Toward Sustainability: Designing the Business Feasibility of Tourism Villages on the *Pantau Wisata* Website

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Abstract. Developing a tourist village that requires relatively large funds requires a business feasibility study as a stakeholder consideration. The financial aspect is one component in a business feasibility study that describes the feasibility of the business in terms of the comparison between investment and the rate of return obtained in the future. Until now, JADESTA, a website of the Ministry of Tourism and Creative Economy, only provides a *Ketapanrame* analysis, which is a scoring system for tourist villages based on the condition of attractions, amenities, accessibility, and human resources and community (non-financial aspects). To urgently complete the feasibility study analysis for tourist villages, this research specifically aims to develop a feasibility analysis measurement for tourist villages through financial ratios. This research is an extension of previous research that developed the website www.pantauwisata.com for investors to determine the feasibility of business in tourist villages and conduct a business feasibility analysis in Jawai Laut village, Sambas Regency, West Kalimantan. In this study, the researcher expanded the study by improving the website by adding calculations of the feasibility of the tourist village, named the operating ratio. Subsequently, a sample test was conducted on the Temajuk tourist village. The research results are presented informatively on the website.

Keywords: Business Feasibility, Financial Ratio, Sustainability, Tourism Village, Website Design.

1 Introduction

A tourist village is a rural area with unique characteristics and attractions that make it a popular destination for tourists. Tourism villages are established to empower communities to play a key role in enhancing tourism potential and promoting local economic growth. This goal is deemed relevant to the 2030 Sustainable Development Goals of creating a life without poverty, decent work, economic growth, and reduced inequality [1].

Tourism development positively contributes to the economy through economic growth and job creation [2]; investment [3]; reduction of inequality [4]; and environmental preservation [5]. Not without reason, the decline in state revenue was most pronounced during the social restrictions imposed during the COVID-19 era due to a decrease in tourist visits, which impacted the turnover of accommodations and workers in the tourism sector broadly.

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The government continues to develop economically viable tourist villages and is expanding to several regions in Indonesia. The development of tourist villages certainly requires a substantial financial investment. So far, the funding for the sustainability of tourist villages has mainly been sourced from the State Budget (APBN) through village funds. In the future, funding from private investors is expected to contribute to the sustainability of tourist villages.

Investors, both government and private, require various analyses, including financial analysis, to determine the feasibility of tourist villages. Financial analysis aims to measure the costs incurred and the revenues received from an investment or business [6], [7]. To date, numerous feasibility analyses of tourist villages in Indonesia have been conducted (see [8]; [9]; [10]; [11]; [12]; [13]; [14]). Attention to the existence of tourist villages is also increasing for many researchers worldwide (see [15]; [16]; [3]; [17]; [18]; [5]; [19]; [20]; [21]; [2]).

This research builds upon the work of [22]. In a previous study, the website www.pantauwisata.com was developed to enable investors to assess the feasibility of business in tourist villages and conduct a financial feasibility analysis in Jawai Laut Village, Sambas Regency, West Kalimantan. The financial ratio analysis developed was Payback Period (PP), Average Rate of Return (ARR), Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index. (PI). In this study, the researcher expanded the scope by refining the website to include calculations for the feasibility of tourist villages. In this case, the financial ratio used is the operating ratio. This ratio aims to determine the efficiency of operational management in tourist villages in relation to the revenue generated. These operational activities include, at a minimum, the management of food and lodging establishments within the tourist village. The researcher will use one sample tourist village as the basis for testing the calculations on the website.

To the researcher's knowledge, the Tourism Village Network (JADESTA) website of the Ministry of Tourism and Creative Economy only provides a Ketapanrame analysis, which scores tourist villages based on the conditions of attractions, amenities, accessibility, and human resources and community (non-financial aspects). Therefore, feasibility research for tourist villages, which involves expanding the approach, studying new objects, and utilizing the website as a medium for feasibility testing, is considered to address the challenges of state-of-the-art research in sustainable village economic development. This research aims to develop a financial ratio calculation feature to measure the feasibility of tourist villages on the website www.pantauwisata.com. To address this research objective, the researchers added one financial ratio, the operating ratio, to the analysis. Fundamental analysis of tourist village feasibility can undoubtedly be part of virtual tourism and the creative economy, supporting future technological readiness.

2 Literature Review

2.1 Operating Ratio

Operating ratios relate to the day-to-day management results of hotels and restaurants. These ratios demonstrate management's performance in terms of operational efficiency and effectiveness. The calculation formulas used include [7].

