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M-tourism in India: Symbolic versus Intended Adoption

Introduction

Tourism is one of the emerging economic sectors of the world, contributing nearly 10% of the world gross domestic product (GDP), and creating one in ten jobs globally. In terms of exports, tourism ranked third in 2016 after fuel, chemicals, ahead of food and automobiles (UNWTO, 2014). Emerging and developing countries account for 45% of all international tourists arrivals, which is expected to reach 57% in 2030 (UNWTO, 2011a). In India, leisure travel spending both by inbound and domestic tourists generated 73.8% of direct travel and tourism GDP in 2011 as compared to business travel spending whose contribution is 26.2%. The same is expected to rise by 7.6% pa in 2022 for both leisure and business travel spending. Domestic travel spending has also generated almost 5 times more revenue than that of international tourism receipts (Ministry of Tourism, Government of India, 2013).

Tourism industry is growing, keeping pace with the technological changes in the society, by adopting new technology and applications for transparency, value addition, accuracy, ease of use and so on. As far as applications are concerned**,** online booking is considered as one of the much sought after transaction with technology in tourism sector followed by purchase decision, evaluation and after-sales service (UNWTO, 2011b)

According to the Internet and Mobile Association of India (IAMAI) and Indian Market Research Bureau International (IMRBI) travel was the first industry to gain significant digital sales in India ("Online Travel Continue to Dominate India E-commerce," 2013). The survey, conducted by Neilson revealed that about 40% of the Indians are most likely to buy airline tickets and reservations online; which is the second highest option in the minds of Indians in terms of online purchasing, and 29% of the Indians opt to plan for online Tours/ Hotel reservations (Nielson Consumer Report, 2010). Euromonitor and Criteo also predict that mobile travel sales in India are expected to generate a compound annual growth rate (CAGR) of 67.1% between 2017-2020 (Vignesh, 2017). The movement towards M-tourism in the Indian context is thus evident, indicating Symbolic adoption of technology i.e. mental acceptance of the technology. With the increasing level of consumer confidence, online travel industry is gaining momentum in the air travel and hotel booking segment (Juman, 2012).

Like M-commerce, the advent of mobile technologies has opened up number of opportunities for service providers and destinations to facilitate and personalize experience in tourism today. Tourists are increasingly looking forward to taking advantage of the portable internet connectivity offered by their smart phones or other portable devices to gather holiday information and execute travel plans. Generally, mobile technologies offer convenience, efficiency and spontaneity along with a promise of authentic destination information in a unique, targeted and engaging manner for better experiences. Development of M-tourism Apps provides information, linkages, travel write-ups and articles, photos, and details of unexplored destinations. Other intervention areas of M-tourism apps include walking tours, GPS tracking, direction indications, information and location of destinations, hotel and car rental reservations. Applications of m-commerce have a significant place in M-tourism market. These are Mobile ticketing, Mobile money transfer, Location-based services, Location-based games, Promotion, Information services, M-purchase and payments, M-Marketing and Advertising (Barutçu, 2007).

However, despite the rapid growth in the number of travellers using technology, there are challenges in adopting technology in all tourism segments. This includes a gap in tourism and technology industry, selection of right technology, tools, the absence of fair or reliable information or education of technological applications etc. These challenges may be creating a gap between Symbolic and Intended adoption of M-tourism. This paper was an attempt to examine the relationship, if any, between Symbolic adoption and Intended adoption in the context of M-tourism applications. Besides, this paper also tries to identify the factors having a bearing on Intended adoption, as these have to be addressed by all stakeholders to metamorphose Intended adoption to actual adoption.

As perennial and persistent efforts are on for 'Digital India', this study strives to explore the determinants of Symbolic adoption of M-tourism applications and the intention of full-fledged adoption of mobile tourism technologies in near future to pave the way for further innovations in the tourism sector.

Review of literature

A new platform for business transaction emerged in recent years, with the evolution of mobile and wireless networks, known as mobile commerce (m-commerce). M-commerce connects wirelessly in a mobile environment using handheld mobile devices. It is based on the use of wireless technology, usually mobile internet and handheld mobile devices, for

transaction processing, information retrieval and user task performance (Varshney, 2003). Ruzic, Bilos and Kelic (2012) have defined mobile tourism as the mobile marketing activities that aid consumer in purchasing tourism related products through mobile devices.

E-tourism reflects the digitization of all processes and value chains in the tourism, travel, hospitality and catering industries (Buhalis, 2003). In practice, it includes e-commerce and applies information and communication technology for maximizing the efficiency and effectiveness of the tourism products and enterprises. A large number of studies have been done in the context of e-tourism services by touching various aspects of operations. These are international access operations (Nedelea & Balan, 2010), problems of e-travel markets (Oorni & Klein, 2003), effectiveness of e-tourism operations in generation of customer satisfaction, through value addition (Qirici, Theodhori & Elmazi, 2011), benefits of value-added service offered through tourism websites (Buhalis & O'Connor, 2005), internet purchase intentions (Urban, 2004), consumer trust (Gregori, 2009), role of websites in generating visitors' interest (Skadberg, Skadberg & Kimmel, 2005).

Chen and Barnes (2007) investigated key obstacles to vendors succeeding on the internet medium. Study identifies perceived usefulness, perceived security, perceived privacy, perceived good reputation and willingness to customize as important obstacles.

