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Integration of ICT and Tourism for Improved Promotion of Tourist Attractions in Western Rajasthan: From Big Data to the Big Picture

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ABSTRACT: Purpose: The purpose of this paper is to speculate how Integration of ICT and Tourism for Improved tourism promotion could change the way tourism businesses. **Design/methodology/approach:** This paper applies elements of futures and design thinking to analyze current tourism management practices and identify critical touch points that link tourist decisions to management strategies. **Findings:** The analysis of data revealed that there is significant influence of Search engines optimisation, Knowledge-based software, web casting, Content Marketing, travel planning platform in creating easement in business for tourism operators. The data further revealed that there is significant influence of ICT on sales performances of tourism enterprises. **Originality/value:** While there have been numerous discussions of how tourists and tourism businesses access and use technology, there is little evidence of scholars and practitioners applying formal futures thinking to ICT and tourism. This paper used design thinking and stories to predict and illustrate ways in which technology could be embedded into tourism experiences and services. It suggests that technology can, and probably will, fundamentally change the way in which we manage tourists and their experiences.

KEYWORDS: Tourism, ICT, Tourist Attractions, Search engines optimisation, web casting, Content Marketing

JEL Classification: L83, D83, Z23, M15, D83, M31

I. INTRODUCTION

Tourism is an information intensive industry (Cox et al. 2009). To market their products and create consumer connections, businesses rely on engagement with visitors via numerous methods (Poon, 1993). ICTs have revolutionised tourism throughout the world and opened up a slew of new growth prospects. Tourism-related items might help the tourism sector become more worldwide in areas including hotels, restaurants, travel agencies, and tour operators. As a result, the use of ICTs has the ability to transform local markets into global markets, giving businesses greater chances to survive and strengthen their market position, particularly in tourism, where the number of rivals grows on a daily basis.

The tourism business necessitates a wide range of information and benefits from the development of multimedia, communication technologies, and information systems. The internet gives exceptional connection and the opportunity to engage with clients rapidly and effectively at a low cost. Its ability to create more revenue is undeniable, and it is recognised as something that the tourist sector in developing countries requires. The Internet and other developing interactive multimedia platforms have far-reaching ramifications for tourist promotion and are changing the industry's structure.

The fast development and commercialization of Information and Communication Technologies (ICTs) for the travel and tourism sector has led to an increase in the adoption of these technologies by hotels and other businesses in this sector. This is predicated on the belief that new ICT-based technologies and procedures would increase their operational efficiency and customer service standards. ICT-based goods and procedures assist hotels in increasing operational efficiency, improving service experience, and providing a method to reach worldwide markets. While ICTs have been employed in the hotel sector from the late 1970s in the form of computerised reservation systems and global distribution networks, it was not until the 1990s that ICTs became widely adopted.

Nowadays, the internet has evolved into a useful tool for informing both individuals and organisations about new tourism and travel opportunities and offers, allowing them to compare prices, make online purchases, and provide



comments. It has also become a platform for travel companies and organisations to offer their services and products to prospective clients. The tourism industry has prolonged value chain that is heavily impacted by information. Its production, collection, storage, retrieval, and transfer are fundamental tasks for all tourist businesses. Every breakthrough in the IT industry has the potential to transform the business approach used by tourist organisations.

ICT have become critical to the effective operation of practically all aspects of the national economy, spanning every sector and service (Posthumusa& Von Solms, 2005; Rizk&Kamel, 2015; Shanker, 2008).According to Hamelink (1997), information and communication technology (ICT) "encompasses all those technologies that permit the management of information and ease various types of communication among human actors, between human beings and electronic systems, and among electronic systems."With the expansion of ecommerce, ICT has become the forerunner and epicentre of global socioeconomic revolution, as well as a strategic resource and the cornerstone of all economic activity (Bedi, 1999; Garaba, 2015; Kabanda, 2011).Furthermore, information and communication technology (ICT) may expedite economic activity such as consumption, investment, government service delivery, and export competitiveness (Appiah-Adu, Blankson, & Boakye, 2015).ICT is aimed at developing a new scientific paradigm for tourist development based on current e-technologies (via innovation, competition, and partnership with customers). Information and communication technologies (ICTs) have been revolutionising tourism internationally (Bethapudi, 2013). The tourism business in India is one of the most important, and it is predicted to grow as technology advances and ICT use increases (Mahajan. et. al, 2011).

