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ESPOUSAL OF ONLINE SOCIAL NETWORKS (OSNS) IN TOURISM SUPPLY CHAIN NETWORK (TSCN) DURING COVID-19

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Abstract: The COVID-19 epidemic has broken the original business network structure and globally affected the tourism supply chains. Online social networks (OSNs) have become a necessary component of ICT-enabled services, affecting every area of human existence. The espousal of OSNs into tourism supply chain networks during a pandemic is crucial. However, scarce studies have been conducted on the espousal of OSNs in tourism supply chain networks. The study developed a research model based on the IS success model, uses and gratifications (U&G) theory, institutional theory, and transaction cost theory to analyze the espousal of OSNs in the tourism supply chain network (TSCN) during COVID-19. The study employed structural equation modeling (SEM) to examine 99 data acquired via online surveys from supply chain specialists in the travel and hospitality sectors. The research model outperforms better and fulfills all model fitness requirements. The research found that tourism supply chain experts adopt online social networks to address supply and demand disruptions caused by COVID-19. Utilitarian features (e.g., supply chain perceptibility), technological features (e.g., system quality), and cost-benefit aspects substantially influence the espousal of OSNs in the tourism supply chain network. Espousals of OSNs improve tourism supply chain performance during Covid-19. As a result of this research, tourism supply chain management, MIS, and social media literature will be enriched by introducing OSNs in the tourism supply chain environment. The research will also provide adequate implications to supply chain managers and OSNs service provider to adopt OSNs in the tourism supply chain during COVID-19.

Key words: COVID-19, Espousal, Online Social Network, Tourism, Supply Chain Network, Performance

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INTRODUCTION

The tourism supply chain (TSC) is a linked chain of tourist firms that perform and/or support channel functions (Song, 2011). COVID-19 instills fear among the public, which adds to a drop in tourism demand (Bakar and Rosbi, 2020). Tourism, as high yield financial sector, can contribute to economic growth and development through technological advancement, industrial and infrastructural development (Bhuiyan et al., 2021). Tourism sector is the most sufferer due to the COVID-19, though the pandemic affected the almost every sector of the world economy (Afroz et al., 2022). This pandemic impacted the food, transportation, logistics, and tourist industries (Tellioglu, 2020). COVID-19 caused worldwide distortions in the tourist sector and significant drops in hotel occupancy rates (Nicola et al., 2020). It demonstrates that the disaster has the possible to have extensive and long-term consequences for tourism as an economic enterprise (Razak, 2020). It has caused problems in the travel and tourism-related service industries (Abbas et al.,2021) and created different global restrictions that influence the traveler's behavior and habits (Refaat and Arafa, 2022).

COVID-19 influences global goods demand and supply. COVID-19, a novel strain of extremely infectious coronavirus (Boccaletti et al., 2020), has recently caused havoc on supply chain worldwide (Choi, 2020; Ivanov, 2020). The COVID-19 outbreak is an example of how pandemics and epidemics may disrupt global supply chains (SC) (Queiroz et al., 2020). During the March global outbreak, supply chain management (SCM) struggled to accommodate unanticipated demand for specific commodities while restricting travel and manufacturing (Mazareanu, 2020). Unprecedented sickness epidemics (Lin et al., 2020) have impacted society as a whole and business model in operations and supply chain management (OSCM). These interruptions harm sales, earnings, stock returns, brand image, job security, buyer safety, and supply chain performance (Paul and Chowdhury, 2021). Domestic consumer demand in most nations is likely to fall considerably (Bakar and Rosbi, 2020). Demand would plummet as a result of overseas buyers delaying or canceling purchases, local and international tourists canceling holidays, and the stock market collapsing (Khan and Yasmine, 2020). On the supply side, there is also a chance of interruptions in emerging nations due to a lack of imported raw materials and spare components

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(Khan and Yasmine, 2020). COVID-19's uncertainty has disturbed the original stable hierarchical network structure as well as the whole supply and demand system of the tourism supply chain (TSC), resulting in huge losses for the tourist sector (Bai and Ran, 2022). The virus has infiltrated every aspect of the hospitality value chain (Hamid, 2021). The virus impacted practically every aspect of the hospitality value chain within nations, including management, hotels, and tourists. The immediate impact of the closure of these enterprises was felt in other sectors of the supply chain, such as food services, catering, restaurants, laundry services, transportation, and so on (Business Insider, 2020). Lodging, transportation, excursions, bars and restaurants, handicrafts, food manufacturing, waste disposal, and infrastructure that supports tourism in locales are all part of tourism supply chains (Intojunyomg et al., 2016). Information sharing and ICT are frequently identified as key facilitators for improving supply chain performance and preventing major supply chain concerns such as the bullwhip effect (Hofmann, 2017). The importance of ICTs in improving TSC performance and case studies of ICT development and its impact on TSC development in China are examined (Song, 2011). The implementation of information technology, like that of other businesses in this tourist supply chain, has made a significant contribution to the long-term success of the chain (Yuan et al., 2019). Tourism information technology provides the required information to supply chain management in order to personalize and integrate diverse procedures and resources for the most recent visitors' needs. Thus, information technology advantages may be realized if the supply chain's partner tourism enterprises adapt to novel information technology and use IT to build their facilities and packages (Raman and Bharadwaj, 2017).

The ability to adopt information technology in the tourism industry improves the performance of the tourism supply chain and facilitates the use of information technology for business uncertainty and planning in order to give consistent services to visitors (Xiang, 2018). Tourist IT adoption is positively related to long-term supply chain performance (Xiang et al., 2015). In recent years, social media has evolved as an innovative internet-enabled technology that has become a piece of crucial information for clients about their products (Kaplan and Haenlein, 2010). It provides a whole new approach to interact with existing and future consumers and suppliers (even on a global scale) and a development that is becoming increasingly important to various enterprises. Social networking platforms are well-known among travel and hospitality supply chain partners. Social media technology has the potential to improve supply chain management. It also enhances visibility, improves communication, improves management, and lowers operational and staff costs. Aside from that, social media may improve supply chain management and have a good ripple impact throughout the organization. Companies may freely communicate with customers on social media, improving demand, customer service, and publicity. Online social networks (OSNs) enable company to communicate in real time with entire supply chain, saving time, keeping everyone informed, and increasing productivity. It improves partner collaboration and facilitates open group discussions. This program is capable of tracking logistics, exchanging data and information, strengthening connections, and measuring success throughout the whole supplier network. Access to a large amount of information in the supply chain may be problematic in practice. Social networking will give organizations with a plethora of timely information about developing risks and events, allowing them to take corrective action sooner and prevent (or lessen the impact of) a supply chain disruption (Gonzalez, 2015).

