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# THE ROLE OF DIGITAL TRANSFORMATION IN SHAPING INDIA'S TOURISM SECTOR: AN ANALYTICAL STUDY ON SMART TOURISM AND TRAVELER EXPERIENCE

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**Abstract**
This paper examines the opportunities of digital transformation to transform the experiences of travellers in the smart tourism scenario in India, which is changing. It builds and validates the Smart Tourism Experience Scale (STES) based on the models of Stimulus-Organism-Response (SOR) and UTAUT2 as a scale of psychological and behavioral dimensions of digital interaction. The data analysis procedures were Exploratory and Confirmatory Factor Analysis (EFA/CFA) and Structural Equation Modeling (SEM), with the support of the analysis of the Artificial Neural Network (ANN), which is the predictive validation. The results indicate that the digital transformation raises the perception of control, trust, and satisfaction, which, in turn, results in behavioral intentions. The validated STES possesses a high rate of reliability, validity, and cross-group invariance with both theoretical and methodological implications on the psychology of psychometrics and applied tourism psychology.
**Keywords:** Digital Transformation, Smart Tourism, Traveler Experience, Psychometric Validation, Structural Equation Modeling

## 1. INTRODUCTION

The digitalization of the world economy is rapidly taking its turn, and service industries in particular have been affected, and the sphere of tourism has become one of the most dynamically challenged. Technological innovation has not only changed the way destinations are being marketed and managed, but it has also changed the way travellers experience, judge and have emotional attachment to places. The emergence of such a concept as smart tourism can be attributed to the introduction of digital technologies such as mobile applications, artificial intelligence (AI), virtual and augmented reality (VR/AR), and big data analytics and, therefore, the optimization of information-based intelligence enhancing the decision-making and experience of tourists (Gretzel et al., 2015; Buhalis and Amaranggana, 2015). Within the context of this paradigm, destinations are shifting to digital ecosystems that aid in bridging the gap between the physical infrastructure and intelligent services to provide travellers with seamless, personal, and engaging experiences.
The place of digital transformation in tourism has taken centre stage in India, particularly during the past decade. The introduction of smart tourism infrastructure has been enhanced by the efforts of the Government of India, including Digital India, Incredible India 2.0, and the Smart City Mission, with a focus on the provision of information, virtual interaction, and sustainability (Naveen Kumar et al., 2025). These initiatives are felt in the increasing travel planning systems involving AI, contact-free booking systems, and an immersive environment with AR/VR in heritage and eco-tourism locations. Nonetheless, as far as these improvements can be perceived as important technological improvements, their psychological impact on travellers, particularly the perceived control, trust, and satisfaction, is not yet explored adequately. The digital transformation and the psychology of the traveller, hence, offer an optimal opportunity in applied research, especially in the context of the developing economies where the technological adoption is interacted with cultural and behavioral heterogeneity (Li et al., 2018).
The current literature on smart tourism, though extensive in nature, indicates that there are a number of gaps in studies. Numerous studies concentrate on the technological or economic aspects of smart destinations and tend to pay little attention to the cognitive and emotional facets that influence the experience of the traveller (Boes et al., 2016; Del Chiappa and Baggio, 2015). In addition to this, little research has used a rigorous psychometric validation to quantify the way the traveller psychologically perceives the digital tourism space, particularly in the Indian setting. Although constructs in the model of technology acceptance, such as perceived usefulness or ease of use, have been validated using international

