

# DECISION SUPPORT SYSTEM FOR SELECTION OF SUPERIOR AND COMPETENT EMPLOYEES USING ANALYTICAL HIERARCHY PROCESS METHOD (AHP) AT UMKM DJOERAGAN AYAM PENYET IN EAST JAKARTA

Muhammad Reyhan Yafi<sup>1\*</sup>, Yuliasari<sup>2</sup>, Hadi Supratikta<sup>3</sup>

<sup>1\*,2,3</sup> Magister Manajemen Program Pascasarjana Universitas Pamulang

Jl. Surya Kencana No.1, Pamulang Bar., Kec. Pamulang, Kota Tangerang Selatan, Banten

\*Email koresponden: [reyafi@gmail.com](mailto:reyafi@gmail.com)

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## Abstract

This study aims to implement a Decision Support System (SPK) using the Analytical Hierarchy Process Method (AHP) in selecting employees of Micro, Small and Medium Enterprises (MSMEs) Djoeragan Ayam Penyet East Jakarta. The AHP method is used to facilitate more objective and structured decision making in the employee selection process. This research involved interviews with MSME owners and related staff, direct observation in the employee selection process, as well as literature studies to gain an in-depth understanding of the concepts and applications of the AHP Method in the context of employee selection. The results show that the implementation of SPK using the AHP Method can improve objectivity, consistency, and efficiency in the employee selection process. Suggestions for the development and implementation of an effective SDM are also presented. This research contributes to the development of more scientific and measurable decision-making methods in human resource management, especially in the context of MSMEs.

**Keyword** : Decision Support System (DSS), Employee Selection, Analytical Hierarchy Process Method (AHP).

## 1. INTRODUCTION

### 1.1 Background

In the era of digitalization and increasingly strong business competition, the success of a business is no longer solely determined by conventional factors such as capital and location. Instead, more dynamic internal factors, such as the quality of human resources, are now one of the main determinants of a company's success. The selection of qualified employees is a must for companies, especially in the face of fast-changing market dynamics and increasingly high customer demands.

In the Micro, Small and Medium Enterprises (MSME) sector, where companies often have limited resources, employee management is crucial in supporting business sustainability. In this context, the use of a Decision Support System (DSS) becomes a necessity to assist business owners in selecting the best employees who can make the maximum contribution to the development of the company.

This research aims to develop and implement a Decision Support System (SPK) that uses the Analytical Hierarchy Process Method (AHP) in selecting the best employees at UMKM Djoeragan Ayam Penyet in East Jakarta. UMKM Djoeragan Ayam Penyet was chosen as the research subject because it is a representation of the rapidly growing MSME sector in Indonesia, especially in East Jakarta.

The Analytical Hierarchy Process Method (AHP) was chosen as the framework in this study because of its ability to manage various criteria and sub-criteria and prioritize alternatives based on the preferences of business owners. By using AHP, it is expected that managers can make more accurate and measurable decisions in selecting the best employees that suit the needs and goals of the company.

This research is expected to contribute to MSME owners, especially MSME Djoeragan Ayam Penyet, in improving the effectiveness and efficiency of the employee selection process. In addition, this research is also expected to be a reference for researchers and practitioners in the field of Information Systems and Human Resources (HR) to develop better methods and systems in employee management in the MSME sector.

## **1.2 Theoretical Foundation**

### **1.2.1 Decision Support System**

Decision making in unstructured situations can be supported by a Decision Support System (DSS). SPK is a system designed for managerial decision-making stages in dealing with such situations. The main function of CBMS is to extend the capabilities of decision makers by providing the information and analysis needed, while still respecting human judgment and experience. SPK is also used in decisions that require evaluation or decisions that cannot be supported by any algorithm.

### **1.2.2 Analytic Hierarchy Process (AHP)**

Analytic Hierarchy Process (AHP) is part of an effective method in dealing with a complex problem with a hierarchical approach. Potential problem complexity occurs with criteria, unclear problem structure, uncertainty of opinion on decision making, participation has the direction of more than one decision maker, and has the potential for inaccurate data. When explaining the hierarchy as a representation of a multi-level structure in solving complex problems, starting from the objectives, then followed by factors, criteria, sub-criteria and so on until the final alternative level. By using a hierarchy, broad problems can be described in groups and can be arranged in the form of a hierarchy to provide a better structure and systematization of the problem.

