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Strategic advancements in tourism development in Indonesia: Assessing the impact of facilities and services using the PLS-SEM approach

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ABSTRACT

The main problem with Indonesian tourism today is the decline in the system of facilities and services that contribute to increasing tourist attractions, tourist experiences, and local economic growth. Therefore, the aim of this research is to develop a collaboration model to identify facility and service factors that influence effectiveness in tourism development. This study employs quantitative methods, utilizing purposive sampling to select small and medium enterprises (SMEs) situated in the vicinity of tourist areas. The associations among individual variables within the research model are analyzed through Partial Least Squares – Structural Equation Modeling (PLS-SEM). The research results show that spatial factors, safety and security, location, transportation, power sources, telecommunication, hospitality, promotion, clean water sources, waste management, and supporting industries positively and significantly influence tourism development. Stakeholders can focus more on planning and managing facilities and services. By paying attention to the identified factors, it is possible to increase operational efficiency and effectiveness more precisely to advance sustainable tourism development.

1. Introduction

The tourism sector encompasses diverse activities across interconnected business domains aimed at providing the products and services required by tourists [1]. Tourism has been proven to significantly impact job creation, expanding sources of income, and encouraging valuable cultural exchanges among global communities [2], [3]. Various countries around the world, such as Vietnam [4], China [5], Turkey [6], Thailand, Malaysia, Italy, and Japan [7], have demonstrated a commitment to developing tourism as one of the key sectors in economic growth and cultural promotion. These efforts aim to attract international tourists and promote local economic growth [8].

In recent years, tourism has become one of Indonesia's leading sectors for improving the country's economy [9]. Indonesia, a developing country, has great potential in tourism. The number of foreign tourist visits to Indonesia in January 2024 reached 927,746, consisting of 760,036 visits (81.93%) through immigration registration and 167,710 visits (18.07%) through Mobile Positioning Data recording at border entrances. This figure shows a growth of 16.19% compared to January 2023, which amounted to 798,469 visits [10]. This data confirms that the tourism industry has great potential and plays an essential role in the Indonesian economy. The growth in the number of tourists reflects increased interest in tourist destinations in Indonesia, which can encourage investment in this sector. Additionally, the economic contribution of tourism is significant, providing employment opportunities in various sectors such as hospitality, transportation, and other tourism services [8], [9]. Tourism also helps diversify the economy, reduce dependence on specific sectors, and encourage local economic growth. Therefore, the development and support of the tourism industry are significant for the growth and sustainability of the Indonesian economy [9].

Indonesian state leaders have asked all ministries to support tourism development through central and regional government regulations [11]. Stakeholders have made various efforts to ensure the success of tourism development programs, thereby increasing tourist attractions, enhancing tourist experiences, and

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promoting local economic growth. Stakeholders encompass diverse entities engaged in mutual interactions, collectively contributing value throughout fostering, sustaining, and advancing the tourism industry [12], [13], [14]. These stakeholders include the government, developers, communities, institutions managing tourism areas, investors, and other industry parties. However, stakeholders face challenges in developing tourism, such as increasing tourist demand, changing travel patterns, and sustainability demands, which also influence tourism development.

In attracting attention and providing unique tourist experiences, facilities and services are increasingly important in developing the tourism industry [15], [16], [17]. The effectiveness of these facilities and services in supporting and encouraging the growth of the tourism sector remains an important area of research and investigation. Good facilities will influence the image of a tourist destination. Research from Štekerová et al. explains the role of infrastructure and facilities in tourism development and management. The research results show that psychological carrying capacity, quality of facilities, and infrastructure influence tourist attraction and visitor satisfaction [18]. Additionally, research from Zhuang et al. shows that significant investment in facilities and infrastructure contributes to increasing tourist visits and expenditure and encourages economic growth in tourist areas [19]. This demonstrates that good facilities and services can influence tourists' perceptions of tourism.

With the availability of adequate facilities, tourists tend to support and benefit from tourism development. Infrastructure investments that support tourism can also provide social and welfare benefits for local communities [7]. Quality facilities and infrastructure can improve residents' quality of life by creating jobs and providing better services. The research of Seetanah et al. [20] and Barman et al. [21] shows that facilities, especially telecommunications and transportation, make a positive contribution, although at a lower level than other classical determinants, to tourism development in the short and long term. Hospitality, supporting industries, spatial planning, and location positively affect the country's tourism industry [14]. In developing a sustainable tourism industry, the factors of power source, waste management, and clean water sources are highly considered by stakeholders.

Safety and security factors also influence tourists' decisions to visit a destination. A safe and secure environment provides a sense of comfort for visitors [22]. Effective and strategic promotional efforts are needed to attract tourist interest and help develop tourism [23]. A strong marketing campaign can help increase awareness about a destination and its attractions [23]. By understanding and managing supporting system facility factors well, tourism development can run better and sustainably, providing positive benefits for destinations and local communities.

Current problems and challenges in the tourism industry include ineffective and inadequate facilities and services, especially in Indonesia. The absence of adequate infrastructure, such as transportation, hotels, and location, can hinder tourists' accessibility to destinations [9]. Difficulty in accessing a destination can reduce tourist interest. Lack of training or service standards, such as promoting safety and security, can also result in negative tourist experiences and damage a destination's reputation. Tourists highly value cleanliness in tourism, expecting areas to be free of rubbish. Therefore, clean water sources and effective waste management are crucial in maintaining the cleanliness of the environment around tourism areas [9]. Research by Han et al. [24] demonstrates that reducing and recycling waste can positively influence social communities and tourists.

