

Optimization of Banyuwangi Festival Management through ERP-Tourism Using Dashboard

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Abstract

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Tourism is an economic sector that has an important role in regional economic growth, including in Banyuwangi Regency. Banyuwangi Festival, as one of the main attractions, faces various challenges in its management, ranging from event coordination to performance monitoring. This research aims to optimize the management of Banyuwangi Festival through the implementation of Enterprise Resource Planning (ERP)-Tourism supported by the use of interactive dashboards. This research utilizes the Rapid Application Development (RAD) method, which involves various stakeholders in the system development process. The research findings show that the implementation of ERP-Tourism and interactive dashboards is able to improve the efficiency, effectiveness, and quality of festival management. The theoretical implications of this research include the development of literature related to the use of ERP technology in the tourism sector and its contribution to event management. Practically, the results of this study can be used as a guide for festival managers in improving the quality and efficiency of their events. Recommendations for future research include expanding the application of the ERP-Tourism system to other tourism events in Banyuwangi and other regions, as well as further developing dashboard features to meet the specific needs of different types of events. Thus, it is expected that this system can provide wider and sustainable benefits to the tourism sector and regional economy.

1. INTRODUCTION

Tourism has emerged as a significant industry that significantly contributes to social progress, employment generation, and economic expansion. Tourism has emerged as a significant catalyst for economic expansion in numerous regions, including Banyuwangi. Banyuwangi has garnered the interest of both domestic and international visitors due to its prodigious natural and cultural resources; this has been particularly evident in the locale's thriving festival and cultural scene (Anoegrajekti, N., *et al.*, 2021). Opportunities for growth in the tourism industry are supported by a number of factors, including the way of life of the populace, particularly Indonesians, who are becoming increasingly enthusiastic about travel. Indonesia has consistently garnered the interest of international visitors due to its remarkable natural landscapes, hospitable locals, and distinctive cultural practices. Tourism in East Java's Banyuwangi, which has a middle-income population and a sizable population, continues to expand annually, thereby bolstering the regional economy and enhancing the livelihoods of

the inhabitants residing in these popular tourist destinations

The Tourism Office of Banyuwangi Regency assumes the responsibility for a variety of initiatives aimed at fostering the growth of tourism in the vicinity. An important annual event is the Banyuwangi Festival, which is designated with the motif "Majestic Banyuwangi" on the calendar. This event constitutes a significant endeavor aimed at enhancing the region's appeal as a tourist destination. Based on data published by the Tourism and Culture Office of Banyuwangi Regency in 2022, there is a consistent upward trend in the number of tourists visiting the region annually. During the period spanning from 2017 to 2021, domestic tourist arrivals amounted to 18.9 million, whereas foreign tourist arrivals reached 314 thousand. This information illustrates the tremendous potential of Banyuwangi's tourism industry and the beneficial effects of promotional initiatives. By virtue of attracting a substantial number of tourists and hosting events such as the Banyuwangi Festival, Banyuwangi Regency has

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bolstered its standing as an alluring Indonesian tourist destination. This action demonstrates the local government's dedication to establishing the tourism sector as a primary economic driver for the area.

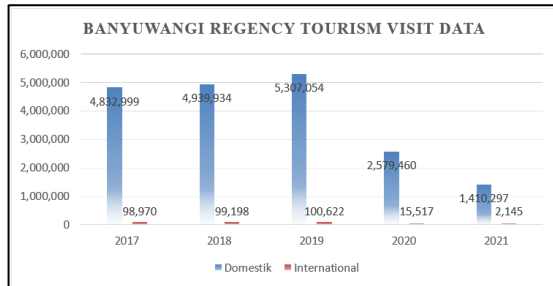


Figure 2. Statistical Data of Banyuwangi Regency Tourism Objects 2017 -2022
(Source: (Tourism and Culture Office of Banyuwangi Regency, 2022))

According to data from the Banyuwangi Tourism Office, there was a decline in the volume of domestic tourist visits to the destination from 2020 to 2021, compared to the period from 2017 to 2021. The decrease in visits can be attributed to the impact of the pandemic, prior to the outbreak, the number of domestic and international visitors visiting the country averaged between 4 and 5 million per year. The average annual influx of international tourists remained below 100,000 from 2017 to 2021, according to data from the Tourism and Culture Office of Banyuwangi Regency (2022).