1. Food and beverage sales calculations

$$Food\ cost\ percentage = \frac{Total\ food\ cost\ of\ sale}{Total\ food\ sale} \quad (1)$$

$$Beverage\ cost\ percentage = \frac{Total\ beverage\ revenue}{Total\ beverage\ sale} \quad (2)$$

2. Labor cost percentage calculations

$$Labor\ cost\ percentage = \frac{Labor\ cost\ per\ departemens}{Department\ revenue} \quad (3)$$

3. Room rental calculations

$$Average\ daily\ rate = \frac{Rooms\ revenue}{Number\ of\ room\ sold} \quad (4)$$

$$Revenue\ per\ available\ room = \frac{Rooms\ revenue}{Available\ rooms} \quad (5)$$

2.2 Prototype Development

Developing a website as a medium for feasibility studies for a tourism village business uses the following prototyping steps [23]:

1. Requirements Gathering
   The customer and developer jointly define the overall format and requirements of the software, identifying all requirements, and outline the system to be created. In this case, the feature being developed is the calculation of the operating ratio.
2. Prototype Building
   The prototype is built by creating a temporary design focused on presenting it to the customer, for example, by creating input and output examples.
3. Prototype Evaluation
   The customer conducts this evaluation to determine whether the prototype meets their expectations. If it meets their expectations, the system is coded; if not, the first step is repeated.
4. System Coding
   The agreed-upon prototype is then translated into the appropriate programming language.
5. System Testing
   Once the system has become ready-to-use software, it needs to be tested before use. This testing is carried out using black box testing and decision table techniques.
6. System Evaluation
   The customer evaluates whether the system meets expectations. If so, proceed to the final step. If not, repeat the first step.
7. System Deployment
   The software that has been tested and accepted by the customer is ready for use, with operational efficiency and effectiveness.

3 Methodology

This research seeks to develop a financial ratio calculation feature for analyzing the feasibility of tourism villages on the website www.pantauwisata.com. Next, a sample test will be conducted in the Temajuk tourism village to analyze the financial feasibility of the tourism village using the website's features. A financial survey will be conducted to measure the costs incurred and the amount of revenue generated from the business. This study will calculate the return on investment using the Operating Ratio (ORR) calculation [7]. The website development as a medium for business feasibility studies in tourism villages will collect financial information and present information on the feasibility of tourism village development in terms of return on investment, based on the results of financial calculations. The method used will be prototyping [23].

Next, a sample test will be conducted in the Temajuk tourism villages, Sambas Regency, West Kalimantan, Indonesia. Financial data will be collected for analysis and review. The data collected will be from the most recent period (during the research year) to ensure the analysis reflects the actual conditions. Data were obtained through observation, interviews, and documentation. The observation method involved direct observation of the tourism village. Documentation techniques refer to the presentation and elaboration of research results and relevant theories. Interviews were conducted with a room owner in the Temajuk tourism village.

The procedure continued with data analysis. The collected data were analyzed using the calculations mentioned above, as provided by the Pantau Wisata website. The next step was to interpret the research results narratively and argumentatively, supported by relevant theories. At this stage, the research results were presented informatively on the website. Finally, conclusions were drawn and future research directions outlined.

4 Results

Results

Developing Operating Ratio on Website

The research process has produced an operating ratio calculation feature as a complement to the feasibility analysis of tourist villages. This result was achieved through website development using the prototyping method with the following stages:

1. Requirements Gathering

The customer and developer jointly defined the overall format and requirements of the software, identified all requirements, and outlined the system to be developed. Based on the mapping of potential tourist villages in Sambas Regency and aligned with the calculation method for the feasibility analysis of tourist villages, the operating ratio feature was designed for the “Pantau Wisata” website. Based on the initial discussions, several initial functional requirements for website application development were defined, including:

Table 1. Functional Requirements List.

