All that glitters is not gold: a study of tourists' visit intention by watching deepfake destination videos

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Abstract

Purpose – *This study aims to examine the tourists' visit intention by watching deepfake destination videos, using Information Manipulation and Media Richness Theory.*

Design/methodology/approach – *This study conducted a primary survey utilizing a structured questionnaire. In total, 1,360 tourists were surveyed, and quantitative data analysis was done using PLS-SEM.*

Findings – *The results indicate that the factors that affect the tourists' visit intention after watching deepfake videos include information manipulation tactics, trust and media richness. This study also found that perceived deception and cognitive load do not influence the tourists' visit intention.*

Originality/value – *The originality/salience of this study lies in the fact that this is possibly among the first to combine the Media Richness Theory and Information Manipulation for understanding tourists' visit intention and post-viewing deepfake destination videos.*

Keywords *Deepfake videos, Visit intention, Media richness, Information manipulation, Trust*

Paper type *Research paper*

1. Introduction

The technological disruption happened due to advanced technologies, such as Artificial Intelligence (AI), Deep Learning (DL), Augmented Reality (AR) and Machine Learning (ML), have altered how information related to tourism is communicated to tourists (Kwok and Koh, 2020; Tavitiyaman *et al.*, 2021). They have given rise to manipulatable and immersive experiences, such as extended reality (i.e. virtual, mixed and augmented), which involve users in cyber-physical communications (Bogicevic *et al.*, 2019; Kwok and Koh, 2020; Pestek and Sarvan, 2020).

"Deepfake technology" is a new jargon in the technology space (Kietzmann *et al.*, 2020a; Luthera, 2020). "Deepfake" combines two distinct terms (i.e. *deep learning* + *fake*). Simply put, it is a technology that enables substituting or placing an individual into a photo and/or video where he/she, in reality, has never been (Adee, 2020; Somers, 2020). Technically speaking, it leverages algorithms from both AI and ML to integrate and swap existing/pre-existing videos/images/audio to develop fake alternative content (Kaietzmann *et al.*, 2020; Patel, 2020; Mitra, 2020). Herein, it may be noted that traditional destination videos are generally manipulated to draw the tourist's attention. However, the manipulation done herein is not done with the help of advanced technologies.

Because deepfakes leverage advanced technologies (i.e. AI and ML), they present automated measures to develop fake content, which is computer-generated and arduous for people to detect (Levesque, 2019; Dan, 2020) further added that owing to its difficulty to detect, it becomes easier to manipulate, threatening individuals and organizations to establish authenticity. There has been a

significant rise in the production of deepfake videos online, especially in the tourism industry. It is of great concern because of its possible covert effect on destination image and company branding, especially since people perceive the content as reliable and credible (Kwok and Koh, 2020; Lojo *et al.*, 2020). Frequent misinformation (such as deepfakes) makes people doubt the truth behind the advertisements (Kaietzmann *et al.*, 2020).

While planning a tour, several people often refer to destination videos to check out the place, which helps their decision-making. Hence, marketers of tourist attractions, at times, do tend to tweak images/videos of some destinations in order to make them more "visually appealing." Creators/developers of deepfakes capitalize on this "marketing act," attracting or dissuading travelers in the process (Leung *et al.*, 2017). These images/videos are then put up on social media. Travelers, who are susceptible and thereby vulnerable, are inclined or dissuaded from visiting the destination. Echoing the same, Kwok and Koh (2020) stated that with a developed belief that may be based on deepfakes, the travelers' intent to visit a destination *per se* gets significantly impacted (positively/negatively), following which they make their travel plans without seeing the real facts of the destination. Therefore, it is essential to investigate the effect of deepfake videos on travelers' intention to visit tourist destinations (Fedeli, 2021; Kwok and Koh, 2020). Unfortunately, some marketers deliberately choose to use these deepfakes, despite knowing and understanding their impact on the travelers' psyche (Kaietzmann *et al.*, 2020). Choosing a destination based on the deepfakes may shock or satisfy travelers and it is essential to understand the factors influencing the visit intention by watching deepfake destination videos. Hence, the primary research question (RQ) is formed:

RQ1. How do deepfake videos influence tourists' visit intention?

To answer the same, we used the Information Manipulation Theory, Media Richness theory and "perceived trust" to examine and develop a model based on the antecedents of tourists' visit intentions after watching deepfake videos. Then, the proposed model is empirically confirmed to answer the research question. Importantly, this is possibly among the first studies to look into the influence of deepfakes on travelers' destination visit intention, using both Information Manipulation Theory and Media Richness Theory. In the process, we contribute to the literature on fake online advertisements and provide implications for marketers, managers, designers of deepfakes, advertising regulators and scholars in the hospitality and tourism sector.

2. Literature review

2.1 Deepfake videos in hospitality and tourism

Online advertisements, as practiced today, have gotten into manipulating content instead of developing it from scratch and possibly modifying it with the help of digital tools. Campbell *et al.* (2021) suggested that "manipulation" occur through deep learning technologies and AI. Specifically, advertising manipulation comprises three stages: (a) Stage 1 (Analog 1.0) refers to "physical editing," whereby camera, lenses, make-up and lights prevail. It is because the larger aim herein is to advertise through print, television and/or radio. (b) Stage 2 (Digital: 2.0) refers to computer-generated images modified by Photoshop software, aiming for print and stationary online platforms. (c) Stage 3 (Synthetic: 3.0) refers to Generative Adversarial Networks (GAN) (Sohn *et al.*, 2021), with the help of which deepfake videos are created and used for advertising online with additional help from AI and ML (Campbell *et al.*, 2021).