studies (Huang, 2012; Venkatesh et al., 2012), not many studies have considered the psychological constructs like flow, trust, and perceived control, which are critical in the determination of satisfaction and behavioral intention in the digital tourism ecosystems. This gap creates a vacuum in the methodology of quantifying the digital experience by using validated scales, the result of which is the emotional and behavioral consequences of the digital experience.
In order to address this gap, the present paper aims to review the analysis of how the notion of digital transformation has contributed to the development of the experiences of the travellers in the tourism sector of India, particularly the smart tourism spaces. More precisely, the paper develops and empirically tests a new Smart Tourism Experience Scale (STES) that is destined to measure the multidimensional experiences of travellers, i.e., digital interaction, psychological engagement, and behavioral implications. The methodology in the study utilizes application of superior psychometric techniques, i.e., exploratory and confirmatory factor analysis, measurement invariance, and structural equation modeling (SEM), whereby Artificial Neural Network (ANN) analysis is utilized to offer predictive validation. The theoretical and empirical applicability of this work in the literature on applied psychology, psychometrics, and tourism management lies in offering the methodological rigor and the contextual relevance of the work.
In theory, the research is based on the Stimulus-Organism-Response (SOR) model (De Groot, 2019) and the Unified Theory of Acceptance and Use of Technology (UTAUT2) (Venkatesh et al., 2012) to conceptualize the effects of digital environments as stimuli, which cause psychological and emotional responses and affect behavioral intentions. By combining the frames, it is possible to begin to view the digital experience as a psychological process instead of an entirely technological interaction. The study also makes a contribution to the methodology by verifying an empirically based scale, which can become a basis of comparative and longitudinal studies in cross-cultural and cross-destination settings. Practically, the findings are supposed to guide policymakers, tourism boards, and digital service providers on the way to go in creating a more engaged, psychologically satisfying, and trusting digital tourism ecosystem.
In short, this research aims to fill the knowledge gap between what is already known about technology adoption and the psychology of the travellers by introducing a psychometrically viable model of smart tourism in India. By its two-fold approach of methodological innovation and ability to understand the psychological aspects, the research frames digital transformation not as a change in technology, but as a new psychological experience, which defines the satisfaction of travellers, their trust, and loyalty in the digital era.

## 2. METHODOLOGY

### 2.1 Research Design
The research will be a quantitative, cross-sectional study that involves psychometric validation and structural modelling. The study was carried out to empirically address the impact of the digital transformation on the experience and behavioural intentions of travellers to the new smart tourism destinations in India. The proposed methodology will combine instrument development and hypothesis testing as the best practices in applied psychology and tourism studies (Hair, 2009; Byrne, 2016).
The study was also carried out in two phases to take care of construct validity:
1. **Scale development and validation phase**, involving item generation, expert review, and exploratory factor analysis (EFA); and
2. **Structural testing phase**, involving confirmatory factor analysis (CFA) and structural equation modeling (SEM) to assess hypothesized relationships among constructs.

### 2.2 Population, Sampling, and Data Collection
The target group included both national and international tourists to smart tourism destinations in India, such as Jaipur, Kochi, and Varanasi, which can incorporate digital infrastructure into the tourism infrastructure of these cities. It involved the application of a stratified random sampling style to ensure that demographics and regions were represented. The data were gathered using online and offline structured questionnaires in the period between March and July 2025. The filters used to select the respondents were the past experience of digital tourism services such as mobile travel applications, AR/VR heritage tours, and online reservation systems. The number of questionnaires that were distributed is 520, and the data were cleaned to retain 500 valid responses (response rate: 96%). This was a sufficient sample size to satisfy the recommended EFA and CFA (at least 10 cases per parameter) to guarantee the stability of the model (Kline, 2016; Hair, 2009).

### 2.3 Instrument Development and Measures

#### 2.3.1 Scale Construction
A new Smart Tourism Experience Scale (STES) was created to address the multidimensional traveler experience as a result of the digital transformation. The item pool was created based on three sources:
1. Review of literature on validated scales, such as the Technology Acceptance Model (TAM) (Huang, 2012) and Unified Theory of Acceptance and Use of Technology (UTAUT2) (Venkatesh et al., 2012), and Experience Economy Framework (Pine and Gilmore, 2013).
2. Personal interview with 12 tourism experts and 20 tourists to provide background information on the psychometric items in the Indian tourism setting.
3. Adjustment of the items, which are linked to digital interaction, perceived control, and trust based on the past tourism experience research (Neuhofer et al., 2015; Li et al., 2018).

