Measurement of Feasibility and Risk Level on Modern Embroidery Kebaya Boutique Establishment in Jakarta

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Abstract. Business X is a creative business in Kebaya clothing, fabrics, and modern embroidered batik. The survey states that many medium business category turn into micro businesses due to the increasing number of imported textile products, resulting in a narrower market share. Under this condition, the company decided to create a Business X boutique considering that the products were not sold alone but at department stores that has a very high competition because of the large apparel industry continued to expand its business. In this paper, a feasibility analysis and the risk level measurement of the opening of this boutique are carried out. The market aspect begins with the distribution of questionnaires to obtain the demand and income projections. The technical aspects is for determining location using factor rating, layout and funding needs. Financial aspects estimate sales revenue and cashflow. The calculation results show NPV>0, PBP in 2,989 years, and IRR(40%)>MARR(10.99%), it can be concluded that the Business X boutique establishment is feasible. The risk is 21.7% and with a MARR (10.99%), the rate is 32.69%. Based on the rate value that is smaller than the IRR(40%) and NPV>0, then by observing the level of risk, this business is feasible.

Keywords: Feasibility Analysis, Risk Level, NPV, IRR, PBP

1. INTRODUCTION

Indonesia is a country with internationally recognized cultural diversity, and batik craft is one of it. On October 2, 2009, batik was designated by UNESCO as a humanitarian heritage for verbal and non-material culture, so the government designated October 2 as national batik day. With the establishment of national batik day, batik has become increasingly desirable to both local and international communities. Locals make batik an outfit that must be used in institutions or offices, schools, to attend important events such as weddings, graduations, and so on. In this regard, the need for batik cloth has increased, resulting in an increase of batik production in Indonesia each year. Table 1 shows the development of batik business units in Indonesia from 2011 to 2015.

Table 1. Development of Batik Business Unit in Indonesia in 2011-2015

| Year | Business Unit | Year | Business Unit |
|------|---------------|------|---------------|
| 2011 | 41.623 unit   | 2014 | 46.365 unit   |
| 2012 | 43.704 unit   | 2015 | 47.755 unit   |
| 2013 | 45.015 unit   |

(Source: detikfinance, 2015)
Based on the Table 1, the development of batik business units in Indonesia increased by 14.7% from 2011 to 2015. This shows that batik is in great demand and needed by the local and international community. In addition, batik production has good business opportunities seen from the value of batik on Table 2 which continues to increase from year to year.

**Table 2. Batik Value in 2011-2015**

| Year | Business Unit       |
|------|---------------------|
| 2011 | Rp 1,909 trillion   |
| 2012 | Rp 2,005 trillion   |
| 2013 | Rp 2,065 trillion   |
| 2014 | Rp 2,127 trillion   |
| 2015 | Rp 2,191 trillion   |

(Source: detikfinance, 2015)

The value of batik increased by 14.7% from 2011 to 2015. Besides the value of batik that continues to increase, the batik business opportunity can also be seen from the export value from year to year because people who have an interest in batik are not only from the local community but also from the international community. Table 3 shows the export value of batik increased by 14.7% from 2011 to 2015 shows.

**Table 3. Batik Export Value in 2011-2015**

| Year | Export Value      |
|------|-------------------|
| 2011 | Rp 43,961 trillion|
| 2012 | Rp 46,159 trillion|
| 2013 | Rp 47,543 trillion|
| 2014 | Rp 48,970 trillion|
| 2015 | Rp 50,439 trillion|

(Source: detikfinance, 2015)

Based on the data, with the increasing production of batik which shows the increasing number of competitors, it can be used as an opportunity to open a creative business based on batik clothing such as dresses, kebaya, and others. In addition, there is a competing threat to the clothing business, namely imported high-quality and low-priced products so that the textile business needs to have a strategy to improve the quality of the cloth and run an effective production to reduce production costs[1]. Running a business in the creative industry is currently preferred by entrepreneur in Indonesia. Creative products can attract more consumers because the uniqueness of these products makes it different from the products offered in the market in general.

Starting with a focus on attracting consumers around the Business X outlets, currently Business X consumers increasing along with marketing activities that has been carried out through exhibitions, fashion shows, and used as a wardrobe for news presenter on television. In addition, the technology in this digital age has provided new facilities and new ways for people to carry out various activities, from communicating, trading, creating products, looking for information, to find entertainment and so on[2]. Based on this situation, sales and demand for Business X products continues to increase every time. Business X products can now be obtained at one of the department stores in Jakarta.