The spiteful use of deepfakes has developed more risks than advantages (Kwok and Koh, 2020). Although deepfakes make it easy to manipulate audio and video (Woolley, 2020), it is believed that deepfakes would change "advertising" holistically, owing to their ease of accessibility, plausibility and novelty. Furthermore, as audio-visual media in deepfakes resembles the real world, people tend to trust them, given that, as they have developed a realism heuristic (Kaietzmann *et al.*, 2020). For example, Lithuania's National Tourism Agency used discrete images to publicize the Baltic state in its online marketing campaigns (BBC, 2017). This example effectively highlights a case of

manipulative marketing, which could lead to quick encouraging results in terms of marketing. However, it would have dire consequences in the longer term on the more significant tourism industry owing to fake news content (Fedeli, 2021). The extant work on deepfake discusses about its rise (Whittaker *et al.*, 2021), issues and positives related to deepfakes (Kietzmann *et al.*, 2020b). The extant research lacks to explore the influence of deepfake videos in tourism and hospitality. Hence, to explore the factors influencing the visit intention by watching deepfakes. This work used information manipulation theory 2 and media richness theory.

3. Theoretical basis

3.1 Information manipulation theory 2 (IMT2)

The Information Manipulation Theory (IMT) is holistic in its approach; it views a message *per se*, within the ambits of the context, vis à vis the way it has been stated (McCornack, 1992). It is based on some "components/maxims"; they include quantity, quality, relation and manner. Specifically, "quantity" refers to providing the appropriate amount of information clearly and accurately. Quality refers to information that is both accurate and factual. Relation refers to information when conversing specifically to a topic. Finally, "manner" refers to how a message is effectively put forth, mainly through subtler aspects (e.g. body language).

A second part of the *IMT*, commonly referred to as IMT2 was incepted by McCornack in 1992, resulting from multiple theoretical works done in the past, with preceding issues being corrected (McCornack *et al.*, 2014). Chiluwa and Samoilenko (2019) spoke about IMT2 as "a theory which emphasizes on creating a misleading message and the motives of the sender." This propositional theory of "deceptive discourse production" further emphasizes how information is covertly manipulated to make deception to several extents (McCornack *et al.*, 2014). The fundamental idea of IMT2 is based on deceptive dialogue formation, whereby 11 propositions are further grouped under 3 propositional sets. They include Cognitive Load (CL), Intentional States (IS) and Information Manipulation (IM). CL, for instance, encompasses the inter-relationship between discourse, load and context.

On the other hand, IS focuses on deceptive intent; it illustrates the nature and sequential assignment of misleading volition regarding speech production. The intent to deceive may not be before content production, and it could occur when information or dialog-making effectively happens. Holistically speaking, the fundamental premises in IM identify the specific condition in which diverse information manipulation occurs or does not. IMT2 may be grounded in neuroscience, speech production, linguistics, AI and cognition (McCornack *et al.*, 2014; Walczyk, 2014).

Deepfakes offer doctored and manipulated information content using AI; the objective is to lure tourists into traveling destinations (Kaietzmann *et al.*, 2020; Mitra, 2020; Patel, 2020). We aim to understand the behavioral intention of tourists/travelers toward visiting a destination triggered by watching these deepfake videos; therefore, we considered IMT2 for this study.

3.2 Media richness theory (MRT)

The MRT has elaborated upon ways in which media platforms, along with communication in various forms, have a dynamic ability of richness in the information they offer, vis à vis the multifaceted effect on the understanding of the receiver (Alamäki *et al.*, 2019; Bergin, 2013; Ishii *et al.*, 2019; Tseng and Wei, 2020). The information levels conveyed by distinct communication mediums and the richness of information transferred over time effectively depend upon the medium's potential to fetch feedback (Chen and Chang, 2018). Richer information encompasses more modes of communication, social visual cues such as gestures or immediate feedback and advanced features like video, audio and other elements that boost audiences to engage and interact with the information; hence, it creates more trust among tourists (Lu *et al.*, 2014).

Various marketing channels' capability of delivering high perceived media richness could establish a competitive advantage, primarily for the tourism and hospitality markets (Lipowski and Bondos, 2018). Thus, we see that by improving media richness capabilities, websites often look to promote advertisements to trigger consumers' confidence and purchase intention. The rationale is that it assures advanced texts, graphics and interactive virtual experiences (Chen and Chang, 2018). Using AI and ML algorithms, deepfakes combine, superimpose, replace and merge images, videos and audio, thereby generating false alternatives (Kaietzmann *et al.*, 2020; Mitra, 2020) to appeal to tourists to travel destinations.

3.3 Perceived trust (PTR)

Travelers get information about their travel destinations from various sources, such as social media, destination web pages, videos posted on multiple platforms and wiki pages to understand the destination details, along with other information related to the destination (Lin *et al.*, 2021; Singh and Srivastava, 2019). Travelers may or may not believe such information. With this consideration, trust is discussed as the consumers' willingness to accept susceptibility based on positive prospects regarding the behavior or intentions of others in a situation characterized by risk and interdependence (Tandon *et al.*, 2020; Pillai and Sivathanu, 2020; Goel *et al.*, 2022). Extant research stated that tourists tend to trust numerous online information sources, while trust influences behavioral intention (Ben-Shaul and Reichel, 2018; Tandon *et al.*, 2020). By watching deepfake destination videos, tourists may trust these deepfakes, influencing their behavioral intention to visit the destinations. Hence, PTR is considered in this research work.

4. Theoretical framework development

We adopted the Information Manipulation Theory (IMT2) to explore tourists' approach toward advertisement and intention to purchase (Cui *et al.*, 2014; Peng *et al.*, 2009, 2016).