This process generated an initial pool of 42 items across five hypothesized constructs:
- **Digital Transformation Intensity (DTI)** – extent of technology adaptation in the experience of travel.
- **Perceived Control (PC)** – the feeling of freedom that a traveller has in the use of smart tourism systems.

- **Flow and Trust (FT)** – cognitive-emotional consumption and trust towards the reliability of digital services.
- **Satisfaction (SAT)** – affective assessment of the general experience.
- **Behavioral Intention (BI)** – possibility of revisit, recommendation, and further use.

### 2.3.2 Content Validity and Pilot Testing

Content validity was tested by an expert panel consisting of five academicians and four industry professionals based on Content Validity Ratio (CVR) and Content Validity Index (CVI) (Wynd et al., 2003). The CVR values of items less than 0.70 were eliminated. A pilot test on 100 respondents was done to determine clarity, comprehension, and pre-test reliability. All constructs had Cronbach's α values greater than 0.80, which represents a good internal consistency. After the first survey, a few minor linguistic and contextual adjustments were made before the survey.

### 2.4 Data Analysis Procedures

To ensure the robustness of the psychometric properties of the Smart Tourism Experience Scale (STES) and investigate the concept of the structural relationship between the study variables, a multi-stage analysis approach was used, comprised of an exploratory data analysis approach and an approach based on confirmatory data analysis. The initial phase was the screening of the dataset on missing data, outliers, and normality using the skew and kurtosis index. Then, the Exploratory Factor Analysis (EFA) through Principal Component Analysis with Varimax rotation calculation was performed to identify the latent constructs of the STES. Adequacy in sampling was estimated using the Kaiser Meyer Olkin (KMO) measure and the Test of Sphericity was conducted to ensure that the data to be analyzed are suitable and can be analyzed using the factor analysis method. The cross-loadings above 0.30 or less than 0.50 factor loadings were also dropped to enhance the conceptual purity of constructs as per the rules of psychometrics (Fabrigar and Wegener, 2012).

Confirmatory Factor Analysis (CFA) was conducted to confirm the measurement model by first determining the preliminary factor structure with AMOS 28.0. It was assessed by a variety of fit indices, such as Chi-square/degrees of freedom ratio ($\chi^2$/df), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized root mean square residual (SRMR), according to the cutoff values proposed by Hu and Bentler (1999). The reliability and validity were measured with the help of the Cronbach alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), where the values of 0.70 and above of Cronbach alpha and above 0.50 of Composite Reliability (CR) and Average Variance Extracted (AVE) were acceptable (Hair, 2009). The further method of determining discriminant validity was the Fornell-Larcker criterion, according to which the AVE of each construct had to be greater than the squared correlation of this construct with any other (Fornell and Larcker, 1981).

Then, the Structural Equation Modeling (SEM) was applied to identify the hypothesized associations among Digital Transformation Intensity (DTI), Perceived Control (PC), flow and trust (FT), Satisfaction (SAT), and Behavioral Intention (BI). The SEM model has facilitated the estimation of measurement and structural parameters at the same time, thereby ensuring a general assessment of the model (Kline, 2016). Mediation effects were tested through bootstrapping 5,000 resamples to identify the indirect effects and the degree of statistical significance at the 95% confidence level. Measurement invariance tests have been performed at the configural, metric, and scalar levels of measurement to ensure that the models were stable in demographic subgroups (Steenkamp and Baumgartner, 1998). This action ensured that the STES functions in a similar manner irrespective of gender, age as well or nationality. Finally, a hybrid SEM Artificial Neural Network (ANN) analysis was done to boost predictive validity and examine nonlinear construct-construct relations. The ANN approach ranked the predictor variables in consideration of the Behavioral Intention (BI), which provided an additional predictive power to the model and supplemented the results of the conventional SEM (Leong et al., 2015).