## **2. METHODS**

### **2.1 Interview**

The method taken is by means of Qualitative Interviews Interviews will be conducted with the owner of UMKM Djoeragan Ayam Penyet and related staff involved in the employee selection process. The interview will focus on their understanding of the current employee selection system, challenges faced, perceptions of the need for a decision support system, and expectations of the implementation of the AHP Method.

### **2.2 Observation**

Observation is carried out directly in the employee selection process at UMKM Djoeragan Ayam Penyet. The focus is on the stages of employee selection, the use of the AHP Method, and interactions between MSME owners, managers, and employees. Researchers will actively participate in meetings, interviews, and employee evaluations. The collected data will be analyzed qualitatively to identify the effectiveness of the AHP Method in decision-making.



This analysis will provide an in-depth understanding of the employee selection process and the role of the AHP Method.

### 2.3 Heritage Study

The literature study involves the collection, selection, and analysis of relevant reading materials on Decision Support Systems, Analytical Hierarchy Process Method (AHP), and employee selection for MSMEs. After collection, the reading materials were evaluated for relevance and quality and the most relevant ones were selected. In-depth reading was conducted to identify key concepts, theories and related findings. Critical analysis was conducted on the selected reading materials, followed by synthesis of information from various sources to build a comprehensive understanding. The results of the analysis and synthesis are presented systematically in a literature study report with a detailed structure.

### 2.4 Research Stages

The first stage of the research involved gathering information about MSME Djoeragan Ayam Penyet, including the organizational structure, the existing employee selection process, and the problems faced in employee selection. Then, the research problem was formulated to be able to develop a good decision support system to select the best employees. Data collection is done by collecting information about criteria and sub-criteria from literature and MSME owners. Next, an Analytical Hierarchy Process (AHP) model was built, including criteria, sub-criteria, and employees to be evaluated, with employee data collected including qualifications, experience, and previous performance. The data is then processed and analyzed using AHP software to calculate the relative weight of each employee based on predetermined criteria and sub-criteria. The results of the AHP analysis can be implemented in a decision support system that can be utilized by the owner of MSME Djoeragan Ayam Penyet in selecting employees.

### 2.5 Data Analysis

Data analysis techniques in the Best Employee Selection Decision Support System using the Analytical Hierarchy Process Method (AHP) for UMKM Djoeragan Ayam Penyet in East Jakarta include initial data processing, determining criteria and sub-criteria, ranking employees, calculating relative weights, final ranking, sensitivity analysis, interpretation of results, and documentation and reporting of results.

### 2.6 Analytical Hierarchy Process Method (AHP)

Analytical Hierarchy Process Method (AHP) is an analytical approach that can be used in decision making to solve problems involving various criteria or alternatives that are interrelated. Developed by Thomas L. Saaty in the 1970s, AHP provides a systematic framework for breaking down complex problems into a more manageable hierarchical structure.

In AHP, decisions are made through a series of stages, including :

1. Defining the Problem

Identify and clearly define the objectives and criteria involved in making the decision.

2. Building the Hierarchy

Structure criteria and alternatives into a multi-level hierarchy starting from the objectives at the top level, followed by criteria, sub-criteria, and alternatives at lower levels.

3. Pairwise Comparison

Requests a relative comparison of each pair of elements in each level of the hierarchy to determine relative preferences.

#### 4. Weight Calculation

Calculate the relative weight for each element in the hierarchy based on the pairwise assessment.

#### 5. Ranking and Decision Making

Combine relative weights to rank alternatives and make decisions based on the results.

AHP provides flexibility in modeling the complexity of decision-making by accommodating subjective aspects such as individual preferences and priorities. The method has been applied in a variety of decision-making contexts, ranging from business management to urban planning and investment selection.

Today, AHP has evolved into an important tool in decision science and continues to be widely used in various fields to help deal with complex decision-making challenges.

