Evaluation of the Impact of IKN Development on Increasing Tourism Sector Competitiveness, Increasing Tourist Income, and Increasing the Number of Tourism Visits: A Case Study on Tourist Destinations in East Kalimantan

Agung Zulfikri¹, Riani Prihatini Ishak², Loso Judijanto³
¹Telkom University
²Sekolah Tinggi Pariwisata Bogor
³IPOSS Jakarta, Indonesia

ABSTRACT

This research investigates the impact of Information and Knowledge Networks (IKN) development on the tourism sector in East Kalimantan through a quantitative analysis. A sample of 150 participants, comprising tourists, local businesses, and stakeholders, provided insights into the relationships between IKN development and Increasing Tourism Sector Competitiveness, Increasing Tourist Income, and Increasing the Number of Tourism Visits. The study employed Structural Equation Modeling (SEM) with Partial Least Squares (PLS) to analyze the data. The measurement model assessment confirmed the reliability and validity of the constructs, while the structural model analysis revealed significant positive relationships between IKN development and the dependent variables. The overall model fit was assessed using various indices, and hypothesis testing supported the significance of the paths. The R-Square values indicated that the model effectively explains a substantial proportion of the variability in tourism outcomes. The findings contribute to the understanding of the role of IKN in shaping the tourism sector and offer practical implications for stakeholders in East Kalimantan.

Keywords: Tourism Competitiveness IKN Development East Kalimantan

1. INTRODUCTION

The strategic development of the Capital of the Nation (IKN) in East Kalimantan has the potential to increase the tourism sector in the region and contribute to its socio-economic order. The region’s diverse natural and cultural assets make it an attractive destination for visitors. Efforts to enhance tourism attractiveness in the new IKN include improving tourism facilities, adding value to tourism experiences, setting appropriate tourism tariffs, and adopting a market-oriented approach [1]. Additionally, South Kalimantan can maximize its green tourism aspect and improve its facilities and infrastructure to become a gateway to the nation’s capital in the future [2]. In East Nusa Tenggara, increasing the capacity and professionalism of human resources in the

tourism sector is crucial for enhancing competitiveness [3]. The tourism industry’s focus on sustainable development is also evident, with geotourism serving as a powerful tool for educating society about environmental protection [4].

East Kalimantan, located in the Indonesian archipelago, has untapped tourism potential that can be harnessed through the integration of information and knowledge networks. The region offers a tapestry rich in natural wonders, cultural heritage, and unique experiences. However, the tourism industry in East Kalimantan faces challenges such as the need for improved facilities and infrastructure [1]. Efforts to change the crisis of tourist confidence into collective certainty can be achieved by focusing on factors that influence tourist attractiveness, such as access to information, tourism facilities, value-added tourism, tourism tariffs, and market orientation [5]. Additionally, the satisfaction of visitors to tourist attractions, like Kumala Island, can be improved by addressing shortcomings in amenities [6]. The development of transportation infrastructure is also crucial to enhance accessibility to tourist sites and increase tourist visits [2]. By leveraging these strategies, East Kalimantan can position itself competitively and appeal to modern travelers [7]. This study focuses on evaluating the impact of IKN development on three key dimensions of the tourism sector in East Kalimantan: Increased Tourism Sector Competitiveness, Increased Tourist Revenue, and Increased Number of Tourism Visits.

The rationale for this study stems from the imperative to harness the transformative potential of IKN to propel East Kalimantan into a leading player in the global tourism arena. While the region has tremendous appeal, strategic investments in information and knowledge networks are required to unlock and strengthen its tourism appeal. Understanding the dynamics of this relationship will not only inform policy makers and local industry stakeholders, but also contribute to the broader discourse on the symbiosis between technological innovation and sustainable tourism development.

2. LITERATURE REVIEW

2.1 Tourism Sector Competitiveness

Tourism sector competitiveness is influenced by various factors such as destination attributes, marketing strategies, infrastructure, and the overall quality of the visitor experience [8]–[11]. These elements contribute to a destination’s ability to attract and retain visitors, giving it a competitive edge in the global tourism market [12]–[14]. The involvement of local authorities, tourism agencies, and the preservation of cultural-historical heritage also play a role in enhancing the competitiveness of tourist destinations [15]. Additionally, factors like price sensitivity, site maintenance, and entrepreneurial competency have been found to positively impact the competitive sustainability of small and medium enterprises in the tourism sector [16]. Effective destination management, including crisis management during events like the Covid-19 pandemic, is crucial for improving tourism destination competitiveness. Overall, understanding and addressing these determinant factors through organized and thorough destination management can contribute to the improvement of tourism destination competitiveness. The importance of regional competitiveness in tourism, suggesting that a region’s success is contingent upon its ability to differentiate itself from competitors. The strategic positioning of a destination within the broader competitive landscape is critical for sustained growth and resilience against external shocks [9], [17], [18].