Measuring the system of facilities and services in tourism development, including aspects such as telecommunications, clean water sources, transportation, waste management, electricity sources, hotels, locations, supporting industries, safety and security, promotions, and spatial planning, is undeniably urgent in encouraging tourism development. Facilities and services are the backbone of improving tourist experiences and overall sector growth. Research by Achmad et al. [9] indicates that supporting system facilities can enhance the tourism industry's performance. In a continually developing and dynamic global era, this research provides deep insights into approaching tourism development sustainably and with a quality-focused perspective [25]. From ensuring seamless digital connectivity to providing sustainable energy sources, every aspect of facilities and services plays a crucial role in attracting tourists, driving economic growth, and protecting the environment and cultural heritage [26]. By formulating strategies and practical steps based on the results of this research, stakeholders can shape the future of the tourism industry in an inclusive, innovative, and sustainable manner, offering positive benefits for destinations, local communities, and industry players, ensuring sustainability for future generations [27].

Based on previous research [20]-[27] regarding the importance of facilities and services for developing the tourism industry, each factor of the supporting system facilities can support tourism development. To the best of the researchers' knowledge, no research has ever been conducted that measures facilities and services while supporting tourism development. For this reason, this research will identify and measure facilities and services in tourism development with large-scale tourism industry objects.

The analysis of the measurement of facility and service factors on the development of the tourism industry was carried out in a formative manner. These aspects will fill the research gaps from previous studies. Therefore, this study makes a significant contribution to tourism development by presenting a comprehensive model and encouraging sustainable development. The research model produced in this study shows the relationship between the influence of facility and service factors on tourism development. Additionally,

this research provides insight to stakeholders in making strategies and policies regarding how significant facility and service factors are in tourism development. This will contribute to fostering sustainable growth in tourism and advancing sustainable economic and social development.

2. Material and method

This section explains the research framework. In this research, a model was developed to identify critical factors that influence the effectiveness of facilities and services on tourism development. The research model delineates the interplay between facility and service factors and their impact on the progression of the tourism sector. Furthermore, this study offers valuable insights to stakeholders, aiding in the formulation of strategic initiatives and policies regarding the influence of facility and service factors on tourism advancement.

2.1. *Research framework*

The study adopts a quantitative research approach, focusing on examining the interrelations among variables related to facilities and services within tourism development. Appropriate facilities and services not only provide comfort for tourists but also play a crucial role in determining a destination's attractiveness, enhancing the tourist experience, and supporting local economic growth. Facility and service factors include telecommunications (TL), clean water sources (CW), transportation (TP), waste management (WM), power sources (PS), hospitality (HT), location (LT), supporting industries (SI), safety and security (SS), promotion (PM), and spatial planning (ST). The research framework is delineated in Fig. 1 for clarity of representation.

2.2. *Target population and sampling procedure*

This study focuses on Small and Medium Enterprises (SMEs) located near tourist destinations. The decision to involve SMEs as participants in research on developing the tourism industry is based on their crucial role in nurturing the sector. SMEs significantly contribute by offering distinct and diverse products, services, and tourist experiences [28]. The selection of sample units is purposeful, targeting those deemed most relevant and representative. The characteristics of SME participants are meticulously chosen, considering factors such as geographical location, workforce size, and the nature of the SME. By delving into the specifics of respondents within the context of SMEs located in tourist-centric areas, this study aims to provide precise and reliable insights into the state of the tourism sector [29]. These SMEs, representing various creative sectors in Indonesia, are situated in the Rembang Regency, Central Java — an epicenter for tourism-related activities.

