CSI (Customer Satisfaction Index) and IPA (Importance Performance Analysis) of Mandheling Coffee in Medan

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Abstract. The emergence of various coffee shops makes customers have many choices of coffee shops especially Mandheling Coffee, because many coffee shop competitors will become prospect and opportunity for producer by following trend and lifestyle. This research aims to analyse customer satisfaction and analyse the attributes corrected by Mandheling Coffee. The sampling method used is accidental sampling and the analysis methods used are Customer Satisfaction Index (CSI) and Importance Performance Analysis (IPA). The results showed that Customer satisfaction measurement is 73.15%, it means that customers are satisfied. Attributes that need to be maintained are attributes of taste, aroma, variety of menu, price comparison with quality, advertising media, facilities, presentation speed, transaction speed and attributes that must be corrected, are attributes of brand, decorations, and barista explanations.

1. Introduction

By looking at the prospects in term of coffee agribusiness in Indonesia this provides a business opportunity for each producer. This business opportunity is not only in the upstream sector but also in the downstream sector of coffee farming. In order to follow the desire of customers, coffee producers also continue to innovate and provide customers with many choices for the final coffee product. North Sumatera especially in Medan is a coffee producing centre that has various types, especially mandheling coffee which has a distinctive taste with low acidity that has developed into a coffee industry, so that coffee shops have been in various cities in Medan. The emergence of various coffee shops makes customers have many choices of coffee shops especially Mandheling Coffee, because many coffee shop competitors will become prospect and opportunity for producer by following trend and lifestyle. The objectives are to analyse the level of customer satisfaction of Mandheling Coffee and to analyse the attributes that must be repaired by Mandheling Coffee to reach the level of customer satisfaction in choosing Mandheling Coffee in Medan.

According to [1], satisfaction is the level of one's feeling after comparing the performance (or results) that he feels compared to his expectation. So, the level of satisfaction is a function of differences between the performance with expectation. Customers can experience one of three general levels of satisfaction. If the performance is below expectation, customers are disappointed. If performance matches expectation, customers are satisfied. If performance exceeds expectation, customers are very satisfied and happy. The marketing mix is a set of marketing tools that companies use to pursue their company's goals [2]. So, it can be concluded that the marketing mix is a device
consisting of products, prices, promotions and distributions, which will determine the level of marketing success and all of them are intended to get the desired response from the target market. Marketing mix consisting of 7P (product, price, place, promotion, physical evidence, process, and people) [2]. The existing coffee shops always innovate in terms of products, places and prices which are a mix in marketing. From the marketing mix and customer satisfaction this will affect customer behaviour in choosing a coffee shop in the city of Medan. This customer behaviour is influenced by cultural factors, social factors, personal factors and psychological factors.

2. Materials and methods

2.1. Experimental design
This research was conducted in Medan. The selection of research locations was done purposively. Medan is a metropolitan city that requires consumptive people to drink coffee available in modern coffee shops that use this. This research will be conducted at a coffee shop located in Mauku Kopi and Serayu Kopi which is the biggest and most popular coffee shop in selling mandheling coffee among other coffee shops in Medan. The sampling method is done by accidental sampling method, which is to determine the sample based on people met or anyone who is consuming coffee on Mauku Kopi and Serayu Kopi. The number of samples taken is 100 respondents, so that the data is more accurate. Every customer in Mauku Kopi and Serayu Kopi is chosen as the respondent but must first pass the screening stage. Customer data categories taken are customers who have previously made purchases at Mauku Kopi and Serayu Kopi, so that customers can know and have consumed the coffee shop products. This is done so that customers have consideration for the comparison of the level of importance and level of performance in Mauku Kopi and Serayu Kopi. If the visitor is a family, then the person entitled to fill in the questionnaire is the head of the family or anyone who is 15 years or older, whereas if the visitor is a group friends who are entitled to fill in the questionnaire are one or all of them if they are willing, but must be 15 years or older. In this questionnaire using the Likert scale as a measurement of the variable. With a Likert scale, the variable that will be translated into an indicator variable in the instrument application can contain questions or approval.