M-tourism opens many avenues to tourism industry by applying mobile devices such as Smartphone, tablet, and personal digital assistants (PDA) and even as tourist guide (Kenteris, Gavalas & Economou, 2009). The mobile application is a software application designed to run on mobile devices (Wang, Liao & Yang, 2013). This application is able to replace the traditional marketplace in the tourism industry as the mobile apps help to connect users to the internet. M-commerce extends greater flexibility in the tourism industry for both travellers as well as suppliers (Lee & Mills,2010).Travelers can access the web, obtain news updates and conduct transactions using their mobile devices whereas suppliers can have promotional and marketing means made easier and faster as compared to the use of traditional media. They have further elaborated that the emerging mobile devices like smartphones and tablets have paved the way for communication and non-location based information to tourists. Accordingly, tourism industry considers m-commerce as an integral part of delivering better travel experience to travellers. M-tourism uses mobile devices via a wireless network for transactions (Hu & Liu, 2013). It also provides convenience to consumer in many ways i.e. convenience, ubiquity, positioning, provision of destination-specific information and instant

access to relevant information, personalized services, purchase decision making based on relevant content/information and management of user profiles as additional benefits of M-tourism (Gavalas & Kenteris, 2011).

The interconnection between tourism and information and communication technology (ICT) has opened numerous opportunities for developing countries. These include the enhanced number of internet users looking for travel experience, on one hand supporting destination and national tourism providers to develop, manage and sell products worldwide, thereby, creating a brand image, easier development of new products and promotion on the other. This, in turn, leads to increased foreign exchange earnings and contributes to local development (UNCTAD, 2005).

As indicated in Scott, Prayag and Moital (2014), mobile phones influenced travellers' behaviour with regard to seeking behaviour, purchase behaviour and post-purchase behaviour.

Eriksson (2012) examines the user experience of arranging a trip of low-intermediate complexity over a mobile device, using existing travel services. The study explored potential problems while making trip arrangements by using mobile devices. According to the study, factors like type of services, mobile devices and user skills affect the self-arrangement experience on a mobile device.

Study by Anckar and Waldén (2002) presented expected consumer problems in Internet travel bookings. Problems were longer time requirement, complexities in price comparisons, limited industry knowledge, the limited usability of websites, difficulties in locating websites of service providers, technical problems, identification of availability of hotel rooms and flights. The other issues identified include an increase in assessment time of fair price for service offered.

While analyzing the factors which affect the adoption of M-tourism the observations of Venkatesh, Morris, Davis and Davis (2003) on performance expectancy found more relevance in the context of M-tourism. According to the study, Performance expectancy is defined as the extent to which a system could support a person in enhancing one's job performance. They have further explored effort expectancy and social influence factor, and its link with behavioural intention.

Ericsson and Strandvik, (2009) tried to identify possible determinants of tourists' intended or actual use of mobile tourism services. The study identified three major barriers to the non-usage of the trial services. These are the value aspect of the packaged tour, price transparency and ease of use especially ease to take new mobile services.

M-tourism practices are operationalised differently in different economic setup. The variability in acceptance also changes depending on socio-cultural factors. As a multifaceted society, the possibility of variations in M-tourism adoption in India needs to examined for decision-making in the right direction. In this juncture, level of adoption towards mobile tourism in India may affect country's digitalization initiatives and the economy in general. Hence, the present study investigates various factors affecting Symbolic adoption of M-tourism and the Intended adoption decision of M-tourism among Indian consumers. The research model in this study was developed based on the existing domain of literature and observations made in this regard

Theory development

Extant literature on Technology adoption has examined the factors influencing technology adoption. Fishbein and Ajzen (1975) defined Theory of Reasoned Action (TRA) as a well-established model that has been used broadly to foresee and describe human behaviour in various areas. Two main determinants that influence technology usage includes the attitude manifested as trust on a particular technology and its ability to enhance or improve one's job performance. The second factor identified includes external motivation and opinions of others (Fishbein and Ajzen,1975).

Roger's (1995) Diffusion of Innovation (DOI) theory defines diffusion as the process by which an innovation is communicated and the pace of spreading (diffusion) to different parts of society over a period of time. Diffusion rate depends on the characteristics of the innovation, and the surrounding of the social system (Wolfe, 1994). System complexity will discourage the adoption of innovation in the society. The technology involved must be easy to learn and use for increasing the adoption rate, gaining social status on the adoption of technology motivates individuals to adopt an innovation(Rogers,1995).

Similarly, Rogers and Shoemaker (1971) examined the socio-demographic characteristics of technology adopters and stated that the early adopters of technology are usually better educated, highly literate, enjoy higher social status than later adopters. Specific studies on

identification of socio-economic factors of diffusion of new technology such as internet and second generation mobile adoption have indicated that technology adoption is positively related to income, occupation, and living area (Wareham, Levy & Shi,2004).

The distinction between acceptance of technology and adoption of technology assumes significance and some of the main factors for this may be the cost of adoption and availability of substitute technologies. However, Teece (1986) opined that the availability of or access to complementary technologies affect the adoption of new substitution technology.

Davis (1989) in his Technology Acceptance Model (TAM) attempts to examine and predict an individual's attitude towards acceptance and application of technology. Technology adoption determinants as identified in the theory include perceived usefulness (PU) and perceived ease of use (PEOU).

Unified Theory of Acceptance and Use of Technology (UTAUT) model, has identified four factors for the adoption of new technology, such as performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (Venkatesh et al., 2003). UTAUT 2 model had extended three more variables which may affect consumer's behavioural intention on adopting technologies; these are hedonic motivation, price value, and habit (Venkatesh, Thong, & Xu, 2012).

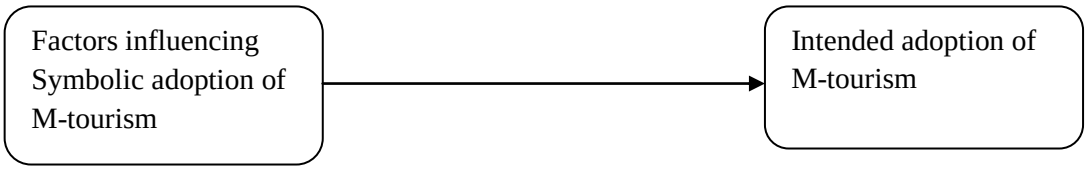
In the context of tourism, value aspect of the packaged tour, price transparency, ease of use were identified as possible determinants affecting the intended or actual use of mobile tourism services (Eriksson & Strandvik, 2009).