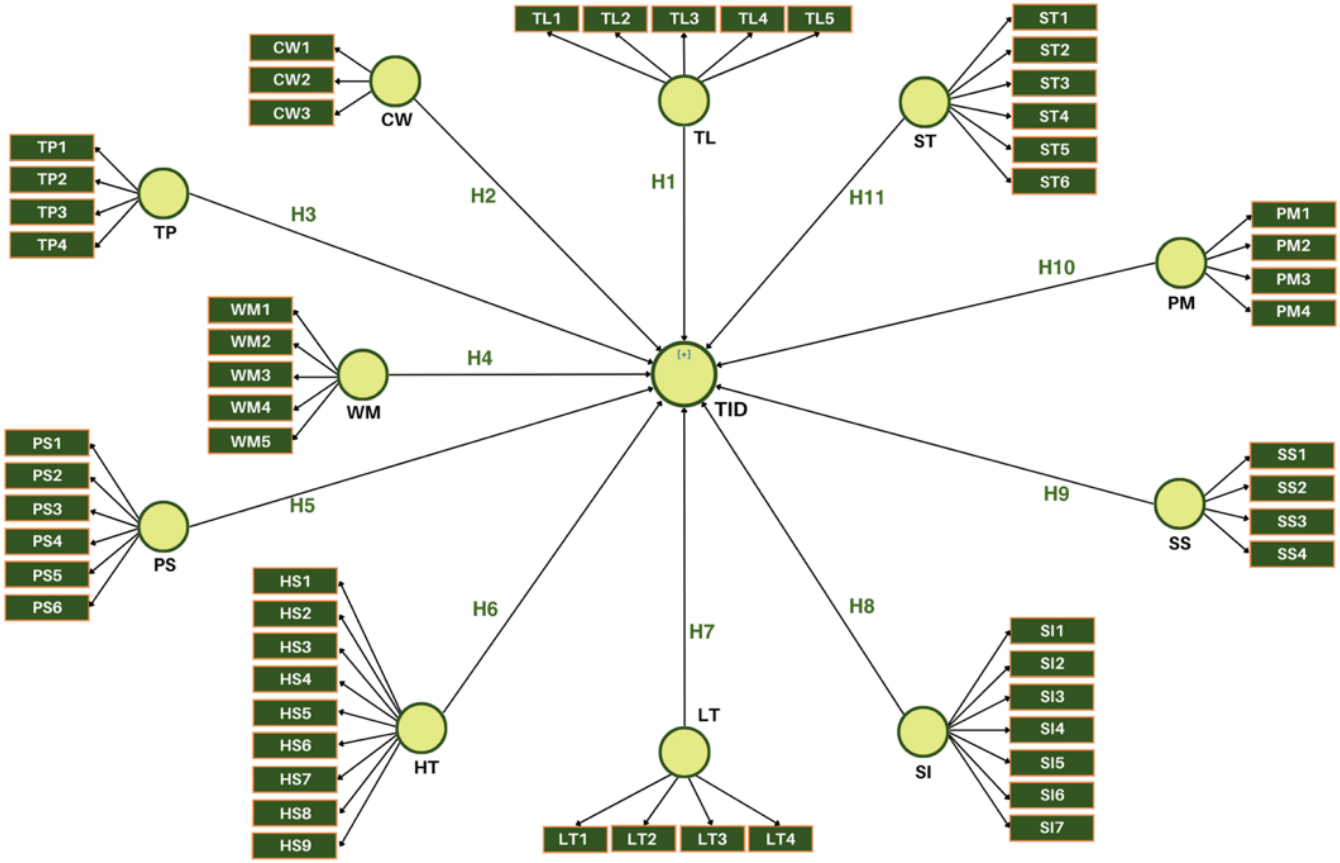

Figure 1. Research framework

Table 1.
Characteristic of respondent

Measure	Category	Frequency	(%)
Gender	Male	174	85.71%
	Female	29	14.29%
Age of SMEs (years)	1 – 10	41	20.20%
	11 – 20	95	46.80%
	21 – 30	36	17.73%
	31 – 40	22	10.84%
	≥ 40	9	4.43%
Respondent's Age (years)	< 20	15	7.39%
	20 – 25	65	32.02%
	26 – 30	36	17.73%
	31 – 35	34	16.75%
	36 – 40	23	11.33%
	≥ 40	30	14.78%
Type of SMEs	Food and beverage	59	29.06%
	Craft	43	21.18%
	Transportation and accommodation	33	16.26%
	Fashion clothing	43	21.18%
	Market for antique	4	1.97%
	Art and performing	21	10.34%
Number of Workers (workers)	< 5	27	13.30%
	6 - 10	28	13.79%
	11 - 15	46	22.66%
	16 - 20	73	35.96%
	21 - 25	21	10.34%
	≥ 25	8	3.94%
Product Sales Region	Nasional	196	97%
	Global	7	3%

The application of purposive sampling techniques enabled the collection of information from 203 SME leaders using a 6-point Likert scale, with even numbers used to avoid biased answers. The scale ranged from 1 for "strongly disagree" to 6 for "strongly agree" [30]. Following the guidelines by Hair et al. [30], the sample size drawn from the population needed to be ten times the number of variables employed in the analysis design, with a minimum threshold of 110 samples. Respondents received guidance and support during the questionnaire completion process to ensure a high completion rate. The demographic characteristics of the research participants are presented in Table 1.

2.3. Target population and sampling procedure

In contemporary statistical analyses, various sophisticated software tools support multivariate investigations, with Structural Equation Modeling (SEM) emerging as a particularly pertinent technique. PLS-SEM is the chosen analytical approach for data processing and model evaluation, justified based on four considerations outlined by Hair et al. [30]. Firstly, PLS-SEM demonstrates robustness and utility in estimating intricate models encompassing numerous constructs and indicators. Secondly, its resilience to small sample sizes is noted, as the approach evaluates individual constructs sequentially through iterative ordinary least squares ordering and multiple linear regression. Thirdly, the parametric tests utilized effectively address potential data abnormality issues. Fourthly, the aptness of PLS-SEM is emphasized for examining relationships between variables in research that spans exploratory, advanced, or hybrid stages.

PLS-SEM serves as a statistical instrument for testing models, comprising two distinct phases: the measurement and structural model. The evaluation of the measurement model focuses on verifying the reliability and validity of the measurement instrument. Simultaneously, the examination of the structural model explores the connections between dependent and independent variables, adhering to the framework established by Hair et al. [30]. In the assessment of the measurement model, various essential criteria are examined, including reliability (Composite reliability and Cronbach's alpha), validity (Average Variance Extracted), and discriminant validity [29].

3. Results and discussions

3.1. Measurement model

In evaluating the measurement model, the initial criterion indicates that each construct's Cronbach's alpha exceeds 0.6, and the composite reliability surpasses 0.7, suggesting commendable internal consistency. The second criterion, derived from the assessment outcomes, reveals that all indicator outer loading values meet the stipulated criteria, with none falling below 0.4. This outcome underscores the measurement model's reliability, consistency, and validity. The third criterion necessitates that the value of each construct within the model surpasses the threshold of 0.5, affirming the fulfillment of these criteria [30].