IMT2 offers three prepositions for generating the sender's deceiving message and motivation: (a) an intentional state to send a misleading message, (b) cognitive load and (c) information manipulation. Notably, this theory is specific to AI, cognitive neuroscience, speech-making and linguistics to expound deceiving demonstration (Chiluwa and Samoilenko, 2019; McCornack *et al.*, 2014). We used IMT2 to analyze and understand the tourists' visit intention to a destination after watching deepfakes. Specifically, we considered key variables of IMT2, comprising (1) manipulation of information, (2) intentional state (perceived deception); and (3) cognitive load. We substituted the intention state with perceived deception as an intentional state indicates the misleading discourse development and perception (McCornack *et al.*, 2014; Riquelme and Román, 2014).

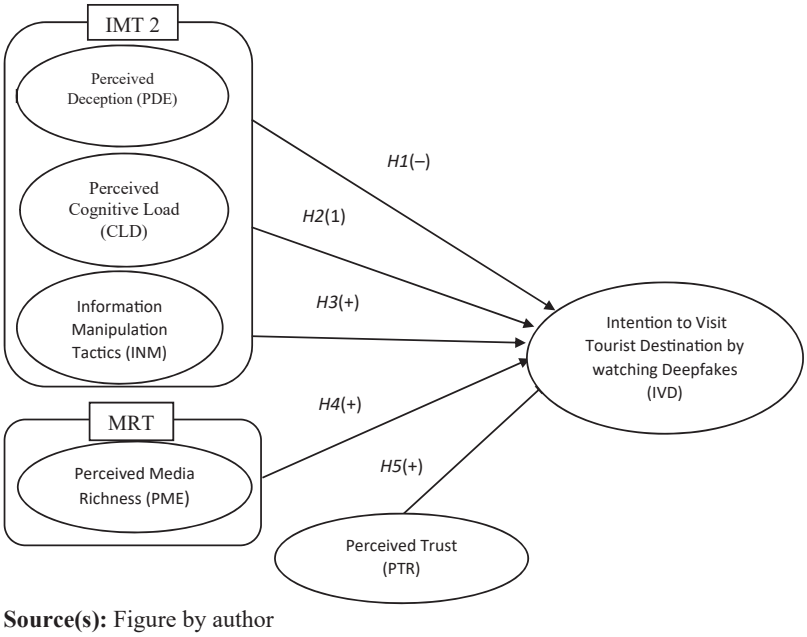
Apart from IMT2, we also adopted perceived media richness (Tseng *et al.*, 2017) from MRT and perceived trust (Ben-Shaul and Reichel, 2018; Boger *et al.*, 2020; Su *et al.*, 2020) as key variables. Notably, these variables are highly relevant and contextually pertinent to deepfake videos. Notably, as tourists do tend to get significantly influenced by these deepfakes, we also considered perceived trust in our theoretical model (Figure 1).

5. Hypotheses development

5.1 Perceived deception (PDE)

PDE refers to the consumers' notion that marketers exploit product-related information to affect consumers' decision-making process. For instance, as discussed earlier, through deepfakes, they encourage/discourage tourists, either from procuring or dissuading them from availing a specific service/product with the help of deceptive information (Akhtar *et al.*, 2019; Riquelme and Román, 2014). However, one must acknowledge that these "manipulation tactics" sometimes do not serve the desired objective. In other words, they do not deceive a particular group of tourists, who are

Figure 1 Proposed framework



Source(s): Figure by author

more apprehensive to the point of being skeptical. as tourists are unreliable and have susceptible behavior while purchasing online (Xie and Boush, 2011). Perceived deception toward the advertisement can develop a corrupt product image in the consumer's attention (Lim *et al.*, 2020).

We considered perceived deception as the extent to which tourists feel that deepfakes generate a false image of a travel destination solely to entice them to visit. As elaborated earlier, these deepfakes use AI/ML and search images from Google to manipulate them and mislead tourists (Maras and Alexandrou, 2019). Based on this understanding, we posit:

H1. Perceived deception negatively influences tourists' intention to visit travel destinations.

5.2 Perceived cognitive load (CLD)

Cognitive load (CLD) refers to the way consumers perceive the ease or difficulty of handing out the information provided to them (Schrader and Bastiaens, 2012). Specifically, consumers' cognitive load increases when complex information is cluttered (Fan *et al.*, 2020). Herein, it may be noted that CLD is of two types (i.e. intrinsic vs. extrinsic); the former refers to the normal load, driven by the complexity of information that one gathers, due to which it isn't easy to control. However, the latter (i.e. extrinsic) relates to an individual's experience of "information processing," owing to the instructional design. It enables the advertisers to manipulate, control and reduce this extrinsic cognitive load by highlighting information on a destination and/or simplifying the websites. Notably, reduced cognitive load minimizes a person's mental exertion and helps him/her to understand the information, which in turn, initiates a positive behavior-related modification (Fan *et al.*, 2020; Schrader and Bastiaens, 2012). The experience can be improved by adopting Augmented Reality (AR), enhancing consumers' visual and tactile information comprehension and auditory. AR makes the difficult task of imagining the destination easier by superimposing virtual 3D information into real-time and enabling browsing the online environment, which has a more positive attitude toward the product. The individuals process any information; they tend to face a cognitive load. However, when cognitive load is low, it makes cognitive fluency and people develop a positive attitude toward a product (Fan *et al.*, 2020). Deepfakes, as discussed earlier, generate scenarios that do not exist in

reality, manipulating information for targeting gullible tourists. Notably, the information that is presented before the tourists are done in a way to reduce their cognitive load, so that they are easily influenced and decide to visit the destination (Fan *et al.*, 2020; Kaietzmann *et al.*, 2020; Srivastava, 2020; Westerlund, 2019). However, some tourists, owing to their skepticism, may get influenced and thereby may opt out of the destination; hence, we posit:

H2. Perceived cognitive load negatively influences tourists' intention to visit travel destinations.