Accordingly, an attempt was made in this study to examine the factors affecting the Symbolic adoption and Intended adoption of M-tourism among Indian domestic tourists having smartphone and other mobile devices. The identification of the factors affecting Symbolic adoption of M-tourism is to identify the bottlenecks on digitalization of tourism services in India. The study enables the tourism service providers, government and other intermediaries to gain a better understanding of the factors which have a direct bearing on Intended adoption of M-tourism and invite their attention to focus on those aspects/factors in order to fill the gap between these two constructs.

The fundamental theories along with developments in them have formed the basis for developing the research model which is also statistically validated in the study. Therefore, in

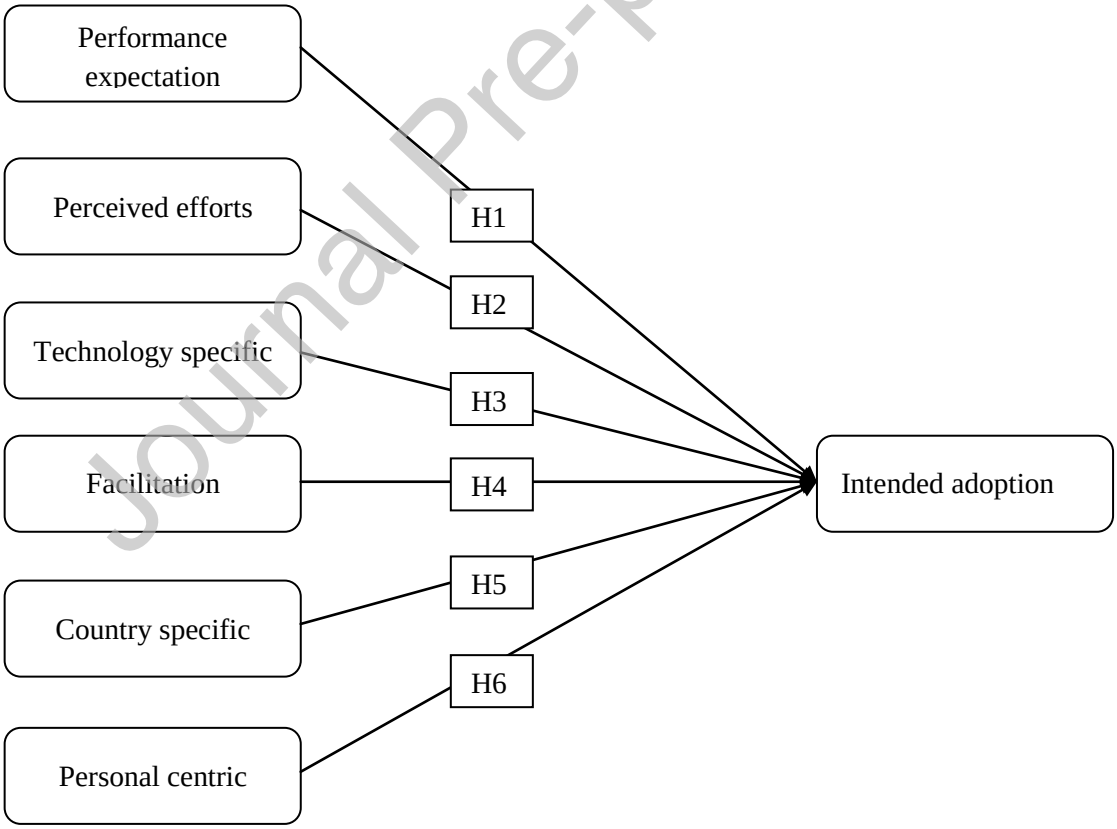
this study, various constructs pertaining to the factors affecting the Symbolic adoption and its relationship with Intended adoption has been examined. (Figure .1)

Figure.1 Representation of study domain



The theoretical model was conceptualised as given below, capable of explaining the link between Symbolic and Intended adoption. The paths between the latent constructs were assumed as hypotheses, which are tested in the study.

Figure.2 Representation of paths between latent constructs and hypotheses



Based on the identified constructs following hypotheses were formed. The hypotheses are proposed to test and thereby draw meaningful conclusions about Symbolic versus Intended adoption of M-tourism applications

- There is a significant relationship between Performance expectation factor of Symbolic adoption and Intended adoption of M-tourism
- There is a significant relationship between Perceived efforts factor of Symbolic adoption and Intended adoption of M-tourism
- There is a significant relationship between Technology specific factor of Symbolic adoption and Intended adoption of M-tourism
- There is a significant relationship between Facilitation factor of Symbolic adoption and Intended adoption of M-tourism
- There is a significant relationship between Country specific factor of Symbolic adoption and Intended adoption of M-tourism
- There is a significant relationship between Personal centric factor of Symbolic adoption and Intended adoption of M-tourism

Research approach

The present study followed Exploratory sequential method (Creswell, Plano Clark, Gutmann & Hanson, 2003). The results of stage one (qualitative) of this study were used to develop the measurement instrument for stage two (quantitative). The rationale for adopting sequential mixed method was justifiable on following grounds.

(i) The objective of the research was to identify certain factors which are unknown and its dimensional orientation that was not explored in prior studies.

(ii) It is also observed that employing mixed methods could give more authenticity while identifying certain factors which are ever changing.

The initial stage of the study adopted In-depth interview to collect qualitative data and the questionnaire-based survey was adopted for quantitive analysis.

