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Analysis of Benefits and Costs of Developing Technology Services for Provision of Transportation Facilities and Official Accommodation and Employee Leave at PT Bukit Makmur Mandiri Utama (BUMA)

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Abstract
BUMA is striving to enhance the service of transportation facilities and assistance, as well as employee travel and leave accommodations, by incorporating technology into self-service reservations and conducting a cost-benefit analysis to gauge the initiative's profitability. This study uses a descriptive quantitative approach, starting from collecting information, interpreting the data obtained, observing the process, and identifying all things related to finance, such as costs (direct and indirect) and benefits (tangible and intangible). The researcher computes the expenses and advantages to ascertain the viability of the investment. The techniques used in financial calculations are NPV, payback period, and ROI. The financial analysis yielded an NPV of Rp 482,542,605.58, signifying that BUMA is prepared to invest in information technology. ROI provides 438% benefits, indicating that there is a feasible profit from the investment. A payback period (PP) of 0.23, or less than one year, demonstrates the feasibility of this investment by allowing for a relatively short return on investment capital. This analysis concludes that the system's use significantly accelerates the provision of transportation facilities and assistance, as well as facilitates employee travel and leave accommodations. Employees can observe these benefits in the efficient use of time and resources, the system's user-friendliness, and the potential savings on reservation and travel management expenses.

Keywords: *self-service, cost benefit analysis, information systems, technology*.

INTRODUCTION

To enhance the service of transporting PT Bukit Makmur Mandiri Utama (BUMA) employees to and from work, as well as securing accommodations for official trips and vacations, a new, user-friendly method is required, one that aligns with the current technological advancements. The current process of providing transportation facilities, assistance, and accommodation for official travel and leave for BUMA employees is still considered necessary for development in several aspects. Firstly, the transportation and accommodation ticket provision section requires the digital submission of the manual form for employee tickets for levels 1 and 2, which correspond to job groups such as operator, mechanic, and admin. Secondly, restrictions apply to the digital forms used to submit transportation and accommodation tickets for employees from level 3 to level 7, representing job groups ranging from supervisors to management levels. The Transportation and Accommodation Ticket Provision Section (PIC Ticketing) manually distributes travel and accommodation tickets for employees.

According to Sulistiyani & Rosidah (2020), some companies actively allocate their budget towards the development of information technology, which continues to undergo annual advancements in the field of technology and data needs. A company's use of technology directly correlates with its scale; the larger the company, the more technology it needs to carry out its activities, according to Sudrajat (2019). A strategy to measure investment is necessary for the company to ensure successful technology development (Syaifullah, 2020).

BUMA falls under the category of large companies. Therefore, we need to further analyze our efforts to enhance the process of submitting transportation facilities/assistance, travel accommodations, and employee leave using digital forms. Our goal is to develop technology for self-service reservations, also known as independent reservation services. We will integrate this service with the online travel agent service vendor system and conduct a cost-benefit analysis to gauge the initiative's profitability.

This document explains the current process flow for submitting transportation and accommodation facilities/assistance for BUMA employee work trips and leave. Specifically, the applicant employee submits a travel plan to the applicant's superior, which includes a schedule, type of transportation, accommodation, and a down payment. The applicant employee's superior approves the applicant employee's travel plan without validation or filtering of user eligibility (if any, the ESS notification for the UMK submission will go to finance). The transportation & accommodation ticket provision employee will validate the applicant's eligibility, identify the required items to determine which requests go to the airline vendor or travel agency agent, and submit a payment request for all transactions made to the vendor (Sriwijaya, hotels that have collaborated, Garuda, or Panorama JTB Travel).

Table 1. Current conditions in terms of Process, SLA, and Resources

Item	Present Condiition
Process	• Limited form access • Manual forms • Variation of transportation & accommodation service providers • Manual ticket distribution
Service Level Agreement	Duty = 3 Hours, while Leave = 3 Days
Resource	Sufficient human resources are needed to handle this entire process.

Cost-benefit analysis is an approach to policy recommendations that allows analysis to compare and recommend a policy by calculating the total cost and the total benefit in monetary terms (Dunn, 2003). CBA was developed as a theoretical basis for welfare economics, particularly the concept of welfare science, which prioritizes efficiency (Pearce 2008).

Cost-benefit analysis is frequently used to assess a project's feasibility. The project's viability is determined by the benefits it yields. In other words, the benefits are based on the company's general benefits.