2.2 Information Networks

Information and Knowledge Networks (IKN) play an important role in the contemporary tourism landscape. Advances in information technology have revolutionized the way tourists search, acquire, and share information [19]. IKN facilitates real-time communication, collaboration, and knowledge exchange, offering opportunities to enhance the
competitiveness of tourism destinations [20]. An effective online presence and strategic use of digital platforms significantly contribute to a destination's visibility and attractiveness, making IKN essential in destination marketing [21]. In addition, IKN encourages collaboration among stakeholders, enabling seamless coordination of tourism-related services and experiences [22]. By utilizing KPIs, tourism destinations can increase their competitiveness, attract more visitors, and provide better services and experiences to tourists [23].

2.3 Gaps in the Existing Literature
While existing literature provides valuable insights into the relationship between IKN and various dimensions of tourism, there is a discernible gap concerning the specific context of East Kalimantan. The unique cultural and natural assets of the region, coupled with the challenges and opportunities it faces, warrant an exploration of how IKN can be harnessed to unlock the full potential of its tourism sector.

3. METHODS
This research design adopts a quantitative approach to systematically examine the impact of Information and Knowledge Networks (IKN) on tourism sector competitiveness, tourist income, and the number of tourist arrivals in East Kalimantan. A cross-sectional study design was implemented, which allowed data collection at a specific point in time to capture the current state of IKN development and associated outcomes in the tourism sector.

The sampling strategy utilized stratified random sampling techniques to ensure representation of the diverse tourism destinations in East Kalimantan. The population was stratified by geographic location and type of tourism attraction, such as nature reserves, cultural heritage sites, and city centers. From each stratum, a proportionate number of samples were randomly selected to form the research sample. A sample size of 150 participants was targeted for this study. This sample size is considered sufficient for robust statistical analysis considering the resource and time constraints associated with data collection. Participants will include tourists, local businesses, and stakeholders directly involved in the tourism industry in East Kalimantan.

3.1 Data Collection Methods
A structured survey is the primary method of data collection. The survey questionnaire is designed to collect information on participants' perceptions of IKN development, its impact on tourism competitiveness, tourist income, and the number of tourist visits. The questionnaire will include closed-ended questions and Likert-scale questions to facilitate quantitative analysis.

3.2 Data Analysis
The collected data were analyzed using Structural Equation Modeling (SEM) with Partial Least Squares (PLS) as the estimation method. SEM-PLS was chosen due to its suitability in analyzing complex relationships among various variables, making it very suitable for the purpose of this study.

4. RESULTS AND DISCUSSION
4.1 Demographic Participants
The sample for this study consisted of 150 participants, including tourists, local businesses, and stakeholders actively engaged in the tourism industry in East Kalimantan. The demographic composition of the sample was diverse, encompassing various age groups, nationalities, and roles within the tourism sector. Tourists in the sample had an age range of 18-25 (15%), 25-40 (55%), 41-60 (25%), and 60+ (5%). The nationality of the tourists was Indonesian (40%) and international (60%). The purpose of their visit was primarily for leisure (70%), followed by business (15%) and other reasons (15%). Local businesses included accommodation providers (30%), transportation services (20%), tour operators (25%), and other types of businesses (25%). The stakeholders in the sample represented governmental bodies (40%), tourism boards (30%), and community organizations (30%).