Festival administration, despite its considerable potential, frequently encounters intricate obstacles that necessitate the implementation of a more efficient strategy (Pambudi, P. S., *et al.*, 2021). Challenges arise in the administration of Banyuwangi Festival events due to inefficiencies and a lack of responsiveness to swift changes in the management system. Furthermore, the coordination among the diverse entities engaged in festival organization is frequently suboptimal, which may lead to possible setbacks and inefficiency during execution. Ultimately, the identification of areas necessitating improvement and development becomes a challenging task for pertinent stakeholders due to the constraints associated with festival performance analysis and monitoring (Pambudi, P. S., *et al.*, 2021) The significance of enhancing festival management in Banyuwangi becomes abundantly apparent when one considers the event's pivotal function in stimulating regional revenue, fostering local culture, and attracting tourists. ERP-Tourism, an enterprise resource planning (ERP) application that has been customized for the tourism sector, may provide the optimal resolution to the challenges encountered (Zulkarnain, I., *et al.*, 2023).

Implementing the Enterprise Resource Planning (ERP) concept with the assistance of interface development is one approach to resolving these issues. Elhami *et al.* (2020) and Vargas *et al.* (2020) are two such sources. The objective of this study is to enhance the administration of the Banyuwangi Festival through the integration of ERP-Tourism and the application of interactive interfaces. The primary objective is to enhance festival management efficiency by means of improved system integration, coordination among event-organizing parties, and analysis and monitoring of festival performance via informative interfaces (Zulkarnain, I., *et al.*, 2023). This study aims to accomplish this by undertaking an exhaustive examination of the requirements and obstacles encountered in the administration of the Banyuwangi festival. Design and implementation of an ERP-Tourism system that is customized to the identified requirements constitute the following phase. The utilization of interactive dashboards designed to facilitate the monitoring and analysis of festival performance will be the primary emphasis. Additionally, a participatory methodology will be utilized to enlist the assistance of all pertinent stakeholders throughout the system's development and implementation. This stage is critical in order to guarantee that the ultimate resolution not only fulfills the technical requirements but also considers the desires and expectations of all stakeholders engaged in the administration of the Banyuwangi tourism festival. Subsequently, the system development process will adopt a more comprehensive approach that prioritizes long-term viability and achievement.

2. LITERATURE REVIEW

2.1 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a unified platform comprised of software that integrates the various business processes of an organization. ERP is utilized to manage administrative and operational aspects of the tourism industry, including human resource management, inventory control, and reservation management (Rahman, A., & Upadhyay, N. (2020). Enterprise Resource Planning (ERP) facilitates enhanced operational efficiency, improved decision making through the integration of data, and enhanced service quality for end users, including travelers (Shrestha & Ghimire, 2018). ERP-Tourism is an ERP system variant that has been developed with the tourism industry in mind. ERP-Tourism offers distinct functionalities customized to the specific requirements of the tourism sector. These include the ability to manage hotel reservations, purchase transportation tickets, organize events, and analyze passenger data (Wong, K. (2019). In the highly competitive tourism

industry, ERP-Tourism enables businesses to manage their operations more effectively and efficiently, enhance the user experience, and increase their competitiveness.

2.2 Tourism

The tourism sector plays a significant role in stimulating regional economic development. The tourism industry not only contributes substantially to state revenues and infrastructure but also serves as the primary catalyst for employment creation in local communities and the preservation of cultural heritage and the natural environment (Chica *et al.*, 2022). Awareness of the significance of sustainable tourism is growing within the context of sustainable development. This promotes the growth of the tourism sector through a well-rounded evaluation of economic, social, and environmental factors

The notion of sustainable tourism has emerged as a pivotal aspect in endeavors to guarantee the enduring viability and sustainability of the entire tourism sector. Stakeholders in the tourism industry endeavor to attain a harmonious equilibrium among sustainable economic development, environmental and cultural conservation, and the welfare of local communities through the implementation of this strategy. It is anticipated that through the integration of these elements, the tourism sector can sustainably advance while safeguarding the integrity and longevity of indigenous cultural assets and values.