5.3 Information manipulation tactics (INM)

INM refers to the way marketers choose to manipulate information (McCornack *et al.*, 2014); they could either add, delete and/or morph the content to suit the advertising requirement and/or promote the service or product (Peng *et al.*, 2016). Manipulating information effectively violates the information's relation, quality and quantity (McCornack *et al.*, 2014). For instance, marketers could exclusively provide/highlight good reviews for products online while deleting or tampering with negative ones (Hu *et al.*, 2011; Wu *et al.*, 2020) though there is the possibility of fraud detection. Through their seminal research, (Peng *et al.*, 2016) stated that any purchase of a product and/or service is generally stimulated with distinct offers, discounts, gifts and cash rebates.

Deepfake videos can create different types of manipulation, such as identity swap, expression manipulation, entire non-existent face images and attribute manipulation (Maras and Alexandrou, 2019; Stover, 2018; Tolosana *et al.*, 2020). Airbnb uses an AI tool developed by Google "TensorFlow" to enhance the guest experience by categorizing images to sense things in uploaded photos (Kirchengast, 2020; Nguyen *et al.*, 2019). The risk associated with such an open-source program is that it might be applied to create deception and mislead the target audience about the information available (Chaouachi and Rached, 2012; Kaietzmann *et al.*, 2020; Kirchengast, 2020; Maity *et al.*, 2018; Nguyen *et al.*, 2019). As the ploy of manipulating information in deepfakes makes them more attractive, it does positively affect the tourists to destination visit. Hence, we posit:

H3. Information manipulation tactics positively influence the travelers' intention to visit travel destinations.

5.4 Perceived media richness (PME)

Media richness reflects the capability of communication channels to send messages that are rich in information (Tseng *et al.*, 2017). It has four distinct features, encompassing tailored message for the receiver, amount of information channels for communication, multi-lingual communication based on users' requirements and instantaneous feedback provided by the media to the user (Ogara *et al.*, 2014; Tseng *et al.*, 2017). Media richness is believed to influence users' perceptions; thus, tourists perceive it in the context of online marketing networks otherwise (Lipowski and Bondos, 2018). Therein, the richer the media, the easier it is for the tourist to understand and remember the information (Maity *et al.*, 2018). Perceived media richness shows the tourists' intention to use a specific channel for decision-making (Lipowski and Bondos, 2018). Notably, as online channels are deemed as leaner media owing to their non-sensory features, it becomes tough to take decisions. Though, with unconventional video-voice-chat-based communication added to online channels, perceived media richness increases, regardless of the generation of the tourist (Lipowski and Bondos, 2018; Maity *et al.*, 2018). The extant studies divulge that media richness influences consumer behaviour (Chen and Chang, 2018).

Deepfakes are manipulated videos that are attractive in nature and offer information about the destination by creating truthful audio-visuals. Therefore, tourists looking for a destination may be induced to visit the destination after watching these deepfake destination videos. Thus, the below hypothesis is formed:

H4. Perceived media richness positively influences tourists' intention to visit the travel destinations.

5.5 Perceived trust (PTR)

The customers' point of view regarding the information privacy, security, protection and quality provided by the information system has been perceived as perceived trust (Ponte *et al.*, 2015). The tourists' readiness to take risks also stems from trust (Ba and Pavlou, 2002). This study discusses the association between consumers' trust in information on online media and their visit intention (Yoo *et al.*, 2009; Yoo and Gretzel, 2011). PTR is believed to be a vital antecedent for a tourist's intention to visit a travel destination (Ben-Shaul and Reichel, 2018; Boger *et al.*, 2020; Su *et al.*, 2020). Deepfake videos are made using AI and DL technology, which are morphed types of fake; however, it ensures a realistic view of the destination that lures travelers. Therefore, travelers may develop trust in the information provided by Deepfakes and form the intention to visit the travel destination. So, the hypothesis is proposed as:

H5. Perceived trust positively influences tourists' intention to visit travel destinations.

6. Research methodology

In this section, we discuss the data collection and survey tool design. At first, we conducted a pilot study to finalize the research questionnaire. Our objective was to survey tourists in the first phase, and later, we also conducted a quantitative survey among the tourists.

6.1 Research survey instrument design

We integrated MRT, IMT2 and PTR, given in the extant literature. We adopted the delineation of constructs from the operational definitions proposed in extant literature. Notably, we amended the following constructs as per our requirement for the study; they include PDE (Peng *et al.*, 2016; Riquelme and Román, 2014); INM (Peng *et al.*, 2016); PME (Maity *et al.*, 2018; Suh, 1999; Tseng and Wei, 2020); CLD (Fan *et al.*, 2020; Paas *et al.*, 1994; Schmeck *et al.*, 2015); IVD (Doosti *et al.*, 2016; El-Said, 2020; Zhao *et al.*, 2015); and PTR (Jeng, 2019; Kim *et al.*, 2011) (Table 1). Further, for measuring the constructs, we used a five-point Likert scale (1 = "strongly disagree" and 5 = "strongly agree"). The design of the instrument and sampling procedure is presented in Figure 2.