Vol. 1, No. 03, March 2023: pp. 91-99
4.2 Measurement Model

Confirmatory Factor Analysis (CFA) results confirmed the reliability and validity of the measurement model, with all latent constructs showing high factor loadings. The Confirmatory Factor Analysis (CFA) results confirm the reliability and validity of the measurement model, as indicated by the loading factors, Cronbach’s Alpha, Composite Reliability, and Average Variance Extracted (AVE) for each latent construct. The items for the “IKN Development” construct exhibit high loading factors ranging from 0.882 to 0.937, indicating a strong relationship. The internal consistency, measured by Cronbach’s Alpha (0.905), surpasses the recommended threshold, signifying a high level of reliability. The Composite Reliability (0.940) further supports the reliability of the measurement model. The Average Variance Extracted (0.840) is above the acceptable threshold, demonstrating convergent validity. For the “Increasing Tourism Sector Competitiveness” construct, the loading factors are 0.889, 0.870, and 0.852, indicating a strong association. The internal consistency (0.798) meets the reliability criterion. The Composite Reliability (0.878) exceeds the acceptable threshold. The Average Variance Extracted (0.706) is above 0.5, demonstrating convergent validity. For the “Increasing Tourist Income” construct, the loading factors are 0.853, 0.795, and 0.826, demonstrating a strong relationship. The internal consistency (0.775) meets the reliability criterion. The Composite Reliability (0.865) surpasses the recommended threshold. The Average Variance Extracted (0.681) is above 0.5, indicating convergent validity. For the “Increasing the Number of Tourism Visits” construct, the loading factors are 0.837, 0.842, and 0.842, demonstrating a strong association. The internal consistency (0.840) meets the reliability criterion. The Composite Reliability (0.903) exceeds the acceptable threshold. The Average Variance Extracted (0.757) is above 0.5, indicating convergent validity. The high loading factors, satisfactory internal consistency, composite reliability, and adequate average variance extracted values collectively demonstrate the robustness and validity of the measurement model.

Table 1. Validity and Reliability Questionnaire

<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Loading Factor</th>
<th>Cronbach's Alpha</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKN Development</td>
<td>IKND.1</td>
<td>0.882</td>
<td>0.905</td>
<td>0.940</td>
<td>0.840</td>
</tr>
<tr>
<td></td>
<td>IKND.2</td>
<td>0.937</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IKND.3</td>
<td>0.931</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing Tourism Sector Competitiveness</td>
<td>INTV.1</td>
<td>0.889</td>
<td>0.798</td>
<td>0.878</td>
<td>0.706</td>
</tr>
<tr>
<td></td>
<td>INTV.2</td>
<td>0.870</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTV.3</td>
<td>0.852</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing Tourist Income</td>
<td>ITI.1</td>
<td>0.853</td>
<td>0.775</td>
<td>0.865</td>
<td>0.681</td>
</tr>
<tr>
<td></td>
<td>ITI.2</td>
<td>0.795</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITI.3</td>
<td>0.826</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing the Number of Tourism Visits</td>
<td>ITSC.1</td>
<td>0.837</td>
<td>0.840</td>
<td>0.903</td>
<td>0.757</td>
</tr>
<tr>
<td></td>
<td>ITSC.2</td>
<td>0.842</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITSC.3</td>
<td>0.842</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The positive and substantial correlation (0.756) between IKN Development and Increasing Tourism Sector Competitiveness suggests that as Information and Knowledge Networks (IKN) in East Kalimantan develop, there is a significant and favorable impact on the competitiveness of the tourism sector. The positive correlation (0.710) between IKN Development and Increasing Tourist Income indicates that as IKN in the region advances, there is a notable positive effect on the income generated by tourists. The positive correlation (0.655) between IKN Development and Increasing the Number of Tourism Visits suggests that as IKN advances, there is a positive impact on the overall number of tourist visits. The strong positive correlation (0.841) between Increasing Tourism Sector Competitiveness and Increasing Tourist Income indicates that as the competitiveness of the tourism sector in East Kalimantan improves, there is a substantial positive effect on the income generated by tourists. The positive correlation (0.756) between Increasing Tourism Sector Competitiveness and Increasing the Number of Tourism Visits suggests that as the tourism sector becomes more competitive, there is a positive impact on the overall number of tourist visits. The strong positive correlation (0.825) between Increasing Tourist Income and Increasing the Number of Tourism Visits indicates that as the income generated by tourists increases, there is a significant positive effect on the overall number of tourist visits.

Table 2. The Acceptability of Discrimination

<table>
<thead>
<tr>
<th></th>
<th>IKN Development</th>
<th>Increasing Tourism Sector Competitiveness</th>
<th>Increasing Tourist Income</th>
<th>Increasing the Number of Tourism Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKN Development</td>
<td>0.917</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing Tourism Sector Competitiveness</td>
<td>0.756</td>
<td>0.841</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing Tourist Income</td>
<td>0.710</td>
<td>0.814</td>
<td>0.825</td>
<td></td>
</tr>
<tr>
<td>Increasing the Number of Tourism Visits</td>
<td>0.655</td>
<td>0.647</td>
<td>0.752</td>
<td>0.870</td>
</tr>
</tbody>
</table>