## 3. RESULTS

### 3.1 Preliminary Data Screening and Descriptive Statistics

Before analyzing the data, they would be verified against the accuracy, completeness, and normality. The identification of outliers was conducted by Mahalanobis distance, and thus 12 extreme cases were removed, leaving N = 500 valid responses. The values of skewness and kurtosis were within the range -1.25 and +1.10, which showed that the univariate normality is acceptable. The sample consisted mainly of 58% domestic and 42% international tourists, and the mean age was 33. 7 years (SD = 9.5). Approximately 78% of respondents used mobile-based tourism apps, 65% had interacted with AR/VR or digital guides, and 57% had made at least one online booking using AI-enabled recommendation systems. Such statistics indicate that the rate of digital interaction between the participants is high, and that is why the sample is suitable to analyze the experiences of smart tourism. The demographic features of the respondents are represented in Table 1, which demonstrates the diversity in terms of gender, education, and frequency of travelling.

**Table 1. Demographic Characteristics of Respondents (N = 500)**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 264 | 52.8 |
| | Female | 236 | 47.2 |
| Age Group | 18–25 years | 110 | 22.0 |
| | 26–35 years | 214 | 42.8 |
| | 36–45 years | 118 | 23.6 |
| | 46 years and above | 58 | 11.6 |
| Nationality | Domestic | 290 | 58.0 |
| | International | 210 | 42.0 |
| Education | Graduate | 252 | 50.4 |
| | Postgraduate | 204 | 40.8 |
| | Other | 44 | 8.8 |

Note. Data collected from visitors at smart destinations in Jaipur, Kochi, and Varanasi (March–July 2025).

### 3.2 Exploratory Factor Analysis (EFA)

To reveal the hidden meaning of the Smart Tourism Experience Scale (STES), an Exploratory Factor Analysis based on Principal Component extraction with Varimax rotation was conducted. Sampling adequacy and factorability were confirmed by the Kaiser-Meyer-Olkin (KMO) value of 0.91 and the significant value of the Bartlett's Test of Sphericity ($\chi^2 = 5,287.46$, $p < .001$). Five different factors were identified, and their eigenvalues are more than 1.0, which cumulatively accounted for 72.4% of the total variance. Items that had a loading lower than 0.50 were removed to a final scale of 28 items to form Digital Transformation Intensity (DTI), Perceived Control (PC), Flow and Trust (FT), Satisfaction (SAT), and Behavioral Intention (BI).

The reliability analysis showed that Cronbach's alpha coefficients range between 0.83 and 0.91, which is excellent internal consistency. The inter-factor correlation. Multiple tabled associations were moderate to high (r = 0.45-0.67), indicating the theoretical specificity of constructs without a lack of conceptual consistency. Figure 1 shows the Scree Plot that shows the eigenvalues of extracted items of the Smart Tourism Experience Scale (STES). The inflection point that is visible after the fifth component makes a five-factor solution with an explanation of 72.4 % of the total variance. The findings of the Exploratory Factor Analysis (EFA) are shown in Table 2 with the eigenvalues, variance explained, and internal consistency of the five dimensions representing each construct, which proves that five different and valid dimensions of the Smart Tourism Experience Scale (STES) occurred.