II. THE ROLE OF ICT IN TOURISM

The past years have seen an unprecedented growth in the ICT economy that has fundamentally altered business models and consumer cultures. Many of the changes this has implied are specifically relevant for tourism, a sector that perhaps more than any other is exposed to and implicated in digital innovation, consumer-business interrelationships, and platform reliance. Most studies of the digitalization of the tourism economy have focused on either business or consumer outcomes; much less attention has been paid to the implications for the Sustainable Development Goals. It is for this reason that this special issue on technology, ICT and tourism focuses on a diverse range of issues related to ICT sustainability: tourism as an opportunity for "digital detox," the role of social networks in foodstagramming, virtual reality tours to explore tourist attractions from home, teaching simulations to improve learning about systems, big data analysis to determine prevalence of environmental interest, as well as regulatory demands on platforms to address principles of accountability, responsibility and transparency (Stefan Gössling, 2020)

In the tourist and hospitality business, effective and high-speed ICT infrastructure and software applications are critical for tourism development. ICTs enable customer-management relationships and supply chain management to be linked into a single source that streamlines a number of tasks like as product selection, ordering, delivery, tracking, payment, and reporting.Management in tourism organisations uses ICTs to perform a variety of duties that improve employee productivity in the workplace, including online reservations. Changes in demand and supply have resulted from the advancement of ICTs. As a result of growing ICT use, there is a larger desire for flexible, tailored alternatives and high-quality information, which has personalised leisure and tourism behaviour. Customers can exchange information and research ratings on destinations, hotel and restaurant quality, and environmental and social circumstances using modern technologies and social and economic ratings (e.g., Social media like Facebook, Twitter, blogs). By publishing links to news releases or promoting new packages on Twitter, a number of hotels (e.g., Marriot Hotels and Resorts, Ritz Carlton Hotels, Hyatt Hotels) and Resorts have reinforced their brand image and engage directly with their clients by posting links to a press release or promoting new package through Twitter.

The increase in the supply of information is the most significant advantage linked with access to new technology. Information is distributed and shared with a bigger audience. Second, it lowers the production costs. At a low cost, knowledge is created, communicated, accessed, and shared. The degree of inefficiency and unpredictability is reduced when transactional expenses are reduced. Third, it has overcome geographical and distance limits. ICTs have spanned national borders. Buyers and sellers may communicate information, specs, manufacturing processes, and other details across national borders. It allows everyone to understand the market economy's comparative advantage. ICT opens up new markets and expands access to global supply networks. Fourth, it has increased transparency. Demands for increased openness and transparency are inextricably linked to networking and information sharing. Whether you want to know the current state of the central bank's foreign exchange agency or the price of potatoes on the local market, ICTs provide individuals with transparent information access. ICTs are being integrated into all industries and development activities.



III. REVIEW OF LITERATURES

ICT has become critical in the development, distribution, and management of tourism throughout the world. It serves as a source of knowledge and a confidence booster, as the final decision on preferred tourist locations is based on the information provided, rather than the place itself (Hsu & Li, 2015; Park & Jang, 2013). Tourists now have more information and a wider range of destinations to choose from (Jacobsen & Munar, 2012). Rapid technological advancements have revolutionised business operations and the way firms and nations attract tourists, resulting in fierce rivalry in the global tourism industry. As Lordkipanidze et al. (2005) pointed out, tourism product and service diversification is required to meet the rising demand for new sorts of tourist demands. From the standpoint of entrepreneurship, tourism provides a distinct setting that is regarded to be distinct from other industrial sectors in terms of the identification of entrepreneurial possibilities and the process of converting them into consumable tourist products and services (Ateljevic, 2009). ICTs are crucial for tourist companies and destinations in terms of competitiveness (Buhalis 1998, 2003; O'Connor, 1999; Sheldon, 1997; Poon, 1993). Information and Communication Technologies (ICT) is an umbrella word covering technical innovations related to the production, analysis, storage, search, delivery, and use of information. ICT consists of hardware, software, telecommunications, Netware, groupware, and human-ware (Waghmode and Jamsandekar, 2013). If ICT is handled effectively, tourist firms may obtain a competitive edge by retaining market pricing leadership or distinguishing their products and services (Poon, 1993; Xiaoqi Ma et al., 2003). Tourist may now get trustworthy and accurate information and make bookings in a fraction of the time, expense, and difficulty required by traditional techniques (O'Connor, 1999). To optimise organisational competitiveness, successful ICT deployment necessitates inventive management that regularly reviews changes and adopts appropriate technology solutions (Buhalis & O'Connor, 2005). According to study, the perceived advantages of ICT use are the most important element influencing performance (Sedmak, Planinc, Kociper, & Planinc 2016). It was predicted that younger, more educated managers and those working in more complicated corporate systems would use ICT more efficiently (Leatherman, 2000; Sedmak et al., 2016). Because the deployment of information and communication technologies (ICT) is also critical for the competitiveness of rural tourism businesses (Polo Pea & Frás Jamilena, 2009), rural tourism businesses have embraced these technological advances, which have contributed to their rapid expansion in recent years (Ruiz-Molina, M.E., Gil-Saura, I., & Moliner-Velazquez, B., 2015). The tourism business in India is one of the most important, and it is predicted to grow as technology advances and ICT use increases (Mahajan. et al, 2011).

