

# The Good Salted egg using AHP

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**Abstract:** In the globalization era like nowadays, advertising marketing activities have become a trend in the world of communication to market products to the public. In order to be able to popularize a product that is less known by public, marketing can be an effective means of introducing the product to the wider community. The subjects in this study were decision support systems using the Analytical Hierarchy Process (AHP) method and the results of AHP calculations that can provide opportunities for program manager to be able to build ideas and define existing problems by making assumptions in a hierarchy and then get the desired solution and apply intelligently a complex mathematical approach based on a qualitative approach that can be accepted by all stakeholders and program managers. In this study, it was observed to consist of two factors, namely the factors of constraint and supporting factors with the criteria and sub-criteria considered by the two factors and alternatives that would later be chosen as the best marketing strategy for increasing sales of salted eggs. Based on the results of the study, alternative A1 produced a weight of 17 by occupying priority 1, alternative A2 produced a weight of 10.6 with occupying priority 2.

**Index Terms:** Analytical Hierarchy Process, marketing mix, salted egg micro enterprise, salted egg marketing strategy.

## I. INTRODUCTION

### A. Background

The decision to buy is on consumer and consumer will use various criteria in buying good and brand that suit their needs, taste and purchasing power [1-5]. Strict competition between brands will make consumers have a stronger position in bargaining [6-9]. The success of a product to be continuously consumed by consumers is supported by effective marketing activities [10-14]. The tendency of non-loyal consumers, namely to choose the best product with

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the desired quality, as long as the price is in accordance with the size [15-19]. Thus, it is expected that the implementation of effective marketing can stimulate consumers to buy these products [20-24]. In reaching consumers, salted egg micro enterprises forms a marketing area in all remote areas in Pringsewu District.

The Decision Support System in improving micro enterprise marketing is influenced by several factors as criteria. Each criterion must be able to answer one important question about how well an alternative can solve a problem to determine the marketing of micro-enterprises. Criteria related to raw materials as natural resources, businessmen as human resources, road access as transportation, people's purchasing power as marketing.

Until now, the salted egg micro enterprise in Pringsewu has never carried out an analysis of the form of marketing activities that have the most influence on the benefits of micro-enterprises. Marketing analysis has an influence on product profit, it needs to be done, marketing is one of the important element in the marketing mix that has an important role in achieving a qualified micro-enterprise vision that is communicating a product so that consumers continue to remember their existence in order to achieve greater profit.

One method that can be used to analyze marketing strategies is AHP (Analytical Hierarchy Process). AHP is a quantitative technique developed for cases that have various levels (hierarchy) of analysis. This method is a practical way to handle various functionalities in a complex network. The AHP method uses pairwise comparison, calculate weighting factors, and analyze them to produce relative priorities among existing alternatives. AHP is a simple and flexible method that accommodates creativity for solving a problem

### B. Problem Formulation

Based on the above background it can be formulated the problem to be solved was how to design a decision support system using AHP method (Process Hierarchy Analysis) to increase the marketing of salted egg micro enterprise based on predetermined weight and criteria. By using a program to help resolve problems so much easier and more efficient.

### C. The Scope of Problem

In this research it is needed the limitation to make it appropriate with the planning, so it can achieve the goals. As for the scope of the problem was :

- Sampling was done for this research obtained from businessmen information in



- sub-district level in Pringsewu District.
- b. Data collection method was obtained by questionnaire.

## D. Research Objective

The objective of this research was to develop a decision support model using AHP (Analytical Hierarchy Process) to determine alternative/area to be marketing location based on determined criteria and weight.

## E. Research Benefit

- a. To create decision support system to market salted egg micro enterprise.
- b. As training facility and knowledge development for author in in applying theory as research base.

## II. THEORETICAL BASE

### A. Micro Enterprise

Definition of micro enterprise is an enterprise with 5 - 19 workers to process raw material or semi-finished product become finished product which has value added to get benefit.

### B. Decision Support System

The concept of a Decision Support System (DSS) system was first introduced in the early 1970s by Michael S. Scott Morton with the term Management of Decision System. The system is a computer-based system aimed to help decision maker utilize certain data and models to solve various unstructured problems [25-29]. Decision support system is as a computer-based system consisting of components including system language components (language), components of system knowledge (knowledge) and components of problem processing system [30-34].

Some advantages in using DSS, among others:

1. Able to support solution finding from some complex problems.
2. Able to response quickly the unexpected situation in fluctuate condition.
3. Able to apply various different strategies in different configuration quickly and accurately,
4. New view and learning.
5. As facilitator in communication.
6. Save cost and human resources (SDM).
7. Save time because the decision can be made quickly
8. Enhance anlysis productivity.

### C. Definition of Salted Egg

Salted egg is a general term for egg-based dishes that are preserved in a way marinated (given excess salt to deactivate the remodel enzyme). Most salted eggs are from

duck eggs, although they do not rule out other eggs. Salted eggs are consumed in one month (30 days).