Table 2.
Measurement model assessment

Measuring instrument	Indicator	Outer loading	Cronbach's alpha	Composite reliability	AVE
Telecommunication (TL)	TL2	0.767	0.754	0.856	0.666
	TL4	0.844			
	TL5	0.835			
Clean Water Sources (CW)	CW1	0.817	0.774	0.869	0.689
	CW2	0.860			
	CW3	0.812			
Transportation (TP)	TP1	0.786	0.740	0.852	0.658
	TP2	0.863			
	TP4	0.782			
Waste Management (WM)	WM1	0.769	0.840	0.886	0.609
	WM2	0.749			
	WM3	0.780			
	WM4	0.782			
	WM5	0.819			
Power Source (PS)	PS1	0.763	0.817	0.871	0.576
	PS2	0.737			
	PS3	0.740			
	PS4	0.727			
	PS6	0.824			
Hospitality (HT)	HT3	0.783	0.835	0.882	0.601
	HT4	0.810			
	HT5	0.793			
	HT6	0.744			
	HT9	0.743			
Location (LT)	LT1	0.851	0.736	0.848	0.650
	LT2	0.790			
	LT3	0.776			
Supporting Industry (SI)	SI2	0.808	0.829	0.879	0.593
	SI3	0.748			
	SI4	0.776			
	SI5	0.728			
	SI6	0.789			
Safety and Security (SS)	SS1	0.720	0.758	0.846	0.579
	SS2	0.782			
	SS3	0.770			
	SS4	0.771			
Promotion (PM)	PM2	0.773	0.725	0.845	0.645
	PM3	0.804			
	PM4	0.832			
Spatial (ST)	ST1	0.768	0.752	0.843	0.574
	ST2	0.736			
	ST3	0.796			
	ST5	0.728			
Tourism Development (TD)	TD1	0.799	0.774	0.855	0.597
	TD2	0.836			
	TD3	0.772			
	TD5	0.675			

The outcomes of evaluating the first, second, and third criteria of the measurement model are presented in Table 2. Likewise, concerning the fourth criterion, the Fornell-Larcker value associated with each construct variable surpasses the highest value compared to other tested constructs, indicating the effective predictability of each indicator by its corresponding construct variable. This adherence to the specified criteria assures the discriminant validity of each construct [30]. At this stage, the tests carried out have the main objective of checking whether the measurement model that has been designed meets the standards of reliability and validity. The results indicate that the measurement model has proven to be reliable, meaning that the measurement tools used are dependable in measuring the existing variables [30]. Moreover, these tests reveal that the models meet convergent validity, indicating they consistently measure the same construct. Therefore, the analysis can proceed to the next stage in statistical analysis to identify relationships between variables and test the structural model that has been designed.

3.2. Structural model

The examination of the structural model involves a thorough scrutiny of the measurement model to ensure data reliability and validity. This comprehensive assessment includes the detection of multicollinearity, a factor known to influence estimation accuracy and significance.

Table 3.
Values of VIF and the presence of multicollinearity

Relationship	VIF	Remark
CW → TID	2.174	No collinearity
HT → TID	2.168	No collinearity
LT → TID	1.000	No collinearity
PM → TID	1.896	No collinearity
PS → TID	1.081	No collinearity
SI → TID	2.309	No collinearity
SS → TID	1.000	No collinearity
ST → TID	1.000	No collinearity
TL → TID	1.120	No collinearity
TP → TID	1.000	No collinearity
WM → TID	2.252	No collinearity

Multicollinearity is identified through the computation of the Variance Inflation Factor (VIF), which indicates the degree to which the variance of the regression estimator coefficient increases when correlated with orthogonal independent variables. A VIF exceeding 5.00 signifies the presence of collinearity. However, the analysis of multicollinearity within the measurement models indicates the absence of such issues, as presented in Table 3. Subsequently, the significance of the structural model relationship is assessed based on the values of path coefficients and T-statistics. The testing method employed is bias-corrected and accelerated bootstrap, utilizing a two-tailed test with a predefined significance level of 0.05. Accelerated bootstrap facilitates the rapid generation of numerous bootstrap samples, aiding in the estimation of the sampling distribution of model parameters . The bootstrapping process for testing the study's structural model involves 5,000 subsamples. Consequently, Table 3 displays the results of the path coefficients for each variable in the structural model, with all of them considered statistically significant ($p \leq 0.05$).

Table 4.
Significance of structure relationship

Hypothesis		Path coefficient	*T*-statistic	*p*-value	Conclusion
H1	TL → TID	0.587	6.519	0.000	Supported
H2	CW → TID	0.486	5.667	0.003	Supported
H3	TP → TID	0.745	8.656	0.000	Supported
H4	WM → TID	0.393	5.102	0.022	Supported
H5	PS → TID	0.716	7.574	0.000	Supported
H6	HT → TID	0.565	7.713	0.000	Supported
H7	LT → TID	0.751	17.938	0.000	Supported
H8	SI → TID	0.349	5.258	0.025	Supported
H9	SS → TID	0.773	17.854	0.000	Supported
H10	PM → TID	0.549	6.993	0.000	Supported
H11	ST → TID	0.941	55.137	0.000	Supported