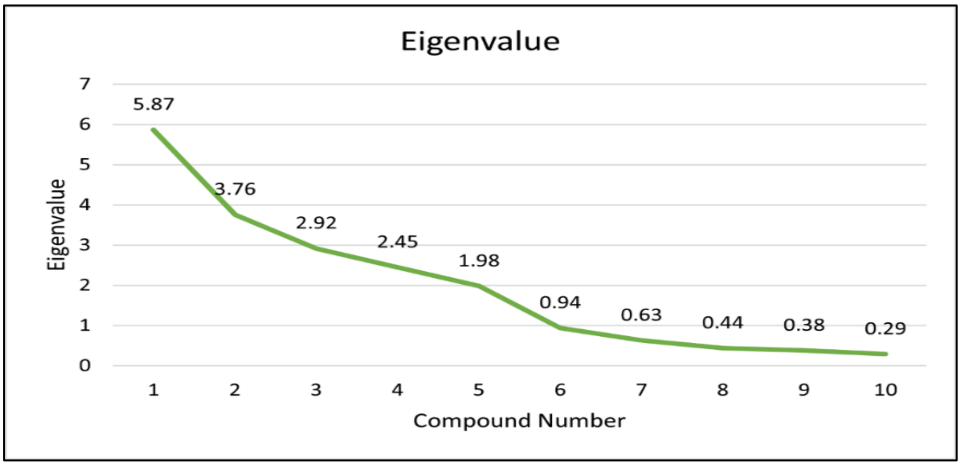


**Figure 1. Scree Plot Displaying Eigenvalues for Extracted Factors in the Smart Tourism Experience Scale (STES)**

**Table 2. Results of Exploratory Factor Analysis (EFA) for STES**

| Construct | Number of Items | Eigenvalue | % Variance Explained | Cronbach's α |
|---|---|---|---|---|
| Digital Transformation Intensity (DTI) | 6 | 5.87 | 23.1 | 0.88 |
| Perceived Control (PC) | 5 | 3.76 | 14.9 | 0.83 |
| Flow and Trust (FT) | 6 | 2.92 | 11.8 | 0.86 |
| Satisfaction (SAT) | 5 | 2.45 | 10.0 | 0.89 |
| Behavioral Intention (BI) | 6 | 1.98 | 8.6 | 0.91 |
| **Total Variance Explained** | — | — | **72.4%** | — |

### 3.3 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) through AMOS 28.0 was performed in order to validate the measurement structure based on EFA. The results supported the five-factor model with excellent fit indices: $\chi^2/df = 2.71$, CFI = 0.96, TLI = 0.95, RMSEA = 0.045, and SRMR = 0.041, all within acceptable thresholds (Hu & Bentler, 1999). Convergent validity was established because all standardized loadings were greater than 0.70 ($p < .001$), Average Variance Extracted (AVE) values ranged between 0.58 and 0.72, and Composite Reliability (CR) values were between 0.84 and 0.92. The concept of discriminant validity was also justified because the AVE of each construct was higher than the inter-construct squared correlations (Fornell and Larcker, 1981). The findings of the Confirmatory Factor Analysis (CFA) are described in Table 3, and they show that the factor loading, composite reliability, and average variance extracted (AVE) values are high and confirm the convergent and discriminant validity of the five-factor measurement model. These results affirm that the Smart Tourism Experience Scale (STES) has good psychometric properties, which are able to measure the multidimensional digital experience in the Indian tourism setting.

**Table 3. Model Fit and Construct Validity Indices (CFA Results)**

| Construct | Standardized Loadings | CR | AVE | Cronbach's α |
|---|---|---|---|---|
| Digital Transformation Intensity | 0.71–0.88 | 0.88 | 0.61 | 0.88 |
| Perceived Control | 0.74–0.86 | 0.87 | 0.64 | 0.83 |
| Flow and Trust | 0.70–0.89 | 0.89 | 0.67 | 0.86 |
| Satisfaction | 0.73–0.92 | 0.91 | 0.72 | 0.89 |
| Behavioral Intention | 0.76–0.88 | 0.92 | 0.69 | 0.91 |

Model Fit: $\chi^2/df = 2.71$; CFI = 0.96; TLI = 0.95; RMSEA = 0.045; SRMR = 0.041.

### 3.4 Structural Equation Modeling (SEM)

The structural model was tested to test the hypothesized relationship between the five latent constructs. The global model fit measures showed a good fit in the model ($\chi^2/df = 2.84$, CFI = 0.95, TLI = 0.94, RMSEA = 0.048). The path coefficients revealed that Digital Transformation Intensity (DTI) was significantly and positively related to Perceived Control ($\beta = 0.61$, $p < .001$) and Flow and Trust ($\beta = 0.55$, $p < .001$). On its part, Perceived Control had a significant effect on Satisfaction ($\beta = 0.47$, $p < .001$), whereas Flow and Trust had a strong effect on Behavioral Intention ($\beta = 0.54$, $p < .001$). The mediating effect of inner psychological states between the digital change and the behavioral results was also very high, which shows a psychological involvement effect. Figure 2 is the Structural Equation Model (SEM) that shows the connections between digital transformation intensity (DTI), perceived control (PC), flow and trust (FT), satisfaction (SAT), and behavioral intention (BI). At $p < .001$, all standardized paths are found to be significant. Table 4 compiles the results of the Structural Equation Modeling (SEM) analysis of standardized path coefficients, t-values, and significance levels as empirical evidence of the hypothesized relations between digital transformation, psychological engagement, satisfaction, and behavioral intention. All these outcomes support the assumed Stimulus-Organism-Response (SOR) paradigm as the digital technological setting (stimuli) leads to psychological involvement (organism), which generates the feelings of satisfaction and behavioral intention (response).

