-being. This means that users interact with this technology to achieve peace of mind due to the attractive environment and the ease and convenience of use. Therefore, people with low levels of subjective well-being can use technology to improve their subjective well-being (Yoon et al., 2014). In this study, perceived easiness, perceived usefulness, and perceived enjoyment are considered to be a factor that leads to subjective well-being when using VR technology. Moreover, in this research, the use of VR indirectly increases the subjective well-being of users of social networks. Therefore, we think that subjective well-being affects both variables of future

visitation and continued use simultaneously. We propose the following hypotheses:
H13. Subjective well-being has a positive effect on continued use.
H14. Subjective well-being has a positive effect on future visitation.

Continued Use

Satisfaction and continued use of technology is a situation that occurs to consumers differently. The level of consumer satisfaction and willingness to continue using is one of the most critical factors that leads a statistical community to the maximum use of a technology (French et al., 2017). Fulfilling the users' wants and needs and creating a positive attitude, ensures the continued use of technology. Although the adoption of new technology is the first important step, the continued and sustainable use of that technology is the basis of its success (Steelman & Soror, 2017). There are many factors influencing consumers' willingness to continue using technology and hedonic motivation, among these factors we have considered perceived easiness, perceived usefulness, and perceived enjoyment. The hedonic motivation system with three dimensions of easiness, usefulness, and enjoyment, causes people to be in a state of flow when interacting with this type of technology (Ryu et al., 2010; Tamilmani et al., 2019; Allam et al., 2019). Thus, we can propose that:
H15. Continued use has a positive effect on future visitation.

Future visitation

If tourists are satisfied and enjoyed of their first travel experience in a destination, they most likely will have the tendency to re-visit again or recommend it to others (Zeng & Yi Man, 2021). However, it is not unreasonable to expect that improving the image of the destination is a fundamental way to have future visitation, and efforts to create and enhance the image of the destination may facilitate visitation behaviours and, accordingly contribute to the success of destination in developing tourism (Htun et al., 2015). Therefore, managers of tourist destinations should work on the internal and basic elements of the destination image such as advertising, promotion, new attractions as a tool to improve the destination image (Artuger & Cetinsoz, 2017). Behavioural intentions have motivational effects on behaviour, therefore behavioural intentions are seen as the closest predictor of behaviour (Malik et al., 2013; Lee, 2009). Re-visiting or recommending a place to others usually refers to tourist loyalty in the literature and is one of the vital factors in measuring marketing strategies. Re-visiting not only provides a steady source of revenue but may also include recommended advertising. Satisfied customers will likely become loyal customers (Chin et al., 2011). The degree of loyalty to the destination is often reflected in the intentions of tourists to visit the destination and their willingness to recommend that destination (Chen & Tsai, 2007). Chen and Tsai (2007) stated that tourist behaviour includes destination selection, post-visit evaluations, and future behavioural intentions. In fact, the evaluation of future tourist behavioural intentions refers to tourists' judgments about the likelihood of visiting the same destination and their willingness to recommend it to others (Wang et al., 2019). On this account, we propose the following hypotheses:
H16. Perceived easiness has a positive effect on future visitation
H17. Perceived usefulness has a positive effect on future visitation
H18. Perceived enjoyment has a positive effect on future visitation

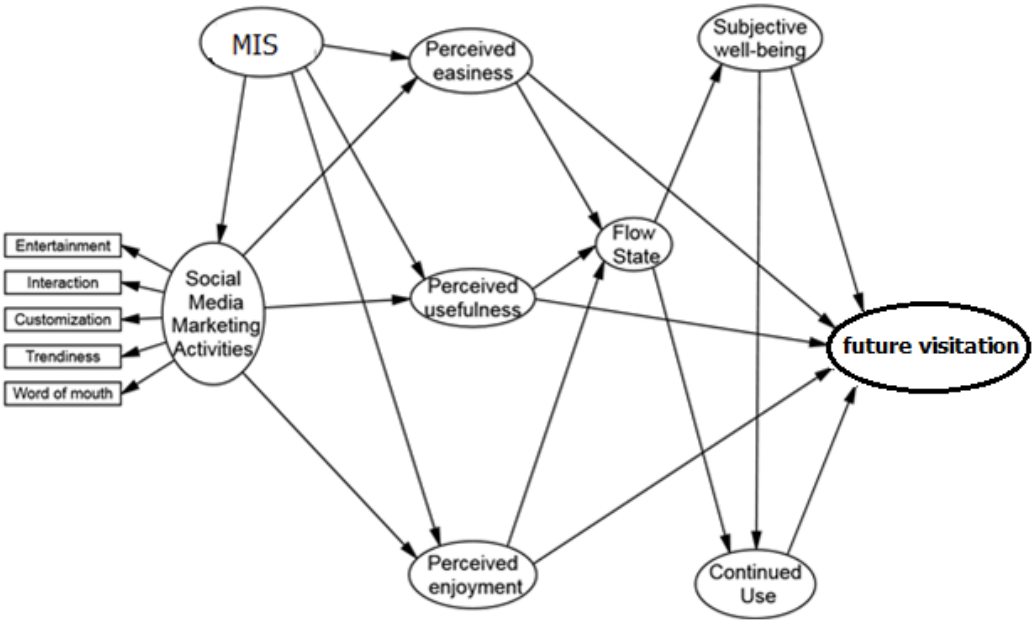

Figure 1. *Conceptual research model*

SMMAs= Social Media Marketing Activities, MIS= Management Information System, PE= Perceived easiness PU=Perceived usefulness, PN= Perceived enjoyment, FS= Flow State, SW= Subjective well-being, CU= Continued Use, VF= Future visitation.

This study presents a comprehensive research model, specifically tailored to the unique characteristics of the Iranian tourism industry. In developing the model, we have drawn upon the three highly regarded models in the field of tourism research, including the models proposed by Kim & Hall (2019), Lin & Chen (2019) and Seo and Park (2018).

Methodology

Research design, data and sample

To ensure a robust research process, a quantitative research design utilizing an online survey was employed to conduct this study. The statistical population consisted of European tourists who had visited Iran in the past and possessed experience utilizing VR technology in their travels. Specifically targeting German and French tourists, as they represent the primary traditional European markets for Iran, a convenience non-random sampling method was utilized due to the extensive and dispersed nature of this population. According to Dabbie (2016), convenience sampling is often the preferred method of choice when it is difficult to access a target population due to its diversity and accessibility. In addition, non-probability sampling was preferred in order to target respondents with the qualifications needed to participate in this study. The search focused on tourists who have previously visited Iran and utilized VR technology during their travels, with those of German and French nationalities being given priority. The survey questionnaire used to collect the data included items extracted from prior studies (See Table 1), with adjustments made to align with the objectives of this study. To source respondents for the online survey, Facebook and Instagram were utilized to obtain suitable samples of European tourists, with searches conducted using the keywords "Germany" and "France." The completion of the questionnaire was achieved by reaching out to potential candidates, and in line with Cochran's maximum number recommendation, 384 completed questionnaires were gathered. Despite distribution efforts at 407, after incomplete questionnaires were eliminated during the cleaning stage, a total of 384 acceptable questionnaires were included for analysis. The data collection phase took place between the beginning of April and end of June 2020, and the primary objective of the study was to evaluate MIS impact on SMMAs.

