Optimization of Information System Modeling Techniques for Economic Recovery after the Covid-19 pandemic with Simple Additive Weighting

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INTRODUCTION

The Indonesian economy is projected to grow negatively by several international institutions, ranging from the International Monetary Fund (IMF), the World Bank (World Bank), and the OECD or Organization for Economic Cooperation and Development.[1] The government has prepared a budget of Rp. 22 trillion for the presidential ban for the micro and medium business sector to help entrepreneurs affected by the COVID-19 virus pandemic. Each beneficiary received Rp. 2.4 million.[2] The process of eligibility for assistance recipients is a problem that involves many components or criteria being assessed (multi-criteria), so that in its completion a decision support system with multi-criteria is needed. The results obtained from this study are the SAW method is a more appropriate method in case studies of beneficiary eligibility. By using a Decision Support System, a problem can be easily resolved quickly, especially regarding the eligibility of the beneficiary. In this study, the Decision Support System which is supported by the Simple Additive Weighting method is more efficient because the time required for calculations is shorter. "Optimization of Information System Modeling Techniques for Economic Recovery after the Covid-19 pandemic with Simple Additive Weighting". The purpose of this study was to determine the optimization of the use of information systems with the application of the Simple Additive Weighting (SAW) method, to support and provide references in making decisions on providing assistance that needed to be done in order to accelerate the implementation of aid distribution and minimize assistance errors. With the application of the system development method, it is tested in real and can be implemented to provide more comprehensive results.

LITERATURE REVIEW

In addition to the application of the simple additive weighting (SAW) method, in this case another method that can be used is the Analytical Hierarchy Process (AHP) because this method also involves many sub-criteria, where AHP is considered appropriate to represent natural thinking which tends to group system elements into levels - different levels of each level that contains similar elements and also provides a scale of measurement and methods for obtaining priority, because each criterion has a different priority. As research conducted by Akbar Riodano Laisouw, Salkin Lutfi and Firman Tempola, 2019 p-ISSN : 2614 -8897 e-ISSN : 2656 -2948 "Decision Support System for Providing Family Hope Program Assistance (PKH) to the Poor in Ternate City Using the Method Ahp" The criteria used are 7 criteria, namely Disabilities, Elderly, Pregnant/postpartum mothers, Children under 6 years old, Elementary School Children, Middle School Children and High School Children. Where the AHP method uses a pairwise comparison matrix (pairwise comparison), where each criterion is weighted and a paired matrix calculation is performed. The results of this study are a web-based application of a decision support system for the provision of PKH assistance in Ternate City which can provide recommendations to the Ternate City Social Service as consideration for decision making in the provision of PKH assistance.

RESEARCH METHODS
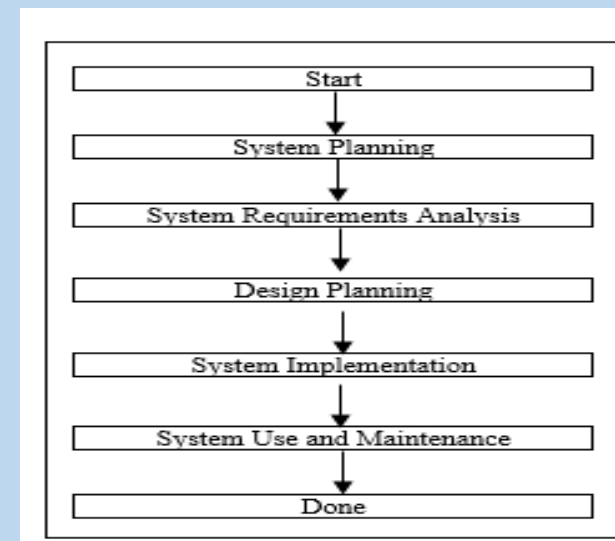
Data collection technique
- Literary Studies
  Literature studies are carried out by reading, studying and collecting theories sourced from books and journals related to the systems and methods in this research.
- Questionnaire
  The distribution of the questionnaire (questionnaire) in this study was carried out randomly through a Google form which was then distributed through social media such as Facebook. In the results of this questionnaire, there are 20 respondents
- Research Sample
  The author collects data in Sukabumi district by taking random samples for system testing, namely selecting a certain number of items from the existing population with the aim of studying some of these items so that they can represent all existing items. All items in the population have the same probability of being selected as sample items.

RESULT AND DISCUSSION

Matrix Results and Ranking Results

W = (0.70 | 0.15 | 0.05 | 0.10)

Based on the results of the preference values above, the ranking that has been obtained can be sorted as follows:

1. $A_2 = 0.99$
2. $A_1 = 0.97$
3. $A_5 = 0.97$
4. $A_3 = 0.37$
5. $A_4 = 0.36$

The following is a model system for managing assistance as shown below :

System implementation is bringing the design results into software. The application is designed in the form of a Web Service, which is an application that contains a collection of databases and software.

Conclusion

In designing a decision support application for micro-medium enterprise aid recipients, the researchers designed it according to existing needs with several menus used to process the data selected based on the provisions. From the results of these calculations, a decision is obtained whether or not business actors receive assistance from micro and medium enterprises. From the sampling above obtained five alternatives with each weight $A_1 = 0.98$ $A_2 = 1.00$ $A_3 = 0.38$ $A_4 = 0.32$ $A_5 = 0.98$ with each status $A_1 =$ Eligible, $A_2 =$ Eligible, $A_3 =$ Not Eligible, $A_4 =$ Not Eligible and $A_5 =$ Eligible. The results of the calculation of A2 have a Eligible status with the highest weight, namely 1.00 and the results of the calculations of A_3 and A_4 are not eligible because they are less than 0.500.

Testing the feasibility system for the recipient of this web-based micro-medium enterprise assistance system, the government will be assisted in managing data for business actors who receive assistance accurately and effectively. Seeing that the COVID-19 pandemic is still ongoing, so that all activities are limited with this system, the government can also conduct online surveys to determine the feasibility of business actors who are entitled to micro-medium business assistance. As for the further development of the system, it can be developed more realistically and can be implemented to provide more comprehensive results in the eligibility of micro-medium business aid recipients because the system built relates to the identity of the community which is so important, it is necessary to make a good security system to maintain data security from irresponsible misuse.

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