Innovative Engineering Strategies for Revenue Growth: a SWOT and QSPM Analysis of UD AMJ Jaya Teknik

Alif Putra Awanda*, Elly Ismiyah, Akhmad Wasiur Rizqi

Faculty of Industrial Engineering, Universitas Muhammadiyah Gresik. Jl Sumatra 11 GKB, Gresik 61121, Indonesia

*alifasensio@gmail.com, ismi_elly@umg.ac.id, akhmad_wasiur@umg.ac.id

Abstract. Business competition in the current era of globalization is very rapid, so it is increasing competition between companies which is getting higher and tighter. UD AMJ Jaya Teknik is a company in the field of turning and manufacturing spare parts. As long as the business run by UD AMJ Jaya Teknik experiences a decline in income, good and appropriate strategic management is needed for UD AMJ Jaya Teknik. The methods used in this research are the SWOT and QSPM methods. The aim of this research is to provide strategy suggestions for companies to experience increasingly rapid increases in income. The four stages carried out are the stage of looking for internal and external company factors, the IFE and EFE matrix stage, the SWOT matrix matching stage, the stage of determining the main strategy with the largest total attractive score using QSPM. There are 7 proposed marketing strategies for UD AMJ Jaya Teknik. Improving the quality of the products produced and innovating the products produced is the strategy with the highest TAS score of 5.95.

Keywords: SWOT, QSPM, Marketing Strategy, Increasing Revenue

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1. Introduction

Business competition in the current era of globalization is very tight, where with increasing competition between companies which is getting higher and tighter, companies must also always innovate and collaborate with fellow competitors. This situation causes the company to strive to maintain survival, develop the company for the better, obtain optimal profits and try to strengthen its position in facing business competition. To achieve these goals cannot be separated from marketing efforts which must be thought about and planned before creating a product.[1]. Companies must make various efforts so that they can have a strong attraction that is embedded in the minds of consumers and ultimately can achieve a wide market share, so that they are able to compete with other competitors.[2]. The company's ability to excel against competitors will determine which companies remain the market choice and which ones go bankrupt. This kind of very dynamic and complex internal and external business environment requires the right business strategy to maintain the company's existence[3]. This causes the decision making process to become increasingly difficult and complicated[4]. For this reason, strategic management plays a central role. Every strategy always requires review and perhaps even changes in the future[5]. One of the main reasons why this is the case is because the conditions faced by companies,
both internal and external, are always changing. Strategy analysis and selection is one of the important steps in strategic management[6].

UD AMJ Jaya Teknik is a small and medium business that operates in the field of turning services and spare part manufacturing. The products produced by this company are very popular with customers, but in mid-2020, in the era of the Covid-19 pandemic, UD AMJ Jaya Teknik experienced a decline in income and minimal orders received until now. With this happening, UD AMJ Jaya Teknik had to carry out a strategy to be able to compete with other competitors, thus requiring the company to carry out or implement a more appropriate marketing strategy so that revenue would increase. Marketing strategy is a tool for a tool to achieve marketing goals which is a way for a company to capture customer mind share[7]. The methods used to prioritize marketing strategies are SWOT (Strength, Weakness, Opportunity, Threat) and QSPM (Quantitative Strategic Planning Matrix). The advantage of using the QSPM matrix is that strategies can be examined sequentially and simultaneously, and there is no limit to the number of strategies which is a marketing mindset that will be used by a business unit to achieve its goals.[8]. The aim of this research is to implement or provide new strategies to companies so that they experience increasingly rapid increases in income.

2. Methods

This research was conducted at UD AMJ Jaya Teknik which is located on Jalan Lingsir, Slempit, Kedamean District, Gresik Regency. The types of data used in this research include order income data and UD AMJ Jaya Teknik has never experienced complaints regarding the products produced. Data collection was carried out by observing and interviewing. This research uses 2 methods to provide marketing strategies, namely the SWOT and QSPM methods. The stages carried out in this research were as follows:

1. Early stage
   Carrying out field studies and literature studies in the Company, after that identifying problems, the problems taken in this research.