In this study, the factors influencing subjective well-being of virtual reality users were investigated, including perceived easiness, perceived usefulness, and perceived enjoyment as a precursor to achieving a state of flow. It was found that the use of virtual reality can indirectly enhance one's subjective well-being when engaging with social networks. Additionally, the current model reveals that subjective well-being plays a vital role in determining both Future visitation and Continued Use. By considering these insights, we can gain a better understanding of the multifaceted effects of virtual reality on users' well-being, encouraging future research in this area.

In addition to its impact on SMMAs, MIS also influences 7 other variables simultaneously. According to the statistical data, Perceived easiness, Perceived usefulness, and Perceived enjoyment have a positive and significant impact on the Flow State variable. Furthermore, the Flow State variable also has a positive and significant impact on the Subjective well-being and Continued Use variables. Additionally, the Subjective well-being variable has a positive and significant effect on Continued Use, which in turn has an impact on Future visitation variable. In other words, it can be concluded that the simultaneous use of SMMAs and MIS improves tourism and encourages repeat visits.

Measurement variables

In this study, SMMAs have been measured with five variables (Entertainment, Interaction, Customization, Trendiness, and Word-of-mouth) with 10 items from Chen and Lin (2019) study. The effects of MIS variable (The real and virtual effects) has been evaluated with 4 items from Kiradoo (2020) and Campos et al. (2007) studies. Virtual reality (VR) was measured using (Perceived easiness, Perceived usefulness, and Perceived enjoyment) with 9 items from Kim and Hall (2019) research. Flow state was measured with 3 items from Herrando et al. (2018). Subjective well-being was measured with 3 items from Kim et al. (2020). Continued use was measured with 3 items from French et al. (2017) study. Finally, future visitation variable was measured with 3 items from Zeng and Yi Man (2021).

In this study, the researcher measured SMMAs using five variables: Entertainment, Interaction, Customization, Trendiness, and Word of mouth. These variables are all still relevant and important in the context of virtual reality. The study aims to demonstrate that social networks and management information systems (MIS) are becoming more interconnected. One example of this can be seen with Facebook, a company that invests in both social networking and virtual reality. However, this trend is not limited to Facebook and is happening across industries. The model presented in the research is the result of innovation, but it builds upon and completes previous models.

Our research model is built on a strong theoretical foundation and is designed to capture the unique features of the Iranian tourism industry. We aim to identify the key drivers of success in the industry, including factors such as Social Media Marketing Activates, Managing Information System, and the quality of tourist experiences.

Our research goes beyond the traditional conceptualization of tourism research, incorporating a range of innovative methodologies and approaches, including qualitative research methods, statistical analysis, and survey techniques. By combining these different methods, we aim to provide a holistic understanding of the Iranian tourism landscape and to generate insights that will be useful to practitioners and policymakers alike.

Overall, our research model promises to make a significant contribution to the field of tourism research, providing valuable insights that will inform future research and development in this important field. We believe that our research will have important implications for the Iranian tourism industry, helping to drive growth and innovation in this vibrant and exciting sector.

Table 1.
Measurement for variable 'and items

Items	Variable	Dimensions
• Using social media about a tourism destination is much fun. • The content shown on social media about the destination is attractive	Entertainment (Chen & Lin, 2019)	Social Media Marketing Activities (SMMAs)
• It is easy to express my opinion on social media about the destination and talk or exchange views with others through social media. • Social media allows sharing information with others.	Interaction (Chen & Lin, 2019)	
• The use of social media for tourism destinations has become widespread. • The content displayed on social media about the destination contains the latest information.	Trendiness (Chen & Lin, 2019)	
• Social media offers certain information & unique services about tourism destinations. • Social media provides the information I need about a destination.	Customization (Chen & Lin, 2019)	
• I want to share information about brands, products, or services of the destination with my friends on social media. • I want to upload social media content about the destination on my blog or personal pages and I recommend it to others.	Word-of-Mouth Advertising (Chen & Lin, 2019)	
• By using MIS, I can manage to use SMMAs and virtual travel more.	The virtual effects (Campos et al., 2007)	Management Information System. (MIS).
• By using MIS, my presence in the real activities of society has diminished. • My mastery of information technology has increased with the expansion of MIS. • By using MIS, my travels have decreased, and my knowledge of tourist destinations have increased via VR.	The real effects of MIS (Kiradoo, 2020)	
• It is easy for me to understand the function of VR and the application of VR does not require mental effort. • I think using VR technology is easy and accessible. • When using VR activities, it is easy to get what I want.	Perceived easiness (Kim & Hall, 2019)	Virtual reality (VR)
• I gain knowledge when using VR and interacting with VR technology is helpful in gathering information. • Using VR is beneficial. • Using VR technology allows me to connect with other users	Perceived usefulness (Kim & Hall, 2019)	
• VR is enjoyable for me. • VR is exciting for me. • VR is similar to entertainment and makes me happy.	Perceived enjoyment (Kim & Hall, 2019)	
• When using VR, I am totally immersed in it and do not feel the passage of time. • When using VR, I forget all my worries & concerns. • I forget where I am when doing VR activities.	Flow state (Herrando et al., 2018)	
• VR is a part of my ideal life. • My living conditions and quality of life are excellent when working with VR and I am satisfied with my life. • So far, I have achieved every important thing I wanted to do while interacting with VR technology.	Subjective well-being (Kim et al., 2020)	
• I will use VR technology in the future.	Continued Use	

Items	Variable	Dimensions
• In the future, I will update the activities related to VR. • I will put VR in my travel plans.	(French et al., 2017)	
• VR encourages me to travel in the future. • VR makes me interested in tourism destination. • VR introduces me to new destinations, and I would recommend it to others.	Future visitation (Zeng and Yi Man (2021).)	

Data Analysis

We used SPSS (version 23) and AMOS software to analyse the data. AMOS is a powerful structural equation modelling software which goes beyond the usual capabilities of modelling software. The main reason for using AMOS in this study was that the data were normally distributed as this software is more appropriate when the research data is normal. The inferential data has been analysed using the Cronbach's alpha coefficient for measuring the internal consistency of the questionnaire. The KMO and Bartlett tests (See Table 2) were exploited to determine the appropriateness of the sample size and separation of the factors, respectively, and to determine the causal relationship between the variables, the structural equation modelling method was implemented.

Table 2.
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.969
Bartlett's Test of Sphericity	Approx. Chi-Square	12907.464
	Df	561
	Sig.	.000

Findings

The structural equations are based on the analysis of covariance structures, in order to analyse the normality of the data in AMOS software, the Kurtosis index between -7 and +7 is the normal distribution and the Skewness index between -3 and 3 is the normal distribution. In order to get acquainted with the respondents, their demographic variables such as: gender, age and education are presented in Table (3).

