

CHAPTER I

INTRODUCTION

1.1 Background

Lembaga Penelitian Dan Pengabdian Masyarakat (LPPM) in Universitas Muhammadiyah Kalimantan Timur is an institution that regulates, monitor, and evaluate how the research has been conducted in *Universitas Muhammadiyah Kalimantan Timur* (LPPM UMKT, 2021). They provide a grants annually to lecturers at *Universitas Muhammadiyah Kalimantan Timur*.

The lecturers can apply for a grants including two community services and two research per year which is included in five schemes including *Penelitian Regular Pemula* (PERELA) which is a beginner research scheme for a new lecturer. For a competitive research to all lecturer LPPM has *Penelitian Kompetitif* (PEKOM) schemes. On the other hand, there are a the most valuable grants provided by LPPM is *Penelitian Unggulan* (PENGGUL) where it has the biggest nominal compared to the others. Meanwhile, LPPM is also provide a grants for student research namely *Penelitian Kolaborasi Dosen Mahasiswa* (KDM). Nonetheless, *Penelitian Internasional* (PINTER) is a research granted for an international collaborative research for the lecturers.

However, the current problem at LPPM is that the number of alternative grantees or lecture who receive a grant is so many, while the criteria used to determine grantees tend to be few. (LPPM UMKT, 2021) Here the research wants to use the AHP-SAW method to determine grantee's research found at LPPM in 2017-2021.

Simple Additive Weighting (SAW) Method The SAW method is widely used to solve problems that require output in the form of ranking, also known as the weighted addition method. (Eriskon Marbun, 2019). Unfortunately, this SAW method has a drawback, when comparing the results between alternatives still objective, and sometimes the result might be not logical because of the inconsistent weighting of criteria. SAW combined with AHP get test results with

an accuracy value of 86.84%, and after the significance test the accuracy increases to 92.11%. It turns out that the results of these recommendations are more objective on research “*SPK Penentuan Lokasi ATM Menggunakan Metode AHP dan SAW*”. (Gede Surya Mahendra, 2019). AHP-SAW get measurement results showing that the difference level for the SAW method is 81.5%, while for the AHP method is 43.75%. The results show that the AHP method approach is considered relatively more relevant. (Prisa Marga Kusumantara, 2019).

On the other hand, SAW's Weaknesses that can be solved by using the AHP method which has more consistency in determining the weight of the criteria. AHP method was used to determine a single tuition in a university. Based on the result, SAW gives a better results than the other methods such as TOPSIS and SAW and the average ranking generated that is closest to the decisions made by the user (Wawan Firgiawan, 2019).

Meanwhile, Analytical Hierarchy Process (AHP) method was used to evaluate and select the best alternative based on consideration of certain criteria used as the basis for the assessment (Mahmudi, 2019). While the Analytical Hierarchy Process (AHP) method is used to evaluate and choose the best alternative based on certain criteria that are used as the basis for the assessment (Mahmudi, 2019). Mostly of it is used for all alternative problem solving in health program priority research in order to get the best alternative. From this analysis, it is known that the *Desa Siaga* Assistance program (28.65%) occupies the first priority, then the *Desa Siaga* Guidance (20.05%) and the program that becomes the last priority is Mental Health Services (1.76%). (Makassau, 2012)

AHP-SAW has more objective and more relevant accuracy results so that it can be used for determining recipients and grants. If the researcher submits this method to the *Lembaga Penelitian dan Pengabdian Masyarakat* (LPPM) and this method is expected to be suitable, that later it will be a reference for further research, such as making a Decision Support System (DSS) to determine grant recipients, based on the AHP-SAW method so that later it can determine the

grantee more objectively, it is hoped that this research can be a reference for further research.

1.2 Problem Statement

Based on the background, there are several problems that will be discussed in the research including:

1. How to determine the recipients of research and community service grants using the AHP-SAW method?
2. Measure reliable the method is the performance of AHP-SAW in determining the recipients of research and community service grants?

1.3 Research Purposes

The objectives of this research are as follows:

1. Determine the recipients of research and community service grants using the AHP-SAW method
2. To understand the performance of AHP-SAW in determining the recipients of research grants and community service

1.4 Limitations of the Problem

There are known limitations in this study, there is:

1. The methods only used are Simple Additive Weighting (SAW) and Analytical Hierarchy Process (AHP).
2. This discussion is only focused on discussing the determination of the recipients of research grants and community service in LPPM.
3. This study only analyzes the selection of UMKT grant funds on LPPM using the AHP-SAW method, not making a decision support system (DSS).