Requirement Code	Description of Needs
FR-01	The system can display tourist attraction information

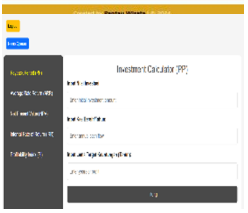
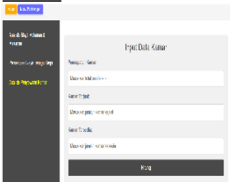
Requirement Code	Description of Needs
FR-02	The system can provide tourist contact information.
FR-03	The system can display a photo gallery of tourist attractions.
FR-04	The system can connect social media links.
FR-05	The system can display the tourism feasibility menu.
FR-06	The system can calculate Food Cost Percentage
FR-07	The system can calculate Beverage Cost Percentage
FR-08	The system can calculate Labor Cost Percentage
FR-09	The system can calculate the Average Room Rate
FR-10	The system can calculate Revenue per Available Room

2. Prototype Development

The prototype was developed by creating a temporary design focused on customer presentation, for example, by creating input and output examples. The temporary prototype was developed on a local server with an application interface mock-up tailored to the functional requirements from the requirements gathering stage. The mock-up interface was still being adjusted to reflect system and user requirements. The prototypes' alignment with the requirements description can be seen in the following table 2:

Table 2. Website Mock-Up Design.

Requirement Code	Description of Needs	Website Mock-Up Design
FR-01	The system can display tourist attraction information	
FR-02	The system can provide tourist contact information.	

Requirement Code	Description of Needs	Website Mock-Up Design
FR-03	The system can display a photo gallery of tourist attractions.	
FR-04	The system can connect social media links.	
FR-05	The system can display the tourism feasibility menu.	
FR-06	The system can calculate Food Cost Percentage	
FR-07	The system can calculate Beverage Cost Percentage	
FR-08	The system can calculate Labor Cost Percentage	
FR-09	The system can calculate the Average Room Rate	

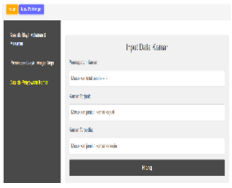
Requirement Code	Description of Needs	Website Mock-Up Design
FR-10	The system can calculate Revenue per Available Room	

3. Prototype Evaluation

The customer conducted this evaluation to determine whether the prototype met their expectations. If it is suitable, the system coding process continues. If not, the first step is repeated. The prototype, which is still hosted locally, is then shown to users and tourism feasibility analysis analysts to check whether the display matches the expected features. The results of the prototype testing are shown in the following table 3:

Table 3. Tourism Feasibility Website Prototype Evaluation.

Requirement Code	Description of Needs	Website Mock-Up Design	Evaluation Result
FR-01	The system can display tourist attraction information		Compatible
FR-02	The system can provide tourist contact information.		Compatible
FR-03	The system can display a photo gallery of tourist attractions.		Compatible

Requirement Code	Description of Needs	Website Mock-Up Design	Evaluation Result
FR-04	The system can connect social media links.		Compatible
FR-05	The system can display the tourism feasibility menu.		Compatible
FR-06	The system can calculate Food Cost Percentage		Compatible
FR-07	The system can calculate Beverage Cost Percentage		Compatible
FR-08	The system can calculate Labor Cost Percentage		Compatible
FR-09	The system can calculate the Average Room Rate		Compatible

4. System Coding

The agreed-upon prototype is then translated into the appropriate programming language. The programming languages used are native to website development, including HTML, PHP, CSS, and JavaScript. The website is developed natively and is responsive, allowing the display to adapt to various devices, both computers and mobile

phones. The programming code implementation process uses a text editor, such as Notepad++, to create the display and calculation functions (see Figure 1).

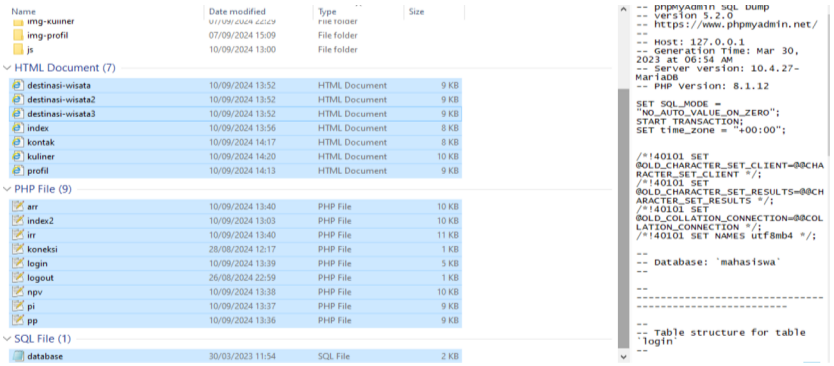


Fig. 1. Tourism Feasibility Website Application Coding

5. System Testing

Once the system is ready to use, it needs to be tested before use. This testing is conducted using the black-box testing method. This testing method is used to verify the application's functionality (see table 4).