### 3. RESEARCH RESULTS AND DISCUSSION

The results of interviews with the owner of UMKM Djoeragan Ayam Penyet and related staff provide valuable insight into the implementation of a Decision Support System (SPK) using the Analytical Hierarchy Process Method (AHP) in employee selection. The following is a summary of the interview results :

#### 1. Understanding of the Current Employee Selection System

MSME owners and relevant staff stated that the current employee selection process still relies on subjective experience and personal judgment. Although there are efforts to apply certain standards, there are still shortcomings in the consistency and objectivity of the process.

#### 2. Challenges Faced in Employee Selection

One of the main challenges faced is the difficulty in objectively assessing the quality and potential of employees. Limited time and resources are also an obstacle in conducting a comprehensive selection process.

#### 3. Perceived Need for a Decision Support System

MSME owners and staff recognize the importance of having a structured and objective system for employee selection. They recognize that there is a need to improve the selection process by integrating a more scientific and measurable approach.

#### 4. Expectations for the Implementation of the AHP Method

In general, respondents welcomed the idea of implementing the AHP Method in the SDM. They expect that with the AHP Method, the employee selection process will become more systematic, structured, and reliable, which will ultimately lead to better decisions.

5. The results of this interview highlighted the needs and expectations for the implementation of SPK using the AHP Method in employee selection at UMKM Djoeragan Ayam Penyet in East Jakarta. This interview provides a strong foundation for the development and implementation of an effective SPK, taking into account input from MSME owners and related staff.

The results of the interviews with the owner of MSME Djoeragan Ayam Penyet and relevant staff showed a limited understanding of the current employee selection process, which still relies heavily on subjective judgment and personal experience. The main challenges faced are difficulties in objectively assessing the quality of employees and limited resources to conduct a comprehensive selection process.

However, they realized the importance of having a structured and objective system in employee selection, and welcomed the idea of implementing the AHP Method in a Decision

Support System (SDM). Their expectation is that with the AHP Method, the employee selection process will become more systematic, structured, and reliable, which will ultimately result in better decisions.

The results of these interviews highlight the needs and expectations towards the implementation of SPK using the AHP Method in employee selection at MSME Djoeragan Ayam Penyet in East Jakarta. This provides a strong foundation for the development and implementation of an effective SPK, taking into account input from MSME owners and related staff.

#### 4. CONCLUSION

On the results of the research “Decision Support System for Selection of Superior and Competent Employees Using Analytical Hierarchy Process Method (AHP) UMKM Djoeragan Ayam Penyet in East Jakarta”, several things can be concluded as follows, namely:

1. The implementation of the Decision Support System (SPK) using the Analytical Hierarchy Process Method (AHP) at UMKM Djoeragan Ayam Penyet in East Jakarta aims to increase objectivity, consistency, and efficiency in the employee selection process.
2. The results of interviews and observations show that MSME owners and related staff realize the importance of SPK adoption in employee selection. They welcome the idea of using the AHP Method to make more structured and objective decisions.
3. With the implementation of SPK using the AHP Method, the employee selection process at UMKM Djoeragan Ayam Penyet is expected to be more systematic and effective. This can help companies in getting employees who are in accordance with the criteria set, and improve the quality of the workforce as a whole.
4. This conclusion confirms the importance of applying technology and scientific methods in human resource management, especially in the MSME sector where the availability of resources is limited but the need for quality employees is very high.

1. Implement the Decision Support System (SDM) using AHP Method thoroughly in the employee selection process. Ensure that all staff are involved in understanding and using this system to ensure consistency and effectiveness of its use.
2. Conduct training and coaching to relevant staff regarding the use of the AHP Method in decision making. Strong support and understanding from all parties involved will increase the success of the SPK implementation.
3. Always update the criteria and weights in the SPK according to the needs and changes in the company. This will ensure that the SPK remains relevant and effective in selecting employees that best suit the needs of the company.
4. Periodically evaluate the performance and effectiveness of the SPK using the AHP Method. Identify areas that need improvement and follow up with appropriate measures to improve the quality and efficiency of the employee selection process.
5. Continue to conduct research and innovation in the use of technology and other scientific methods. This can help UMKM Djoeragan Ayam Penyet to remain competitive and adaptive to changes in the business environment and market needs.

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