Table 3.
Survey respondents' demographic profiles

Demographics	Categories	Frequency N=384	Percent
Gender	female	221	57.6
	Male	163	42.4
Age	20-30	92	24.0
	30-40	118	30.7
	40-50	63	16.4
	50 and over	111	28.9
Education	Diploma & Less than diploma	133	34.6
	Associate degree	117	30.5
	Bachelor's degree	70	18.2
	Master's degree and higher	64	16.7

Validity and reliability of research model

In order to determine the content validity and reliability of the questionnaire, experts' opinions and Cronbach's alpha were used. Cronbach's alpha for all structures of this research is more than 0.70 (See Table 4).

Table 4.
Confirmatory Factor Analysis: validity and reliability indexes

Variables	Items	Loading	Cronbach's Alpha	CR	AVE
Social Media Marketing Activities (SMMAs)	SM1	0.616	0.924	0.929	0.567
	SM2	0.751			
	SM3	0.678			
	SM4	0.810			
	SM5	0.875			
	SM6	0.855			
	SM7	0.759			
	SM8	0.880			
	SM9	0.635			
	SM10	0.734			
The effect of MIS	MIS1	.816	0.907	0.839	0.636
	MIS2	0.879			
	MIS3	0.860			
Perceived Easiness	PE1	0.545	0.855	0.830	0.630
	PE2	0.903			
	PE3	0.884			
Perceived Usefulness	PU1	0.757	0.926	0.821	0.606
	PU2	0.911			
	PU3	0.927			
Perceived enjoyment	PN1	0.833	0.888	0.820	0.603
	PN2	0.714			
	PN3	0.757			
Flow State	FS1	0.778	0.824	0.829	0.620
	FS2	0.832			
	FS3	0.813			
Subjective Well-Being	SW1	0.909	0.912	0.908	0.768
	SW2	0.889			
	SW3	0.827			
Continued Use	CU1	0.678	0.856	0.798	0.573
	CU2	0.754			
	CU3	0.900			
Future visitation	VF1	0.948	0.946	0.902	0.754
	VF2	0.919			
	VF3	0.755			

In order to determine the validity and reliability of the model measurement section, several indicators have measured suitability because the analysis of the model measurement section before testing the structural part of the model is necessary to ensure indices. Table (5) shows the model fit indices.

Table 5.
Model fit Indices

Fit indices	Index name	Allowance amount	First fit	Final fit
Absolute-fit	CMIN/DF(Normed Chi-square Index)	5<	5.817	4.267
	RMSEA (Root Mean Squared Error of Approximation)	1<	0.112	0.092
	GFI (Goodness of Fit Index)	0.70>	0.666	0.755
Incremental-fit index	AGFI (Adjusted Goodness of Fit Index)	0.70>	0.595	0.701
	CFI (Comparative Fit Index)	0.70>	0.815	0.875
	NFI (Normed Fit Index)	0.70>	0.786	0.844
	TLI (Non- Normed Fit Index)	0.70>	0.788	0.856

Path Analysis

As mentioned before, this research is based on 18 main hypotheses and 3 mediator hypotheses. To study these hypotheses, the path analysis method has been used in AMOS software. The significance levels for testing these hypotheses are given in Table 6 and Fig 2. The basis for confirming the hypotheses is that the significance level (p-value) for them is smaller than 0.05 and the path coefficient is also positive.

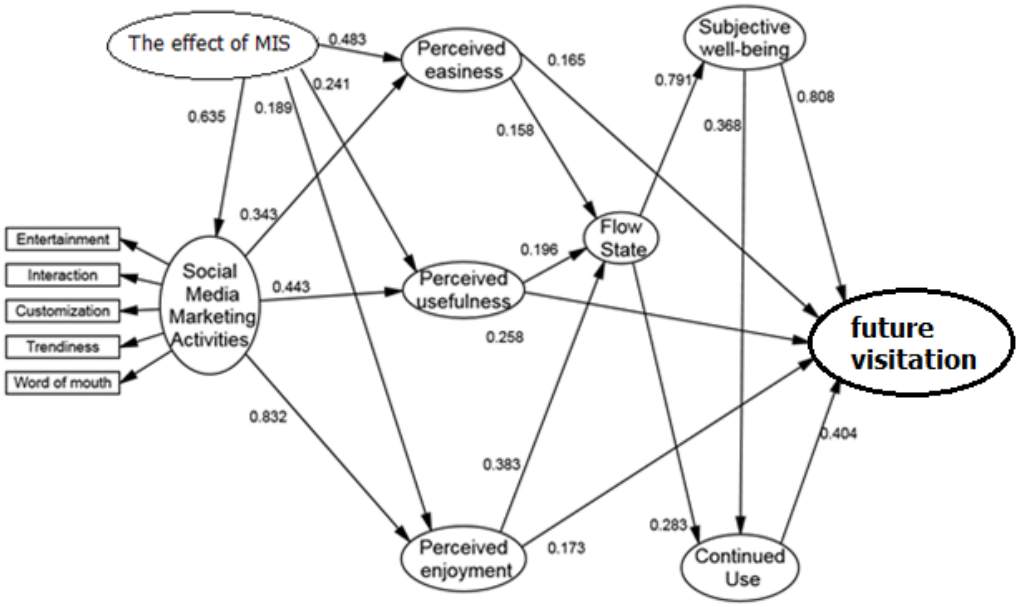

Figure 2. *Research Hypotheses Test*

Table 6.
The study research hypotheses

Hypothesis		Path		Estimate	P	Results
1	Social Media Marketing Activities (SMMAs)	<---	The Effect of MIS	0.635	.001	Confirmation
2	Perceived Easiness	<---	The Effect of MIS	0.483	.001	Confirmation
3	Perceived Usefulness	<---	The Effect of MIS	0.241	.001	Confirmation
4	Perceived Enjoyment	<---	The Effect of MIS	0.189	.001	Confirmation
5	Perceived Easiness	<---	Social Media Marketing Activities (SMMAs)	0.343	.001	Confirmation
6	Perceived Usefulness	<---	Social Media Marketing Activities (SMMAs)	0.443	.001	Confirmation
7	Perceived Enjoyment	<---	Social Media Marketing Activities (SMMAs)	0.832	.001	Confirmation
8	Flow State	<---	Perceived Easiness	0.158	.001	Confirmation
9	Flow State	<---	Perceived Usefulness	0.258	.001	Confirmation
10	Flow State	<---	Perceived Enjoyment	0.383	.001	Confirmation
11	Subjective Well-Being	<---	Flow State	0.791	.001	Confirmation
12	Continued Use	<---	Flow State	0.282	.001	Confirmation
13	Continued Use	<---	Subjective Well-Being	0.368	.001	Confirmation
14	Future visitation	<---	Subjective Well-Being	0.080	.036	Confirmation
15	Future visitation	<---	Continued Use	0.404	.001	Confirmation
16	Future visitation	<---	Perceived Easiness	0.165	.001	Confirmation
17	Future visitation	<---	Perceived Usefulness	0.196	.001	Confirmation
18	Future visitation	<---	Perceived Enjoyment	0.173	.001	Confirmation

Mediator Hypotheses

H19. Social media marketing activities have a significant and positive impact on future visitation through perceived easiness.