4.3 Model Fit Assessment

Table 3. Model Fit

<table>
<thead>
<tr>
<th></th>
<th>Saturated Model</th>
<th>Estimated Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRMR</td>
<td>0.103</td>
<td>0.143</td>
</tr>
</tbody>
</table>

Figure 1. Internal Research Model
Fit indices provide an overview of how well a structural model fits the observed data. The SRMR measures the average absolute standardized difference between the observed and predicted covariance matrices, with a lower value indicating better fit. The $d_{ULS}$ represents the discrepancy function, with lower values indicating better fit. The $d_G$ compares the fit of the estimated model to the fit of the saturated model, with a lower value indicating better fit. The chi-square test assesses the difference between the observed and expected covariance matrices, with a non-significant chi-square suggesting good fit. The NFI compares the fit of the estimated model with a baseline model, with a higher value indicating better fit. In this case, the SRMR and $d_G$ values for the estimated model suggest reasonable fit, while the $d_{ULS}$ and chi-square values indicate some discrepancy between the model and the observed data. The NFI value for the estimated model is slightly lower than that of the saturated model, but still within an acceptable range.

### 4.4 Bootstrapping

Table 4. Hypothesis Tests Results

<table>
<thead>
<tr>
<th>Original Sample (O)</th>
<th>Sample Mean (M)</th>
<th>Standard Deviation (STDEV)</th>
<th>T Statistics</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>IKN Development -&gt; Increasing Tourism Sector Competitiveness</td>
<td>0.756</td>
<td>0.761</td>
<td>0.036</td>
<td>21.205</td>
</tr>
<tr>
<td>IKN Development -&gt; Increasing Tourist Income</td>
<td>0.710</td>
<td>0.718</td>
<td>0.040</td>
<td>17.685</td>
</tr>
<tr>
<td>IKN Development -&gt; Increasing the Number of Tourism Visits</td>
<td>0.655</td>
<td>0.658</td>
<td>0.060</td>
<td>10.945</td>
</tr>
</tbody>
</table>

Hypothesis testing using T-Statistics and P-Values is conducted to assess the significance of the paths in the structural model. The null hypothesis assumes that there is no significant relationship between the variables, while the alternative hypothesis posits a significant relationship. The T-Statistics of 21.205 is highly significant ($p < 0.001$), indicating that the path from IKN Development to Increasing Tourism Sector Competitiveness is statistically significant. The positive coefficient (0.756) aligns with the expectation that as IKN develops, there is a substantial positive impact on the competitiveness of the tourism sector in East Kalimantan. The T-Statistics of 17.685 is highly significant ($p < 0.001$), indicating that the path from IKN Development to Increasing Tourist Income is statistically significant. The positive coefficient (0.710) suggests that as IKN develops, there is a significant positive impact on the income generated by tourists in East Kalimantan. The T-Statistics of 10.945 is highly significant ($p < 0.001$), indicating that the path from IKN Development to Increasing the Number of Tourism Visits is statistically significant. The positive coefficient (0.655) suggests that as IKN develops, there is a significant positive impact on the overall number of tourist visits to East Kalimantan. The highly significant T-Statistics and low P-Values for all paths indicate strong support for the hypotheses. The positive coefficients for each path suggest that IKN Development has a positive and statistically significant impact on Increasing Tourism Sector Competitiveness, Increasing Tourist Income, and Increasing the Number of Tourism Visits in East Kalimantan. These findings align with the structural model and contribute to a robust understanding of the relationships between IKN development and key outcomes in the tourism sector. The results provide empirical evidence supporting the notion that strategic investment in Information and Knowledge Networks positively influences the fit of the saturated model, with a lower value indicating better fit. The chi-square test assesses the difference between the observed and expected covariance matrices, with a non-significant chi-square suggesting good fit. The NFI compares the fit of the estimated model with a baseline model, with a higher value indicating better fit. In this case, the SRMR and $d_G$ values for the estimated model suggest reasonable fit, while the $d_{ULS}$ and chi-square values indicate some discrepancy between the model and the observed data. The NFI value for the estimated model is slightly lower than that of the saturated model, but still within an acceptable range.

The highly significant T-Statistics and low P-Values for all paths indicate strong support for the hypotheses. The positive coefficients for each path suggest that IKN Development has a positive and statistically significant impact on Increasing Tourism Sector Competitiveness, Increasing Tourist Income, and Increasing the Number of Tourism Visits in East Kalimantan. These findings align with the structural model and contribute to a robust understanding of the relationships between IKN development and key outcomes in the tourism sector. The results provide empirical evidence supporting the notion that strategic investment in Information and Knowledge Networks positively influences
various dimensions of tourism in East Kalimantan.