Several large corporations utilize social media in their supply chain management procedures. It increases visibility, improves communication, increases management, and reduces operational and personnel costs (Sinha, 2019).

The preceding discussion emphasizes the need to incorporate OSNs into the tourism supply chain network during COVID-19. Some recent researchers have previously investigated how social media usage improves customer relationship management (Trainor et al., 2013) and organizational performance (Alarcon-del-Amo et al., 2013; Carmichael et al., 2011). While some attempts have been made to include social media in the supply chain for new product development (Cheng and Krumwiede, 2018); retail network operations (Ramanathan et al., 2017); improvement of the food industries network (Singh et al., 2018); and customer involvement for sustainable supply chain (Sigala, 2014). To the best of our knowledge, no studies have addressed the espousal of OSNs in the tourism supply chain network (TSCN) during COVID-19. Hence, this study explores the espousal of OSNs in the TSCN during COVID-19. In order to meet the objective, the following research question is developed: Does the espousal of OSNs into the tourism supply chain network boost supply chain performance during COVID-19? To empirically assess the tourism supply chain performance due to the espousal of OSNs, we developed an integrated model based on the IS success model, institutional theory, U&G theory, and transaction cost theory. This research will enrich the future researcher by introducing OSNs to the tourism supply chain network. It will give persuasive practical implications to the tourism industry regarding the espousal of OSNs in TSCN and OSNs service providers. The remainder of the study is organized: The research plan and hypothesis are followed by research methodologies. The analysis and findings section invites the discussion section. It then discusses the implications for knowledge and policy. Finally, the paper ends with a discussion of future research and limitations.

RESEARCH PLANS AND HYPOTHESES

To achieve the research purpose, this study constructed a research model that included the IS success model, institutional theory, U&G theory, and transaction cost theory. In order to describe the technical aspects of successful IS, a body of scholars in IS studies has attempted to explain the numerous quality features such as data quality (Kaplan et al., 1998), information quality (King and Epstein, 1983), system quality (Rai and Al-Hindi, 2000), and web quality (Aladwani and Palvia, 2002). In the context of a tourism supply chain, the technical quality of OSNs between transaction partners is just as crucial as agreement on the value of OSNs and the purpose for effective adoption (Sinha, 2019). Essentially, the institutional theory is used to describe how diverse entities in an institutional context produce pressures and how organizations are obligated to adhere to those standard norms and behaviors to make decisions over time (Scott, 2008). This study looked at the influence of several forms of institutional pressures (e.g., mimetic, normative, and coercive) on the

adoption of OSNs in TSCN (DiMaggio and Powell, 1983). The transaction cost theory identifies the cost-benefit aspect of information and its influence on organizations (Williamson, 1975). Each sort of social network necessitates some investment, and the decision-maker must account for this cost while reaping the benefits of the network. According to TCE, organizations tend to embrace OSNs platforms as information dissemination platforms in TSCN when the advantage obtained from OSNs outweighs the expense incurred. The U&G theory is a theoretical framework that explains why people deliberately pick certain media to meet their gratification requirements, emphasizing why people choose one medium over others to meet a range of demands (Katz et al., 1974). A growing body of research has recently sought to adapt the U&G theory to social media settings, with the goal of explaining motivations for utilizing various social media platforms such as instant messaging (IM), Twitter, and Facebook (Alhabash et al., 2014; Han et al., 2015). This study includes the IS success model, the institutional theory, the U&G theory, and the transaction cost theory to achieve the research goal. Figure 1 depicts the research framework. The following part presents the hypothesis development details of research framework.

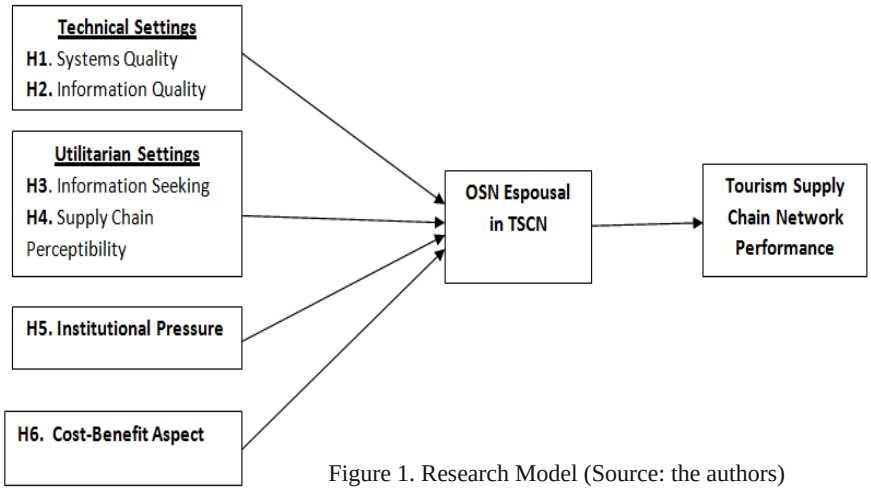

Figure 1. Research Model (Source: the authors)