2. Second stage
   Collecting data obtained from companies through observations and interviews with business owners.

3. Third phase
   Data processing and analysis determines the company's internal and external factors which then calculate the weights, ratings and scores to determine the company's position on the IE matrix. After that, a SWOT analysis was carried out using the SWOT matrix. The results of the SWOT analysis will be processed again using the QSPM method to obtain alternative strategies that are suitable for marketing strategies as an effort to increase revenue at UD AMJ Jaya Teknik.

4. Fourth stage
   Conclusions for research conducted by researchers.

2.1. SWOT Identification

It is a strategic planning method that aims to determine the environmental conditions found in a company. This method is used to evaluate strengths, weaknesses, opportunities and threats in an effort to run a business. From these four factors, the acronym SWOT was formed[9]. Which can be explained as follows:

a) Strength (Strength)
   These are various kinds of advantages that a company has, which, if used properly, will play a big role in the company and can enable the company to achieve its goals.[10].

b) Weakness
   It is a characteristic that is related to the company's weaknesses compared to competitors, but if the company can successfully overcome or minimize it, it will play a big role for the company.

c) Opportunities
   It is a positive factor faced by a company, where if this opportunity can be utilized properly and
correctly it will have a big influence on a company and can achieve its goals.

d) Threats
It is a negative factor faced by a company, where if the company succeeds in overcoming all forms of threats from outside and inside, it can be overcome, it will play a big role in a company.[11].

2.2. IFE Matrix
The IFE (Internal Factor Evaluation) matrix is used to analyze the company's internal environment. The factors that will be used in the process of preparing the IFE matrix are the company's internal environmental factors. These internal company factors are in the form of strengths and weaknesses possessed by a company[12]. According to[13]There are 5 steps taken for the EFE and IFE matrices to be developed, namely:
Make a list of 10-20 internal factors that indicate specific strengths and weaknesses of the organization (percentages, ratios, or comparative figures, literature studies) ; Giving each factor a weight ranging from 0.0 (not important) to 1.0 (all important). Weights indicate the relative significance of a particular factor to a company's industry success. Factors that are considered to have the greatest influence on organizational performance are given the highest weight, regardless of whether the main factor is an internal weakness or strength. The sum of all weights must equal 1.0. ; Give each factor a rating ranging from 1 to 4 to indicate the factor is very weak (rank 1), weak (rank 2), strong (rank 3), (very strong (rank 4). Weaknesses get a rating of 1 or 2, while strengths get a rating of 3 or 4. So the rating is company based, while the weighting is industry based. ; Multiplying the weight of each factor by its ranking to determine a weight score for each variable. ; Add up the weight scores for each variable to obtain the organization's total weight score.

2.3. Matrix EFE
It is a tool used to examine a company's external environment and to identify existing opportunities and threats. According to[14]There are 5 stages to complete the EFE matrix, namely:
List the external factors as identified in the external audit process. List several factors that include opportunities and threats that affect the company and its industry. Write opportunities first and then threats. Be as specific as possible, using percentages, ratios and comparative figures. ; Give a weight ranging from 0.0 (not important) to 1.0 (very important) for each factor. opportunities are often given a higher weight than threats, but threats can also be given a high weight if they are very serious or extremely threatening. The sum of all weights must equal 1.0. ; Give a rating of 1 to 4 for each factor to indicate how effective the company's current strategy is in responding to that factor, 4 = superior company response, 3 = above average company response, 2 = average company response, and 1 = bad company response. It is important to note that threats and opportunities can be rated 1,2,3, or 4. ; Multiply each factor weight by the ranking to determine the weighted average for each variable ; Add up the weighted averages for each variable to determine the total weighted average for the organization.