According to Badan Pusat Statistik DKI Jakarta in 2015, from the various types of industries surveyed, the apparel industry had the largest quantity with a total of 281 companies or 21.24 percent of the total number of large and medium manufacturing industry companies. However, many small industries included in the medium category turned into micro businesses such as the small apparel industry in Indonesia last year with total 46,601 due to the increasing number of imported textile
products, resulting in a narrower market share [3]. On the other hand, many large textile industries are expanding continuously.

Under these conditions, the company decided to create a Business X boutique considering that the products that produced so far were not sold in the Business X boutique but in department stores where the place has very high competition because the large apparel industry continues to expand its business. Therefore, it is necessary to conduct a feasibility analysis of the establishment of this boutique so decisions can be made whether the establishment of this boutique is feasible from the market aspects, technical aspects, and financial aspects or not.

2. METHODS

Figure 1 shows the concept of the feasibility analysis that conducted in this study. The feasibility analysis starts from the market aspect, continues with the technical aspects and the results of these aspects will be processed in the financial aspect and sensitivity analysis [4]. In this paper, we will discuss the risk level that will be measured to determine the feasibility of this business.

![Conceptual Model](image)

**Figure 1. Conceptual Model**

In initial identification stage, a goal is determined and the problem that will be examined in this paper is identified. Market aspects is an initial step to find out market opportunities related to consumer behaviour, prices, and market competition [5]. At this stage, an analysis of available markets, potential markets and target markets was carried out through questionnaires from the population of women aged 15 to 54 years from DKI Jakarta citizens with the sample determination using convenience sampling. The output of this analysis are demand and estimated income that will be used in data processing and financial aspects analysis.

Technical aspect consisting analysis of location, layout and the funding requirement. Determination of location using the factor rating method by assigning weights to factors in accordance with the order of importance of these factors in determining the location. The value of each factor on each alternative is multiplied by its weight and normalized so that the selected location is obtained. This aspect ends with the layout and investment fund identification.

Data processed on the financial aspect obtained from the market and technical aspects. The parameters that will be used to measure whether a business is feasible to run or not are NPV, IRR, and Payback Period. NPV is obtained by calculating the difference or change in value between the cash flow of the current investment and the cash flow of net income (cash flow) in the future [4]. IRR is a method of calculating interest rates that equates the present investment value with the value of future net cash receipts. Business is considered feasible if the IRR > MARR. IRR calculation is as follows.
\[ IRR = i_1 \frac{NPV_1}{(NPV_1-NPV_2)} (i_2 - i_1) \] \hspace{1cm} \text{(1)}

Pay Back Period (PBP) is a certain period of time that shows the cumulative cash flow equal to the amount of investment in the form of present value [6]. PBP calculation is as follows.

\[ PBP = \frac{\text{Investment Value (outlay)}}{\text{Net Cash Inflow (proceed)}} \times 1 \text{ year} \] \hspace{1cm} \text{(2)}

After the financial analysis, a sensitivity analysis is carried out to determine the business conditions if there is some undesirable changes occur. The analysis was carried out on NPV, IRR, and Payback Period which were obtained based on the changing condition. Furthermore, the risk level of the company is calculated based on the risks that can arise in this business so the feasibility of this business can be identified.

Research on the feasibility analysis of various types of businesses has been done before. One of the feasibility analysis studies is on bread business shows a positive NPV and IRR 67% so the business is feasible [7]. Research on risk measurement that has been done previously is on the barcoding project shows that the total risk is calculated by the value of each risk multiplied by its weight [8]. Other research shows that the feasibility and risk analysis of opening a branch of Gandul Rice Restaurant is feasible with the results showing the IRR 27.83%, the risk 6.26% and with MARR 14% the rate become 20.26%[9].

3. RESULT AND DISCUSSION

3.1 Demand Estimation

Based on the results of the questionnaire, it shows potential market is 62% or 2,035,548 consumers, available markets is 54% of potential markets as many as 1,009,195 consumers, and the target market is 0.2% of available markets as many as 2,220 consumers. Demand projections for the next five years are obtained by multiplying this year’s demand with an increase in the population of DKI Jakarta according to the BPS which is 1.02%. Demand projection from Enterprise X in 5 years is shown in Table 4.

| Year | Demand |
|------|--------|
| 2020 | 2220   |
| 2021 | 2243   |
| 2022 | 2266   |
| 2023 | 2289   |
| 2024 | 2312   |

Demand projection within the next 5 years for each product is obtained based on the sales percentage of Business X products within last four months. Based on these calculations, the demand projection for each product is obtained for the next five years in Table 5.