IV. PROBLEM STATEMENT

Since tourism is one of the major sectors in today's world, many countries are competing to attract tourists through all means of communication and such communication has become a major driver of touristic sectors all over the world. The role of communication is to inform prospective tourists and influence their choices regarding touristic destinations and the type of touristic products they purchase (Wagaw et al, 2018). The tourism industry is one of the major industries in India and it is expected to grow with recent developments in the technology and adoption of ICT (Mahajan K.B. et al., 2013). Literature argues that tourism cannot go further without a support of ICT application (Buhalis, 1998; Collins, Buhalis, and Peter, 2003; Kolter and Armstrong, 2008). Although ICT is an important component in the competitiveness of hotels in the tourism sector (Muhalic and Buhalis, 2013), little has been studied in developing countries (Samkange, 2008) such as India. This study was therefore inevitable to examine the influence of ICT tools, used by tourism operators, to enhance sales performance.

V. RESEARCH OBJECTIVES

- To investigate the influence of Search engines optimisation, Knowledge-based software, web casting, Content Marketing, travel planning platform in creating easement in business for tourism operators.
- To examine the influence of ICT on sales performances of tourism enterprises.

VI. RESEARCH HYPOTHESIS

- H₁: There is no significant influence of Search engines optimisation, Knowledge-based software, web casting, Content Marketing, travel planning platform in creating easement in business for tourism operators
- H₂: there is no significant influence of ICT on sales performances of tourism enterprises.



VII. DATA ANALYSIS AND DISCUSSIONS

Table: 01

Correlations		Search engines optimisation	Knowledge-based software	web casting	Content Marketing	Travel planning platform	Easement of Business
Search engines optimisation	Pearson Correlation	1	.634	.613	.479	.538	.644**
	Sig. (2-tailed)		.002	.003	.002	.003	.002
	N	157	157	157	157	157	157
Knowledge-based software	Pearson Correlation	.634	1	.446	.561	.509	.663**
	Sig. (2-tailed)	.002		.000	.004	.002	.000
	N	157	157	157	157	157	157
web casting	Pearson Correlation	.613	.446	1	.562	.645	.637**
	Sig. (2-tailed)	.003	.000		.003	.000	.000
	N	157	157	157	157	157	157
Content Marketing	Pearson Correlation	.479	.561	.562	1	.660*	.692**
	Sig. (2-tailed)	.002	.004	.003		.002	.000
	N	157	157	157	157	157	157
Travel planning platform	Pearson Correlation	.538	.509	.645	.660*	1	.673**
	Sig. (2-tailed)	.003	.002	.000	.002		.000
	N	157	157	157	157	157	157
Easement of Business	Pearson Correlation	.644**	.663**	.637**	.692**	.673**	1
	Sig. (2-tailed)	.002	.000	.000	.000	.000	
	N	157	157	157	157	157	157

Table 01 Depicts that there is significant positive influence of Search engines optimisation (r=.644), Knowledge-based software(r=.663), web casting(r=.637), Content Marketing (r=.693), travel planning platform (r=.673) in creating easement of Business for tourism operators(p>.50). Hence, we fail to accept our null hypothesis.