2.4. SWOT Matrix
The SWOT Matrix is an important matching tool that helps managers develop four types of strategies: SO Strategy (strengths-opportunities), WO Strategy (weaknesses-opportunities), ST Strategy (strengths-threats), and WT Strategy (weaknesses-threats).

2.5. QSPM analysis
It is a technique that can identify an alternative strategy that suits the company's conditions[15]. This method has advantages such as a series of strategies that can be observed sequentially or simultaneously, preparers who need a strategy to integrate relevant internal and external factors in the decision-making process, highlighting important relationships to influence strategic decisions, increasing the probability
of the final strategic decision results are good for the company[16]. According to[10]The steps that must be considered in the QSPM analysis are:

1. Prepare a key list of external factors in the form of opportunities and threats as well as a list of key internal factors in the form of company strengths and weaknesses in the left column of the QSPM. Then this information will be obtained from EFE and IFE.
2. Give a weight to each critical internal and external success factor, this value is the same as the weight for EFE and IFE.
3. Identify and determine strategic alternatives that can be implemented by the company, and write them on the first line of the QSPM.
4. Determine Attractiveness Scores (AS) as a numerical value that can indicate the relative attractiveness value of each alternative strategy. Attractiveness Scores (AS) are determined by calculating each key internal and external factor at one time.
5. Calculate the total Attractiveness Scores (AS) value by multiplying each weight by each Attractiveness Scores (AS) value.
6. Calculate the average Total Attractiveness Scores, by entering the TAS value in each strategy column. The average TAS value can indicate the best strategy to use. The alternative strategy with the highest TAS value indicates that this strategy is the best strategy to use, where the external opportunities are large enough to be exploited using the company's current strengths and weaknesses.

3. Results and Discussion

3.1. SWOT Identification

Before calculating the weights, ratings and scores on the IFE and EFE matrices, SWOT identification is first carried out. Where researchers will brainstorm the company's internal and external factors with several respondents. These results can be seen in Table 1.1. After obtaining the results from determining the Company's internal factors and internal factors, weights, ratings and scores will be calculated.

3.2. MatrixIFE and EFE

The table below is the IFE and EFE Matrix, in this matrix the score value for each strategic factor is calculated, after that the total score is used to determine the company's strategy in the IE Matrix. Determination of the significant value and weight of this research was obtained from the results of brainstorming by 3 participants, namely , business owners, workers, and researchers. This is because there are only 2 workers in the business. The formula for finding the Score value = Weight value X Rating. Example of calculation in finding a score: S1 = 0.06 x 4 = 0.23.