In-depth Interview

Interview with stakeholders of tourism was conducted as a part of this study to find out various indicators pertaining to the construct i.e. Symbolic and Intended adoption of M-tourism, under study. Managers not below the rank of the assistant manager were interviewed among following stakeholder categories: (a)Tour operators, (b) Hospitality (Hotels only), (c) Tourist transport operators, and (d) Tour Guides. Table 1 indicates the spatial representation of data collected through interview method:

Table 1: Stakeholder wise interviews held in different cities of South India

Stakeholders	Hyderabad	Cochin	Chennai	Total
Tour operators	3	4	6	13
Hospitality enterprises	1	5	4	10
Tourist Transport operators	4	9	12	25
Tourist Guides	2	12	8	22
Total	10	30	30	70

Source: Primary data

Expert interviews with stakeholders were organised in the months of January, February and March 2015. This method was introduced especially to examine more deeply certain topics that remained unexplored in the existing literature pertaining to M-tourism particularly in the context of India.

Interview criteria: As indicated in table 1, experts consisted of 13 assistant managers, having minimum three years of experience in the tour operations were interviewed from three cities of India i.e. Hyderabad, Cochin and Chennai. From the hospitality sector, five assistant managers, two marketing managers and three entrepreneur cum managers were included as an expert for the study. As one of the important segment of tourism, tourist transport operators are also widely exposed to the e-tourism/M-tourism transactions in recent years. Accordingly, the study considered them as one of the major respondents. A total of 25 transport professionals consist of nine assistant managers, nine entrepreneurs including partners of partnership firms and seven branch managers were considered experts for the interview. The study also identified and interviewed 22 tourist guides with minimum three years of experience based at Hyderabad, Cochin and Chennai.

Interview Process: Before initiating the final interview a pre-test and pilot session were organised with tour operators of Chennai city and found consistent. Subsequently, the final interview had been initiated by presenting all interview questions before the respondents without following an order as all questions have equal importance. An explicit coding frame was used to abstract the relevant terms and assigned a unique identification number and independent-coder method was adopted to test intercoder reliability and consistency (Gordon,

1992). Concurrent refining was also done to develop different factors pertaining to the construct under study.

Interview Results: Based on expert interviews and the literature review the study could produce an elaborative list of 35 indicators for Symbolic adoption and six for Intended adoption. The subsequent investigation by the researchers found that there were some redundancies in the identified indicators pertaining to Symbolic adoption. In this regard, investigator approached two e-tourism consultants and two app developers. Based on their advice, six indicators were found to be vague and confusing, which were removed and 29 appropriate indicators were identified for Symbolic adoption and all those six indicators of Intended adoption were retained for further analysis.

Explanation of variables and their measurement

Symbolic Adoption of M-tourism

Symbolic adoption is operationalised as positive opinion or mental acceptance of the respondent towards the M-tourism applications in Indian context which need not imply actual adoption behaviour. Various indicators of Symbolic adoption identified through expert interview are listed in Table 2.

Table: 2 Identified indicators and explanations for Symbolic adoption

Usefulness: Mobile based application is useful in the technology-driven environment.	**Motivation:** M-tourism application usher many incentives to users like less time, no hard cash etc.	**Productivity:** M-tourism enhances productivity as it is better than the conventional system.
Performance expectation: The actual performance should match with expectations, as the existing system bestows optimum performance with a human touch.	**Comparative advantage:** M-tourism should offer a comparative advantage over the existing mode of transactions in tourism.	**Accomplishment:** Sense of accomplishment by adopting M-tourism is a significant aspect of technology-driven environment.
Time: Time required for the mobile device operation	**Ease of use:** M-tourism application is easy to use.	**Learning to use:** M-tourism application provides scope for the new learning

		experience.
Network: Availability of uninterrupted network.	**Understanding:** Cognitive difficulties are expected in understanding the application.	**Clarity:** As a multifaceted industry clarity is required for sector-specific application and its linkages.
Trialability: Scope of trial and error methods in the application.	**Complexity:** Complexity pertaining to modifiability backed by less reversibility etc.	**Installation:** Full-fledged installation of M-tourism application is complex and time-consuming.
Peer/Media influence: There is a strong peer/media influence on usage, comfort and benefit.	**Trust:** Risk in trusting wireless application for the monetary transaction.	**Knowledge level:** Level knowledge about mobile technology.
Financial condition: Financial conditions affect acceptance of paid M-tourism applications.	**Compatibility:** Perception of compatibility in installing mobile-based software in all mobile phones configuration.	**Assistance:** Assumption of requiring timely assistance in operation and troubleshooting.
Availability: Availability of required option/facilities to operate the downloaded application.	**Accessibility:** Accessibility of support services like customer services centres exclusively for addressing the concerns of M-tourism applicants.	**Language:** Familiarity with English or application language.
Exposure: Exposure to tourism/travel technology.	**Technical infrastructure**: Availability of technical infrastructure like bandwidth, signal strength, network connectivity etc.	**Legal framework:** Awareness on legal aspects of M-tourism application.
Education: Difference in level of education	**Diversity:** Heterogeneous nature of tourism products	

Source: Expert interview

Intended adoption of M-tourism

Intended adoption is operationalised as the intention to adopt M-tourism technology in the near future. Intended adoption does not imply actual adoption. This construct has been considered relevant, as according to the theory of planned behaviour, behavioural intentions are capable of influencing actual behaviour and may even stimulate action (Ajzen & Fishbein,1980).

The indicators of indented adoption decision of M-tourism among Indian consumers willing to switch over to M-tourism in near future:

1. Smartphone Possession: Availability or possession of smartphone.
2. Online purchase: Interest in purchasing tour through electronic means
3. Attitude: Willingness to adopt contemporary changes in cashless transactions
4. Awareness: Awareness of M-tourism
5. E-transactions: Interested in hassle-free transactions through electronic means
6. Past experience: Previous experience in online ticketing

Reliability and Validity of the Interview results

In order to assess the reliability and validity of the variables generated from the interview, the Trochim (2006) criteria have been followed. These are credibility (on the basis of criteria and informal conversations), transferability (replicability in similar or identical cases), dependability (methodological consistency) and conformability (since all respondents are from relatively similar job profile conformity can be established). Credibility and transferability correspond to internal and external validity whereas dependability and conformability measure the reliability of the quantitive research.