6.2 Sampling procedure

6.2.1 Phase I. The subject matter experts (SME) were from the travel industry; for instance, from the Tourism Ministry of India, the Indian Association of Tour Operators, along with senior executives and managers, and experts from various travel destinations. The SMEs also belonged to online platform agencies – goibibo.com, makemytrip.com, ixigo.com and yatra.com; we sent them the questionnaire developed to review. Importantly, before sending the questionnaire, we explained to all the SMEs the scope and objectives of the research. Post receiving their feedback, we modified the questionnaire while incorporating their recommendations. This ensured face validity of the questionnaire. Once that was done, we used the questionnaire for a pilot study. Further, we adopted a five-point Likert scale to measure the operational constructs. Then, we conducted a test for Cronbach's alpha to pre-test (87 respondents) and pilot test (165 respondents). The data collection survey was done by contacting travelers at various travel destinations, bus terminals, railway stations and airports. The authors ensured that the respondents had no prior experience at the destinations as they had yet to visit the destinations. The videos related to the concept of deepfake videos, and then deepfake and traditional destination videos were shown to tourists on laptops and mobile phones. Also, the deepfake concept was explained to the respondents before filling up the questionnaire. The participants used several online platforms and some form of technology to plan and visit various tourist destinations. After attaining the appropriate result in the pilot study, the final data collection was completed. Table 1 depicts the operationalization of the constructs.

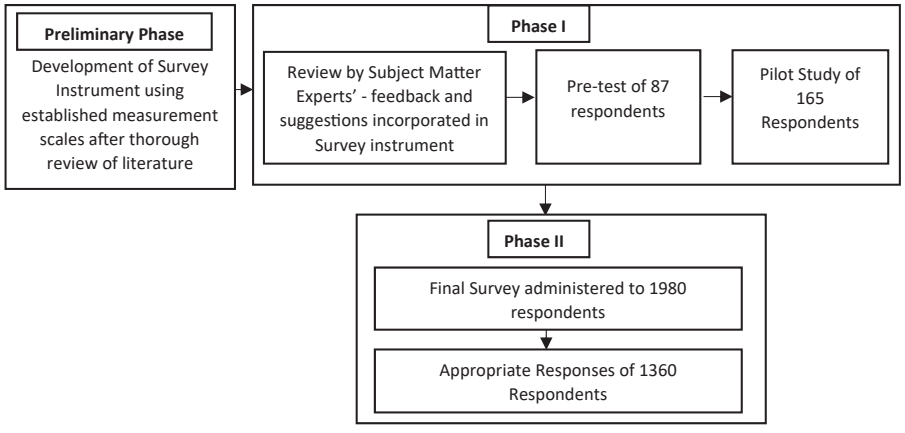
Table 1 Measurement of constructs

Main construct	*Items*	*Indicator/item*
Perceived Deception (PDE)	PDE1	Deepfake videos exaggerate the travel destination and its offerings
	PDE2	Deepfakes provide unclear destination details
	PDE3	Deepfakes try to mislead tourists to visit the travel destination
	PDE4	Deepfakes highlight destination features which are not important
	PDE5	Deepfakes misrepresent destination details to provoke the travelers to visit the destination
Cognitive Load (CLD)	CLD1	Deepfakes create difficulty to understand the information about the travel destination
	CLD2	Deepfake videos of travel destinations make it difficult for you to decide the visit to the destination
Information Manipulation Tactics (INM)	INM1	Deepfake videos are provided with the discounted link for visiting the travel destination (Incentive)
	INM2	Deepfakes have added extra features to the current destination to make it attractive (Adding)
	INM3	Deepfakes make the destination look better than the actual (Morphing)
	INM4	Deepfakes are presented by deleting the problems and issues with the destination (Deleting)
	INM5	Deepfakes delete the non-attractive part of the destination (Deleting)
Perceived Media Richness (PME)	PME1	Deepfake destination videos help me in making good decisions regarding my visit to the destination
	PME2	While deciding the travel destination visit, Deepfakes make it very easy to make my decision
	PME3	I can easily visualize the travel destination I plan to visit by watching deepfake destination videos
	PME4	Deepfake videos of travel destinations help me to understand the travel destination features and other information as per my requirement
	PME5	Deepfakes of destinations are available in various languages, which helps to understand the destination easily
Perceived Trust (PTR)	PTR1	Deepfakes provide accurate information about the destination which I want to visit
	PTR2	I believe in the information provided in Deepfake videos of the destination which I want to visit
	PTR3	Deepfakes direct me to a destination visit link that is safe to visit
	PTR5	I feel safe when I see deepfake videos and interact for destination visits
Intention to visit travel destination (IVD)	IVD1	Deepfakes are the primary source of information before deciding the travel destination visit
	IVD2	I feel like visiting the travel destination after watching the deepfake videos of the destination
	IVD3	I always see Deepfake destination videos before I book the travel destination

Source(s): Table by author

6.2.2 Phase II. Upon completion of the pilot study, we used the structured questionnaire to conduct the primary data collection process. It was done at various travel destinations, bus terminals, railway stations and airports by contacting travelers in the five states of India: Uttarakhand, Goa, Maharashtra, Himachal Pradesh and Karnataka, including the cities – Nainital, Mussorie, Dehradun, Mahabaleshwar, Lonavala, Panchgani, Pune, Kolhapur, Mumbai, Shimla, Dalhousie, Dharmshala, Manali, Panaji, Coorg, Hampi and Mysore. We used a convenient sampling method for the survey. As done in the pilot study, here too, the authors ensured that the respondents had no prior experience at the destinations as they had yet to visit them. We explained to the participants the idea of deepfake videos, prior to administering the questionnaire. First, we showed a video to the respondents, which explained the overall concept of deepfakes, and how it is used for advertising and marketing in various business sectors. It was necessary to show this

Figure 2 Methodological steps



Source(s): Figure by author

video so that the participants get a comprehensive picture of deepfakes are all about. Then, we showed them two other videos of travel destinations; one of them was a conventional destination video, while the other was a deepfake. Notably, we conducted this survey on multiple days and periods to reduce bias. Table 2 shows the details of the respondents' survey. These respondents were educated, using some type of technology and destination-watching videos on online platforms for travel destination visits. Also, respondents had considerable income. Hence, these respondents were appropriate for this work. In total, 1,980 respondents were surveyed, wherein 1,650 questionnaires were filled up and 1,360 questionnaires were completed for final analysis with a response rate of 68.7%.