1. Technical Setting

1.1. System Quality OSN Espousal

DeLone & McLean (1992; 2004) described the system quality in terms of usability, availability, reliability, adaptability, and response time, which motivates users to use online systems. If OSNs platforms are unreliable, difficult to use, and have slow responses, users need to wait a long to get information. OSNs permit transaction partners of the tourism supply chain to observe supply chain activities and dealings by providing up-to-date information about current situations. A poor system quality cannot make the OSNs visible and agile to their partners. Moreover, reliable and user-friendly systems lead the user to adopt the systems. A body of research suggests that system quality influences usage acceptance of technology in a different context (Yang et al.,2017 in MOOCs adoption; Lin and Lu,2000 in internet learning; Oliveira et al., 2014 in mobile banking adoption; and Zhou, 2013 in e-government espousal. Hwang and Rho (2016) explored system quality as a noteworthy feature of supply chain visibility and agility in RFID adoption in supply chain networks. Based on these theoretical arguments, we also believe that the system quality of OSNs will increase the chance of OSN espousal in the TSCN during COVID-19. Consequently, we propose:

H1: The quality of OSNs systems will positively contribute to OSN espousal in the tourism supply chain network during COVID-19

1.2. Information Quality OSN Espousal

The trustworthiness of shared information across supply chain transaction parties is considered a predictor of supply chain visibility and agility (Li and Lin, 2006). The lower level of information confuses users, increasing information-processing costs (Zheng et al., 2013). Supply chain visibility (Barratt and Oke, 2007) is interrupted and degraded when the shared information is not accurate and timely. Gao and Bai (2014) identified information quality as essential for mobile social networking adoption. Moreover, good quality of information advances the user to adopt the systems. Urbach and Müller (2012) found the "information quality is often seen as a key antecedent of user satisfaction." Hwang and Rho (2016) identified the information quality of RFID as a persuasive factor in supply chain visibility and agility. Based on such a theoretical argument, the study also believes that the quality of shared information on OSNs platform will lead to the espousal of OSNs in supply chain networks during COVID-19. Accordingly, we developed the following hypotheses.

H2: The quality of OSNs information will positively contribute to OSN espousal in the tourism supply chain network during COVID-19.

2. Utilitarian Settings

Goal-setting and rationality are connected to utilitarianism (Stoel et al., 2004). This research defines utility as information seeking and supply chain perceptibility.

2.1. Information Seeking OSN Espousal

The online social network is an increasingly popular medium for consumers to receive information and play an essential part in information seeking and sharing (Ku et al., 2014). Social media users can meet their information needs, and it influences user behavior (Ronda and Derek, 2014). Bunker et al. (2013) noted that Facebook users might get beneficial information and spread the message. WeChat Users may learn anything fresh or beneficial from others' postings (Ku et al., 2013). Gan (2017) investigated that users prefer Wechat based information sharing. This trait will inspire tourism supply chain networks to adopt this technology into their supply chain networks. In this line, we forecast

H3: Information seeking will significantly impact OSN espousal in tourism supply chain networks during COVID-19

2.2. Supply chain Perceptibility to OSN Espousal

This term describes the perceptibility of a supply chain network among transaction parties. The advent of online social networks has increased exposure for the supply chain management. Supply chain perceptibility is a vital supply chain network attribute, and an online social network facilitates this job. Individuals looking for a sense of social identity and a favorable image are more inclined to share and exchange information online (Lee-Won et al., 2014). Chen and Marcus (2012) discovered that to maintain a favorable image, Facebook users post more positive material and engage with others. Similarly, organizations may develop a favorable, sociable, and stylish image among tourism supply chain partners by using online social networks. Hwang and Rho (2016) uncovered that the visibility and agility of RFID positively contribute to supply chain performance. As a result, supply chain perceptibility should lead to the tourism supply chain professionals integrating OSNs into the supply chain network, forming a hypothesis

H4: Supply chain perceptibility impacts OSN espousal in tourism supply chain networks during COVID-19.

2.3. Intuitional Pressure to OSN Espousal

A company's mimetic forces urge it to alter and become more like others. These factors may also impact actors' desire to join OVSN (Zhu and Chang, 2014). To accomplish goals or objectives, normative forces need a convergence of ideas, beliefs, and aims (Hsu et al., 2014). These forces may restrain or facilitate social conduct, establishing roles and functions. Regulations or coercion impose punishments, expand authority, or reward actors (Scott, 2014). These forces emphasize technology, adoption, politics, and methods (Hsu et al., 2014). Mimetic, normative, and coercive factors influence ERP adoption (Liang et al., 2007) and social media adoption (Bharati et al., 2013).We also believe institutional pressures such as mimetic, normative, and coercive pressures favorably incentivize tourism supply chain professionals to integrate OSNs into their supply chain networks. So we have

H5: Institutional pressures (mimetic, normative, and coercive) drive tourism supply chain professionals to use OSN in tourist supply chain networks.

2.4. Cost-Benefit Aspect (CBA) to OSN espousal

Perceived fee parsimoniously reflects extrinsic sacrifice to the individual, whereas a higher cost hurts perceived value (Kim et al., 2007). Both marketing and information systems studies show that perceived value directly impacts purchase intention (Turel et al., 2010). Aside from the context of web-enabled cellular devices, research has found a substantial positive relationship between perceived fee and cost (Kim et al., 2007; Turel et al., 2007). The variable 'perceived value' assesses the utility of technology by balancing perceived values and costs (Setterstrom et al., 2013). It has been demonstrated to predict intent to use (Cocosil and Igonor, 2015; Hong et al., 2017). We expect the cost-benefit aspect to be a powerful predictor of OSN adoption in the tourism supply chain network. As a result, we suggest:

H6: The Cost-Benefit aspect (benefit after cost deduction) will positively boost OSN espousal in tourism supply chain networks.

2.5. Online Social Network Impact on Tourism Supply Chain Network Performance

Ferrer et al. (2013) discovered that using social media technology improves an organization's social capital and performance. Ahmad et al. (2018) explored that when SMEs adopt social media in operation that enhances SME performance. Ahmad et al. (2018) also discovered that the espousal of social media in business has impact on business performance. Parveen et al. (2016) identified that the adoption of social media in organizations increases the firm performance by reducing cost, increasing information accessibility, and improving customer relations. Schlagwein and Hu (2017) have investigated how social media usage types (for example, discussion) improve organizations' adoption ability and contribute to organizational performance. Social media may help organizations in many ways, though research in this area is limited. Considering these theoretical results, we predict that integrating OSNs will benefit tourism supply chain networks by lowering communication costs, increasing access to competitor and market information, and speeding up information distribution. So, we propose the following theory.