2.3 Dashboard

A dashboard is a data visualization application utilized to present information in a succinct and comprehensible manner. Dashboards are commonly employed to oversee the operation of a given system, process, or activity through the presentation of pertinent key metrics, graphs, and tables (Sharda, R., 2014). The primary objective of a dashboard is to furnish a comprehensive and expeditious comprehension of the present circumstances, developments, and trends inherent in a specific entity or undertaking. Dashboards enable users to efficiently detect problems, monitor advancements, and arrive at well-informed judgments by utilizing the data at hand (Few, S., 2019).

2.4 Rapid Application Development (RAD)

Rapid Application Development (RAD) is an approach to software development that prioritizes the construction of applications in a rapid and iterative fashion. The RAD method places emphasis on the creation of prototypes that are instantaneously usable by end users through active user participation throughout the entirety of the development process (Leong, J., 2023). The primary objective of RAD is to rapidly and flexibly produce applications that satisfy the requirements of users without sacrificing quality. The RAD methodology

facilitates the adjustment of development teams to evolving requirements and needs, consequently accelerating the development cycle and mitigating the likelihood of errors. (N. Aini, 2019).

2.5 System Analysis and Design

System analysis and design holds significant importance within the realm of software development, encompassing the implementation of Enterprise Resource Planning (ERP) specifically tailored for the tourism sector. A thorough comprehension of user requirements and business goals to be accomplished by the system is an integral part of the analysis procedure (Rahmawati, N.A., 2018). In contrast, system design encompasses the development of technical and functional blueprints for the intended system, such as the user interface, architecture, and business logic that will be executed (Arifin, N. Y., 2022).

3. METHODOLOGY

Application design methods encompass procedures that aid research in the resolution of issues or fulfillment of requirements via the creation of technological applications. The phases of the research undertaken to develop the ERP For Tourism system utilizing the Rapid Application Development (RAD) methodology are illustrated in Figure 1. An inventory of methodical procedures, these phases range from requirements assessment to implementation and evaluation. The RAD methodology permits developers to rapidly design and implement application prototypes, taking user and stakeholder feedback into account with each iteration. This ensures that the application produced is not only efficient and effective, but also adaptable to evolving requirements and changes that occur throughout the development phase.

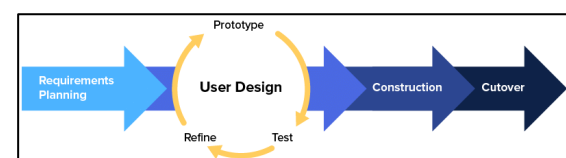


Figure 2.
Rapid Application Development (RAD) Method

The Rapid Application Development (RAD) method is a software development strategy that prioritizes the use of end users and stakeholders in iterative testing and rapid prototyping (Martin, J., 1991). The goal of RAD development is to produce a system that can accommodate user requirements more rapidly and flexibly than conventional methods (Kişi, N., 2019). Rapid Application Development is implemented throughout the ERP For Tourism system design process. Define the issue or requirement that the application intends to address. Participating in community or user engagement, specifically with the Culture and

Tourism Office of Banyuwangi Regency. Develop dashboard functions and features in accordance with community demands and research findings. Specify the required technology and develop the user interface. The design of the interface incorporates the ERP concept. Dashboard customization is performed in accordance with user requirements for the management of the Banyuwangi Festival. System development encompasses the systematic progression of conceptualizing, constructing, and integrating information technology to address challenges and fulfill the requirements of the Banyuwangi Regency Culture and Tourism Office in its oversight of the Banyuwangi Festival. Conduct user testing on the dashboard app to obtain input for enhancing its performance. Revised the prototype in accordance with user comments. This technique can be iterated multiple times to achieve an improved answer. Conducting training sessions for users, specifically the Culture and Tourism Office of Banyuwangi Regency. The purpose of this training is to provide guidance on the utilization of the application. Deploying the application to users, specifically the Culture and Tourism Office of Banyuwangi Regency. Includes demonstrations of applications and opportunities for social interaction for all users.