<table>
<thead>
<tr>
<th>No.</th>
<th>Internal Strategic Factors</th>
<th>Weight</th>
<th>Ratings</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>UD AMJ Jaya Teknik has competent workers in the turning field</td>
<td>0.06</td>
<td>4.0</td>
<td>0.23</td>
</tr>
<tr>
<td>S2</td>
<td>The products produced are very good and there are almost no failures in production</td>
<td>0.06</td>
<td>4.0</td>
<td>0.26</td>
</tr>
<tr>
<td>S3</td>
<td>The method used in turning techniques is according to SOP</td>
<td>0.05</td>
<td>3.0</td>
<td>0.15</td>
</tr>
<tr>
<td>S4</td>
<td>Turning processing time is relatively fast</td>
<td>0.06</td>
<td>3.0</td>
<td>0.17</td>
</tr>
<tr>
<td>S5</td>
<td>The machines used comply with Indonesian National Standards (SNI)</td>
<td>0.05</td>
<td>3.0</td>
<td>0.15</td>
</tr>
<tr>
<td>S6</td>
<td>Can handle various types of turning (according to customer wishes)</td>
<td>0.06</td>
<td>3.0</td>
<td>0.17</td>
</tr>
<tr>
<td>S7</td>
<td>Carrying out the mandate and being responsible for product requests received (good relationship with consumers)</td>
<td>0.05</td>
<td>4.0</td>
<td>0.20</td>
</tr>
<tr>
<td>S8</td>
<td>Have a permanent supplier and quality materials</td>
<td>0.06</td>
<td>4.0</td>
<td>0.26</td>
</tr>
<tr>
<td>S9</td>
<td>Have your own workshop (no rent)</td>
<td>0.05</td>
<td>3.0</td>
<td>0.15</td>
</tr>
<tr>
<td>No.</td>
<td>External Strategic Factors</td>
<td>Weight</td>
<td>Ratings</td>
<td>Score</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td><strong>Opportunity :</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O1</td>
<td>Have collaborative partners with other workshops that have more complete machines</td>
<td>0.09</td>
<td>4.0</td>
<td>0.31</td>
</tr>
<tr>
<td>O2</td>
<td>Strategic location of the workshop (close to human resources, raw materials, consumers)</td>
<td>0.10</td>
<td>4.0</td>
<td>0.40</td>
</tr>
<tr>
<td>O3</td>
<td>Technological advances that are currently developing</td>
<td>0.08</td>
<td>3.0</td>
<td>0.24</td>
</tr>
<tr>
<td>O4</td>
<td>Have a good relationship with the surrounding environment</td>
<td>0.09</td>
<td>3.0</td>
<td>0.27</td>
</tr>
<tr>
<td>O5</td>
<td>Market share is quite high</td>
<td>0.09</td>
<td>4.0</td>
<td>0.36</td>
</tr>
<tr>
<td>O6</td>
<td>Good relationship with suppliers</td>
<td>0.09</td>
<td>4.0</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td><strong>Threat :</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>Global economic crisis (a phenomenon or disease outbreak such as Covid-19)</td>
<td>0.09</td>
<td>3.0</td>
<td>0.22</td>
</tr>
<tr>
<td>T2</td>
<td>Rise in fuel prices</td>
<td>0.07</td>
<td>1.0</td>
<td>0.07</td>
</tr>
<tr>
<td>T3</td>
<td>There are more and more similar lathe companies in the city of Gresik</td>
<td>0.07</td>
<td>1.0</td>
<td>0.07</td>
</tr>
<tr>
<td>T4</td>
<td>The development of product quality in relation to current consumer needs still needs to be considered</td>
<td>0.08</td>
<td>1.0</td>
<td>0.12</td>
</tr>
<tr>
<td>T5</td>
<td>Increase in raw material prices</td>
<td>0.08</td>
<td>1.0</td>
<td>0.12</td>
</tr>
<tr>
<td>T6</td>
<td>Competitive price competition with competitors.</td>
<td>0.08</td>
<td>2.0</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>1.00</td>
<td>2.70</td>
<td></td>
</tr>
</tbody>
</table>

From the analysis of the IFE matrix in table 1, it shows that the highest strength score with a value of 0.26 was obtained for the factor The products produced are very good and have almost no failures in production and have a permanent supplier and quality materials. Meanwhile, the highest weakness score with a value of 0.14 was obtained in the less varied promotional strategy factor.

From the analysis of the EFE matrix in table 2, it shows that the highest opportunity score with a value of 0.40 was obtained for the factor strategic location of the workshop (close to human resources, raw materials, consumers). Meanwhile, the highest threat score with a value of 0.22 was obtained from the global economic crisis factor (the presence of a disease phenomenon or outbreak such as Covid-19).
The weighting and rating process in tables 1 and 2, the weight values are obtained from internal and external factors, so it can be seen which factors are not important to which are important, which are likely to have an impact on strategic factors. Meanwhile, the rating value given is between 1 and 4. This factor influences the condition of the company.

The following are the rating values obtained from the questionnaire as follows: From the IFE and EFE matrix calculations it can be seen:

a. Total IFE weight score = 2.60
b. Total EFE weight score = 2.70

3.3. IE Matrix
In this matrix, the IFE and EFE matrix scores regarding company strength are combined based on the organization's internal and external conditions. Based on the results, the total IFE weight score is 2.60 while the EFE is 2.70.