H20. Social media marketing activities have a significant and positive impact on future visitation through perceived Usefulness.

H20. Social media marketing activities have a significant and positive impact on future visitation through perceived Enjoyment.

Table 7.
The study research mediator hypotheses

Hypothesis	Path			Estimate	P	Results
19	Perceived Easiness	<---	Social Media Marketing Activities	0.343	.001	Confirmation
	Future visitation	<---	Perceived Easiness	0.165	.001	
20	Perceived Usefulness	<---	Social Media Marketing Activities	0.443	.001	Confirmation
	Future visitation	<---	Perceived Usefulness	0.196	.001	
21	Perceived Enjoyment	<---	Social Media Marketing Activities	0.832	.001	Confirmation
	Future visitation	<---	Perceived Enjoyment	0.173	.001	

Pearson Correlation Coefficient Test

The results of Pearson correlation test are presented in Table (8). As can be seen, all relationships are positive and significant, and the resulting P value is less than 5% error level.

Table 8.
Pearson Correlation Coefficient

Pearson Correlation Coefficient	SM	MIS	PE	PU	PN	FS	SW	CU	VF
SM	1								
MIS	0.740	1							
PC	0.694	0.746	1						
PU	0.633	0.592	0.600	1					
PN	0.808	0.679	0.644	0.609	1				
FS	0.749	0.588	0.565	0.583	0.661	1			
SW	0.789	0.658	0.621	0.592	0.728	0.727	1		
CU	0.730	0.686	0.633	0.598	0.687	0.580	0.613	1	
VF	0.717	0.705	0.663	0.648	0.703	0.589	0.643	0.753	1

Discussion

This study showed that tourism through VR plays an essential and fundamental role along with MIS. As the results of this study showed, the use of MIS had a positive and significant effect on more use of SMMAs, perceived easiness, and perceived usefulness of SMMAs. The findings also indicated that MIS had a positive effect on the perceived enjoyment of SMMAs. These findings are consistent with the research of Kiradoo (2020), Campos et al. (2007). VR also provides the ground for the development of real tourism. In the meantime, the introduction of VR through social media networks has become essential. Moreover, the results of this study also confirmed that SMMAs have a positive and significant effect on perceived easiness, perceived usefulness and perceived enjoyment. This could be considered a unique contribution because previous studies have not investigated this relationship within the context of tourist destinations. The results of this study showed that the perceived easiness, perceived usefulness, and perceived enjoyment have a positive and significant effect on the flow state, as well as, the flow state has a significant positive effect on subjective well-being and continued use of VR. This part of the research is consistent with the findings of Kim and Hall (2019). Furthermore, subjective well-being significantly affects the continued use of VR and future visitation. Also Continued use of VR has a significant effect on

future visitation as well as, the variable of future visitation intention has a positive effect on perceived easiness, perceived usefulness and perceived enjoyment. Moreover, the findings illustrated that subjective well-being and constant use have a positive and significant effect on increasing the number of real tourists. This research provides evidence that VR technology not only stimulates the actual travel but also provides a new perspective for studies related to VR technology. Therefore, VR can contain the same excitement and pleasure of travel and an authentic experience to some extent, and increase people's satisfaction with life, as well as improve future visitation.

In the study of Chen and Lin (2019), the variable of SMMAs was investigated by two factors of social identification and perceived value, but in this research SMMAs affect three factors of perceived easiness, perceived usefulness, and perceived enjoyment. Also, this research enhances the model of Kim and Hall (2019). In this study, in addition to the mentioned variables in Kim and Hall's research model, the effect of MIS on SMMAs has been examined. In addition, future visitation variable and its effect on perceived easiness, perceived usefulness, and perceived enjoyment has been investigated. Also, in this study, SMMAs have been investigated in the context of VR consists of entertainment, interaction, customization, trendiness, and word-of-mouth. These variables have not been studies simultaneously in literature. Our study contributes to the advancement of knowledge from both customers' experience and technology perspectives.

The article discusses ten items related to SMMAs, as presented by Chen & Lin (2019), in an effort to provide a comprehensive understanding of this variable. These items delve into the intricacies of SMMAs and offer insights into their various aspects, thereby enriching our knowledge and appreciation of this important concept.

The study presents an investigation on the impact of SMMAs in the context of virtual reality (VR) on tourism. Five variables, namely entertainment, interaction, customization, trendiness, and word of mouth, were measured, emphasizing the merging of social networks with VR. Additionally, the study examines the simultaneous effects of perceived usefulness, enjoyment, easiness, flow state, continued use, and future visitation of tourists. Results showed that the use of virtual reality in tourism social networks can lead to increased interest in future visitation, presenting opportunities for the tourism industry to use VR and SMMAs to promote and attract tourists.

Furthermore, the study highlights the role of SMMAs as a tool to better introduce tourism destinations in the post-pandemic era. The article discusses the challenges faced by the tourism industry and potential solutions. It emphasizes the prevalence of MIS in increasing the use of social networks, and the provision of virtual reality in platforms such as Facebook, enabling tourists to imagine themselves in destinations through virtual reality experiences. The study proposes a model that innovatively builds upon previous models, emphasizing the importance of virtual reality in the context of social networks.

In summary, the study presents a rich and meaningful discussion on the merging of social networks with virtual reality and the potential for utilizing these tools in the tourism industry. It highlights the increased prevalence and importance of social networks and virtual reality experiences in the post-pandemic era, providing managers and planners of the tourism industry with new strategies and marketing plans to enhance tourism activities.

Conclusion and Implications

This study concludes that MIS collects, provides, and prepares relevant information for management and tourism through VR plays an important and fundamental role and it should be considered as priority in destination management. The study findings suggest that SMMAs through VR foster future visitation and improves destinations' image. VR technologies and its easiness to use have the power to enhance the flow state and subjective well-being and it is an excellent marketing tool to be used in the MIS activities to provoke demand and recovery.

In other word, this study discusses the importance of using Management Information Systems (MIS) in tourism and destination management. The study suggests that MIS is essential for collecting, providing and preparing relevant information for management and that virtual reality (VR) plays a significant role in this process. The study also found that using VR in SMMAs can have a positive impact on attracting future visitors and improving the image of destinations. Additionally, the use of VR technology can enhance the flow state and overall well-being, making it an effective marketing tool to stimulate demand and recovery. Overall, this study highlights the value of incorporating VR and MIS activities into destination management strategies as a priority.