Table 02

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.862a	.743	.735	.241	1.868
a. Predictors: (Constant), Travel Planning Platform, Search Engines Optimisation, Web Casting, Content Marketing, Knowledge-Based Software					
b. Dependent Variable: Enhanced Sales Performance					

R-value (Table No - 2) reveals correlation between predictor variables and outcome variable is 89.6 Adjusted R square is .735, which explains 73.5% of the variance in Enhanced Sales Performance (dependent variable) is explained by the Travel Planning Platform, Search Engines Optimisation, Web Casting, Content Marketing, Knowledge-Based Software (Independent Variable), remaining 26.5 % is influenced by other factors. Durbin – Watson is 1.868, which shows that there is no first order linear auto-correlation in the data.



Table 03

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.362	5	5.072	87.330	.000b
	Residual	8.770	151	.058		
	Total	34.132	156			
a. Dependent Variable: Enhanced Sales Performance						
b. Predictors: (Constant), travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software						

ANOVA (Table 3) reveals $p = 0.000$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Table 04

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.037	.207		-.176	.860		
	Search Engines Optimisation	.182	.031	.241	5.805	.000	.988	1.012
	Knowledge-Based Software	.212	.019	.472	11.023	.000	.930	1.075
	Web Casting	.207	.028	.315	7.490	.000	.962	1.039
	Content Marketing	.175	.019	.390	9.235	.000	.954	1.048
	Travel Planning Platform	.227	.022	.454	10.519	.000	.912	1.096

Coefficients table shows the strength of the relationship i.e. the significance of the variable in the model and magnitude with which it impacts the dependent variable. Table No 04 reveals there is significant change in Enhanced Sales Performance due to travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software, which is less than the acceptable value of 0.05. VIF and Tolerance are under the acceptable value, which depicts that there is no multi collinearity among the variables, and hence the variance of beta is not inflated at all.

Regression analysis was run to predict Sales Performance from travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software. These variables statistically significantly predicted Rainfall, $F(5, 151) = 87.330, P < .05, Adjusted R^2 = .735$. All five variables added statistically significantly to the prediction, $P < .05$. Hence, linear regression established that there is significant impact of travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software on Enhanced Sales Performance.

The regression equation:

$$\text{Sales Performance} = -.037 + .182 (\text{Search Engines Optimisation}) + .212 (\text{Knowledge-Based Software}) + .207 (\text{Web Casting}) + .175 (\text{Content Marketing}) + .227 (\text{Travel Planning Platform})$$

VIII. CONCLUSION

Tourism has become a key sector in the Indian economy and one of the fastest growing industries across the globe. ICT expedite an individual to access the tourism products information from anywhere any time. Tourism enterprises can also reach the targeted customers with the help of ICT tool across the globe in a single click. ICT applications empowers tourists to view information regarding a destination, book accommodation and reserve tickets for Bus, train, flight, Cab, etc., and at the same time pay for all these activities anytime anywhere. In fact, it reduces transactional and operational costs. ICT has intensely affected the way business is performed and a became a key determinant for the competitiveness of tourism organisations and destinations.

The analysis of data revealed that there is significant influence of Search engines optimisation ($r=.644$), Knowledge-based software($r=.663$), web casting($r=.637$), Content Marketing ($r=.693$), travel planning platform ($r=.673$) in creating easement of Business for tourism operators ($p>.50$). The data further revealed that there is significant



influence of ICT on sales performance of tourism enterprises. Regression analysis was run to predict Sales Performance from travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software. These variables statistically significantly predicted Rainfall, $F(5, 151) = 87.330$, $P < .05$, Adjusted $R^2 = .735$. All five variables added statistically significantly to the prediction, $P < .05$. Hence, linear regression established that there is significant impact of travel planning platform, Search engines optimisation, web casting, Content Marketing, Knowledge-based software on Enhanced Sales Performance.

IX. LIMITATIONS AND SCOPE FOR FUTURE WORKS

This empirical study was carried out using data gathered from tourism organizations in Western Rajasthan. However, it would be better if data from other States or countries were included. This improved model is a foundation for future research works on acceptance, adoption, or assimilation of ICT in tourism organizations particularly in the settings of developing nations. Future study could also focus on the technology or ICT adoption strategies of tourism organizations. Moreover, to measure the long-term effect of ICT adoption in the tourism sector, longitudinal study could be required.

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