H7: Espousal of Online social networks improves tourism supply chain network performance.

METHODOLOGY

1. Research Settings

An exploratory study was advised due to a lack of research on online social networks in tourism supply chain networks during the COVID-19 pandemic (Zikmund et al.,2010). We chose tourism supply chain professionals from the Indian sub-continent (e.g., Bangladesh, India, and Pakistan) to test our study model and hypothesis. OSNs are a newer technology in those nations, and their usage has exploded. Moreover, in the Indian sub-continent, tourism supply chain specialists are increasing their online engagement.

2. Measurement Scale Development

To operationalize the study model, most of the latent construct measures were changed to reflect the assessment of these components for OSN users, notably tourism supply chain professionals from the Indian sub-continent. IQ (information quality) and SQ (system quality) are measured using a scale of Hwang and Rho (2016) and Veeramootoo et al. (2018) with four and three items, respectively. Measurement items for information seeking are adopted from Gan (2017); Ku et al. (2013). Measures for supply chain perceptibility are taken from Gan (2017); Liu et al. (2010). The components for institutional pressure are tailored from Bharati et al. (2013). Four factors from Setterstrom et al. (2013) and Kim et al.

(2007) are used to quantify the cost-benefit of OSNs. Measures for the Espousal of OSN in TSCN are taken from Bharati et al. (2013) and Davis et al. (1989). The tourism supply chain network performance (TSCN) is measured by four items adapted from Parveen et al. (2016) and Molla and Heeks (2007).

Table 1. Summary of Measurement Items

Constructs	Corresponding Items	Sources
Information Quality (IQ)	IQ1: OSNs delivers clear and understandable information in commonly usable format with transaction partners in tourism supply chain network during Covid-19 IQ2: OSNs supports to access information among transaction partners at the desired time in tourism supply chain network during Covid-19. IQ3: Information contained on the OSNs is up-to-date for transaction partners in tourism supply chain network during Covid-19. IQ4: OSNs supports sharing of exact, valid and unquestionable information in tourism supply chain network during Covid-19.	Hwang and Rho (2016); Veeramooto o et al. (2018)
System Quality (SQ)	SQ1: OSNs are easy to use among transaction partners in tourism supply chain during Covid-19 SQ2 : OSNs flexibly supports information service with upgrade reflecting requirements of transaction partners in tourism supply chain during Covid-19 SQ3 : OSNs help responds instantly to requests from transaction partners in tourism supply chain network during Covid-19	Hwang and Rho (2016); Veeramooto o et al. (2018)
Information Seeking(IS)	IS1: Supply chain partners obtains useful information from online social network for tourism supply chain networks during Covid-19 IS2 :Supply chain partners obtains helpful information from online social network for tourism supply chain networks during Covid-19 IS3: Online social network presents interested information for tourism supply chain networks during Covid-19	Gan (2017); Ku et al. (2013)
Supply Chain Percepti-bility (SCP)	SCP1: Online social network tell others about the organization's tourism supply chain network during Covid-19. SCP2: Online social network makes the organization's tourism supply chain networks visible to others during Covid-19. SCP3: Online social network helps the organization to keep pace with recent trends in tourism supply chain network during Covid-19.	Gan (2017); Liu et al., (2010)
Institutional Pressure (IP)	IP1: Competitors who are important to us think that online social networks are useful for tourism supply chain networks during Covid-19. IP2: Competitors whose opinions we value think online social network are beneficial for tourism supply chain networks during Covid-19. IP3: The Government's promotion of Information Technology influences our firm to use online social network for tourism supply chain networks during Covid-19. IP4: The industry association requires our firm to use online social network technologies for tourism supply chain networks during Covid-19. IP5: The competitive conditions in industry require our firm to use online social network for tourism supply chain networks during Covid-19.	Bharati et al (2014), Liang et al. (2007)
Cost-Benefit Aspect (CBA)	CBA: The fee that organization has to pay for the use of online social network is reasonable. CBA2: Compared to the fee organization need to pay, the use of online social network offers value for the money. CBA3: Compared to the effort organization need to put in, the use of online social network is beneficial. CBA4: Overall, the use of online social network delivers good value to organization during Covid-19.	Setterstrom et al (2013), Kim et al.,(2007)
OSN Espousal in TSCN (OSNE)	OSNI1. Supply chain professionals have high intention to use online social network services for tourism supply chain activities during Covid-19. OSNI2. Supply chain professionals will always try to use online social network services for tourism supply chain activities during Covid-19. OSNI3. Supply chain professional is implementing the application of online social network tools for tourism supply chain activities during Covid-19.	Bharati et al. (2013), Davis et al. (1989)
Tourism Supply Chain Network Perfor-mance (TSCNP)	TSCNP 1: Online social network reduce the cost of communication with transaction partners in tourism supply chain network even during Covid-19. TSCNP 2: Online social network enable easier access to competitor information of tourism supply chain network during Covid-19. TSCNP 3: Online social network enable easier access to market information of tourism supply chain network during Covid-19. TSCNP 4: Online social network enable faster delivery of information to customers of tourism supply chain network even during pandemic period during Covid-19.	Parveen et al., (2016); Molla & Heeks, (2007)

3. Data Collection

A web-based cross-sectional survey was conducted among 99 tourism supply chain professionals in the Indian Sub-Continent (e.g., Bangladesh, India, and Pakistan). The research questionnaire included two parts (A and B). Part A asks about OSNs and organization profiles. Part B included all questions relating to the proposed research model's constructs. The 29 concept indicator responses range from (1) "strongly disagree" to (7) "strongly agree." Researchers adopted the convenience sampling method as the survey instrument because of its cost-effectiveness and are widely used in information systems research (Eze et al., 2011; Jha, 2017). A google form was used to create a simple questionnaire. An email invitation included a URL link to the web-based survey questionnaire sent to tourism supply chain professionals. The research goal is also informed to the respondents properly. An email was issued to 670 tourism supply chain professionals

from the Indian Sub-Continent. The first round was distributed in early July 2021 and received roughly 70 responses. Then six more rounds from 25 July to 31 August 2021. Finally, we received 120 replies, 21 of which were rejected owing to missing data. Table 2 shows the participant's demographics.