Theoretical implications

In the new era, all businesses are moving towards VR, and the tourism industry has no exception. With the expansion of MIS and the virtualization of most businesses, this trend has taken an upward trend and the use of social networks has increased. Despite the growing importance of VR tourism as an enjoyable experience (Tom Dieck et al., 2018), research on hedonic motivation systems is limited. Thus, the current study offers several valuable insights into the theory formation and verification of the Hedonic Motivation System Adoption Model (HMSAM). Theoretically, this research has validated that the flow state can be an essential mediator in the subjective well-being and continued usage platforms of hedonic motivation systems and future visitation. The study further confirmed that the SMMAs and flow state are the critical factors for hedonic motivation systems. In other words, people are more likely to use VR tourism continuously if they receive subjective well-being from using SMMAs. Interestingly, the visitor group has a significant relationship between the technology adaption theories (perceived easiness, perceived usefulness, and perceived enjoyment) and SMMAs than the non-visitor group. The finding of the significant effect of SMMAs on flow state enhances the literature and extends the findings of previous studies on the relation between subjective well-being, flow and continued usage to the VR tourism context and future visitation. Moreover, the strong association between SMMAs and flow state in this study theoretically demonstrates that VR tourism content is closely related to the emotional immersive experience as hedonic factors. This result substantially enlarges the findings of previous literature on the relation between the technology adaption theories and flow experience. This result indicates that our main contribution is to offer and provide empirical support for a new theoretical model, the HMSAM, which was found to predict the behaviour of SMMAs by this study. Furthermore, this research found the strongest association between SMMAs and future visitation from VR provides a tremendous opportunity for theory building. This result expands the findings of previous research on the relation of flow experience to subjective well-being in continued usage.

Managerial Implications

The results of this research showed that VR in tourism social networks could lead to tourists' interest in the future. Therefore, the planners and managers of the tourism industry can use VR in social networks to promote and visit tourists in the future. Managers can provide the context for using VR in tourist attractions and facilities. The use of VR is considered one of the best tools for introducing tourism capabilities in marketing strategies and plans.

The findings suggest that social media content marketing producers should focus on generating hedonic motivations because the effects of perceived enjoyment, perceived usefulness and perceived easiness were found to significantly impact the flow state, subjective well-being and continued usage of VR tourism and the MIS has affected both SMMA, and technology adaption theories. That is, SMMAs through VR producers can design their content to have enjoyable elements using gamification so that consumers can get enjoyable experiences from VR, given that SMMAs are focused on entertainment, interaction, customization, trendiness and word-of-mouth influence. Therefore, VR tourism developers may increase consumers' subjective well-being by increasing their use of VR tourism. In other words, SMMAs can highlight VR tourism-related programs to achieve satisfaction by utilizing AI technology. According to the finding of this research, VR commercial sectors should focus on attributes of SMMAs if they want consumers to become immersed in VR tourism (Park et al, 2009). For example, social media marketers could promote VR products as knowledgeable, and beneficial

activities through online, mobile, Tv, Radio, and websites. Additionally, the current study recommends that social media marketers and VR developers should make efforts to create VR content that is more enjoyable if developers need consumers to be completely absorbed in their VR tourism content. This could be done by creating VR content using drones or 360-degree cameras (Li, 2017).

Technicians can enhance their VR tourism content with audios, videos, and haptic images along with 3D printing technology so that consumers can get subjective well-being from using VR. Since the impact of flow state from SMMAs was found to be significant on future visitation, it is recommended that tourism managers and agents should motivate consumers by providing VR tourism activities with updates and improved usability. Given that consumers' continued use was influenced by their subjective well-being, VR business and practitioners should concentrate more on consumers' psychological well-being in VR consumer engagement strategies. The stronger influence of perceived usefulness, perceived easiness, and perceived enjoyment on flow state in visitors suggests that if VR stakeholders (e.g., local governments, communities, destination marketing organizations) want potential tourists to visit or re-visit their destinations, they should make the VR platforms and content more useful as tourist attractions and information sources with the help of SMMAs. This can be done by emphasizing the historical, educational, and sociocultural features of VR destinations, and may also provide opportunities to encourage potential tourists to less visited areas.

Limitations and directions for future research

This research has some limitations which need to be acknowledged. First, due to the large size of Iran's tourism market, we only surveyed two countries, Germany and France. Other markets are also important to be considered. Future studies may need to focus on different markets in Asia, and north America which the use of VR technology in travel might be different. In order to better identify the effect of social media activities and the flow state on VR with the aim of increasing future visits, future studies can analyse the comparison of the model with alternative models so that they show the mediating roles specifically in the interest of tourists and their loyalty to visit the tourist destination. As a result, the current study model needs to be expanded. Future research should include respondents from sectors of tourism industry such as hotel sectors, airlines, and restaurants to reduce biasness. Finally, the role of emotional intelligence among tourists and how it affects their perception of the destination should be examined as it is a feature of the tourism industry in future.

Acknowledgement

This study was supported by the Cultural Heritage, Handicrafts and Tourism Organization, Ministry of Communication, Technology and Information. The research budget was supported by Payame Noor University, Karaj Branch - Iran.

References

Abdelraheem, A., Hussaien, A., Mohammed, M., & Elbokhari, Y. (2021). The effect of information technology on the quality of accounting information. *Accounting*, *7*(1), 191-196. DOI:10.5267/j.ac.2020.9.017

Allam, H., Bliemel, M., Spiteri, L., Blustein, J., & Ali-Hassan, H. (2019). Applying a multi-dimensional hedonic concept of intrinsic motivation on social tagging tools: A theoretical model and empirical validation. *International journal of information management*, *45*, 211-222. DOI: 10.1016/j.ijinfomgt.2018.11.005

Anwer, A., Farooq, M., Minhas, S., & Butt, H. R. (2021). The Impact of Emotional Advertising on Consumer Buying Behavior for Apparel Products in Gujranwala. *REVISTA GEINTEC-GESTAO INOVACAO E TECNOLOGIAS*, *11*(4), 5873-5888. DOI:10.47059/revistageintec.v11i4.2642

Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2020). The future of social media in marketing. *Journal of the Academy of Marketing science*, *48*(1), 79-95. https://doi.org/10.1007/s11747-019-00695-1

Aslan, I, & Cinar, o. (2018). The impact of Management Information Systems' effectiveness on innovation. isletme fonksiyonlarinda bazi temel uygulamalar ve, 99.

Assaker, G. (2020). Age and gender differences in online travel reviews and user-generated-content (UGC) adoption: extending the technology acceptance model (TAM) with credibility theory. *Journal of Hospitality*

Marketing & Management, *29*(4), 428-449. https://doi.org/10.1080/19368623.2019.1653807

Baskerville, R. L., & Myers, M. D. (2002). Information systems as a reference discipline. *Mis Quarterly*, 1-14. https://doi.org/10.2307/30036517

Beck, J., Rainoldi, M., & Egger, R. (2019). Virtual reality in tourism: a state-of-the-art review. Tourism Review, 74(3), 586-612. https://doi.org/10.1108/TR-03-2017-0049

Becta. (2005). School Management Information Systems and Value for Money. Coventry: Becta. [Online] Available: http://www.egovmonitor.com/reports/rep12009.pdf. Accessed on 23rd February2011.