Therefore, the author is interested in examining the extent to which the development of self-service reservation technology provides benefits and costs for BUMA. With this in mind, the author devised a research title, "Analysis of Benefits and Costs of Developing Technology for Transportation and Accommodation Facilities for Officials and Employee Leave."

RESEARCH METHODS

This study employs a descriptive quantitative approach, commencing with the collection of data, followed by its interpretation and numerical display. It then deductively describes the results based on general theories, making observations to confirm the validity of these theories before drawing a conclusion. The researcher will use the results to explain the gathered data and provide answers to all the prepared questions. Observation, a scientific data collection method, involves direct observation of the company's processes. The primary objective is to gain a deeper understanding of the company's processes through observation, particularly in the context of providing transportation and accommodation facilities for employee travel and leave. This observation's scientific nature stems from its implementation of predetermined patterns and objectives, its planned and systematic approach, and its ability to test the validity and reliability of the collected data. Through observation, researchers try to describe ongoing activities, the roles of the people involved, the meaning of events, and the perspectives of all parties involved in the process.

The cost and benefit identification stage involves analyzing all aspects related to expenditures and benefits, both direct and indirect, as well as tangible and intangible benefits. Direct costs, like external programmer fees and new information system licenses, are easily identifiable, whereas indirect costs, like time management, employee motivation, and organizational strategy changes, are more challenging to quantify. Furthermore, the researcher can incur indirect organizational costs, such as decreased productivity and training costs. We identify tangible benefits by emphasizing cost displacement, cost avoidance, decision analysis, and impact analysis. All of these aspects aim to measure the effectiveness of technology development in providing transportation and accommodation facilities for employees.

During the cost and benefit quantification stage, we calculate all previously identified aspects to evaluate the investment's economic feasibility. The methods used in this analysis include net present value (NPV), payback period, and return on investment (ROI). The NPV calculation compares total expenditure with expected revenue at a certain interest rate, while the payback period calculates the time required to reach the break-even point or return on investment. The researcher measures ROI by comparing the percentage of benefits generated to the total costs incurred. By using the right calculations, these methods provide an overview of whether investment in technology development for the provision of transportation and accommodation facilities for PT Bukit Makmur Mandiri Utama (BUMA) employees is feasible or not.

RESULTS AND DISCUSSION

This study has identified two types of costs: direct costs and indirect costs. Direct costs include external programmer costs and licensing costs, while indirect costs include

labor costs and organizational costs. Indirect labor costs include aspects such as time management, human resource management, employee motivation, and changes in employee opinion in the formulation of the framework strategy, while indirect organizational costs include reduced productivity, socialization costs, and training.

The list of costs identified in this study includes K2 License (Subscription License) of IDR 4,677,750,000 and Salary & Medical Benefit of IDR 555,000,000, which represents a reduction in labor costs due to the implementation of the self-service system. Additionally, a development cost of IDR 297,000,000 covers the expenses incurred in developing various components of the self-service system. Moreover, the successful implementation of the self-service system has yielded significant benefits. The implementation of the self-service system has resulted in significant benefits, including the elimination of the K2 license (subscription license) costing IDR 4,677,750,000, as well as the elimination of salary and medical benefits amounting to IDR 555,000,000. These savings stem from the elimination of unnecessary license costs and benefits resulting from workforce reduction.

Apart from the direct benefits, there exist indirect benefits that are challenging to quantify. These benefits include Opportunity Lost: Existing vendor discounts of IDR 3,069,265,709, which represents the lost opportunity to get a discount from the current vendor. In addition, there are also benefits in the form of savings in applicant/user waiting time of IDR 9,512,495,523, which is the result of reduced waiting time for applicants/users due to the implementation of the self-service system.

Overall, the results of the identification of costs and benefits provide a clear picture of the effects of implementing a self-service system in the procurement of transportation tickets and accommodation for employees. Measurable costs and benefits can assist in the decision-making process related to the implementation of this system, while indirect benefits provide a holistic view of the potential for efficiency and productivity improvements within the organization.

An analytical method known as cost-benefit analysis compares all implementation costs with the expected benefits to evaluate a project, program, or investment decision. The purpose of cost-benefit analysis is to assist decision-makers in identifying whether a project or program will provide benefits that exceed the costs incurred to implement it. Cost-benefit analysis meticulously analyzes both direct and indirect costs, as well as quantitatively measures and assesses both direct and indirect benefits. The results of this analysis allow for a comparison of cost-benefit ratios, allowing decision makers to assess whether the project or program is feasible to implement and will benefit the organization or society as a whole. The researcher will analyze financial calculations such as NPV, payback period, and ROI to determine the feasibility of this information system investment for PT Bukit Makmur Mandiri Utama (BUMA).