4. Analytic Method

We used Structural Equation Modeling (SEM) to test and corroborate the suggested integrated model and its relationships across theoretical components. SEM is commonly used to validate empirical data models (Götz et al., 2010). SmartPLS is a well-known software for PLS-SEM measurement model assessment (Hair et al., 2013). First, the internet data were exported to Excel. It was then transferred into SmartPLS 3.0 for statistical analysis.

ANALYSIS AND FINDINGS

1. Characteristics of the Sample's Demographics

The demographic analysis depicts the respondent's situation. The hospitality business has the most replies (52%), followed by travel (48%). One of the study's notable findings is that most respondents (66%) are small businesses utilizing online social networks to communicate in tourism supply chain networks. Respondents are from medium (25%) and large (9%). Respondents from Bangladesh (45%) and India (35%) were followed by Pakistan (19%). This ensures the respondents' distribution among the three nations. The majority of organizations (49%) have 1 to 10 full-time IT personnel in their information system department, 20% of organizations have 11-15 personnel, 12% have 16-20, 13% have 21-25, and 5% of companies have more than 25 IS employees. Most organizations (64%) have been in business for 1-10 years. 22 % of companies have been in business for 11-15 years, while 13% have been in business for over 15 years. Newly established organizations embrace online social networks to communicate in the tourism supply chain network. Notably, 35% of tourism supply chain professionals use Facebook to communicate with their transaction partners. The remaining participants (25%) use WhatsApp, (10%) use Twitter, and (21%) use all types of platforms for tourism supply chain communication. Most respondents (48%) use smartphones to communicate with tourism supply chain partners. Conversely, 12% use a laptop, 6% a desktop, 8% a tablet, and 25% utilize all devices for online social network engagement in the Indian sub-continent's tourism supply chain partners (see Table 2). Data analysis included all demographic variables as control variables. We ran two models, one with the control variables and one without. The existence of control variables has little influence on R square values (Teo et al., 2003). Therefore, we did not consider the effects of demographic variables in the final model.

Table 2. Demographic Analysis

Indicators	Description	Frequency	Percentage	Indicators	Description	Frequency	Percentage
Industry	Hospitality	51	52%	OSM Platform	Facebbok	35	35%
	Travel	48	48%		WhatsApp	25	25%
					Twitter	10	10%
Age of the Firm	Less than 1 year	5	5%		YouTube	5	5%
	1 to 5 year	27	27%		Google+	1	1%
	6 to 10	32	32%		Wechat	2	2%
	11 to 15	22	22%		LinkedIn	0	0%
	More than 15	13	13%		Others	0	0%
Is Employee	Less than 5	23	23%		All	21	21%
	5 to 10	26	26%	Hardware Used	Smartphone	48	48%
	11 to 15	20	20%		Desktop	6	6%
	16 to 20	12	12%		Laptop	12	12%
	21 to 25	13	13%		Tablet	8	8%
	26 to 30	2	2%		Other	0	0%
	More than 30	3	3%		All	25	25%
Size of the Firm	Small	65	66%	Country	Bangladesh	45	45%
	Medium	25	25%		India	35	35%
	Large	9	9%		Pakistan	19	19%

2. Measurement Model

For the investigation of the measurement model, SmartPLS 3 was employed. We used Anderson and Gerbings' (1988) two-step statistical analysis approach to achieve the objective in SEM. The two-step strategy builds measures validity and reliability before studying structural links. Internal consistency and dependability are assured when Cronbach's alpha and composite reliability are equal to or greater than 0.70 (Hair et al., 1995).

Table 3. Measurement Model

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Cost Benefit Aspect	0.941	0.958	0.849
Information Quality	0.924	0.946	0.814
Institutional Pressure	0.947	0.960	0.826
Information Seeking	0.889	0.931	0.819
System Quality	0.913	0.938	0.792
OSN Espousal in TSCN	0.928	0.954	0.875
Supply chain Perceptibility	0.905	0.940	0.840
Tourism Supply Chain Network Performance	0.939	0.956	0.846

Table 3 illustrates the study's Cronbach's alpha and composite reliability. Cronbach's alpha ranged from 0.889 to 0.947, and composite reliability from 0.931 to 0.960. The study's internal reliability is above the threshold value of 0.70. We utilized Fornell and Larcker's (1981) criteria to assess convergent validity. Table 4 reveals that all item loadings (bold and italic) were above 0.70, and Table 3 shows that AVE values were similarly over 0.50 (Fornell and Larcker, 1981; Hair et al., 2013). So the investigation validated the suggested measuring model's convergent validity. Most researchers employed the Fornell and Larcker (1981) criterion to measure discriminant validity. Henseler et al. (2015) argued that neither the Fornell-Larcker (1981) criterion nor the examination of cross-loadings adequately allowed researchers of variance-based SEM to establish discriminant validity. Henseler et al. (2015) strongly advocated the heterotrait-monotrait ratio of correlations (HTMT) as a unique method for measuring discriminant validity in variance-based SEM. It is also used other fields (Kuppelwieser et al., 2019). According to Henseler et al. (2015), an HTMT value of 0.90 (Gold et al., 2001) is acceptable, while an HTMT value of 0.85 (Kline, 2011) is regarded as the tightest requirement. Table 5 shows that all values are smaller than Gold et al. (2001) requirements (<= 0.90), ensuring the discriminant validity of our data.