6.3 Non-response bias

To explore the difference in the response between early respondent groups (830) and late respondent groups (530), we conducted a *t*-test (Tsou and Hsu, 2015), the result ($p = 0.21$) of which, exhibited no response bias. Lastly, the appropriate responses found were 1,360.

6.4 Common method bias and endogeneity

Post the Harman single factor test (Wang *et al.*, 2018; Podsakoff *et al.*, 2003), we noted a variance of 26.82%; this affirms that common method bias was not an issue. Furthermore, recursivity in the structural model could create an endogeneity issue (Dubey *et al.*, 2018; Lai *et al.*, 2018). In fact, the variance within an exogenous variable could be endogenous to the model specifically because cross-sectional data could possibly result in a misspecified model (Guide and Ketokivi, 2015).

Table 2 Collinearity statistics (VIF)

Construct	*Intention to visit travel destination (IVD)*
PDE	1.351
CLD	1.216
INM	1.167
PME	1.051
PTR	1.085

Source(s): Table by author

Therefore, we employed a Ramsey regression equation error test (Lai *et al.*, 2018), through which we established that endogeneity for our framework was not an issue, affirming in the process, measures both reliability and validity.

7. Analysis of data and findings

Of the total respondents, 43% were women, while 57% men. Their education details included 27% undergraduates, 38% graduates and 35% postgraduates. The respondents watched various kinds of information videos on online social media platforms for travel destination visits for less than 6 months (29%), while 6–12 months (33%) and 1 year and above (38%) (see Table 3).

7.1 Measurement model

For analyzing our conceptual model, we used PLS-SEM and Smart PLS 2.0 (Ringle *et al.*, 2005). Our rationale for using PLS-SEM was that it is believed to be relevant for non-normal data, as well as both large and small sample sizes (Hair *et al.*, 2017). In the final model, we calculated the measurement properties for the latent constructs, as that reflects the fact of having multiple indicators.

Table 4 shows the CR values, whereby we note high internal consistency and reliability (Nunnally, 1978). Further, convergent validity for all of our constructs is established, as the values of AVE are greater than 0.5 (Hair *et al.*, 2017). Then, we used the Heterotrait–Monotrait ratio (HTMT) criterion for analyzing the discriminant validity of the constructs. Table 5 shows the HTMT values, which in turn, confirm "discriminant validity." Notably, the highest HTMT value is shown as 0.58 and it is less than the threshold value of 0.85 (Henseler *et al.*, 2015).

Furthermore, we confirmed the measurement model while ensuring both its validity and reliability, along with the path analysis. The aim herein was to investigate the association between the constructs while adopting our structural model (see Figure 3). The path coefficients and *t*-values are presented in Table 6.

7.2 Structural model analysis

Table 4 depicts that PDE ($\beta = -0.237$, $p = 0.002$) influences the IVD; therefore, H1 is confirmed; this finding concurs with extant literature (Peng *et al.*, 2016; Walczyk, 2014). Tourists are becoming aware of deceptive online information and videos (Fedeli, 2021), which in turn, affect tourist visits. CLD ($\beta = -0.119$, $p = 0.12$) negatively affects IVD; hence, H2 is rejected. This supports the study on augmented reality in online retailing (Fan *et al.*, 2020). Deepfakes are indeed alluring, effortless to watch and seem realistic. CLD is insignificant, as tourists indulge in watching them and do not face much mental effort in processing the contents to decide on a destination visit. INM ($\beta = 0.218$,

Table 3 Demographic profile (N = 1360)

Demographic	*Characteristics*	*Respondents (1360)*	*Percentage (%)*
Gender	Female	585	43
	Male	775	57
Education	Undergraduate	367	27
	Graduate	517	38
	Post Graduate	476	35
Using various kinds of online platforms and videos to get information about travel destinations before booking it	Less than 6 months	395	29
	6–12 months	449	33
	1 year and above	516	38

Source(s): Table by author

Table 4 Results outer model measurements

Main construct	*Items*	*Factor loading*	*AVE*	*CR*	*α*
Perceived Deception (PDE)	PDE1	0.826	0.712	0.892	0.874
	PDE2	0.839			
	PDE3	0.844			
	PDE4	0.869			
	PDE5	0.817			
Cognitive Load (CLD)	CLD1	0.861	0.736	0.897	0.826
	CLD2	0.879			
Information Manipulation Tactics (INM)	INM1	0.877	0.726	0.889	0.866
	INM2	0.895			
	INM3	0.882			
	INM4	0.893			
	INM5	0.845			
Perceived Media Richness (PME)	PME1	0.859	0.754	0.901	0.853
	PME2	0.894			
	PME3	0.881			
	PME4	0.853			
	PME5	0.896			
Perceived Trust (PTR)	PTR1	0.859	0.762	0.911	0.841
	PTR2	0.869			
	PTR3	0.841			
	PTR5	0.835			
Intention to visit travel destination (IVD)	IVD1	0.844	0.749	0.891	0.836
	IVD2	0.894			
	IVD3	0.862			

Note(s): 1.Average variance extracted (AVE)=(summation of the factor loadings)/{(summation of the square of the factor loadings)+(summation of the error variance)} 2.CR=(Square of the summation of the factor loadings)/{(Square of the summation of the factor loadings)+(square of the summation of the error variance)}
Source(s): Table by author

Table 5 Discriminant validity (HTMT)

Construct	*PDE*	*CLD*	*INM*	*PME*	*PTR*	*IVD*
PDE						
CLD	0.522					
INM	0.432	0.461				
PME	0.347	0.403	0.478			
PTR	0.307	0.383	0.298	0.581		
IVD	0.208	0.213	0.189	0.264	0.421	