The researcher can draw the following conclusions from the financial analysis of PT Bukit Makmur Mandiri Utama (BUMA) using the Return on Investment (ROI), Net Present Value (NPV), and Payback Period (PP) methods. ROI of 438% indicates that the investment provided benefits of 438% of the total investment costs, indicating that there is profit and the investment is worth making. NPV of Rp 482,542,605.58 indicates that the economic value of this investment is greater than zero, indicating that the company is worthy of making an information technology investment. Furthermore, a Payback Period

(PP) of 0.23 or less than a year signifies a relatively short timeframe for the return of the investment capital, thereby making this investment feasible according to the PP criteria.

Khairul Anam, Ni Made Estiyanti, and I Made Artana conducted an information technology investment analysis at PT Bank Danamon Indonesia to determine the feasibility of their proposed investment. This study uses the cost-benefit analysis method by calculating return on investment (ROI), payback period (PP), net present value (NPV), and benefit cost ratio (BCR).

The results of the study show that return on investment (ROI) is 1.32%, payback period (PP) is 0.43, net present value (NPV) is Rp. 18,826,196, and benefit cost ratio (BCR) is 9.21. The positive ROI and relatively short PP figures indicate that this investment has excellent profitability with a payback period of less than one year. In addition, a positive NPV indicates that the economic value of this investment is greater than zero, and a high BCR indicates that the benefits obtained from this investment exceed its costs.

When comparing the results of this study with the financial calculations of PT Bukit Makmur Mandiri Utama (BUMA), there are differences in the ROI, PP, and NPV figures. PT Bukit Makmur Mandiri Utama (BUMA) has an ROI of 438%, PP of 0.23 years, and NPV of Rp 482,542,605.58. Despite these differences, both concluded that the investment in information technology was feasible based on positive financial calculation results.

Based on the aforementioned conclusions, the researcher can conclude that the information system investment at PT Bukit Makmur Mandiri Utama (BUMA) is feasible. A positive ROI figure indicates the investment's benefits; a positive NPV indicates a profitable economic value; and a short PP indicates a quick return on investment. However, it's important to consider other factors like risk, business strategy, and company objectives when making the final investment decision.

The company benefits significantly from PT. Bukit Makmur Mandiri Utama (BUMA)'s development of technology for providing transportation and accommodation services for employees, as well as leave. In this case, the technology helps improve time and cost efficiency by optimizing employee travel and leave arrangements. With the right technology, companies can avoid unnecessary time and cost waste. In addition, this technology also contributes to increasing employee productivity. With simple transportation and accommodation arrangements, employees can focus on their tasks and responsibilities without having to worry about travel arrangements.

Furthermore, excellent transportation and accommodation services also have an impact on employee satisfaction. Employees feel appreciated and cared for by the company because they can enjoy comfortable and orderly travel and leave. In addition, with sophisticated technology, companies can ensure employee safety during travel or leave. Companies can easily access and monitor transportation and accommodation-related information to minimize the risk of accidents or safety issues.

Although the development of this technology provides significant benefits, companies need to consider the associated costs. This includes the cost of developing and maintaining technology, additional operational costs such as travel, accommodation, and data security, as well as data integration and migration costs if the company has an existing system. Therefore, PT. Bukit Makmur Mandiri Utama (BUMA) needs to

carefully consider the development of technology for providing transportation and accommodation services, as well as employee leave.

CONCLUSION

The analysis of self-service reservations concludes that the use of this system significantly accelerates the provision of transportation facilities and assistance, travel accommodations, and leave for PT Bukit Makmur Mandiri Utama (BUMA) employees. These benefits are demonstrated by the efficiency of time and resources, as well as the ease of employee access and system use. Furthermore, this system can reduce the costs associated with the reservation process and travel management.

The researcher can offer several suggestions to enhance the use and benefits of self-service reservations. First, it is necessary to conduct more intensive socialisation and training for employees regarding the features and benefits of this system. This can increase employee understanding and confidence in using the system. Furthermore, periodic evaluations and updates to the system are required to ensure that it remains relevant to technological needs and developments. Lastly, it's crucial to consistently track and evaluate the system's performance and benefits, enabling further enhancements and optimizations. We hope that by implementing these suggestions, we can maximize the use of self-service reservations as a tool to accelerate the provision of travel facilities, accommodation, and leave for BUMA employees, thereby providing optimal benefits for the company.

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