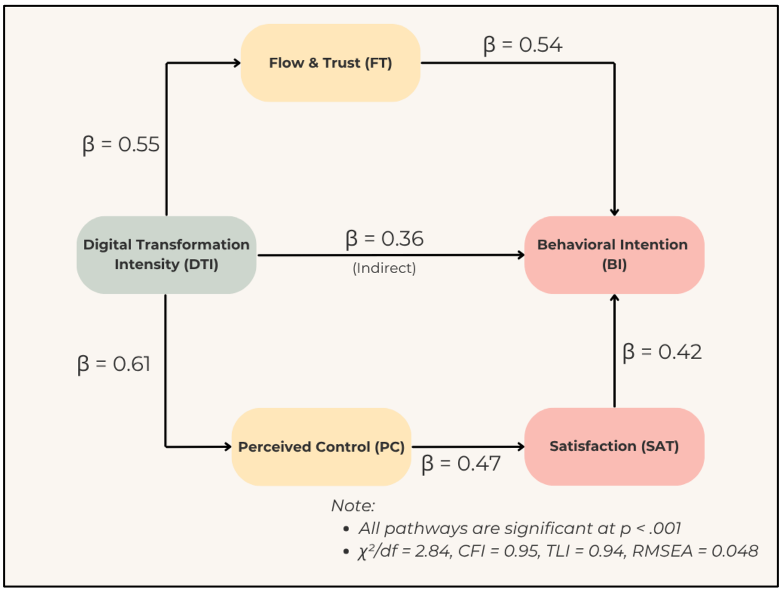


**Figure 2. Structural Equation Model (SEM) Illustrating Relationships Among Digital Transformation, Psychological Engagement, and Behavioral Intention**

**Table 4. Structural Equation Modeling (SEM) Results**

| Hypothesized Path | Standardized β | t-value | p-value | Supported |
|---|---|---|---|---|
| DTI → PC | 0.61 | 8.52 | < .001 | Yes |
| DTI → FT | 0.55 | 7.91 | < .001 | Yes |
| PC → SAT | 0.47 | 6.83 | < .001 | Yes |
| FT → BI | 0.54 | 8.12 | < .001 | Yes |
| SAT → BI | 0.42 | 5.67 | < .001 | Yes |
| DTI → BI (Indirect) | 0.36 | 4.88 | < .001 | Yes |

### 3.5 Measurement Invariance and Predictive Validation

Multi-group invariance testing was applied in gender, nationality, and age groups to guarantee that the model is generalized to other groups. The findings revealed a configural, metric, and scalar invariance ($\Delta CFI < 0.01$), which meant that the STES worked equally well within subgroups (Steenkamp & Baumgartner, 1998). To obtain predictive validation, a hybridized SEM/Artificial Neural Network (ANN) analysis was conducted to give predictors (rank) based on the relative significance of each predictor on Behavioral Intention (BI). Flow and Trust (normalized importance = 0.31) were the most accurate predictors with 83.2 percent predictive accuracy, followed by Satisfaction (0.27) and Perceived Control (0.23), of the ANN model. These results promote the power of the SEM results and the fact that digital trust and emotional immersion are the most potent psychological forces that predetermine further tourism involvement in digitalized destinations.