| Product | Percentage | 2020 | 2021 | 2022 | 2023 | 2024 |
|---------|------------|------|------|------|------|------|
| Kebaya  | 49%        | 1079 | 1090 | 1101 | 1112 | 1124 |
| Dress Blouse | 19%          | 415  | 419  | 424  | 428  | 432  |
| Fabric | 7%         | 156  | 157  | 159  | 160  | 162  |
| Outer | 13%        | 291  | 293  | 296  | 300  | 303  |
| Batik Skirt | 12%         | 280  | 283  | 286  | 289  | 292  |
| Total | 100%       | 2220 | 2243 | 2266 | 2289 | 2312 |

4
3.2 Determining Location and Layout

Table 6 shows the result of the factor rating calculation to determine the location from three alternatives for opening the Business X boutique. The chosen location is on Jl. Prof. Dr. Soepomo with score 94.58.

| Factors               | Wt | Jl. Panglima Polim Normalization | Jl. Kemang Timur Normalization | Jl. Prof. Dr. Soepomo Normalization | Wtd |
|-----------------------|----|---------------------------------|--------------------------------|------------------------------------|-----|
| Market Distance       | 0.4| 50.00                           | 20.00                          | 100.00                             | 40.00|
| Supplier Distance     | 0.2| 45.26                           | 9.05                           | 52.44                              | 10.49|
| Competitor Distance   | 0.1| 25.00                           | 2.50                           | 100.00                             | 62.50|
| Rent Price            | 0.3| 100.00                          | 30.00                          | 89.47                              | 62.50|
| **Total**             | 1.00| 61.55                           | 87.33                          | 94.58                              | 28.33|

The building size in the chosen location is 5x10 meters. This boutique contained display room, warehouse, fitting room, and toilet. Based on the size and needs of the business, the layout is obtained as in Figure 2. One of the business processes that occur in this boutique as in Figure 3 is the process of serving customers. This process explains about the employees serving customers in buying the product.

![Figure 2. Layout](image)

![Figure 3. Serving Customers Process](image)
3.3 Funding Requirement
Funding requirements obtained based on the costs that has been calculated from this technical aspect are shown in Table 7.

| Funding Requirement          | Total   |
|------------------------------|---------|
| Fixed Investment             | Rp 54,255,000 |
| Working capital              | Rp 189,268,686 |
| TOTAL                        | Rp 243,523,686 |

Table 7 shows that fixed investment is Rp 54,255,000.00 and working capital for the first three months is Rp 189,268,686.00. Investment was obtained from the cost of all equipment needed at the opening of this boutique. Working capital is obtained from total direct costs and indirect costs without depreciation for three months. With these fixed investment costs and working capital, a total funding requirement is Rp 243,523,686.00.

3.4 Income Estimation
The income from this business is obtained from the selling price of the product multiplied by the demand of each product. The selling price will increase every year according to the credit value which is 3.01\%. Based on the selling price, total revenue for the next five years is obtained as follows in Table 8.

| Year | Total Income         |
|------|----------------------|
| 2020 | Rp 866,378,676,00    |
| 2021 | Rp 902,609,991,00    |
| 2022 | Rp 940,356,473,00    |
| 2023 | Rp 979,681,485,00    |
| 2024 | Rp 1,020,651,039,00  |

3.5 Cashflow
Table 9 shows the cash flow used to calculate NPV, IRR, and PBP to determine the feasibility of this business.

| YEAR | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------|------|------|------|------|------|------|
| Period | 0 | 1 | 2 | 3 | 4 | 5 |
| Cash Out (Rp) | 243,523,686 | 94,535,991 | 100,484,059 | 106,190,398 | 111,521,847 | 116,538,798 |
| Cash In (Rp) | 94,535,991 | 100,484,059 | 106,190,398 | 111,521,847 | 305,807,484 |
| Working Capital (Rp) | 189,268,686 | 189,268,686 | 189,268,686 | 189,268,686 | 189,268,686 |
| Net Cash (Rp) | (243,523,686) | (94,535,991) | (100,484,059) | (106,190,398) | (111,521,847) | (305,807,484) |
| p/f factor (10.99%) | 1.0000 | 0.9010 | 0.8118 | 0.7314 | 0.6590 | 0.5937 |
| NPV (Rp) | (243,523,686) | 85,175,233 | 81,569,813 | 77,666,493 | 73,489,374 | 181,563,628 |
| Cumulative NPV (Rp) | (243,523,686) | (158,348,453) | (76,778,640) | Rp 887,853 | 74,377,226 | 255,940,855 |
3.6 Net Present Value
Net Present Value is obtained from the initial investment of cash out at the beginning of year 0 minus cumulative income for the next five years. Based on the results, the cumulative NPV in the end of period is more than 0 (Rp 255,940,855.00) so it can be said that this business is feasible to run.