Descriptive stage

The second stage of the present study is the descriptive research. The descriptive study was planned on the basis of primary knowledge of the subject matter obtained from the exploratory study. As Jick (1983) has suggested, survey method of data collection used in a descriptive stage that contributes to a greater confidence in the generalisability of the results of the study.

Scale development process

The questionnaire was designed in three parts. The questions of the first part were framed to explain the main purpose of the study. The second part of the questionnaire was developed to gather information about demographic profile and factors affecting the Symbolic adoption of M-tourism. The third part of the questionnaire was containing questions to collect information on the Intended adoption of M-tourism. Close-ended questions were adopted and the respondents had provided their responses on a five-point Likert scale, which varied from "strongly disagree" to "strongly agree".

Respondent Criteria

Respondents were chosen from Indian nationals having smartphones, and had participated at least in one tour for last one year, which they had organised purely through offline means. In other words, respondents were Indian domestic tourist who has travel experience and also uses smartphones.

Data collection

Convenience sampling method was adopted to collect primary data using a structured questionnaire. As indicated in Table 3, study finalised 316 respondents with an item ratio more than the threshold range suggested by Flynn and Pearcy (2001) that ranges from 1:4 to 1:10 i.e. 1: 11 (for 29 items 316 respondents) for the descriptive study**.**

Table 3: City wise data used for the study

Locations	Respondents		
	Identified	**Collected**	**Finalized**
Cochin	135	135	121
Bangalore	100	90	90
Chennai	110	110	105
Total	345	335	316

Source: Primary data

Data Analysis

Exploratory Factor Analysis

The role of factor analysis is to identify the underlying structures derived from a set of variables (Hair, Anderson, Tatham, & Black, 1998). Exploratory Factor Analysis (EFA) was conducted for factors affecting Symbolic adoption of M-tourism to identify the underlying

factors. All the indicator variables were subjected to factor analysis to get naturally occurring underlying variables (Rosen & Surprenant, 1998).

EFA with varimax rotation was performed to identify the number of factors with maximum explanations (Hair et al., 1998). In this study, items that load higher than 0.5 were retained. The result showed that the EFA identified six latent constructs. The identified factors of all these constructs with an Eigenvalue greater than 1, together explained over 63.619 % of the variance and hence it was assumed that the model represents the data. There were no significant cross-loadings between items in this analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.853. The Bartlett Test of Sphericity was significant ($p<0.001$) with a Chi-Square value of 40201 with 406 degrees of freedom, has been considered to be appropriate for the further analysis of factorization. Communalities between measured items loaded on the EFA model varied from 0.509 for the N.6 item to 0.796 for N.13. All items loaded significantly, accordingly were retained for further analysis. The rotated component matrix showed that loadings of each measured item on each of the six latent factors identified. They are as follows:

1. **Performance expectation (PEX)**: The first factor which is moderately explained variance accounting to 12.805%. There were six indicators pertaining to performance issues while adopting M-tourism operations in the study. All these indicators were loaded together, accordingly, the study conceptualised these factor as Performance expectation issues (PEX).

2. **Perceived effort (PEF):** While adopting mobile based travel arrangements or purchase, special efforts are also required. Indicators showing all such variables were formed under one construct called Perceived effort issues (PEF). This second factor accounts for the second highest proportion of variance i.e. 12.195% with five variables.
3. **Technology-specific (TSP)**: All technology-related factors were loaded together, and then conceptualized as Technology specific issues (TSP). This third factor has moderately explained variance, accounting for 11.018%. The number of variables loaded in this factor was four.
4. **Country-specific (CSP):** All Country specific variables were clubbed as Country-specific issues (CSP). The number of variables loaded in this factor was five, which constitute 10.989% of the variance explained.

5. **Facilitation (FCI):** There were factors which facilitate M-tourism; they were finalized as Facilitation issues (FCI). There are significant positive loadings in this factor also. All the six facilitating variables are loaded on a single factor, constitute 9.710% of the explained variance.
6. **Personal centric (PCE):** The number of variables loaded in this factor was three. Based on the scientific reasoning and loading pattern all the three variables were conceptualised as Personal centric factors (PCE) with an explained variance of 6.902.

So all those identified six latent factors of Symbolic adoption were retained, henceforth those identified constructs are called as the latent constructs. As the study attempts to focus on variables which are abstract, not measurable directly, latent variables are adopted. Table 4 indicates the identified latent construct and their corresponding indicators

Table 4: Lists of latent constructs and its corresponding variables

Sl.No.	Constructs	No. of variables	Name of the variables	Individually explained
1.	PEX	6	Usefulness, Motivation, Productivity, Performance expectation, Comparative advantage and Accomplishments.	12.805
2.	PEF	5	Time, Ease of use, Learning to use, Clarity and Understanding.	12.195
3.	TSP	4	Network externalities, Trialability, Complexity and Installation	11.018
4.	CSP	5	Language, Technical infrastructure, Legal barriers, Diversity and Exposure	10.989
5.	FCI	6	Financial condition, Knowledge level, Compatibility, Assistance Availability and Accessibility.	9.710
6.	PCE	3	Peer/ Media influence, Trust, Education level	6.902

Confirmatory Factor Analysis

In order to determine the ability of a predefined factor model to fit an observed set of data Confirmatory Factor Analysis (CFA) was conducted (Gorsuch, 1983). CFA provides estimates for each parameter of the measurement model. CFA is also useful:

a) to test the relationship between two or more factor loadings,

b) to test the significance of a specific factor loading,

c) to assess the convergent and discriminant validity of a set of measures, and

d) to test whether a set of factors are correlated or uncorrelated.