![IE Matrix Diagram]

**Figure 1. IE Matrix**

3.4. SWOT Matrix
The SWOT matrix is obtained by using factors that include strengths and opportunities for the SO strategy, weaknesses and threats for the WO strategy, strengths and threats for the ST strategy, and weaknesses and threats for the WT strategy. [5]

**Table 3. SWOT Analysis**

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>UD AMJ Jaya Teknik has competent workers in the turning field</td>
<td>Lack of capital to increase company productivity</td>
</tr>
<tr>
<td>The products produced are very good and there are almost no failures in the production process</td>
<td>It does not have a special machine that can perform special turning operations</td>
</tr>
<tr>
<td>The method used in turning techniques meets the SOP</td>
<td>The owner still has the main power in making decisions</td>
</tr>
<tr>
<td>Turning processing time is relatively fast</td>
<td>Machines still depend on humans</td>
</tr>
<tr>
<td>The machine used meets Indonesian National Standards (SNI)</td>
<td>Does not have permanent employees</td>
</tr>
</tbody>
</table>

02303010-06
### Opportunity:
- Have collaborative partners with other workshops with more complete machines
- Strategic location of the workshop (close to human resources, raw materials, and consumers)
- Technological advances that are currently developing
- Have a good relationship with the surrounding environment
- Market share is quite high
- Good relationship with suppliers

### Strengths and opportunities:
- Collaborating with other workshops with more complete machines with a profit sharing system (S1, S2, S3, S4, S5, S6+O3)
- Apply for a discount on raw material prices (S8+O5, O6)

### Weaknesses and opportunities:
- Collaboration with workshops that have complete machines with a profit sharing system (W1, W2+O1)
- Increase cooperation with other factories (Consumers) and improve promotional strategies (W6, W7, W8+O3, O4, O5)
- Create online media to make it easier to search for orders and deliveries (W10+O3)

### Threat:
- Global economic crisis (a phenomenon or disease outbreak such as Covid-19)
- Rise in fuel prices
- The increasing number of similar lathe machine companies in the city of Gresik
- Developing product quality based on customer needs is currently still in the high demand stage
- Rising raw material prices
- Competitive price competition with competitors.

### Strengths and threats:
- Improving the quality of the products produced and innovating the products produced (S1, S2, S3, S4, S5+T3)
- Make attractive price offers by making price discounts (S1, S2, S3, S4, S5+T6)
- Asking for discounts from raw material suppliers (S8+T5)

### Weaknesses and threats:
- Carrying out promotions and negotiating prices with consumers
- Adding the latest product variations to meet customer standards (W3, W7+T6)

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3.5. QSPM analysis

Based on SWOT matrix analysis and IE matrix. Several alternative marketing strategies can be generated. The following are the results of the strategy and calculation of TAS values:

02303010-07
<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>AS</td>
<td>TAS</td>
</tr>
<tr>
<td>S1</td>
<td>0.06</td>
<td>2</td>
</tr>
<tr>
<td>S2</td>
<td>0.06</td>
<td>2</td>
</tr>
<tr>
<td>S3</td>
<td>0.05</td>
<td>2</td>
</tr>
<tr>
<td>S4</td>
<td>0.06</td>
<td>2</td>
</tr>
<tr>
<td>S5</td>
<td>0.05</td>
<td>1</td>
</tr>
<tr>
<td>S6</td>
<td>0.06</td>
<td>1</td>
</tr>
<tr>
<td>S7</td>
<td>0.05</td>
<td>2</td>
</tr>
<tr>
<td>S8</td>
<td>0.06</td>
<td>2</td>
</tr>
<tr>
<td>S9</td>
<td>0.05</td>
<td>1</td>
</tr>
<tr>
<td>S10</td>
<td>0.05</td>
<td>2</td>
</tr>
<tr>
<td>W1</td>
<td>0.04</td>
<td>4</td>
</tr>
<tr>
<td>W2</td>
<td>0.04</td>
<td>4</td>
</tr>
<tr>
<td>W3</td>
<td>0.04</td>
<td>3</td>
</tr>
<tr>
<td>W4</td>
<td>0.04</td>
<td>2</td>
</tr>
<tr>
<td>W5</td>
<td>0.05</td>
<td>4</td>
</tr>
<tr>
<td>W6</td>
<td>0.06</td>
<td>2</td>
</tr>
<tr>
<td>W7</td>
<td>0.04</td>
<td>4</td>
</tr>
<tr>
<td>W8</td>
<td>0.05</td>
<td>3</td>
</tr>
<tr>
<td>W9</td>
<td>0.05</td>
<td>2</td>
</tr>
<tr>
<td>W10</td>
<td>0.04</td>
<td>2</td>
</tr>
<tr>
<td>O1</td>
<td>0.09</td>
<td>4</td>
</tr>
<tr>
<td>O2</td>
<td>0.1</td>
<td>4</td>
</tr>
<tr>
<td>O3</td>
<td>0.08</td>
<td>3</td>
</tr>
<tr>
<td>O4</td>
<td>0.09</td>
<td>4</td>
</tr>
<tr>
<td>O5</td>
<td>0.09</td>
<td>4</td>
</tr>
<tr>
<td>O6</td>
<td>0.09</td>
<td>2</td>
</tr>
</tbody>
</table>
The method for calculating TAS is as follows: weight x AS (0.06 x 2 = 0.12). The AS (Attractiveness Score) value was obtained from the brainstorming results of 3 participants, namely business owners, workers and researchers.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Strategy Description</th>
<th>TAS value</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy 1</td>
<td>Collaborating with other workshops with more complete machines with a profit sharing system</td>
<td>5.36</td>
<td>5</td>
</tr>
<tr>
<td>Strategy 2</td>
<td>Proposing discounts on raw material prices to suppliers</td>
<td>5.33</td>
<td>6</td>
</tr>
<tr>
<td>Strategy 3</td>
<td>Improving the quality of the products produced and innovating the products produced</td>
<td>5.95</td>
<td>1</td>
</tr>
<tr>
<td>Strategy 4</td>
<td>Make attractive price offers by making price discounts</td>
<td>5.43</td>
<td>4</td>
</tr>
<tr>
<td>Strategy 5</td>
<td>Increase cooperation with other factories (Consumers) and improve promotional strategies</td>
<td>5.62</td>
<td>3</td>
</tr>
<tr>
<td>Strategy 6</td>
<td>Create online media to make it easier to find orders and deliveries</td>
<td>5.70</td>
<td>2</td>
</tr>
<tr>
<td>Strategy 7</td>
<td>Carrying out promotions and negotiating prices with consumers</td>
<td>5.23</td>
<td>7</td>
</tr>
</tbody>
</table>

Based on the ranking results in table 4, the strategy that is the main priority to be implemented by company management is improving product quality where this strategy aims to increase revenue and add consumers to the company.

4. Conclusion
Based on the results of the discussion and data processing that has been carried out, it can be concluded that the strategy is a combination of strengths and opportunities, namely improving relationships with colleagues to increase the amount of product productivity and expanding the market by becoming a supplier to retail businesses. Meanwhile, suggestions are obtained from a combination of shortcomings and threats, namely restructuring business management so that work can be more optimal, being braver in taking risks that are profitable for the future and maintaining product quality so that it is not affected by price competition. From the results of the research discussion above, it can be seen that UD AMJ Jaya Teknik still needs to increase the number of product productivity and expand the market and maintain product quality so that customers do not look for other suppliers.

This research has shortcomings in that the discussion only refers to marketing and calculations that are less than optimal. In future research, it is hoped that the objects observed will have a wide scope so that they can be observed well so that the research is more complete and accurate. Apart from that, further research can use other methods.
References