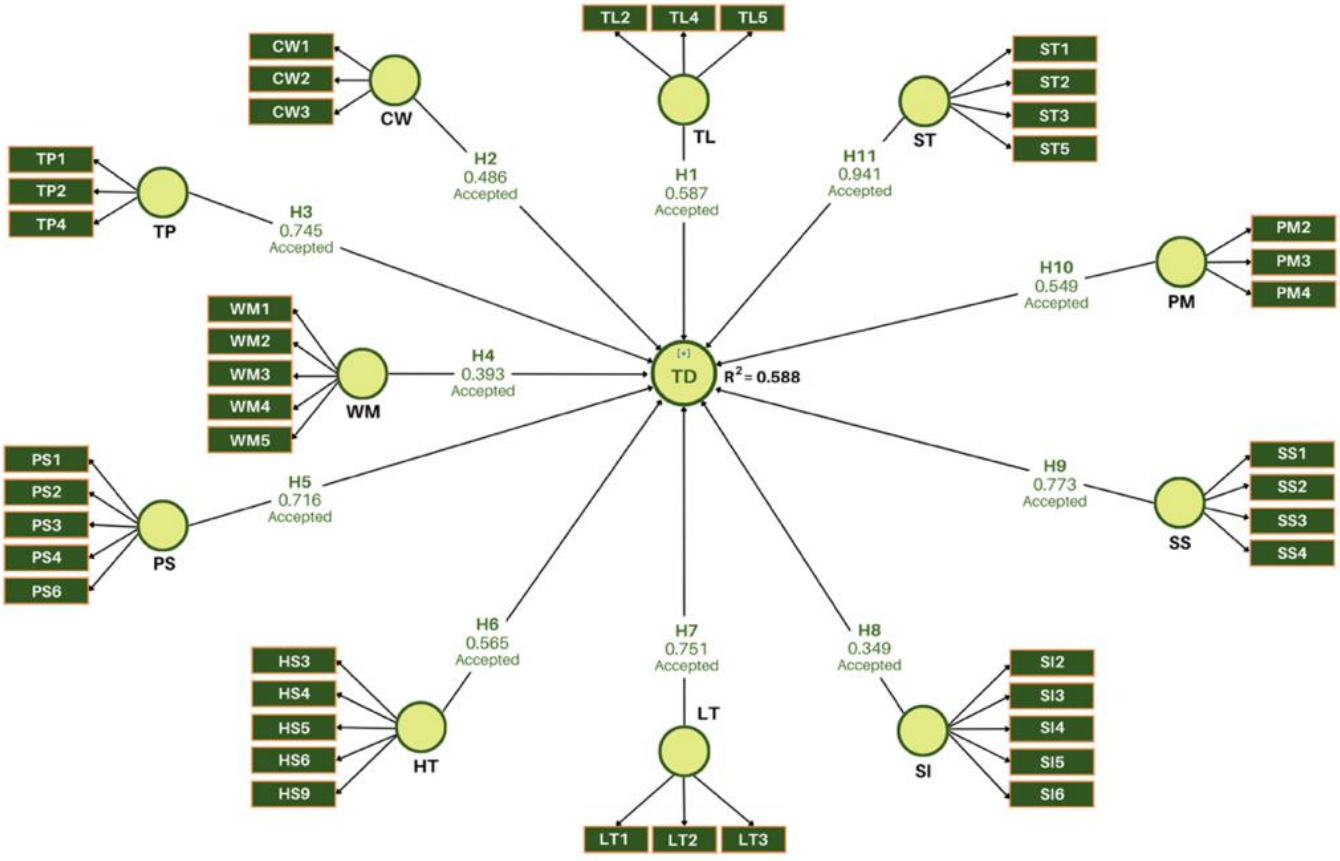

Figure 2. Structural model relationship

Table 5.
f^2 value

No	Construct	f^2 value
1	CW → TD	0.276
2	HT → TD	0.215
3	LT → TD	0.229
4	PM → TD	0.376
5	PS → TD	0.170
6	SI → TD	0.133
7	SS → TD	0.217
8	ST → TD	0.292
9	TL → TD	0.151
10	TP → TD	0.273
11	WM → TD	0.125

Table 6.
Q^2 value

No	Construct	Q^2 value
1	TD	0.317

Based on Table 4, it can be explained that there are eleven hypotheses. The results of evaluating the significance of the structural model of this research show that the eleven hypotheses have a significant relationship to tourism industry development. This indicates that, based on data collected in the tourism industry in Rembang Regency, all compiled hypotheses are influential and significant in supporting the development of the tourism industry. The order of significance level of the facilities and services variables on tourism development is as follows: spatial, safety and security, location, transportation, power sources, telecommunication, hospitality, promotion, clean water sources, waste management, and supporting industries. This model can be seen in Fig. 2.

In assessing the structural model in Fig. 2, it is crucial to examine the coefficient of determination (R^2) value to ascertain the significance and association of each path established with the TD dimensions. The R^2 and path coefficient values provide insights into how effectively the data supports the proposed model. Hair et al. suggested that an R^2 value exceeding 0.5 indicates a meaningful correlation among these dimensions, elucidating the construct effectively. Notably, the TD variable exhibits an R^2 value of 0.588 based on the correlation coefficient, affirming a robust correlation with its constituent dimensions.

After explaining the results of the previous structural model analysis, a research model will be introduced, outlining the structural connections among all hypotheses exhibiting a significant relationship with both the dependent and independent variables.