Berhanu, K., & Raj, S. (2020). The trustworthiness of travel and tourism information sources of social media: perspectives of international tourists visiting Ethiopia. *Heliyon*, *6*(3), e03439. https://doi.org/10.1016/j.heliyon.2020.e03439

Bogicevic, V., Seo, S., Kandampully, J. A., Liu, S. Q., & Rudd, N. A. (2019). Virtual reality presence as a preamble of tourism experience: The role of mental imagery. *Tourism Management*, *74*, 55-64. https://doi.org/10.1016/j.tourman.2019.02.009

Calisir, F., Atahan, L., & Saracoglu, M. (2013, October). Factors affecting social network sites usage on smartphones of students in Turkey. In *Proceedings of the world congress on engineering and computer science* (Vol. 2, No. 1, pp. 23-25).

Campos, J. L., Nusseck, H. G., Wallraven, C., Mohler, B. J., & Bülthoff, H. H. (2007, November). Visualization and (mis) perceptions in virtual reality. In 10. Workshop Sichtsysteme: Visualisierung in der Simulationstechnik (pp. 10-14). Shaker. https://hdl.handle.net/11858/00-001M-0000-0013-CB1F-9

Chen, C. C., & Yoon, S. (2019). Tourism as a pathway to the good life: Comparing the top–down and bottom–up effects. *Journal of Travel Research*, *58*(5), 866-876. https://doi.org/10.1177/004728751877528

Chen, C. F., & Tsai, D. (2007). How destination image and evaluative factors affect behavioral intentions?. *Tourism management,* 28(4), 1115-1122. https://doi.org/10.1016/j.tourman.2006.07.007

Chen, S. C., & Lin, C. P. (2019). Understanding the effect of social media marketing activities: The mediation of social identification, perceived value, and satisfaction. *Technological Forecasting and Social Change*, *140*, 22-32. https://doi.org/10.1016/j.techfore.2018.11.025

Csikszentmihalyi, M. (1990). Flow: The Psychology of Optimal Experience: Steps toward Enhancing the Quality of Life. New York: Harper Collins Publishers.

Ding, Y., & Keh, H. T. (2016). A re-examination of service standardization versus customization from the consumer's perspective. *Journal of Services Marketing*. 30 (1), 16-28. DOI: 10.1108/JSM-02-2015-0088

Disztinger, P., Schlögl, S., & Groth, A. (2017). Technology acceptance of virtual reality for travel planning. In *Information and Communication Technologies in Tourism 2017: Proceedings of the International Conference in Rome, Italy, January 24-26, 2017* (pp. 255-268). Springer International Publishing. DOI:10.1007/978-3-319-51168-9_19

Doty, D. H., Wooldridge, B. R., Astakhova, M., Fagan, M. H., Marinina, M. G., Caldas, M. P., & Tunçalp, D. (2020). Passion as an excuse to procrastinate: A cross-cultural examination of the relationships between Obsessive Internet passion and procrastination. *Computers in Human Behavior*, *102*, 103-111. https://doi.org/10.1016/j.chb.2019.08.014

El Beheiry, M., Doutreligne, S., Caporal, C., Ostertag, C., Dahan, M., & Masson, J. B. (2019). Virtual reality: beyond visualization. *Journal of molecular biology*, *431*(7), 1315-1321. https://doi.org/10.1016/j.jmb.2019.01.033

Falahatgar, S., Chamanzamin, M. R., & Taleghani, M. (2021). The Effect of Competitive Advantage Strategies on Customer Loyalty: Mediated role of Brand Identification and Brand Awareness (Case study: Parsian Insurance customers). *Journal of System Management*, 7(4), 229-252. 10.30495/jsm.2021.1943132.1550

Fan, D. X., Buhalis, D., & Lin, B. (2019). Tourists' online and face-to-face social contact and destination immersion. *E-*

Review of Tourism Research, *16*(2-3), 224-233. ISSN: 1941-5842

Filip, F. G. (2007). Management information systems: managing the digital firm-authors: keneth c. Laudon and Jane p. Laudon (book review). *International Journal of Computers Communications & Control*, *2*(1), 103-105. DOI:10.15837/ijccc.2007.1.2342

French, A. M., Luo, X. R., & Bose, R. (2017). Toward a holistic understanding of continued use of social networking tourism: A mixed-methods approach. *Information & Management*, *54*(6), 802-813. DOI:10.1016/j.im.2016.10.006

GAO, L., Bai, X., & Park, A. (2017). Understanding sustained participation in virtual travel communities from the perspectives of is success model and flow theory. *Journal of Hospitality & Tourism Research, 41(4),* 475-509. https://doi.org/10.1177/1096348014563397

García-Jurado, A., Castro-González, P., Torres-Jiménez, M., & Leal-Rodríguez, A. L. (2018). Evaluating the role of gamification and flow in e-consumers: millennials versus generation X. *Kybernetes, 48(6)*, 1278-1300. DOI: 10.1108/K-07-2018-0350

Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of business research*, *69*(12), 5833-5841. https://doi.org/10.1016/j.jbusres.2016.04.181

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism management, 31(5),* 637-651. DOI:10.1016/j.tourman.2009.07.003

Hall, C. M. (2014). *Tourism and social marketing*. Routledge. Doi:https://doi.org/10.4324/9780203854259

Hamad, A., & Jia, B. (2022). How Virtual Reality Technology Has Changed Our Lives: An Overview of the Current and Potential Applications and Limitations. *International Journal of Environmental Research and Public Health, 19(18)*, 11278. doi: 10.3390/ijerph191811278

Handzic, M. (2001). Does more information lead to better informing. *Proceedings of Informing Science 2001*, 251-256.

Herrando, C., Jimenez-Martinez, J., & Martin de Hoyos, M. J. (2018). Surfing or flowing? How to retain e-customers on the internet. *Spanish journal of marketing-esic*, *22*(1), 2-21. DOI:10.1108/SJME-03-2018-006

Herz, M., & Rauschnabel, P. A. (2019). Understanding the diffusion of virtual reality glasses: The role of media, fashion and technology. *Technological Forecasting and Social Change*, *138*, 228-242. DOI: 10.1016/j.techfore.2018.09.008

Hoodi, P., & Hasangholi Pouryasouri, T. (2023). Customer Experience Management: Scientometric Analysis to Record the Past and Illustrate the Future. Journal of System Management, 9(3), 299-312.