3.7 Internal Rate of Return
Based on the calculation of cash flow, the IRR for five years is 40%, which means this business provides a profit of 40% for each year. In this study the MARR (Minimum Attractive Rate of Return) value used is 10.99%. The value of IRR obtained in this business is more than the MARR value so it can be said that this business is feasible.

3.8 Payback Period
The payback period calculation is done to find out how long the business or project can return the investment. Payback period is calculated based on the cash flow that has been obtained previously. Based on calculations, the payback period of this business is 2,989 years which means this business takes 2,989 years to return the capital that was spent at the beginning.

3.9 Sensitivity Analysis
This sensitivity analysis is used to measure the level of a condition or change that make this business unfeasible. Changes that may occur in this business are the increase in macloons costs, increase in labour costs, decrease in demand, and decrease in selling prices.

| Increase In Macloons | Percentage | NPV       | IRR       |
|----------------------|------------|-----------|-----------|
| 24%                  | Rp 1,592,590 | 11.17%    |           |
| 25%                  | Rp (6,453,946) | 10.24%    |           |
|                      | 24.20%     |           |           |
| Increase In Labour Cost | 30%       | Rp 2,353,735 | 11.27%    |
|                      | 31%       | Rp (4,058,123) | 10.51%    |
|                      | 30.37%     |           |           |
| Decrease In Demand   | 19%       | Rp 110,759,430 | 24.02%    |
|                      | 20%       | Rp (69,235,812) | 2.67%     |
|                      | 19.62%     |           |           |
| Decrease In Selling Price | 8%       | Rp 1,362,326 | 11.15%    |
|                      | 9%       | Rp (22,806,066) | 8.30%     |
|                      | 8.06%     |           |           |

Based on Table 10, the increased of macloons cost sensitive by 24.20%, labor costs sensitive to an increase of 30.37%, demand is sensitive to a decrease of 19.62%, and the selling price was sensitive to a decrease of 8.06%.

3.10 Risk Analysis
Risks in this business that can arise are the risk of decrease in demand, the risk of decrease in selling price, and the risk of equipment damage.

| No | Risk                | Likelihood (%) | Impact (Million Rp) | Risk (Rp) |
|----|---------------------|----------------|---------------------|-----------|
| 1  | Decrease in demand  | 17             | 36                  | 6120000   |
| 3  | Decrease in selling price | 4          | 9.5                 | 380000    |
| 4  | Equipment Damage    | 0.7            | 0.5                 | 3500      |
|    | Total               | 21.7           |                     |           |
Based on Table 11, the risk obtained from this business is 21.7%. Investment is considered feasible if the rate that has been added with MARR (10.99%) is smaller than IRR (40%). Based on calculations, the rate (32.69%) is smaller than IRR (40%) and the NPV is Rp 40,569,061.00. Based on the value of the rate (32.69%) which is smaller than the IRR (40%) and the NPV value> 0 then the business is feasible.

The NPV, IRR, and the risk rate result indicates that this business is feasible, then it is suggested that Business X can make this calculation as a consideration for opening the boutique.

4. CONCLUSION
Based on survey, historical sales data and competitors, the company is aiming for 0.2% of the available market so the target market is 2,220 customers in the first year. Demand continues to increase every year until the projected demand in 2024 is 2,312.

Fixed investment from equipment costs needed is Rp 54,255,000.00 while working capital is Rp 189,268,686.00 so the total funding requirement is Rp 243,523,686.00.

The results show the NPV is Rp 255,940,855.00, payback period in 2,989 years and IRR of 40%. With the NPV value> 0, the payback period is less than the investment time, and the IRR is more than the MARR (10.99%), it can be said that the opening of the Business X boutique is feasible.

Based on the calculation, the cost of macloons sensitive at an increase of 24.20%, labour costs sensitive at an increase of 30.37%, demand sensitive at a decrease of 19.62%, and the selling price sensitive at a decrease of 8.06%.

Based on the calculation, the risk is equal to 21.7% and with a MARR value of 10.99%, the rate become 32.69% and the NPV value is Rp 40,569,061.00. Based on the smaller rate compared to IRR (40%) and NPV value> 0, this business is said to be feasible.

Suggestion for further research is to analyze the management and risk control that arise in the business.

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