CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Object

3.1.1 Research Location

This research was conducted in a batik manufacturer in Sleman, Yogyakarta namely Batik Sogan Rejodani. The company focuses to produce handmade batik, which are batik tulis and batik cap in many variations.

3.1.2 Focus of the Research

The focus of this research is to analyze the SWOT factor of the company. After that, researcher will integrate SWOT and Fuzzy TOPSIS as the method to formulate the suitable strategy for the company.

3.2 Literature Review

Deductive and inductive studies were performed for the literature review. Deductive study was carried out to gain the basic concept of this research. Then, it is followed by conducting the inductive study to gain the information of related research, to identify the difference and position of this research among the other or previous researches.

3.3 Data Collection Method

Researcher needs to collect the input before processing the data. This research uses primary data and secondary data. In interview and questionnaire, researcher collects the input from the expert from the company. The expert works in this company as production supervisor. The method of collecting data are as follows:

1. Literature Review

   In order to support this research, literature review is needed. It is obtained from book, and journal which related to this research. This kind of data collection method is classified as secondary data, because this kind of data is already available and only can be collected indirectly. It becomes a support for the primary data.

2. Interview

   To gain input which related to this research, researcher conducts an interview. There is some information which researcher needed in this interview such as company profile, the strength, weakness, opportunity and threat of company; and strategy formulation. The interview was performed to the expert in the company. This kind of data collection method is classified as primary data, because this kind of data must be collected directly from the interviewees.

3. Questionnaire

   To fulfill the SWOT and Fuzzy TOPSIS calculation input, researcher needs to gather information from the expert. There are several kinds of data which researcher needed in this questionnaire such as the weight and rating of IFE & EFE, and Fuzzy TOPSIS input. The questionnaire was performed to the expert in the company. This kind of data collection method is classified as primary data, because this kind of data must be collected directly from the interviewees.

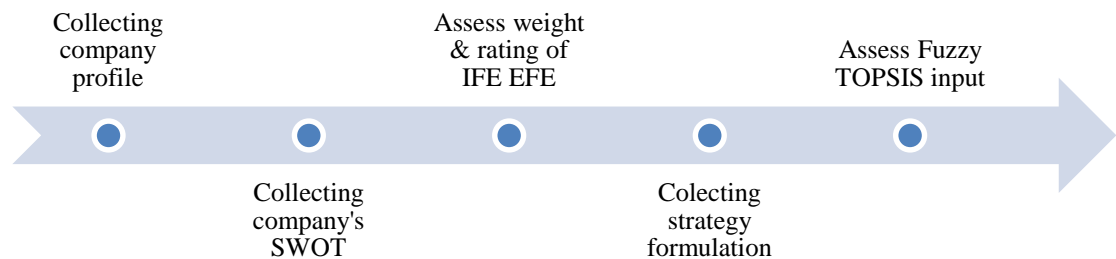Below is the timeline of data collection process from the expert:

Collecting company profile · Collecting company's SWOT · Assess weight & rating of IFE EFE · Colecting strategy formulation · Assess Fuzzy TOPSIS input

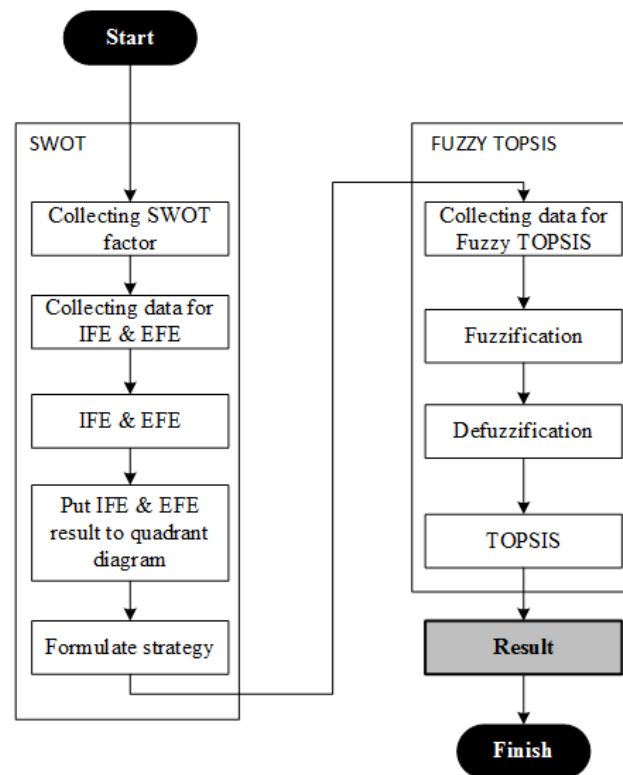Figure 3.1 Data collection timeline

3.4   Data Processing

Figure 3.2 Research process flowchart

As seen in the diagram above, this research consists of 2 stages which are SWOT stage and Fuzzy TOPSIS stage. The first step in SWOT stage is data collecting for the inputting of SWOT such as strengths, weaknesses, opportunities, and threats from the expert. Then, when IFE & EFE performed, researcher separates the SWOT into 2 groups which are internal factor and external factor. Internal factor consists of strengths and weaknesses, while external factor consists of opportunities and threats. Both internal and external factor will be weighted and rated by the expert. At the end, the total score of internal factor and external factor will be obtained. The next step is to put the total score of internal and external factor in SWOT quadrant to find out the suitable company's strategy, whether it is SO, WO, ST or WT strategy. And after the suitable strategy found, the expert is asked to formulate the strategy. Because the formulated strategy is more than one, then Fuzzy TOPSIS must be performed in order to rank it.

The second stage in this research is Fuzzy TOPSIS stage. After the strategy has been made, it must be ranked to find the best strategy for this company. In order to find the best strategy, researcher performed Fuzzy TOPSIS. The first step in this stage is data collecting for Fuzzy TOPSIS through questionnaire. The expert gives the rating in the questionnaire in form of linguistic variable. The second step is fuzzification, where all the rating in the questionnaire converted into triangular fuzzy number. After that, all the fuzzification result converted into crisp by performing defuzzification. The last step is performing TOPSIS using the defuzzified result as the initial input.