Hudson, S., Roth, M. S., Madden, T. J., & Hudson, R. (2015). The effects of social media on emotions, brand relationship quality, and word of mouth: An empirical study of music festival attendees. *Tourism management*, *47*, 68-76. https://doi.org/10.1016/j.tourman.2014.09.001

Ismagilova, E., Slade, E. L., Rana, N. P., & Dwivedi, Y. K. (2020). The effect of electronic word of mouth communications on intention to buy: A meta-analysis. *Information Systems Frontiers*, *22*, 1203-1226. DOI: 10.1007/s10796-019-09924-y

Jeon, H. M., Yoo, S. R., & Kim, S. H. (2020). The relationships among experience, delight, and recollection for revisit intention in chocolate exposition. *Sustainability*, *12*(20), 8644. https://doi.org/10.3390/su12208644

Karapetrovic, S., Willborn, W., 1998. Integration of quality and environmental management systems. *The TQM Magazine, 10 (3)*, 204–213. DOI:https://doi.org/10.1108/09544789810214800

Karim, A. J. (2011). The significance of management information systems for enhancing strategic and tactical planning. *JISTEM-Journal of Information Systems and Technology Management*, *8*, 459-470. DOI: 10.4301/S1807-17752011000200011

Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business research*, *65*(10), 1480-1486. https://doi.org/10.1016/j.jbusres.2011.10.014

Kim, M. J., & Hall, C. M. (2019). A hedonic motivation model in virtual reality tourism: Comparing visitors and non-visitors. *International Journal of Information*

Management, *46*, 236-249. https://doi.org/10.1016/j.ijinfomgt.2018.11.016

Kim, M. J., Lee, C. K., & Bonn, M. (2017). Obtaining a better understanding about travel-related purchase intentions among senior users of mobile social network sites. *International Journal of Information Management*, *37*(5), 484-496. https://doi.org/10.1016/j.ijinfomgt.2017.04.006

Kim, M. J., Lee, C. K., & Preis, M. W. (2020). The impact of innovation and gratification on authentic experience, subjective well-being, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics*, *49*, 101349. https://doi.org/10.1016/j.tele.2020.101349

Kim, M. J., Lee, C. K., Chung, N., & Kim, W. G. (2014). Factors affecting online tourism group buying and the moderating role of loyalty. *Journal of Travel Research*, *53*(3), 380-394. https://doi.org/10.1177/004728751349783

Kim, S. E., Lee, K. Y., Shin, S. I., & Yang, S. B. (2017). Effects of tourism information quality in social media on destination image formation: The case of Sina Weibo. *Information & management*, *54*(6), 687-702. https://doi.org/10.1016/j.im.2017.02.009

Kiradoo, G. (2020). A Study on Management Information Systems Role and Adoption in Managerial Decision Making. nternational Journal of Management (IJM), 11 (3), 114–121. SSRN: https://ssrn.com/abstract=3577432

Kiyomarsi, E., Saeednia, H. R., & Alipour Darvishi, Z. (2021). The Effect of Advertising on Expectations and Perception of the Brand with Emphasis on the Mediating Role of Customer Experience Management in the Insurance Industry. *Journal of System Management*, 7(4), 183-204. 10.30495/jsm.2021.1943472.1562

Kozak, M., Rita, P., & Bigné, E. (2018). New frontiers in tourism: destinations, resources, and managerial perspectives. *European Journal of Management and Business Economics*, *27*(1), 2-5. https://doi.org/10.1108/EJMBE-03-2018-066

Lee, J., Kim, J., & Choi, J. Y. (2019). The adoption of virtual reality devices: The technology acceptance model integrating enjoyment, social interaction, and strength of the social ties. *Telematics and Informatics*, *39*, 37-48. https://doi.org/10.1016/j.tele.2018.12.006

Leung, X. Y., Bai, B., & Stahura, K. A. (2015). The marketing effectiveness of social media in the hotel industry: A comparison of Facebook and Twitter. *Journal of Hospitality & Tourism Research*, *39*(2), 147-169. DOI: 10.1177/1096348012471381

Li, R. Y. M. (2017). 5D GIS virtual heritage. *Procedia computer science*, *111*, 294-300. https://doi.org/10.1016/j.procs.2017.06.066

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism management*, *77*, 104028. DOI:10.1016/j.tourman.2019.104028

Majidian, H., Mahmoudzadeh Vashan, M., & Hakimpour, H. (2021). Influencer Behavior in Social Media Marketing: Developing and Validating a New Model. *Journal of System Management*, 7(4), 271-287. 10.30495/jsm.2021.1943152.1552

Mariani, M. M., Di Felice, M., & Mura, M. (2016). Facebook as a destination marketing tool: Evidence from Italian regional Destination Management Organizations. *Tourism management*, *54*, 321-343. DOI: 10.1016/j.tourman.2015.12.008

Martin, K., & Todorov, I. (2010). How will digital platforms be harnessed in 2010, and how will they change the way people interact with brands?. *Journal of Interactive Advertising*, *10*(2), 61-66. DOI:10.1080/15252019.2010.10722170

McGowan, B. S., Wasko, M., Vartabedian, B. S., Miller, R. S., Freiherr, D. D., & Abdolrasulnia, M. (2012). Understanding the factors that influence the adoption and meaningful use of social media by physicians to share medical information. *Journal of medical Internet research*, *14*(5), e2138. DOI: 10.2196/jmir.2138

Meng, B., & Han, H. (2018). Working-holiday tourism attributes and satisfaction in forming word-of-mouth and revisit intentions: Impact of quantity and quality of intergroup contact. *Journal of Destination Marketing & Management*, *9*, 347-357. 10.1016/j.jdmm.2018.03.009

Mohamed, S., & Naby, A. E. (2017). Toward Applying Virtual Reality Technique as a

Promotional Tool in Tourism and Hospitality Services in Egypt. *International Journal of Heritage, Tourism and Hospitality*, *11*(2), 79-97. DOI: 10.21608/ijhth.2017.30202

Moro, S., Rita, P., Ramos, P., & Esmerado, J. (2019). Analysing recent augmented and virtual reality developments in tourism. *Journal of Hospitality and Tourism Technology*, *10*(4), 571-586. DOI: 10.1108/JHTT-07-2018-0059

Morris, C., & brands like Hasbro, H. (2016). Virtual reality and the new sales experience. Available from: http://www.campaignlive.com/article/virtual-reality-new-sales-experience/1392253

Munar, A. M. (2012). Social media strategies and destination management. *Scandinavian journal of hospitality and tourism*, *12*(2), 101-120. https://doi.org/10.1080/15022250.2012.679047

Nam, K. H., & Yeo, J. S. (2011). A Study on Consumers' Acceptance Process of Mobile Advertising. *Journal of Consumer Studies*, *22*(4), 1-28.