The Department of Culture and Tourism is eligible to partake in the program aimed at the development and utilization of the dashboard application. The Department of Culture and Tourism's responsibility is to engage in the process of testing and refining application enhancements. The purpose of the test is to improve the prototype by incorporating user feedback. The method is iterated multiple times in order to attain the desired answer (Bi, J. W., 2020). The training session included participants from the Department of Culture and Tourism who were specifically trained on how to utilize the program. Users and application developers collaborate in the ongoing process of development. Continual updates and improvements of the application are being conducted to adapt to advancements in technology. The ERP system development program implemented at the Banyuwangi Festival holds considerable potential for sustainability. The Culture and Tourism Office can effectively oversee a wider range of tourism events, initiatives, and activities in Banyuwangi Regency using the given dashboard. By consolidating all programs overseen by the agency into a single system, specifically the ERP dashboard, not only will it facilitate more comprehensive and focused management of Banyuwangi Festival activities. Furthermore, by utilizing an integrated system, the agency may enhance the use of data and information to facilitate more effective decision-making in the development and execution of future tourism initiatives. Hence,

the implementation of an ERP system not only yields advantages for the Banyuwangi Festival, but also creates prospects for enhanced efficiency and effectiveness in the broader management of tourism in Banyuwangi Regency.

4. RESULTS AND DISCUSSION

The team of lecturers and students conducted research and engaged in community service initiatives to promote tourist growth. A preliminary meeting was conducted to discuss the implementation of the community service program for the management of the Banyuwangi Festival event. This visit involved conducting a Group Discussion Forum and requirement planning for the creation of a dashboard system to manage Banyuwangi Festival events.

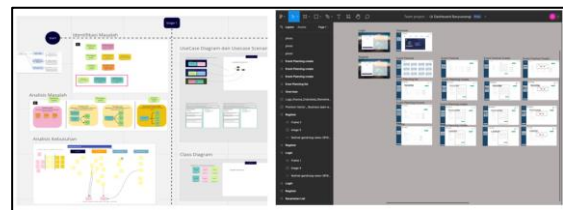


Figure 3.
Forum Group Discussion for requirement planning

Figure 3 is crucial in elucidating the approach of research and community service activities. The group discussion session was attended by delegates from the creative economy sector and information technology personnel from the tourism bureau. The primary emphasis of this group discussion forum was the management of events at the festival and the difficulties encountered in overseeing the Banyuwangi Festival. In this early phase, the task comprises documenting the issues that require resolution through a methodical design approach. The use of Enterprise Resource Planning (ERP) in the tourism industry is made easier by the development of dashboards as a tool for managing events. Group discussions serve as a valuable platform for identifying challenges encountered in festival management and devising suitable solutions. The participation of individuals from the creative economy sector and IT personnel from the tourism department guarantees the incorporation of diverse viewpoints and technical expertise in the development of program strategies. By using the skills and expertise of multiple stakeholders, the program planning and development process becomes more thorough and targeted. Furthermore, implementing the ERP for tourist idea through the creation of a dashboard is a strategic measure aimed at enhancing the efficiency and efficacy of tourist event management.

During the subsequent phase, a system design is developed based on the outcomes of

conversations that encompass the requirements for features in event management. The design is introduced at the user design phase through the creation of UI/UX design and the construction of dashboard software. The features employed are tailored to the specific requirements of the tourism office for effectively administering festival events. This technique employs design thinking to ascertain the requirements and determine the appropriate solutions. Three essential tasks must be completed during the user design stage: prototyping, testing, and refining, following the principles of rapid application development (RAD). During the prototype stage, the development team constructs a first iteration of the system being developed, and requests input and feedback from other stakeholders. The prototype undergoes evaluation to identify and rectify any issues and faults, based on the results of the evaluation (Kişi, N., 2019). The primary objective of the prototype phase is to ensure that the built system effectively fulfills the requirements and preferences of users, while also

facilitating early detection of potential issues. Development of a dashboard based on the analysis of user-requested feature requests. The feature utilized for the management of Banyuwangi festival activities takes the form of reporting the events that will be organized during the annual festivities. The dashboard also offers the capability to collect data on Micro, Small, and Medium Enterprises (MSMEs) that participate in events, as well as options for reporting expenditures and income. Testing will be conducted on the complete prototype to assess the functional feasibility of the system and the effectiveness of the proposed features. Figure 3 depicts the outcome of creating a prototype following multiple testing and enhancements, which were informed by the assessment results. Testing is conducted by executing system operations based on user scenarios. If there are any ineffective features in terms of user interface (UI) or user experience (UX), enhancements will be implemented to optimize the performance of the dashboard.