Table 4. Item Loading. Note: square root of AVE on diagonals in bold; CBA: Cost Benefit Aspect; IQ: Information Quality; IP: Institutional Pressure; IS: Information Seeking; SQ: System Quality; OSNE: OSN Espousal in TSCN; SCP: Supply Chain Perceptibility; TSCNP: OSN Tourism Supply Chain Network Performance

	CBA	**IQ**	**IP**	**IS**	**SQ**	**OSNI**	**SCP**	**OSNISN**
CBA1	***0.918***	0.777	0.855	0.795	0.765	0.801	0.822	0.805
CBA2	***0.936***	0.766	0.819	0.763	0.729	0.831	0.803	0.838
CBA3	***0.924***	0.781	0.832	0.778	0.734	0.783	0.814	0.834
CBA4	***0.907***	0.788	0.849	0.776	0.776	0.814	0.810	0.834
IQ1	0.768	***0.893***	0.782	0.814	0.832	0.794	0.821	0.798
IQ2	0.730	***0.894***	0.759	0.737	0.738	0.740	0.743	0.731
IQ3	0.780	***0.924***	0.807	0.816	0.789	0.802	0.826	0.785
IQ4	0.767	***0.898***	0.806	0.830	0.765	0.747	0.831	0.765
IP1	0.783	0.796	***0.893***	0.773	0.763	0.774	0.781	0.786
IP2	0.819	0.795	***0.910***	0.751	0.749	0.786	0.781	0.786
IP3	0.837	0.776	***0.908***	0.812	0.742	0.791	0.801	0.801
IP4	0.848	0.826	***0.926***	0.826	0.788	0.796	0.812	0.837
IP5	0.846	0.781	***0.906***	0.789	0.758	0.797	0.799	0.793
IS1	0.728	0.812	0.761	***0.892***	0.737	0.729	0.764	0.731
IS2	0.787	0.810	0.811	***0.923***	0.806	0.762	0.824	0.788
IS3	0.776	0.786	0.787	***0.899***	0.740	0.723	0.798	0.761
SQ1	0.728	0.757	0.750	0.735	***0.876***	0.700	0.771	0.728
SQ2	0.697	0.760	0.715	0.723	***0.888***	0.696	0.719	0.714
SQ3	0.751	0.789	0.755	0.755	***0.914***	0.760	0.768	0.733
OSNE1	0.800	0.786	0.794	0.742	0.733	***0.920***	0.792	0.783
OSNE2	0.839	0.813	0.832	0.766	0.754	***0.956***	0.823	0.850
OSNE3	0.820	0.801	0.809	0.781	0.781	***0.930***	0.808	0.860
SCP1	0.787	0.804	0.777	0.805	0.763	0.743	***0.890***	0.768
SCP2	0.819	0.837	0.805	0.812	0.807	0.825	***0.947***	0.838
SCP3	0.818	0.816	0.823	0.801	0.762	0.804	***0.913***	0.800
TSCNP1	0.844	0.793	0.808	0.794	0.789	0.835	0.819	***0.919***
TSCNP 2	0.833	0.794	0.813	0.790	0.763	0.811	0.827	***0.938***
TSCNP 3	0.815	0.746	0.784	0.712	0.689	0.794	0.771	***0.909***
TSCNP 4	0.812	0.804	0.834	0.791	0.740	0.830	0.803	***0.913***

Table 5. Heterotrait-Monotrait Ratio (HTMT) Note: square root of AVE on diagonals in bold; CBA: Cost Benefit Aspect; IQ: Information Quality; IP: Institutional Pressure; IS: Information Seeking; SQ: System Quality; OSNE: OSN Espousal in TSCN; SCP: Supply Chain Perceptibility; TSCNP: OSN Tourism Supply Chain Network Performance

	CBA	IQ	IP	IS	SQ	OSNE	SCP	TSCNP
CBD								
IQ	**0.805**							
IP	0.864	**0.835**						
IS	0.823	0.878	**0.847**					
SQ	0.879	0.843	0.899	**0.833**				
OSNE	0.837	0.823	0.825	0.897	**0.878**			
SCV	0.856	0.877	0.845	0.880	0.833	**0.841**		
TSCNP	0.856	0.815	0.833	0.818	0.876	0.851	**0.849**	

3. Common Method Bias Estimations

Since cross-sectional data come from one source, we investigated for common method bias (CMB) using a correlation matrix (Bagozzi et al., 1991). There is a common method bias if the correlation table reveals strong correlations (above 0.90). The correlations between constructs are 0.898 or less (Table 5). The tests indicate that our work is free of common method bias.

4. Estimation of Model Fitness

Because Smart-PLS was utilized in this work, we estimated the overall model fitness using several indices generated by

Smart-PLS. We used the following model fitting parameters: 1. A satisfactory fit is defined as a Standardized Root Mean Square Residual (SRMR) of less than 0.08 (Hu and Bentler, 1999). 2. The Normed Fit Index (NFI) computes the proposed model's Chi-square value and compares it to a meaningful benchmark (NFI values greater than 0.9 usually indicate a good fit) (Hu and Bentler, 1999). 3. d_ULS (Euclidean distance squared) 4. d_G (the geodesic distance). The third and fourth fit values are exact model fits that investigate the statistical (bootstrap-based) inference of the gap between the actual covariance matrix and the composite factor model's anticipated covariance matrix. According to Henseler et al. (2016), a model is well fitted when d_ULS and d_G are greater than the 95 percent bootstrapped quantile (HI 95 percent of d_ULS and HI 95 percent of d_G). Since the SRMR value is 0.032 (<0.08), the NFI is 0.923 (> 0.90), the d ULS bootstrapped HI 95 percent of d_ULS, and the d_G bootstrapped HI 95 percent of d_G, the software generated value implies our model is well fitted (Table 6). Our structural model considerably proves the link between distinct constructs (Hair et al., 2013), and we may now investigate the structural model's path coefficient.