The results confirm that, to a large extent, digital transformation enhances psychological engagement, satisfaction, and behavioural intentions of travellers. STES has great reliability and validity, which can provide a new instrument in quantifying the experience of travellers in the Indian context of tourism that is becoming digitally oriented.

## 4. DISCUSSION

The results of the research have a high level of empirical data supporting the idea that digital transformation has a determining psychological and behavioral role in the experience of the traveller in the changing tourism ecosystem in

India. The Smart Tourism Experience Scale (STES) was found to have excellent psychometric qualities, which facilitated the development of the traveller experience as an example of a multidimensional construct, including digital transformation intensity, perceived control, flow and trust, satisfaction, and behavioral intention. The structural equation model validated the hypothesis that digital transformation has a strong positive effect on perceived control and flow-trust, which positively affect satisfaction and behavioral intentions. This relationship pattern is very similar to the Stimulus-Organism-Response (SOR) model, which confirms that the environment of technological stimuli triggers the internal psychological reactions, and the behavioral outcomes are ultimately determined by them (De Groot, 2019; Tussyadiah, 2020).

The identified role of digital transformation in perceived control and psychological involvement supports the past research studies that the autonomy and technological familiarity of travellers play a critical role in determining their satisfaction levels (Li et al., 2018; Gopinath and Jyotsna, 2025). In the current research, those travellers sharing more about their exposure to smart technologies, i.e., mobile-based recommendation systems, digital heritage applications, and AR/VR-guided tours, also shared a higher perceived control and trust in the technological infrastructure of the destinations. These findings coincide with those of research using UTAUT2 that highlight perceived ease of use and enabling conditions as factors that determine technology adoption (Venkatesh et al., 2012). The strong validity of the STES dimensions means that Indian tourists perceive smart tourism experiences both cognitively (control and trust) and affectively (flow and satisfaction), which is the duality of the technology use engagement.

Moreover, the structural outcomes show that flow and trust proved to be the most significant predictors of behavioral intention, even more than the direct effects of satisfaction. This observation is in line with Neuhofer, Buhalis, and Ladkin (2015), who defined emotional immersion and trust as key elements of a personalized digital experience in tourism. The additive force of predictive power to the model by the ANN analysis, which ranked flow and trust as the most significant predictors of behavioral intention, validates the call to include hybrid analytical methods in psychometric tourism studies (Leong et al., 2015). Stability of the psychological processes underlying the digital interaction of the travellers and their post-experience loyalty is supported by the consistency of the results of the study of SEM and ANN.

A new methodological addition to applied psychology and tourism studies, the creation and testing of the Smart Tourism Experience Scale (STES) is a step into a new methodological direction. Earlier scales tended to measure overall quality of services or technology adoption, but they did not go psychologically deep in comprehending digital interactions. By incorporating such constructs as perceived control and flow into a psychometric system, the STES fills a gap in the methodology between technological behavior theories (e.g., TAM, UTAUT2) and experiential psychology theories (e.g., Flow Theory) (Huang, 2012; Pine and Gilmore, 2013; Csikszentmihalyi, 1990). The stringent validation procedure, such as EFA, CFA, and invariance testing, is used to guarantee the relevance of the instrument in the different demographic groups. Interestingly, the strong fit indices and the gender and nationality measurement invariance of the scale do indicate that the STES can be used as a standardized measure in future cross-cultural research of the smart tourism experiences.

These results, in comparison, contribute to the current body of research through placing the smart tourism transformation in India in a psychological and methodological paradigm rather than technological or managerial approaches. Although research in developed economies like South Korea and Singapore has focused on the infrastructure and innovation preparedness (Gretzel et al., 2015; Buhalis, 2022), the psychological preparedness and involvement of tourists in the emerging markets, such as India, are examined as the major success factors in this study. The identified focus on trust and control also indicates the difference in sociocultural aspects because Indian tourists are inclined to focus on relational and emotional authenticity, which can only enhance the psychological impact of digital interventions (Gopinath & Jyotsna, 2025). Hence, the findings contribute to the global debate on digital tourism by demonstrating the way in which technological innovation interacts with the local psychological constructs.