Table 4. System Testing.

Requirement Code	Description of Testing	Evaluation Result
FR-01	The system can display tourist attraction information	Success
FR-02	The system can provide tourist contact information.	Success
FR-03	The system can display a photo gallery of tourist attractions.	Success
FR-04	The system can connect social media links.	Success
FR-05	The system can display the tourism feasibility menu.	Success
FR-06	The system can calculate Food Cost Percentage	Success
FR-07	The system can calculate Beverage Cost Percentage	Success
FR-08	The system can calculate Labor Cost Percentage	Success
FR-09	The system can calculate the Average Room Rate	Success
FR-10	The system can calculate Revenue per Available Room	Success Success

6. System Evaluation

The customer evaluates whether the system meets expectations. If so, proceed to the final step. If not, repeat the first step. Based on the results of the system evaluation using blackbox testing, it was determined that all features within the system functioned well and were successfully operational. In addition to blackbox testing, qualitative user

testing was also conducted using the Guttman scale, with a result of 93%, confirming that users accepted the system (figure 2).

7. Using the System

The software, which has been tested and accepted by customers, is now ready for use. The website, which has been tested and validated by users, is then hosted under the domain name: https://pantauwisata.com/ with two default views as follows (figure 3):

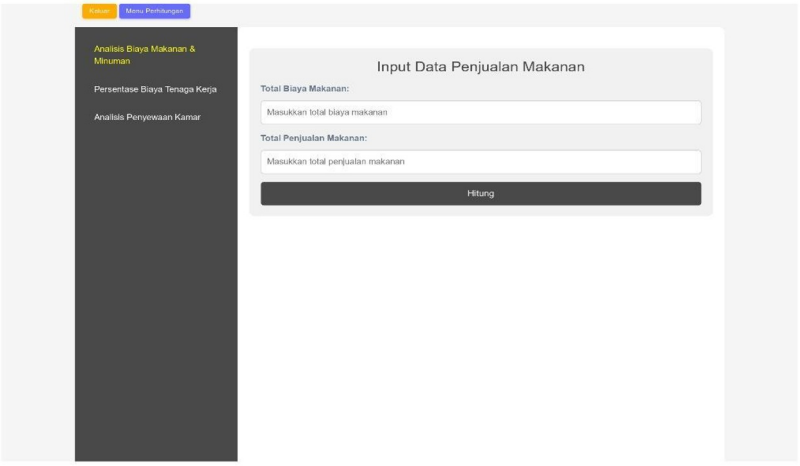


Fig 2. Operating Ratio Analysis View

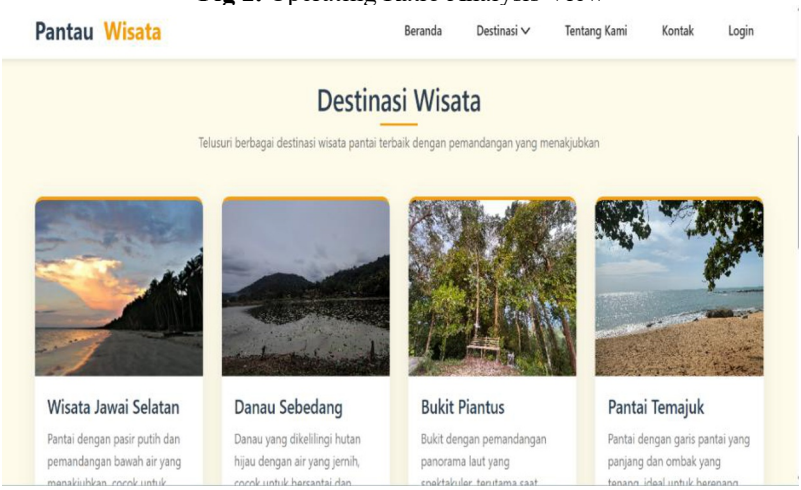


Fig 3. Sambas Tourism Monitoring Website Appearance

Analysis of Temajuk Tourist Village Based on Operating Ratio

One of the exotic tourist attractions worthy of development in Sambas Regency is Temajuk Village, located in Paloh District. Temajuk Village boasts significant tourism potential, particularly natural attractions. The village's stretch of beach offers unique

beauty, earning it the nickname "nature tourism" [24]. The operational analysis of the Temajuk Tourism Village business is measured using operating ratios [7]. Data and information collected through observations and in-depth interviews with the manager of the inn, "Penginapan Mak Ngah," yielded the following financial information:

"We employ one person daily, earning Rp 150,000 per day. This inn only employs workers during the peak tourist season. During this peak season, revenue is approximately Rp 7,500,000..."
"...For food and beverages, all food sales are handled directly by the inn using a catering system. The total cost is Rp 8,000,000, while the actual sales are Rp 13,500,000."
"During peak season, our inn is always fully booked. We have eight rooms with a total revenue of Rp 8,000,000. This revenue is the accumulated revenue from several days of tourist stays."