Table 6. Model fit Summary

Parameters	Saturated Model value	Recommended value	Sources
SRMR	0.032	≤ 0.08	Hu and Bentler (1999)
d_ULS	0.477	< than the 95% bootstrapped quantile (HI 95% of d_ULS)	Henseler et al. (2016)
d_G	0.812	< than the 95% bootstrapped quantile (HI 95% of d_G)	Henseler et al. (2016)
NFI	0.923	≥ 0.9	Hu and Bentler (1999)

5. Structural Model

SmartPLS software was used to test the relationships. Figure 3.2 illustrates the structural model's route coefficients. Hypothesis (1) is supported by our hypothesis testing results (p <0.05, t = 2.143). As a result, the system quality of online social networks impacts tourism supply chain professionals' use of OSNs for tourism supply chain communication. Information quality has not a beneficial influence on OSN espousal (p >0.05, t = 0.437). Thus H2 is not supported. It shows that OSNs' technical aspect influences tourism supply chain professionals to communicate with this platform. Hypothesis (3) is unsupported because information seeking (p >0.05, t = 0.728) is statistically insignificant. So we cannot support Hypothesis (3). On the other hand, the statistical value (at p 0.000, t = 3.701) of supply chain perceptibility is statistically significant. So we can't reject hypotheses (4). As a result, the utilitarian component of online social networks encourages tourism supply chain specialists to adopt this technology to increase communication among partners. Espousal of OSNs is not positively impacted by institutional pressure (p >0.05, t=0.306). It suggests that institutional pressure does not drive tourism supply chain experts to use OSNs for partner communication. We accepted Hypothesis (6) because the cost-benefit aspect positively influences tourism supply chain professionals' desire to utilize OSNs for partner communication (p 0.000, t = 3.632). Cost-benefit aspect seems to be one of the drivers for OSN espousal among tourism supply chain experts.

Table 7. Hypothesis Result. Legend: p: significance: *p<0.05 ; ** p<0.01 ; ***p<0.001

Hypothesis	**Relationship**	**Std.Beta**	**T Statistics**	**P Values**	**Decision**
H1	**SQ-> OSNE**	0.206	2.143*	0.033	Supported
H2	**IQ -> OSNE**	0.067	0.437	0.662	Not Supported
H3	**IS-> OSNE**	-0.067	0.728	0.467	Not Supported
H4	**SCP -> OSNE**	0.444	3.701***	0.000	Supported
H5	**IP -> OSNE**	-0.010	0.306	0.760	Not Supported
H6	**CBA-> OSNE**	0.318	3.632***	0.000	Supported
H7	**OSNE -> TSCNP**	0.878	32.689***	0.000	Supported

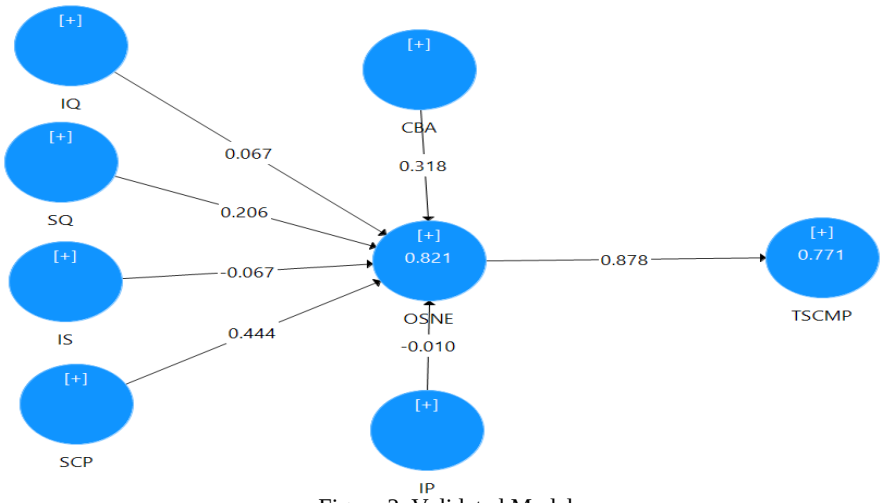

Figure 2. Validated Model

Overall, the use of OSNs by tourism supply chain specialists to connect with their partners has a considerable beneficial influence on the functioning of the tourism supply chain network. We accept H7 because it is statistically significant (p 0.000, t = 32.689) (Table 7 for details). The prediction power (R2) of online social network espousal (OSNE) is 0.821, while the performance of the tourist supply chain network (TSCNP) is 0.771. Chin (1998), Höck, and Ringle (2006) consider findings over the threshold level of "0.67", "0.33", and "0.19" to be "substantial", "moderate", and "weak". All of the numbers are more than the criteria cutoff of 67 percent. The model is responsible for 82.1 percent of online social network endorsement and 77.1 percent of tourist supply chain network performance. The study also looked at effect size (f2) to assess the research model's significance. Cohen (1988) recommended

0.02 for "small", 0.15 for "medium" and 0.35 for "high" effect sizes. The influence of tourism supply chain network performance (f2 = 0.168) is medium, whereas online social network espousal (f2 = 3.368) is a substantial effect size

DISCUSSIONS

This work examined the espousal of online social networks (OSNs) in tourism supply chain communication during a pandemic induced by COVID-19 by constructing a unified research model. To determine the espousal of OSNs as a communication platform among tourism supply chain partners during COVID -19, we combined IS success model, U&G theory, institutional theory, and transaction cost theory. Eight variables were included in the study model: SQ (System Quality), IQ (Information Quality), IS (information seeking), SCP(supply chain perceptibility), IP (institutional pressure), CBA (cost-benefit aspects), OSNE (Online social network espousal), and TSCMP (Tourism supply chain network performance). This study model's overall explanatory power is strong, with an R2 of 82.1 per cent for online social network espousal and 77.1% for tourism supply chain network performance, whereas previous studies on IS acceptance show an R square 45.6 per cent (Haque et al., 2020), R square 45.8 per cent (Bhuiyan et al., 2020), R square 47.8 per cent (Haque and Khan, 2020) and R square 38.7 per cent (Haque et al., 2020). The hypothesis test results showed significant links between the eight constructs, with four hypotheses being highly supported. Different route coefficients such as SQ, SCP, and CBA influence the espousal of online social networks in tourism supply chain networks. Several obvious conclusions might be drawn from this unified research model: First, the technical elements of the online social network have a good impact on the espousal of OSN in the tourism supply chain network. The system quality of the online social network dramatically influences the tourism supply chain network espousal. It shows that the online social network system is user-friendly for supply chain partners to communicate. It validates the usefulness of online social networks for tourism supply chain partners to interact with their partners in the Indian sub-continent during a pandemic induced by COVID-19. It is similar to other IS/IT research, such as Oliveira et al. (2014) in the mobile banking context. It is also consistent with Hwang and Rho (2016), where they found system quality of RFID an influential predictor of supply chain performance.