The statistical significance of the relationships among various factors and its identified and extracted dimensions such as PEX, PEF, TSP, CSP, FCI, and PCE were taken together as shown in Figure 3.

The measurement model of constructs showed that the initial estimate of the 29 indicator variable model was found to be a valid fitting model. All the fit indices were within the permissible limits. All the paths shown in the model were significant as the critical ratios were above 1.96. So the identified model is considered to be a right fitting model with 29 indicators as illustrated in Figure 3. According to Kline (2016), a minimum set of fit statistics; one model test statistic and three approximate fit indexes are to be reported to assess the model fit. The model fit summary and estimates are given in Table 6.

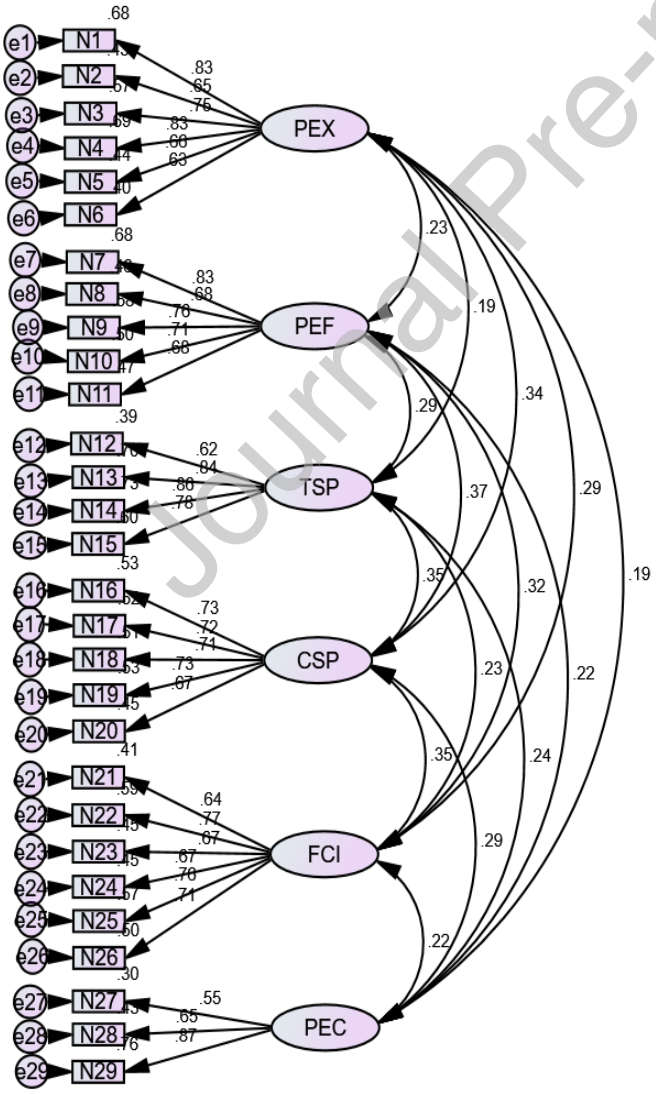


Figure 3: Structural Model for factors affecting Symbolic adoption of M-tourism

There are two important considerations which are used to test the statistical significance using AMOS output. Firstly, the critical ratio (C.R.), which represents the parameter estimate divided by its standard error based on a probability level of 0.05, and the critical ratios are to be > ±1.96 for statistical significance. At the same time non-significant parameters, with the exception of error variances, can be considered unimportant to the model and hence they have to be removed from the model (Byrne, 2010). Secondly, the standard residual co-variance should be less than the threshold limit of 2.58 to conclude statistically significant co-variance between two variables (Byrne, 2010). In such cases, these observations cannot be considered for further analysis. In the present model, standard residual covariance variables were within the threshold limit i.e. 2.58. Accordingly, the model can be considered as a good fitting model by considering empirical reasoning as well as the appropriateness of the model. Overall reliability scale for factors was 0.904.

CFA results indicate that all those identified 29 indicators were retained with six constructs, developed for identifying factors affecting the Symbolic adoption of M-tourism in India. Table 5 shows construct identified and finalized with its corresponding variables and reliability coefficient.

Table 5 Variables after Confirmatory Factor Analysis

Constructs	**Name of the variables**	**No. of Variables**	**Cronbach's Alpha**
PEX	Usefulness, Motivation, Productivity, Performance expectation, Comparative advantage and Accomplishments.	6	0.870
PEF	Time, Ease of use, Learning to use, Clarity and Understanding.	5	0.849
TSP	Network externalities, Trailability, Complexity and Installation	4	0.853
FCI	Financial condition, Knowledge level, Compatibility, Assistance, Availability and Accessibility.	6	0.879
CSP	Language, Technical infrastructure, Legal barriers, Diversity and Exposure	5	0.838

PEC	Peer/ Media influence, Trust, Education level	3	0.842

Validation

Common methods variance (CMV)

According to Podsakoff and Organ (1986), the presence of CMV can be understood if:

- a single factor emerges from unrotated factor solutions, or
- a first factor explains more than 50% of the variance in the variables.

The EFA of all variables in the study emerged with six distinct factors with an Eigenvalue above 1. The first factor accounted for 12.805% of the variance but all factors together accounted for 63.619% of the total variance. After initial solution using varimax rotation in principal component analysis, the same factor was retained with the same value (12.805%). So it can be concluded that CMV was not identified in this study.