Based on the informant's account, it can be concluded that the workforce consists of one person with a daily wage of Rp 150,000 for three days. Revenue from room rentals ranges from Rp 7,500,000 to Rp 8,000,000. Meanwhile, food and beverage operating costs amount to Rp 8,000,000, resulting in revenue of Rp 13,500,000. The next step, the researcher conducted a financial analysis of the accommodation's operations. These calculations are divided into several mathematical formulas, accessible on the website https://pantauwisata.com:

1. Food and beverage sales calculations

The calculations show that the operating costs of lodging in Temajuk Tourism Village, based on food and beverage sales analysis, are 59.26%. It means that nearly 60% of the revenue generated from food and beverage sales is spent on costs (see figure 4).

Fig 4. Sambas Tourism Monitoring Website Appearance

2. Labor cost percentage calculations

The calculation results show that the operating costs of lodging in Temajuk Tourism Village are 6% based on labour costs. It means that lodging owners only spend 6% of thei labour costs to generate a certain amount of income from lodging rentals.

Fig 5. Sambas Tourism Monitoring Website Appearance

3. Room rental calculations

The calculation results show that the operating costs of lodging in Temajuk Tourism Village, based on the percentage of room rentals, are 100%. It means there are no unoccupied rooms, especially during the peak tourist season, allowing owners to maximise their income.

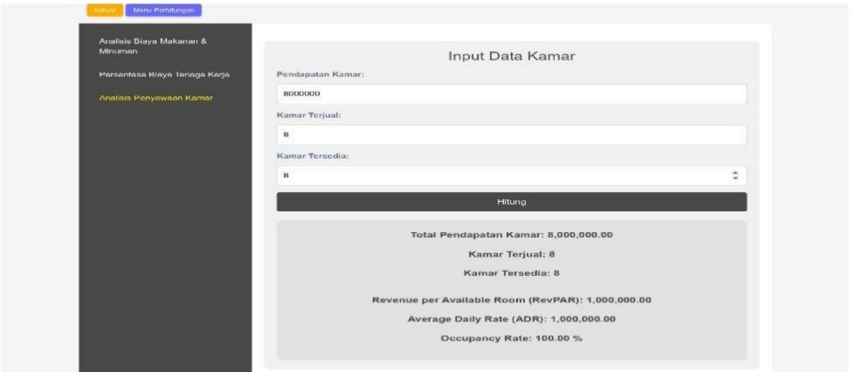


Fig 6. Sambas Tourism Monitoring Website Appearance

Discussion

The development of operational analysis on the Pantau Wisata website yields mathematical calculations for analyzing the operational activities of lodging in tourist villages. At one lodging in Temajuk Tourism Village, "Penginapan Mak Ngah", the analysis of food and beverage sales shows a cost percentage of 59.26%. Meanwhile, the labour cost percentage shows a cost percentage of 6%. Furthermore, the room rental percentage shows a value of 100%. In this case, labour effectiveness has shown positive results, namely, not requiring a large labour cost to generate a relatively large income. The absorption of the number of rented rooms also yields positive findings. However, the owner needs to review the effectiveness of food and beverage sales. It is because the costs involved are relatively high. The inn owner can evaluate the sales system, for example, by changing the catering system to an ordering system based on the available menu.

5 Conclusion

The Pantau Wisata website was developed to facilitate stakeholders, including investors, in conducting analysis when deciding to invest in a tourist village. Through the Pantau Wisata website, investors can determine the feasibility of their investment based on financial ratios. The financial calculation developed in this study is the operating ratio. The results show that the "Mak Ngah Inn" in Temajuk Tourism Village has been operating well based on the operational ratio study. If further optimised and given special attention, Temajuk Tourism Village can become a preferred tourist destination in all seasons. It is considered crucial, considering that increased tourist visits will impact the community's economy. Therefore, considering the trend of increasing demand for entertainment among the community, the development of tourist destinations, especially tourist villages, should be a shared priority.

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