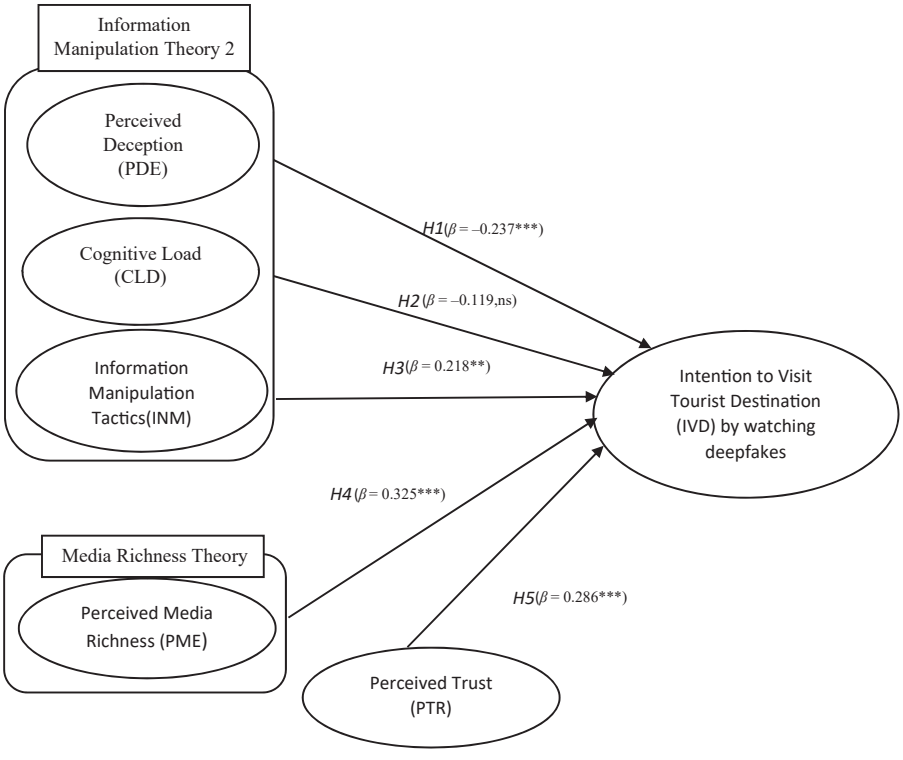
Source(s): Table by author

$p = 0.02$) influences IVD, which in turn confirms H3. Information manipulation tactics are used to influence travelers; additionally, it helps marketers to entice tourists. PME ($\beta = 0.325$, $p = 0.001$) influences IVD, which depicts that the media richness of deepfakes does affect the tourists' visit intention while affirming H4. As noted earlier, deepfakes are augmented with audio, video and various images to ensure that they are information-rich. PTR ($\beta = 0.286$, $p = 0.002$) influences IVD, which shows that tourists trust deepfakes when deciding to travel destination; therefore, H5 is confirmed.

8. Discussion

This work examined the factors of tourists' visit intention to travel to destinations by watching deepfake videos. Deepfakes are easily available on various online platforms, such as travel websites and social media platforms. They are created with advanced technologies, such as AI, ML and DL due to which they appear to be both realistic and attractive. In deepfakes, the attractive

Figure 3 Proposed Theoretical model



Note(s): Direct effect, *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Source(s): Figure by author

Table 6 Testing of hypothesis

Hypothesis	*Path*	*Path coefficient*	t *statistics*
H1	PDE → IVD	β = −0.237***	2.658
H2	CLD → IVD	β = −0.119 ns	1.019
H3	INM → IVD	β = 0.218**	2.190
H4	PME → IVD	β = 0.325***	3.157
H5	PTR → IVD	β = 0.286**	2.794

Note(s): a. *t*-value two-tailed test:***t*-value 2.58 (sig.level = 1%), **1.96 (sig.level = 5%) and **t*-value 1.65 (sig.level = 10%), Hair *et al*. (2011)

Source(s): Table by author

areas of destinations are highlighted. Based on the understanding gained so far, it may be affirmed that tourists' perceived deception does negatively influence their intention to visit a travel destination (Peng *et al.*, 2016; Walczyk, 2014).

These deepfakes are easy to access anytime and do not require much effort to direct tourists' to travel destination websites. Information about the destination is attractive, crisp and clear; tourists do have to strain themselves mentally to watch and process information from these videos. However, there are a tourists, who tend to become skeptical about the alluring videos. Therefore, it may be affirmed that cognitive load does negatively influence the tourists' visit intention (Fan *et al.*, 2020; Schrader and Bastiaens, 2012).

The information manipulation tactics used by managers for developing deepfakes are: adding eye-catching content, deleting issues of the destination, morphing original content and providing incentives for travel destination visits after watching these videos. Also, marketers use advanced AI technology to suitably manipulate deepfakes to captivate tourists. These videos are developed with appealing audio-visual effects and attract consumers to visit the destination. Therefore, information manipulation tactics positively affect the visit intention of tourists toward travel destinations (Kim and Lennon, 2010; Peng *et al.*, 2016).

The deepfakes are obviously fake and appear realistic by using deep learning technology to integrate, superimpose, replace and merge the existing audio, video and images. Deepfakes are thereby known to be media-rich, which entice tourists to visit a destination (Maity *et al.*, 2018; Ogara *et al.*, 2014; Tseng *et al.*, 2017).