Park, N., Kee, K. F., & Valenzuela, S. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *Cyberpsychology & behavior*, *12*(6), 729-733. DOI:10.1089/cpb.2009.0003

Pelet, J. É., Ettis, S., & Cowart, K. (2017). Optimal experience of flow enhanced by telepresence: Evidence from social media use. *Information & Management*, *54*(1), 115-128. https://doi.org/10.1016/j.im.2016.05.001

Pizzi, G., Scarpi, D., Pichierri, M., & Vannucci, V. (2019). Virtual reality, real reactions?: Comparing consumers' perceptions and shopping orientation across physical and virtual-reality retail stores. *Computers in Human Behavior*, *96*, 1-12. https://doi.org/10.1016/j.chb.2019.02.008

Polančič, G., Heričko, M., & Rozman, I. (2010). An empirical examination of application frameworks success based on technology acceptance model. *Journal of systems and software*, *83*(4), 574-584. DOI:10.1016/j.jss.2009.10.036

Prodinger, B., & Neuhofer, B. (2022). Multisensory VR experiences in destination management. In *Information and Communication Technologies in Tourism 2022: Proceedings of the ENTER 2022 eTourism Conference, January 11–14, 2022* (pp. 162-173). Springer International Publishing.

Ryu, K., Han, H., & Jang, S. (2010). Relationships among hedonic and utilitarian values, satisfaction and behavioral intentions in the fast-casual restaurant industry. *International journal of contemporary hospitality management*, *22*(3), 416-432. DOI:10.1108/09596111011035981

Saayman, M., Li, G., Uysal, M., & Song, H. (2018). Tourist satisfaction and subjective well-being: An index approach. *International Journal of Tourism Research*, *20*(3), 388-399. https://doi.org/10.1002/jtr.2190

Sano, K. (2015). An empirical study the effect of social media marketing activities upon customer satisfaction, positive word-of-mouth and commitment in indemnity insurance service. In *Proceedings International Marketing Trends Conference* (Vol. 27, No. 3, pp. 21-32).

Schmenner, R.W.(1986). How can service businesses survive and prosper? Sloan Manag. Rev. 27 (3), 21–32. PubMed

Scott, N., Laws, E., & Boksberger, P. (2009). The marketing of hospitality and leisure experiences. *Journal of Hospitality Marketing & Management*, *18*(2-3), 99-110. https://doi.org/10.1080/19368620802590126

Seo, E. J., & Park, J. W. (2018). A study on the effects of social media marketing activities on brand equity and customer response in the airline industry. *Journal of Air Transport Management*, *66*, 36-41. https://doi.org/10.1016/j.jairtraman.2017.09.014

Sherman, W. R., & Craig, A. B. (2019), "Chapter 1 - Introduction to Virtual Reality. In W. R. Sherman & A. B. Craig (Eds.)", Understanding Virtual Reality (Second Edition) (pp. 4-58). Boston: Morgan Kaufmann. https://doi.org/10.1080/02614367.2018.1466905

Shirmohammadi, Y., & Abyaran, P. (2020). Brand Image of Mystical Spiritual Tours and Tourists' Satisfaction and Quality of Life. *International journal of Tourism, Culture &*

Spirituality, *4*(2), 165-195. doi: 10.22133/ijts.2019.188946.1036

Simon, A., Karapetrovic, S., & Casadesús, M. (2012). Difficulties and benefits of integrated management systems. *Industrial Management & Data Systems*, *112*(5), 828-846. DOI:10.1108/02635571211232406

Singleton, P. A. (2019). Validating the Satisfaction with Travel Scale as a measure of hedonic subjective well-being for commuting in a US city. *Transportation research part F: traffic psychology and behaviour*, *60*, 399-414. https://doi.org/10.1016/j.trf.2018.10.029

Souto, J. E. (2015). Business model innovation and business concept innovation as the context of incremental innovation and radical innovation. *Tourism management*, *51*, 142-155. DOI: 10.1016/j.tourman.2015.05.017

Suanpang, P. (2020). Factor analysis of using social media in tourism enterprises for competitiveness. *International Journal of Innovation, Management and Technology*, *11*(1), 27-32. doi: 10.18178/ijimt.2020.11.1.871

Sun, Y., Liu, L., Peng, X., Dong, Y., & Barnes, S. J. (2014). Understanding Chinese users' continuance intention toward online social networks: an integrative theoretical model. *Electronic Markets*, *24*, 57-66. DOI:10.1007/s12525-013-0131-9

tom Dieck, D., tom Dieck, M. C., Jung, T., & Moorhouse, N. (2018). Tourists' virtual reality adoption: an exploratory study from Lake District National Park. *Leisure Studies*, *37*(4), 371-383. DOI:10.1080/02614367.2018.1466905

Tussyadiah, I. P., Wang, D., Jung, T. H., & Tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism management*, *66*, 140-154. DOI:10.1016/j.tourman.2017.12.003

Vathanophas, V., Krittayaphongphun, N., & Klomsiri, C. (2008). Technology acceptance toward e-government initiative in Royal Thai Navy. *Transforming Government: People, Process and Policy*, *2*(4), 256-282. https://doi.org/10.1108/17506160810917954

Vishwakarma, P., Mukherjee, S., & Datta, B. (2020). Travelers' intention to adopt virtual reality: A consumer value perspective. *Journal of Destination Marketing & Management*, *17*, 100456. DOI:10.1016/j.jdmm.2020.100456

Voronkova, L. P. (2018, December). Virtual tourism: on the way to the digital economy. In *IOP Conference Series: Materials Science and Engineering* (Vol. 463, No. 4, p. 042096). IOP Publishing. DOI:10.1088/1757-899X/463/4/042096

Walters, G., Gill, C., Pham, L. D. Q., & Filep, S. (2022). Virtual tourism experiences and mental restoration. *Journal of Hospitality & Tourism Research*, 10963480221116047. https://doi.org/10.1177/10963480221116047

Wang, W. T., Ou, W. M., & Chen, W. Y. (2019). The impact of inertia and user satisfaction on the continuance intentions to use mobile communication applications: A mobile service quality perspective. *International Journal of Information Management*, *44*, 178-193. DOI: 10.1016/j.ijinfomgt.2018.10.011

Weill, P., & Olson, M. H. (1989). An assessment of the contingency theory of management information systems. *Journal of management information systems*, *6*(1), 59-86. https://doi.org/10.1080/07421222.1989.11517849

Xia, N., Shen, W. (2018). Dynamic Impacts of Online Geographic Location-Based Social Media on Offline Vehicle Sales. *Conference on Information Systems and Technology (CIST)*

Zargham, H., & Alborzi, M. (1998). Application of MIS in Tourism. *Management Studies in Development and Evolution*, 7(27.28), 49-62. 20.1001.1.22518037.1379.7.27.28.3.2.56

Zeng, L., & Yi Man Li, R. (2021). Tourist satisfaction, willingness to revisit and recommend, and mountain kangyang tourism spots sustainability: A structural equation modelling approach. *Sustainability*, 13 (19), 10620–10636. https://doi.org/10.3390/su131910620

Zwetsloot, G. I. (1995). Improving cleaner production by integration into the management of quality, environment and working conditions. *Journal of Cleaner Production*, 3(1-2), 61-66. https://doi.org/10.1016/0959-6526(95)00046-H