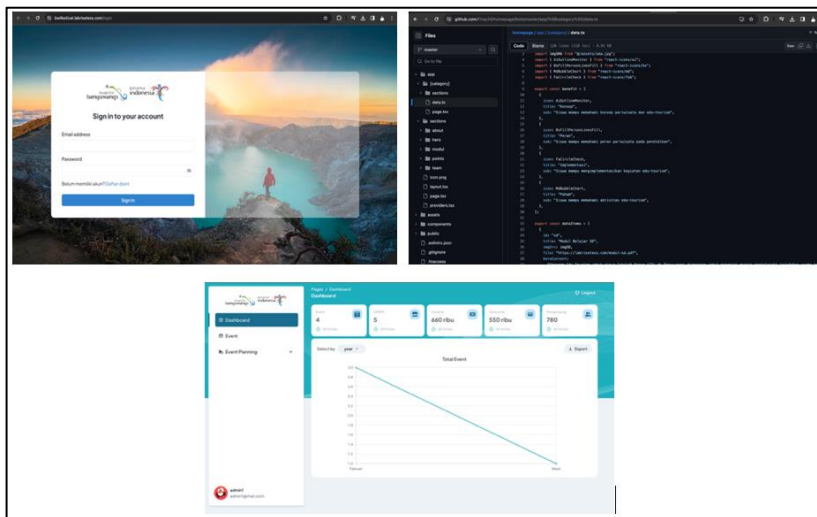


Figure 4.
User Design for Dashboard Design

The output displayed in figure 4 represents the findings of a research study aimed at utilizing the concept of Enterprise Resource Planning (ERP) to effectively manage the Banyuwangi Festival event. The research project focuses on developing a Dashboard specifically designed for tourism purposes. The subsequent phase involves the implementation of the dashboard, which is executed directly in collaboration with stakeholders. The unveiling of this dashboard was attended by professionals from the creative economy and IT sectors. During this event, the team provided an explanation of the dashboard's capabilities and conducted training sessions on its usage. Figure 4 displays the ultimate outcome of the dashboard design utilized for controlling the Banyuwangi

festival. The dashboard menu exhibits reports generated by the event management.

5. CONCLUSION

Based on this research, it can be inferred that implementing ERP-Tourism with a dashboard has significant potential to enhance the efficiency, effectiveness, and quality of arranging the Banyuwangi Festival. By implementing this community service strategy, we have successfully recognized a multitude of difficulties that are encountered by the parties involved in festival administration. Through the implementation of ERP-Tourism technology and interactive dashboards, we have effectively created a system that enhances the integration, coordination, and

monitoring of festival performance. By actively engaging stakeholders in the system development and implementation process, it effectively guarantees that the solutions offered satisfy their requirements and fulfill their expectations. The application of this approach is anticipated to yield substantial advantages for the management of the Banyuwangi Festival, enhance tourism appeal, and foster economic and social progress in local areas.

This study makes a theoretical contribution to the existing literature on the incorporation of information technology in tourism management. It achieves this by employing ERP-Tourism systems and interactive dashboards. The significance of active engagement of stakeholders in the system development process is further enhanced, along with the recognition of crucial aspects that impact the effective implementation. The practical implication of this study is that festival administrators can use the findings as a reference to enhance efficiency and the appeal of tourism attractions. Nevertheless, this study is constrained by its restricted geographical coverage and scarce resources. To enhance future study, it is advisable to delve deeper into the determinants that impact the acceptance of ERP-Tourism systems within the tourism industry. Additionally, it would be beneficial to broaden the research scope by comparing technical solutions in a more extensive setting. Longitudinal studies can be done to examine the long-term effects of system deployment on festival management and tourism growth in different destinations.

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