## D. Main Concept of Analytical Hierarchy Process (AHP)

The Analytical Hierarchy Process (AHP) is a decision support model developed by Thomas L. Saaty. This decision support model will describe multi-factor problems or complex multi criteria into a hierarchy. Hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is a goal, followed by a factor level, criteria, sub criteria, and so on down to the last level of the alternative. With hierarchy, a complex problem can be broken down into groups which are then organized into a hierarchical form so that the problem will appear more structured and systematic. Analytical Hierarchy Process (AHP) is often used as a problem solving method compared to other methods for the following reasons:

1. Hierarchy Structure as consequence from selected criterion until deepest sub criterion
2. Consider the validity up to the tolerance limit of inconsistencies in various criteria and alternatives selected by decision makers.
3. Consider the durability of the output of the decision-making sensitivity analysis.

## III. RESEARCH METHOD

### A. Data Collection

As for data collection methods used in this research were :

1. Literature Research Method. It is a technique of collecting data by studying references in the form of documents / files and collecting data, legislaton , books, research journals and so on, through a literature research method of legislation related to micro-enterprise is carried out [35-40]. Related to this matter the author in conducting research studied several references relating to the increased marketing of salted egg micro enterprise in Pringsewu
2. Observation Method. Observation method is a research method wherein, the researcher observes / looks at and researches directly to the object of research about all activities related to the purpose of the research [41-45], by analyzing the ongoing system and providing solutions through the information system to be build [46-49], so that it can be more useful [50-54]. Regarding the observation method, the author made a direct observation of the micro salted egg business to obtain some of the information needed related to the marketing carried out
3. Interview Method. The interview is a conversation between researcher and informant [55-60]. The researcher hopes to get information [61-65], while the informant is someone who is assumed having important information about an object [66-70]. In this case the author conducted interviews with micro business owners in order to obtain complete data information as well as the potential possessed.



**B. Research Flow Diagram**

Secondary data obtained from internal and external data [71-76] from employers, the results of previous research, and various literature related to this research.

**IV. IMPLEMENTATION**

**A. Calculation Implementation**

Table 1. Salted egg criteria

C1	Taste of salted egg
C2	Shape of salted egg
C3	Colour of salted egg

Qualified salted egg calculation

Table 2. Taste of salted egg

No	Taste of salted egg	Score
1	Salty	6
2	Rather salty	4

Table 3. Shape of salted egg

No.	Shape of salted egg	Score
1	Round	5
2	Oval	5

Table 4. Colour of salted egg

No.	Colour of salted egg	Score
1	Dark blue	6
2	Light blue	4

**Criteria**

There were two alternatives taken from Ambarawa subdistrict

A<sub>1</sub> = salty

A<sub>2</sub> = rather salty

As for the results from sample selection proposed can be seen on table below :

Table 5. Normalization

No.	Name	C1	C2	C3
1	A1	6	5	6
2	A2	4	5	4

On table 5 can be made normalization of C<sub>i</sub>

Salted egg taste:

$$R11 = 6/\text{Max}(6,4) = 6/6 = 1$$

$$R12 = 4/\text{Max}(6,4) = 4/6 = 0.7$$

Shape egg taste

$$R21 = 5/\text{Max}(5,5) = 5/5 = 1$$

$$R22 = 5/\text{Max}(5,5) = 5/5 = 1$$

Color egg taste

$$R31 = 6/\text{Max}(6,4) = 6/6 = 1$$

$$R32 = 4/\text{Max}(6,4) = 4/6 = 0.7$$

$$A1 = (6)*(1) + (5)*(1) + (6)*(1) = 6+5+6 = 17$$

$$A2 = (4)*(0,7) + (5)*(1) + (4)*(0,7) = 2,8+5+2,8 = 10,6$$

Greatest score of A1 to A1 (salted egg) was selected alternative as best alternative as qualified salted egg.

**B. Program Implementation**

Score weighting form functioned to perform weighting to all criteria. The following is display from weighting form score. Figure 1 shows salty score form and Figure 2 shows rather salty score form.



Figure 1. Salty Score Form



Figure 2. Rather salty score form

**V. CONCLUSION**

Weighting result of Salted Egg Micro Enterprise in Pringsewu Area based on alternative A1 Priority with weight 17, alternative 2 with weight 10.6. Based on the results of this study, to increase sales of Egg-Salted Micro Enterprise product, entrepreneurs can still maintain the Marketing mix that has been implemented so far. Thus, it is expected that the enterprise can continue to





make the best use of the five Marketing mixes so that the increase in salted egg Micro enterprise will be maintained because applying the five Marketing mixes is a perfect way to cover the entire approach that has been done through the media to the personal. It is needed a further research on the marketing strategies in other salted egg micro enterprise areas so that the priority marketing objectives 2. Program Implementation were maintaining and increasing the Salted Egg Micro Enterprise market share that can be achieved nationally, as well as research related to consumer behavior to see the impact of strategy application of Micro Enterprise Marketing of Salted Eggs.

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