Convergent validity

Besides Cronbach's alpha estimate and variance extracted for each construct, Critical ratios and squared multiple correlations was used to evaluate the statistical significance of convergent validity. Parameters which have a critical ratio greater than 1.96 are considered significant based on the confidence level of p=0.05 (Anderson & Gerbing, 1988). In this study, critical ratio of all of the measurement items was more than 1.96 value; hence, convergent validity is satisfied (See Table 6). As a rule of thumb, composite reliability is considered high if squared multiple correlation R2 ("SMC") is greater than 0.5, moderate if between 0.3 and 0.5 and poor if less than 0.3 (Spector, 2006). Further, as Hair, Black, Babin, Anderson and Tatham (2006) has suggested that the standardized regression weights should be more than 0.5 or ideally it should exceed 0.7. The analysis shows that all factor loadings were more than 0.5. Hence convergent validity is established further.

Discriminant validity

Discriminant validity can be confirmed through correlations among the constructs. In CFA, the correlation among construct should be less than 0.85. In other words, correlation more than 0.85 indicates poor discriminant validity (Anderson & Gerbing, 1988). In the present study, none of the correlations among variables were above 0.85. This result indicates an adequate discriminant validity of the measurement.

Further, Squared inter-construct correlations (SIC) were also calculated and compared with the average variance extracted to confirm discriminant validity (Anderson & Gerbing, 1988). All variance extracted from the study indicate higher values than the estimated SIC.

Accordingly, it has been confirmed that indicators are distinctly connected with their corresponding constructs. Therefore, discriminant validity of the measurement can be established.

Nomological validity

Finally, construct covariance was used to assess the Nomological validity. Nomological validity examines the degree of theoretically predicted correlation of scale with measures of dissimilar but correlated constructs (Carmines & Zeller, 1979). All the covariance among the constructs was positive and significant in the present study, thereby confirmed nomological validity as well.

From the above analysis, it can be confirmed that the scale developed for the measuring the factors affecting Symbolic adoption of M-tourism in India have adequate psychometric soundness.

Measurement model for Intended adoption of M-tourism

The six indicator variable model of adoption decision of M-tourism was found to have a valid fitting model in the first estimates (see Table 6). The Normed data, Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI) were within the permissible limits. So identified model found to be a right fitting model with six indicators as illustrated in Figure 4. All the paths shown in the model were significant as critical ratio were above 1.96.

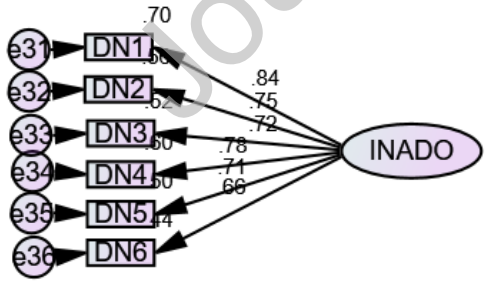


Figure 4: Measurement model for Intended adoption of M-tourism

In order to test the hypothesis of the study, an integrated structural model, which is examining the relationship between various underlying factors affecting the Symbolic adoption of M-tourism and Intended adoption of M-tourism in India was developed(Figure 5)