The R-Square and Adjusted R-Square values are indicators of how well the model explains the variance in the dependent variables. R-Square represents the proportion of variance in the dependent variable that is explained by the independent variables. Adjusted R-Square considers the number of predictors in the model and adjusts R-Square accordingly.

Table 5. R Square

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
<th>R Square Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Tourism Sector Competitiveness</td>
<td>0.571</td>
<td>0.567</td>
</tr>
<tr>
<td>Increasing Tourist Income</td>
<td>0.504</td>
<td>0.500</td>
</tr>
<tr>
<td>Increasing the Number of Tourism Visits</td>
<td>0.430</td>
<td>0.425</td>
</tr>
</tbody>
</table>

The R-Square and Adjusted R-Square values are indicators of how well the model explains the variance in the dependent variables. R-Square represents the proportion of variance in the dependent variable that is explained by the independent variables. Adjusted R-Square considers the number of predictors in the model and adjusts R-Square accordingly. The R-Square values for Increasing Tourism Sector Competitiveness, Increasing Tourist Income, and Increasing the Number of Tourism Visits are 0.571, 0.504, and 0.430 respectively. The Adjusted R-Square values for these variables are 0.567, 0.500, and 0.425 respectively. These relatively high R-Square and Adjusted R-Square values suggest that the model, with IKN Development as the independent variable, effectively explains a significant proportion of the variability in the outcomes. The Adjusted R-Square values being only slightly lower than the R-Square values indicate that the model is not being overly optimistic due to the inclusion of predictors. These high R-Square values reinforce the importance of Information and Knowledge Networks in shaping the dynamics of the tourism sector in the region.

**DISCUSSION**

The observed positive and significant relationship between IKN development and tourism sector competitiveness is in line with existing literature, which emphasizes the role of IKN in improving destination marketing, visibility, and overall competitiveness. The positive and significant impact of IKN development on tourist income indicates that as IKN infrastructure improves, there is a significant increase in the income generated by tourists. This finding is in line with previous research highlighting the role of technology in shaping tourists' experiences and spending. The positive and significant relationship between the development of IKN and the number of tourist visits indicates that advances in information and knowledge networks contribute to an increase in the number of tourists to East Kalimantan.

The positive and significant relationship between the development of information and knowledge networks (IKN) and the competitiveness of the tourism sector is supported by existing literature, highlighting the role of IKN in destination marketing and overall competitiveness [24]. The positive and significant impact of IKN development on tourist income suggests that improvements in IKN infrastructure lead to increased income generated by tourists [25]. This finding aligns with previous research emphasizing the role of technology in shaping tourists' experiences and spending. Additionally, the positive and significant relationship between IKN development and the number of tourist visits indicates that advancements in information and knowledge networks contribute to an increase in tourist numbers [26]. These results support the idea that strategic investments in IKN can yield positive returns in terms of competitiveness, revenue, and visitation [20], [27].

**Practical Implications**

The positive relationships identified in this study carry practical implications for policy makers, tourism boards, and business people in East Kalimantan. The findings...
suggest that prioritizing the development of IKN can be a strategic move for sustainable tourism growth. Investments in technological infrastructure, digital marketing strategies, and collaborative IKN platforms can contribute to the overall success of the tourism sector in the region.

**Limitations and Future Research**

Recognizing some limitations such as the cross-sectional nature of this study and potential bias, future research could adopt a longitudinal design and expand this study to include more diverse tourism destinations. Despite these limitations, this study provides valuable insights into the impact of IKN on tourism outcomes in East Kalimantan.

5. **CONCLUSION**

In conclusion, this study provides compelling evidence of the positive impact of IKN development on the tourism sector in East Kalimantan. The robustness of the measurement model, coupled with significant path coefficients and high R-Square values, underscores the crucial role of information and knowledge networks in influencing tourism competitiveness, income, and visitation. The findings have practical implications for policymakers, businesses, and stakeholders, emphasizing the strategic importance of investing in IKN for sustainable tourism growth. Despite certain limitations, this research contributes valuable insights, setting the stage for future longitudinal studies and expanding the discourse on the intersection of information technology and tourism development. As East Kalimantan seeks to enhance its position in the global tourism market, leveraging and optimizing information and knowledge networks emerges as a key pathway for success.

**REFERENCES**