Another technical aspect of online social networks (Information quality) has not statistically significant influence on tourism supply chain network espousal. This result implies that the online social network's information quality does not significantly induce tourism supply chain professionals to communicate with their partners in the Indian sub-Continent during pandemic disorder. This result is similar to other research in different contexts, such as online banking assimilation in Malaysia (Ndubisi and Sinti, 2006). This result contradicts the findings of Hwang and Rho (2016), where they explored the information quality of RFID as a prominent indicator of supply chain performance.

This study also unveils that the utilitarian component of online social networks is necessary for the espousal of OSNs in tourism supply chain networks during pandemic situations. Supply chain perceptibility significantly influences the espousal of online social networks for tourism supply chain professionals' communication. According to the findings of this study, online social networks greatly improve supply chain perceptibility among tourism supply chain partners. This finding is comparable to that of Lee-Won et al. (2014), who discovered the relevance of OSNs in increasing user perceptibility. This outcome is also unfailing with Hwang and Rho (2016), where they explored supply chain visibility as a persuasive antecedent for the espousal of RFD in the supply chain network. Intriguingly, another valuable feature of the online social network, Information seeking, is non-statistically influential, though online social network is supposed to let users disseminate information faster than conventional media. This result is incompatible with (Kim et al., 2014) and Gan (2017), where they discovered social media an essential platform for seeking and sharing information in a different context.

Then, Institutional pressure does not seem to be the most crucial predictor of OSNs espousal in tourism supply chain network during pandemic disorder. This finding contradicts Haque et al. (2019), where exploring environmental and organizational aspects is vital in adopting social networking sites among the institutional investors in Bangladesh. It is also failing with Bharati et al. (2013) finding, where they found institutional pressure an essential element in the adoption of social media. The cost-benefit component was identified in this study as a direct driver of online social network adoption in tourism supply chain networks for communication during the pandemic. It was discovered that CBA had a beneficial influence on OSN espousal in tourism supply chain networks. It affirms the concept of perceived cost and benefit of new technology adoption. This study supports the findings of Setterstrom et al. (2013), who discovered that perceived cost and benefit influence user acceptance of web-enabled wireless technology. This conclusion is consistent with the findings of Kim et al. (2007), who discovered that increasing perceived value is essential for technological adoption. In a different study environment, this discovery is analogous to Cocosi and Igonor (2015) and Hong et al. (2017).

Finally, online social network espousal substantially impacts the tourism supply chain network performance. This study is in line with Ahmad et al. (2018), who discovered that the adoption of social media technology improves an organization's performance. This result further supports Parveen et al.'s (2016) findings that social media helps firms improve performance by lowering marketing and customer service costs. It is also consistent with Schlagwein and Hu (2017), who explored that espousal of social media improves firm performance. The research examined the importance of online social networks espousal in the tourism supply chain network during the COVID-19. The statistical outcome supports every hypothesis except information seeking, institutional pressure, and information quality. It shows that online social network espousal in tourism supply chain networks during the pandemic is pragmatic and adds value to tourism supply network performance.

Implications

Since there is little study regarding the espousal of online social networks in supply chain networks during COVID-19, this study is the first to integrate IS success model, institutional theory, U& G theory, and transaction cost theory to

investigate online social network espousal in tourism supply chain networks. This will add a new dimension to the tourism supply chain and MIS research. There is widespread usage of online social networks, but studies on OSN espousal in tourism supply chain networks during COVID-19 are rare. It will add a new dimension to tourism supply chain and information technology adoption research. This research highlighted how technical and utilitarian factors influence online social networks espousal in tourism supply chain networks. Originally institutional theory was developed to forecast people's behaviour in organizational settings. However, this study stemmed from questioning its applicability in tourism supply chain settings. It also added the cost-benefit aspect in the tourism supply chain context though this aspect is mainly used in financial research. These will enrich the tourism supply chain and social media literature.

It will assist all organizations in defining their plan for integrating online social networks into tourism supply chain networks to improve partner communication. Also, firms that do not utilize OSNs will plan to use them in their tourism supply chain networks. It will assist various supply chain experts maintain one-to-one conversations with their supply chain partners and TSCN regulators to formalize their standards on using OSNs for communication purposes. This research will help OSN service providers understand the factors influencing the tourism supply chain, allowing them to include OSNs and build more innovative platforms to deliver better services.

Research Limitations and future direction

Despite developing and justifying the research model using empirical data for OSN espousal during the pandemic, this study has certain limitations. Primarily, the study used cross-sectional data acquired from tourism supply chain specialists from three countries in the Indian sub-continent. Longitudinal data can be used to verify the research model in the future from more countries. The suggested integrated model revealed that the well-known constructs such as information quality, information seeking, and Institutional pressure have statistically insignificant influence on online social network espousal. Developing and validating suitable scales for these constructs would revalidate the study's model. Finally, although the research model's variance (82.1%) of online social network espousal and (77.1%) tourism supply chain network performance are more than other IS/IT espousal models, further research might find and check other borderline conditions of the research model.

CONCLUSION

This study responds to a need for the espousal of online social networks (OSNs) for tourism supply chain network communication during COVID-19. Studying IS success model, institutional theory, U&G theory, and transaction cost theory helped build a research model. Thus, the research used technical and utilitarian constructs from several theories to develop a model that would explain OSN espousal in the tourism supply chain network. The suggested research model included seven key hypotheses. The empirical findings show that system quality, supply chain perceptibility, and cost-benefit aspects directly predict OSNs and influence online social networks espousal in TSCN.

However, information quality, institutional pressure, and information-seeking do not significantly influence on the espousal of OSNs networks espousal in TSCN during COVID-19. The study also found that supply chain espousal has a favorable impact on the tourism supply chain network. A pandemic induced by COVID-19 in the Indian sub-continent demonstrates the importance of this research in adopting OSNs among tourism supply chain specialists. A final benefit of this research is that it adds a body of knowledge in tourism supply chain management, MIS, and social media literature. It also provides practical guidance to tourism supply chain professionals regarding the espousal of OSN in tourism supply chain networks during pandemic disorder.

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