In Fig. 2, all variables demonstrate a significant interrelationship within the model. Furthermore, it is imperative to assess the magnitude of the influence between variables through the utilization of effect size (f^2). The f^2 value gauges the proportion of variance elucidated by the latent variable relative to the total variance of the dependent variable. A higher f^2 value signifies a more substantial contribution of the latent variable in explaining the variance within the dependent variable. An f^2 value below 0.02 indicates an exceedingly weak contribution, while a range of 0.02 to < 0.15 suggests a contribution that is weak to moderate. A value falling within the range of 0.15 to < 0.35 indicates a moderate to strong contribution, and an f^2 value ≥ 0.35 signifies a very strong contribution. According to Hair et al., an f^2 value below 0.02 can be disregarded or considered as having a negligible impact. In the current study, all constructs exhibit an f^2 value exceeding 0.02, implying the absence of weak contributions for each construct. The detailed results of the effect size, or f^2 value analysis, in this study are presented in Table 5.

Furthermore, evaluating the Q^2 value is essential, as it functions as an indicator of the predictive relevance of the model. A Q^2 value exceeding 0 signifies that the model holds predictive relevance for endogenous constructs, while a Q^2 value below 0 suggests a lack of predictive relevance for the endogenous construct. The Q^2 value for the tourism industry development construct in the structural model surpasses 0, and the specific Q^2 value for this study is detailed in Table 6.

A diverse array of facilities and services enables destinations to cater to various budgets and preferences, expanding business opportunities. According to the The Ministry of Public Works and Public Housing of the Republic of Indonesia or Kementerian Pekerjaan Umum dan Perumahan Rakyat Republik Indonesia (PUPR RI), infrastructure development in Super Priority Destinations (DSP) should be executed comprehensively through a development master plan. This inclusive strategy includes activities such as road construction, urban planning, the supply of clean and raw water, sanitation enhancement, waste management, destination upgrades, and residential area development. The Indonesian government prioritizes the initial enhancement of the tourism industry, focusing on infrastructure, amenities, events, and extensive promotions.

In Rembang Regency, facilities and services play a pivotal role in crafting a positive and sustainable visitor experience, enhancing the tourism industry's competitiveness in a dynamic market. Moreover, these facilities and services hold the potential to mitigate the negative environmental impact of the tourism sector by fostering the adoption of more efficient and eco-friendly technologies and practices, encompassing waste management, clean water sources, and power sources.

3.3. Discussions

The tourism industry is currently the focus of increasingly intensive research for various reasons, including a country's economic and social development. Studies within the realm of the tourism sector aspire to enhance and foster the industry

comprehensively. The implementation of management practices and strategic initiatives is imperative to bolster operational efficiency and efficacy. Additionally, fostering innovation within the tourism sector is crucial. Hence, the objective of this research is to discern the pivotal factors impacting the progression of Indonesia's tourism industry. The research model crafted in this study delineates the interplay between support system facility factors and their influence on the advancement of the tourism sector.

The Rembang Regency was chosen as the object because it has significant tourism potential and can be developed. Besides that, Rembang Regency, Central Java, Indonesia, also has many villages that can be integrated into tourism development [9]. The selection of Rembang Regency, Central Java, Indonesia, as an object for tourism industry research, will significantly contribute to understanding and developing the tourism industry in the area. This can also provide valuable insight for stakeholders in sustainably advancing tourism. The selection of research respondents used a purposive sampling technique with the criteria of SMEs scattered around the tourist area. The significance of SMEs in the tourism sector is substantial, as they contribute to the diversification of products and services within tourist destinations. Furthermore, SMEs play a vital role in enhancing the attractiveness of tourism destinations, augmenting regional income, and preserving local cultural heritage. Additionally, SMEs are instrumental in elevating service standards and fostering creativity and innovation within the tourism industry. Given the multifaceted benefits encompassing economic, environmental, and social welfare aspects, the advancement of the tourism industry has emerged as a paramount agenda for numerous nations.

Hypothesis 1 shows a positive relationship between telecommunication and tourism development (β = 0.587; $p \leq 0.05$). These results support the findings of Seetanah et al. [20], who stated that the increase in internet broadband access has increased the attractiveness of their tourist destinations. Increased accessibility of information through telecommunications has made it easier for tourists to plan their trips, so increases in cellular subscriptions, secure Internet servers, and fixed broadband subscriptions have a greater positive impact on tourist arrivals [20]. Telecommunication has developed very fast. This is now an unavoidable need for people with a high level of mobility, especially tourists in Rembang Regency, Central Java, Indonesia. Currently, the communication infrastructure covers the entire area of the Rembang Regency. Several telecommunication towers already operating and have received permits in the tourism sector can provide significant support for developing the tourism industry in Rembang Regency.

Hypothesis 2 demonstrates a positive correlation between the availability of clean water sources and the advancement of tourism development (β = 0.486; $p \leq$ 0.05). Enhancing infrastructure, particularly the establishment of networks and ensuring access to clean water, is conducive to the development of mangrove ecotourism. The availability of clean water in Rembang Regency, especially in the tourism area, will autonomously manage water sources. This involves collaborating with water providers to meet the needs of the industrial sector, creating a comprehensive water management system, and forging partnerships with water service providers.

Hypothesis 3 shows that transportation has a positive and significant relationship with tourism development (β = 0.745; $p \leq 0.05$). This is in line with research from Dalimunthe et al. [38], which describes how transportation infrastructure, especially high-speed rail, can increase accessibility to tourism destinations, open opportunities for the growth of the tourism industry, and increase the number of tourist visits. Transportation and the added value of hotel and catering services have a strong positive relationship with tourism development. In Rembang Regency, Central Java, Indonesia, many bus services connect in various directions, including between cities and provinces. Although land transportation like this is available, there are challenges related to the availability of transportation around Rembang Regency, which can be difficult to find. However, there is great potential to improve this transport infrastructure to support the development of the tourism industry in the region.