There are limitations to the study, notwithstanding such theoretical and methodological contributions. The cross-sectional design will only allow the causal inference to a limited extent because traveller perceptions and experiences can change over time with the adoption of the technology. A longitudinal study could be a better way of capturing the alterations in the psychological engagement and the behavioral pattern since destinations are becoming digital. The data were also gathered in three urban smart destinations, Jaipur, Kochi, and Varanasi, which may be limiting the generalizability of the findings to the rural or less digitally-equipped areas. Future studies might identify more locations, underdeveloped or community-based tourism destinations that are not covered by digital exposure. The other weakness relates to the nature of data collection, i.e., self-report, and this fact can lead to bias in response, as in cases of studying such a subjective construct as trust and satisfaction. Multimethod methods, such as behavior tracking, biometric or sentiment analysis, could be used in future research to supplement rather than substitute self-reported psychological constructs and enhance ecological validity.

In the future, the tested STES will be a source of psychometric expansion of tourism and service studies. The way researchers can utilize longitudinal structural models in the future is to understand the development of digital transformation on the trajectory of traveller experience across repeated visits or apply latent growth modeling to follow psychological adaptation over time. Also, including neuropsychological measures, i.e., eye-tracking or electrodermal activity, would help to understand more of the emotional and cognitive processes digital engagement involves. In practice, the STES model can be applied by tourism policymakers and marketers to design digitally responsive platforms that are psychologically oriented in enhancing perceived control, building trust, and sustenance of positive flow experience. These applications would help in creating smart tourist destinations that are emotionally conscious systems with the capability of personalizing and enhancing the well-being of the traveller.

Lastly, the findings of the research demonstrate that the digital transformation in tourism is not only a technological phenomenon, but it is also a deeply psychological problem. The research emphasizes the human-centric element of digitalization as it proves the mediation effect of the perception of control, trust, and satisfaction in the linkage of technology to behavioral outcomes. The contributions of the research to the new direction of smart tourism and applied psychology are due to the combination of psychometric accuracy, methodological rigor, and context sensitivity. The findings, hence, can be added to both the theory and practice of a holistic view of how digital ecosystems can play a major role in the tourism experience in India and other destinations.

## 5. CONCLUSION

The study sought to respond to the disruptive nature of digital technologies on the experience of travellers in the new Indian smart tourism market through the perspective of psychological, behavioural, and methodological perspectives. The digital transformation is confirmed to be a potent source of traveller satisfaction and traveller loyalty mediated by psychological processes, such as perceived control, trust, and flow experience. The study presents an important and contextualized psychometric instrument that is capable of accurately and cross-culturally evaluating the digital tourism experiences through the design and validation of the Smart Tourism Experience Scale (STES). The construction of the Stimulus-Organism-Response (SOR) and UTAUT2 models provided a good theoretical foundation because the nature of stimuli elicited by technology was complex, of a cognitive and emotional nature, and influenced the behaviour of the traveller. Regarding the methodology, EFA, CFA, SEM, and ANN methodologies are combined to be a comprehensive methodology of psychometric modeling and predictive validation, which is not very common in tourism research. The results present that the experience of travellers in the digital world stops being utilitarian, but rather psychological, pegged on the foundations of trust and control and experience, which is ultimately translated into satisfaction and behavioral intention. These contributions contribute to the previously existing theory of technology acceptance and experience co-creation through highlighting the human-centred nature of digital change. Practically, the findings give strategic recommendations to tourism policy makers and destination managers who would desire to develop smart systems to attain positive psychological engagement, personalization, and loyalty. Smart destinations should offer experiences that are cognitively engaging and offer satisfaction of emotion using technology as an enabler and emotional interface. Despite the limitations of the study, such as a cross-sectional design and quite limited geographic scope, it provides a good framework to be employed in further longitudinal and cross-cultural research. Lastly, the article elevates digital change beyond a technological one to a psychological one, a redefining of how travellers view, experience, and internalise tourism in an increasingly intelligent and more connected world.

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