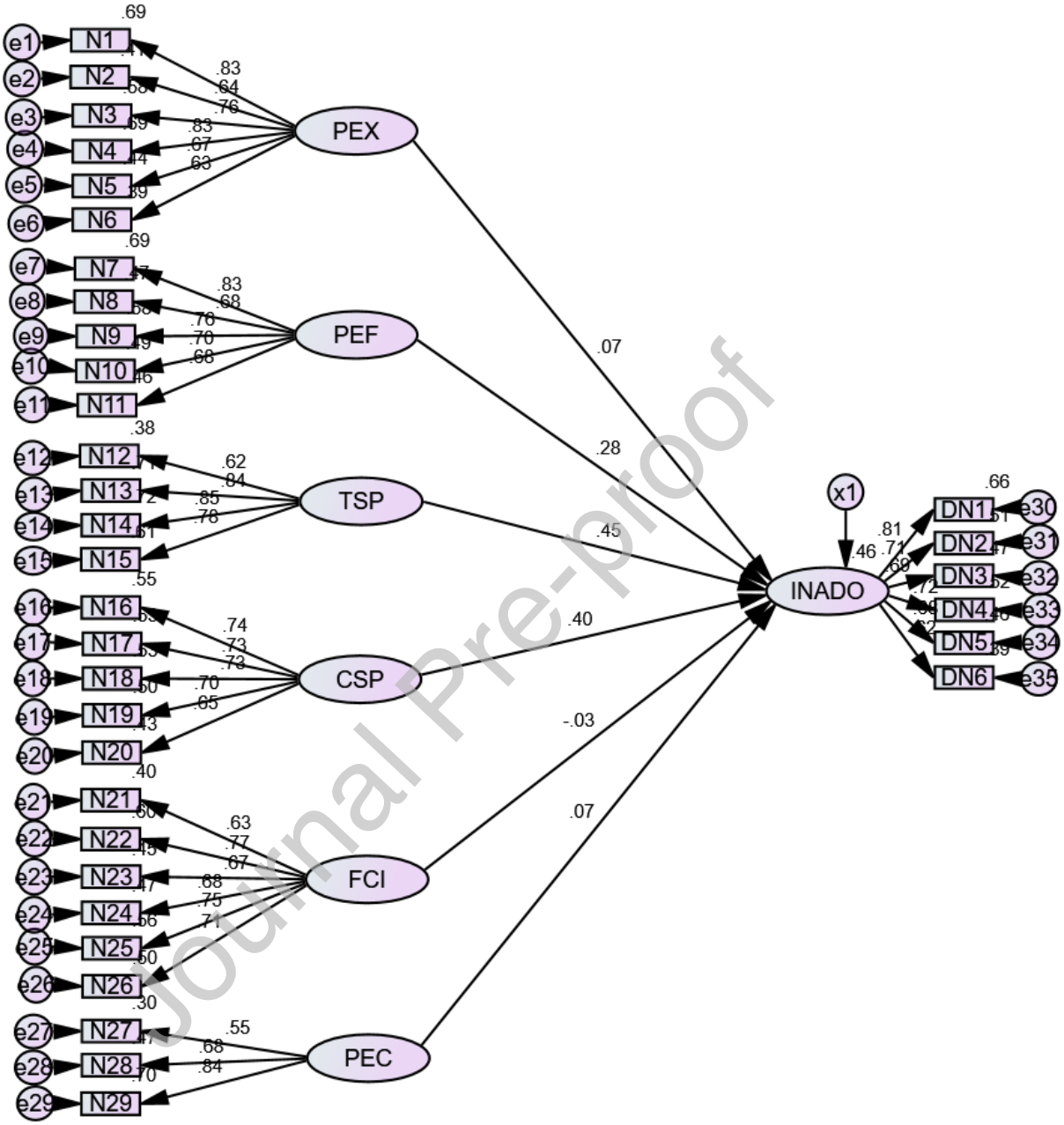


Figure 5 Model indicating the relationship between factors affecting Symbolic and Intended adoption of M-tourism

The integrated model can be considered as a good fitting model by considering empirical reasoning as well as the appropriateness of the model. As mentioned, there are two important considerations which are used to test the statistical significance using AMOS output. Firstly,

the critical ratio (C.R.) and the standard residual co-variance (SRC) (Byrne, 2010). The critical ratios for probability level .05 should be > ±1.96 to measure its statistical significance, and the SRC should be less than 2.58. Calculated values of CR and SRC found within the limits. The model fit summary and estimates are given in Table 6

Table 6: Goodness fit statistics of Symbolic, Intended adoption models and integrated model

Fit measures	**Indicators**	**Value obtained**			**Acceptable value**
		Symbolic Adoption	**Intended Adoption**	**Symbolic versus Intended**	
Model test statistic	a) Minimum discrepancy, divided by its degrees of freedom (CMIN/DF)	1.892	1.115	1.879	<3
Approximate fit indexes	a) Root mean square error of approximation (RMSEA)	.053	.019	.053	<0.08
	b) Standardized Root Mean Squared Residual (SRMR)	.047	.017	.051	<0.08
	c) Comparative-Fit index (CFI)	.918	.999	.908	>.90

Results

The study developed an integrated model indicating the relationship between Symbolic and Intended adoption of M-tourism at 05 significance level. The results shows that only three factors among six underlying factors i.e. Performance expectation (PEX), Perceived effort (PEF), Technology specific (TSP), Country-specific (CSP), Facilitation (FCI), and Personal centric (PCE) factors of Symbolic adoption have a significant affect on Indented adoption factors of M-tourism. These are PEF (β=.28, $p<0.01$), TSP (β=.45, $p<0.01$), and CSP β=.40, $p<0.01$) of Symbolic adoption. Other factors like PEX, FCI and PCE of Symbolic adoption of

M-tourism are found to have less affected Intended adoption factors of M-tourism scenario of India.

Discussions

There were six hypotheses tested using the structural equation model in this study, out of which three were found significant. The other factors like Performance expectations, Facilitation, Personal centric factors were not found to have significant relation with Intended adoption.

Out of the three factors, Perceived efforts, Country-specific and Technology-specific factors, Technology and Country-specific factors seem to be influencing the Intended adoption the most. The indicators forming the Technology specific factors are network externalities', trail possibilities, complexity, time-consuming and complexity in the installation process, whereas, language barriers, inadequate technical infrastructure, cumbersome legal framework, diversity and lacuna of exposure are identified as the Country-specific factors in the context of India. The identified Perceived effort factors of Symbolic adoption are; longer time requirements for operation, absence of ease in usage, elaborate procedure of learning to use, lack of clarity and understanding.

The government, as well as other stakeholders, should concentrate only on those issues which have a bearing on M-tourism adoption like perceived effort, technology specific and country-specific factors. It is imperative to explore more investment possibilities to minimise technical aspects like network externalities and improve technical infrastructure. Reworking on legal framework pertaining to m-commerce with special emphasis on service transactions is essential to move forward.

Tour operators and other service providers must strive to create awareness about M-tourism, disseminate information on the benefits, provide necessary clarifications to address their concern over Perceived effort factors and encourage the tourists in adopting M-tourism.

Software developers must introduce user-friendly features, provide multilingual options, offer attractive discounts, and adopt contemporary approaches towards advertising their software. Technological factors can be approached with innovations in applications and other user generating support services.

Since the availability of smartphone is also a very important factor influencing Intended adoption, reasonably priced, easy availability of smartphones may act as an external factor of motivation to switch over to M-tourism. As willingness to adapt to contemporary changes in the campaign towards cashless transactions is also appearing to be significant, the government must make efforts in creating awareness of digital transactions to the tour operators and other service providers, so that it may be executed at the operational level.

Conclusion

The study identified 29 factors which affect the Symbolic adoption of M tourism. In other words, all those 29 factors of Symbolic adoption pertaining to M tourism are found significant in the context of India. All the identified dimensions (latent variables) of Symbolic adoption were found relevant based on scientific reasoning and empirical evidence. All six variables of Intended adoption of M-tourism were also found to have practical significance in the context of the mobile tourism market. However, only three identified latent variables of Symbolic adoption: PEF, TSP and CSP are found to be influencing the Intended adoption of M-tourism in India.

Limitation of the study

- Results may not be completely relevant or consistent if the assumptions (respondent criteria) of the study are not considered.
- Larger sample sizes, incorporating all the states of India, might have provided accurate results.
- Constraints with respect to time, resources, bias in responses, lack of knowledge or awareness about M-tourism could have had a bearing on the study.
- The lifespan of technology pertaining to M tourism has not been considered.

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