Hypothesis 4 indicates a positive and statistically significant correlation between waste management and tourism development (β = 0.393; $p \leq 0.05$). Empirical research conducted by Achmad et al. [9] examined the association between tourism development and environmental compatibility, proposing a framework for sustainable tourism industry practices. This study found that the growth and development of tourism generate economic activity on the one hand, but on the other hand, it also hurts the environment and socio-culture [32], [33]. Government policies and support also significantly moderate the relationship between tourism development and growth and environmental factors.

Hypothesis 5 shows that power sources positively and significantly affect tourism development (β = 0.716; $p \leq 0.05$). Electricity demand management is a key factor in tourism development, and its efficiency can be improved through forecasting and monitoring. In addition, clean energy sources such as renewable energy can help mitigate environmental pollution due to tourism activities. Tourists, especially in Rembang Regency, need electricity for lighting or charging their cell phones. Therefore, having a clean and reliable energy source in tourism development is important to support sustainable tourism practices and enhance the overall tourism experience.

Hypothesis 6 shows that hospitality positively and significantly affects tourism development (β = 0.565; $p \leq 0.05$). Hospitality creates a positive image of the tourism industry, which can attract more tourists and improve the local economy. Hospitality provides a comfortable place to live and accommodation for tourists visiting Rembang Regency [33]. The existence

of good hospitality can be an attractive factor for tourists to visit destinations in Rembang Regency [14], [35]. The more accommodation options available, the greater the opportunity to attract tourists. This creates comfort and convenience for them to explore local tourist destinations. In addition, hospitality can also help create jobs and improve the standard of living of local communities [36].

Hypothesis 7 shows that location positively and significantly affects tourism development (β = 0.751; $p \leq 0.05$). This means that location is very important in developing the tourism industry. Research from Achmad et al. [9] mapped the potential of the tourism industry in Rembang Regency by conducting clusters and segmentation based on infrastructure and facilities, especially location. In addition, in the regulatory directives and speeches by the president of Indonesia, he always emphasized in detail six crucial points to be addressed in each super-priority destination, including location, spatial planning, and control.

Hypothesis 8 shows that the supporting industry positively and significantly affects tourism development ($\beta = 0.349$; $p \leq 0.05$). This is in line with several studies which state that investment in supporting industries that adopt environmentally friendly practices has a positive and significant impact on the development of sustainable tourism in tourism destinations [37]. With the growth of the industrial sector around tourist areas such as souvenir centers, which offer comfortable facilities for tourists, as well as restaurants serving delicious Central Javanese dishes, this industry has enriched the experience of tourists visiting Rembang Regency, Central Java. In doing so, these supporting industries provide a strong foundation for the growth of the tourism industry, create jobs, and increase local revenues while promoting existing cultural and natural wealth.

Hypothesis 9 demonstrates a positive and statistically significant relationship between safety and security and tourism development ($\beta = 0.773$; $p \leq 0.05$). The perceptions of safety and security play a crucial role in shaping tourist behavior within destinations. In addition, destinations that are considered safe tend to be more attractive to tourists, which has the potential to increase tourist visits and tourism revenues. Most tourists in Rembang Regency prefer to pay more to increase security. While additional security measures may incur additional costs, they can also increase tourist confidence and, ultimately, tourism's contribution to the local economy.

Hypothesis 10 shows that promotion positively and significantly affects tourism development ($\beta = 0.549$; $p \leq 0.05$). The results show that effective promotion can increase tourist visits to a destination [38], [39]. This means that the best tourist destinations in Rembang Regency are, if there is no promotion, will not be exposed to the public. The government of Rembang Regency frequently participates in regional or national tourism fairs to promote their destinations to potential tourists and tourism industry stakeholders.

Hypothesis 11 reveals a significant positive relationship between spatial factors and tourism development ($\beta = 0.941$; $p \leq 0.05$). Spatial variables exert the most profound influence on the progression of tourism development. Elements such as spatial management, natural landscapes, architectural aesthetics, and well-designed urban planning serve as primary attractions for tourists. Additionally, research conducted by Wulung et al. [40] underscores the contribution of the spatial model of tourism destinations in the development of parks to foster sustainable regional growth. The socio-economic landscape, industrial infrastructure, transportation accessibility, and the tourism market play pivotal roles in shaping the spatial distribution of attractions and points of interest within Rembang Regency. A comprehensive understanding of these factors aids stakeholders in tourism development in devising and implementing strategies tailored to the preferences and demands of tourists in Rembang Regency, Central Java, Indonesia. Hence, incorporating spatial considerations into the planning and development of tourism offerings is imperative to ensure sustainable tourism practices [41].

Apart from that, support system facilities play a key role in maintaining and improving the sustainability of the tourism sector with three main aspects: economic, social, and environmental [42]. First, from an economic perspective, infrastructure such as efficient transportation and quality accommodation can increase potential income from tourism. It creates local economic opportunities by creating jobs, encouraging the growth of local businesses, and increasing the income of local communities [43]. On the other hand, from a social perspective, support system facilities create interactions between tourists, tourism industry players, communities, and local people. Finally, regarding the environment, sustainable facilities, such as wise waste management and environmentally friendly energy use, help protect natural resources and prevent environmental degradation that could damage tourism's appeal. In this way, support system facilities help maintain tourism sustainability by providing economic and social benefits and maintaining environmental balance.