9. Theoretical implications

The significance of conceptualizing the impact of 'fake news' on tourism has been highlighted in recent literature (Fedeli, 2021). However, prior studies on fake news in tourism have been anchored on theories extending from the deception theory (Yoo and Gretzel, 2009) to the source credibility theory (Ayeh *et al.*, 2013). On the other hand, contemporary destination management takes inspiration from theories like problematizing place promotion (Morgan, 2004). We, in this study, extended these debates while calling for more attention to the deepfakes, vis à vis its consequences on tourism management, both from the perspective of practice and theory (Juuti *et al.*, 2018; Kwok and Koh, 2020).

Through our proposed theoretical model, this study is possibly among the first to examine the impact of deepfakes on tourists' intention to visit a destination (Kwok and Koh, 2020). As deepfakes emerge as a promotional and advertising tool, we tried to fill up a significant gap in the literature by finding factors that affect the tourists' intention to visit a destination once they finish watching deepfakes.

While IMT2 is deep-rooted in linguistics, speech production, cognitive, neuroscience and artificial intelligence (McCornack *et al.*, 2014), we worked toward developing a unique model that amalgamates MRT, IMT2 and PTR, with the sole objective of being able to predict the tourists' visit intention after watching deepfakes (Daft *et al.*, 1987; Lipowski and Bondos, 2018; McCornack *et al.*, 2014). In the process, we believe that our study opens up new vistas, whereby IMT2 could be employed for further predicting the tourists' adoption behavior. Additionally, one may also consider using any of the following technologies (e.g. AI, ML, DL, robots and chatbots).

This study also contributes to the literature on the media richness theory, as well as advertising in tourism, and in the process, we do bridge another important gap in the literature, specifically by analyzing the tourists' visit intention after watching deepfakes.

While our proposed model divulges the antecedents of tourists' visit intention after watching deepfakes (e.g. PDE, CLD, INM, PME and PTR), we also observed that CLD does not influence, but PDE does negatively influence the tourists' intention to visit a destination after watching deepfakes. Importantly, as our model has been empirically tested and validated, researchers in the future may want to use it for investigating deepfakes, while analyzing their impact on advertising and promotion.

10. Practical implications

Our study also has several key implications for managers, as regards deepfakes, vis à vis their impact on tourists' visit intention. Also, we did find tourists who are aware that deepfakes are indeed deceptive, wherein PDE has a negative effect on them. Managers must add more realistic information on travel destinations instead of developing deepfakes. We also highlighted significant variables (e.g. information manipulation tactics), which could help managers draw more visitors to

travel destinations. Managers may consider using strategies to add more crucial information and/or pictures while introducing a dynamic and real-time system of feedback so that tourists post watching these deepfakes could pose queries. Moreover, given that in deepfakes, the outcome essentially is a transformed type of input, the computer-generated content tends to be less coherent, with a partial notion of irrational descriptions due to algorithmic biases. Therefore, tourism company managers need to pay more attention to both the completeness and coherence of content.

Furthermore, since deepfakes are less resource-intensive than human-created fake content, this may lead to circumstances where tourism-related websites are inundated with low-priced computer-generated information. And it seems credible and convincing and influences tourists' decision-making through the so-called majority impression paradigm (Lerman *et al.*, 2016). Hence, managers need to be alert to evaluate the content carefully.

At their end, marketers could use advanced technologies to ensure that the videos are of high definition with video and audio of good quality. Managers need to ensure candid information through deepfakes or else tourists will lose their trust in deepfakes and stop watching them. Deepfake is a powerful tool for marketers to ensure the media richness of the videos for advertising, place promotion and destination branding.

We explain the consequences of computer-generated fake information for tourism management and provide critical insights for tourism scholars by presenting how deepfakes influence tourists' visit intentions. This research divulges insights for developers and designers of the deepfakes and provides directions for ensuring the seamless amalgamation of video, images and audio to impact the behavior of tourists. The model provided guidelines for travel destinations' advertisers and marketers for developing the deepfakes and utilizing them to influence the destination visit intention of tourists. It aids tourism sector-related government authorities in comprehending what are the several tactics utilized by marketers for deepfakes creation. The audit of deepfakes can be conducted by these government officials so that tourists are not misinformed by the marketers with fake destination information. This work contributes to framing a multitude of strategies for finding and understanding deceiving content to alleviate the impact of deepfakes on tourists' behavior, as deepfakes will be utilized widely for marketing and advertising in the future.

11. Conclusion

In summary, this work discusses the factors influencing tourists' visit intention by watching deepfakes. It is revealed that PDE and CLD negatively impact the intention to visit the travel destination after watching deepfakes. Also, INM, PME and PTR positively influence the visit intention of travelers'.

In this study, the authors discuss tourist behavior regarding destination visit intention after watching deepfakes. The model proposed caters to the antecedents of the tourists' visit intention after watching the deepfakes. The proposed model is tested statistically and validated as it appropriately explains 65.2% of tourists' visit intention by watching deepfakes. The predictors of the visit intention are INM, PME and PTR, which positively influence PDE has a negative effect. In contrast, CLD is insignificant on visit intention after watching deepfake videos.

12. Limitations and future research

This study is cross-sectional; further, we limit this research by exploring deepfakes for the visit intention of travelers. In the future, experimental-design (consisting of control group and treatment group) and longitudinal-based studies can be done to examine the deepfake videos' effect on booking intention, actual destination visit and post-travel experience. This work emphasizes exploring the role of MRT and IMT on visit intention; hence future investigation can be conducted by examining the mediation role of trust on the tourists' visit intention, as perceived trust is not measured as a mediator. The deepfakes are here to stay and marketers are going to experiment with this AI-based technology as it has tremendous future potential. Deepfakes offer a huge scope

for scholars to study the future implications of on consumer behavior in tourism and hospitality. Research can be conducted on the stickiness of travelers to deepfakes for visit intention. Also, an investigation can be conducted on deepfakes and their effect on tourists' word-of-mouth satisfaction, loyalty and experience of travel destinations on different online platforms.

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