3.4. Strategy for tourism development

Based on the results of this research, in the context of tourism development in Rembang Regency, government stakeholders need to design practical strategies that can be implemented effectively. The following are some practical strategies that can be adopted:

a. Spatial: Planned spatial planning. Stakeholders can prepare a structured spatial plan to optimize the spatial use of tourism potential. This includes identifying areas with high tourism potential and developing them according to established spatial plans.

b. Safety and security: Increased patrols and surveillance. Stakeholders can enhance security at

tourist destinations by increasing the frequency of patrols by security officers. CCTV monitoring systems can also be installed in strategic areas to monitor activities and respond quickly if unwanted incidents occur.

c. Location: Development of tourism facilities in superior locations. Stakeholders can identify locations with high potential and focus on developing tourism infrastructure and facilities in these locations. This includes constructing parking lots, public toilets, rest areas, and other supporting facilities to improve the tourist experience.

d. Transportation: Development of transportation infrastructure. Stakeholders must focus on developing adequate transportation infrastructure to facilitate accessibility to tourism destinations. This includes improving and expanding the road network, enhancing public transport services, and facilitating safe and orderly parking.

By implementing these practical strategies, government stakeholders can accelerate tourism development in Rembang Regency while ensuring sustainability and safety for tourists and local communities.

3.5. Theoretical implication

The theoretical implication of this research is that proper planning and management of facilities and services can increase operational efficiency and effectiveness in developing sustainable tourism. By paying attention to the factors that have been identified, stakeholders can focus on collaborative strategies that can increase the competitiveness of tourist destinations and provide better experiences for tourists. In addition, this research strengthens our understanding of the importance of a holistic approach in tourism development, where various aspects of facilities and services must be managed integratively to achieve sustainable economic growth and increase the welfare of local communities.

3.6. Practical implication

This research have significant implications for stakeholders in the tourism development, such as the government and local communities. First, it provides a basis for stakeholders to identify areas where improvements to infrastructure, facilities, and services are needed. Second, the emphasis on sustainability reminds us of integrating environmentally friendly practices in tourism development. Third, measuring the effectiveness of facilities and services can help in better budget planning and appropriate resource allocation. Finally, this research provides a foundation for developing sustainable policies by ensuring that tourism development benefits the environment, culture, and local economy.

Considering these practical implications, we can steer the tourism sector towards balanced development, maximizing economic benefits, and maintaining valuable cultural and natural heritage. With suitable investment in these facilities and the implementation of best practices, tourism destinations can maximize their potential and remain sustainable in the long term. This is crucial to developing a successful and highly competitive tourism industry in a changing market era. First, it provides a basis for governments and tourism companies to identify areas where improvements to infrastructure and supporting facilities are needed. Second, the emphasis on sustainability reminds us of integrating environmentally friendly practices in tourism development. Third, measuring the effectiveness of facilities and services can help in better budget planning and proper allocation of resources. Finally, this research provides a foundation for developing sustainable policies by ensuring the tourism sector provides sustainable benefits for the environment, culture, and local economy. These practical implications can direct tourism towards balanced development, maximizing economic benefits while maintaining valuable cultural and natural heritage.

4. Conclusions

This research identifies critical factors that influence the effectiveness of facilities and services in developing the tourism industry. The model quantifies the impact of the relationship between facility and service variables on tourism development, which include telecommunication, clean water sources, transportation, waste management, power sources, hospitality, location, supporting industries, safety and security, promotion, and spatial planning. The influence of these factors on tourism development will guide stakeholders in Rembang Regency, Central Java, Indonesia, in prioritizing development initiatives that address Indonesian tourism.

Based on data from a purposive sampling technique, 203 respondents from SMEs around tourist areas provided real implications for developing the tourism industry. The results of this empirical research show that the five most significant factors in tourism industry development are (1) spatial planning, (2) safety and security, (3) location, (4) transportation, and (5) power sources. Stakeholders, as decision makers, and SMEs, as respondents in this research, can focus on these factors to attract tourists, thereby improving the economy and society. These facility and service variables are proven to accelerate tourism development.

Moreover, the effectiveness of facilities and services also impacts the competitiveness of the tourism industry in an ever-changing market environment and promotes a sustainable tourism industry. With wise planning, careful management, and collaboration between the government, the private sector, and local communities, we can create tourist destinations that benefit the economy and protect and preserve the environment and culture, turning them into a valuable legacy for future generations. Measuring the effectiveness of facilities and services is a crucial step in formulating a better tourism development strategy.

This research offers a new perspective on the factors that influence tourism development. While providing valuable insights in assessing the effectiveness of facilities and services in sustainable tourism development, several limitations need to be acknowledged, as well as opportunities for future research. One of the limitations is the different geographical contexts in various tourist destinations, so the method needs to be adapted to the characteristics of each location. Additionally, this research focuses more on measuring effectiveness than analyzing these facilities and services' broader economic, social, and environmental impacts. Future research could further explore the relationship between investment in facilities and services, local economic growth, environmental sustainability, and the quality of life of local communities. Research could also consider the impact of new technology trends, such as digitalization and artificial intelligence, in improving the efficiency and sustainability of facilities and services. In addition, it is important to involve stakeholders from various levels of society in the decision-making process regarding sustainable tourism so that the solutions implemented reflect the needs and aspirations of all parties involved in the tourism industry.

Declaration statement

Fandi Achmad: **Conceptualization, Resources, Methodology, Software, Project administration, Data curation, Validation, Formal analysis, Writing - Original Draft**. Iwan Inrawan Wiratmadja: **Supervision, Conceptualization, Writing - Review & Editing, Funding acquisition**.

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