| Scale | Performance | Importance |
|-------|-------------|------------|
| 1     | Very Not Satisfied | Very Not Importance |
| 2     | Not Satisfied     | Not Importance    |
| 3     | Neutral         | Neutral        |
| 4     | Satisfied        | Importance      |
| 5     | Very Satisfied   | Very Importance |

2.2 Calculation of Customer Satisfaction Index
The analytical methods used in this study are Customer Satisfaction Index (CSI) and Importance Performance Analysis (IPA) [3,4,5]. The stages of the method of Customer Satisfaction Index analysis carried out are:
1. Test the validity and reliability of the questionnaire
2. Conduct CSI analysis with the following stages:
a) Determine the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS), this value is derived from the average level of importance and performance of each attribute. MIS and MSS values can each be calculated using the following equation:

\[ MIS = \frac{\Sigma y_i}{n} \] (1)
\[ MIS = \frac{\sum xi}{n} \]  

(2)

Description: \( n \) = number of respondents  
\( yi = \) i-value of importance attribute  
\( xi = \) i-value performance attribute

b) Using the Weighted Factor (WF) Mean Importance Score function or the average value of the importance level (MIS\(i\)) of each attribute expressed in terms of percent of the total Mean Importance Score (MIS\(i\)) for all attributes tested. WF values can be obtained using the following equation:

\[ WF_{i} = \frac{MIS_{i}}{\text{Total MIS}} \]  

(3)

Description: MIS\(i\) = Mean Importance score \(i\)

c) Using the Weighted Score (WS) calculation, the function of the Mean Satisfaction Score is multiplied by the Weighted Factor (WF). Mean Satisfaction Score (MSS\(i\)) or the average value of satisfaction level obtained from the average value of the level of performance or the average value of the level of performance.

\[ WS_{i} = MSS_{i} \times WF_{i} \]  

(4)

Description: MSS\(i\) = Mean Satisfaction Score-\(i\)  
WF\(i\) = Weighted Factor-\(i\)

d) Using the calculation of Weighted Average Total (WAT), a function from the total Weighted Score (WS) attribute to-1 \(a_{1}\) hingga attribut to-n \(a_{n}\)

\[ WAT = WS_{a1} + WS_{a2} + \ldots + WS_{an} \]  

(5)

Description: WS\(a\) = Weighted Score

e) Perform the Customer Satisfaction Index (CSI), which is a function of the Weighted Average (WA) value divided by the Highest Scale (HS) or expressed as a percent. The maximum scale is obtained from the Likert scale that is used in weighting the level of importance and performance.

\[ CSI = \frac{WA}{HS}. \ 100\% \]  

(6)

Description: WA = Weighted Average  
HS = Highest Scale (maximum scale)

The criteria for classifying CSI values are shown in Table 2.

| CSI Value | CSI Criteria          |
|-----------|-----------------------|
| 81% – 100%| Very Satisfied        |
| 66% – 80% | Satisfied             |
| 51% – 65% | Quite Satisfied       |
| 35% – 50% | Less Satisfied        |
2.3 Calculation of Importance Performance Analysis
The total assessment of the level of performance and importance is obtained by summing up the assessment scores given by consumers. The calculation results will be illustrated in a Cartesian diagram. Each attribute is positioned in the diagram based on the average score, where the average score of performance appraisal (X) shows the position of an attribute on the X axis, while the position of the attribute on the Y is indicated by the average score of importance (Y). The Cartesian diagram is a space divided into four parts and is bounded by two lines that intersect perpendicularly at points (a, b).

3. Results and discussion

3.1. Customer Satisfaction Index
The value of the Customer Satisfaction Index (CSI) Mandheling Coffee in the coffee shop is 73.15%. The value of the Customer Satisfaction Index (CSI) is obtained by dividing the Total Weighting value by the maximum scale used in this study (maximum scale 5), then multiplied by 100%. Based on the satisfaction index, the value of the Customer Satisfaction Index (CSI) of 73.15% is in the range of 66% - 80% which means, in general, the coffee shop customer satisfaction index in Mauku Kopi and Serayu Kopi is in the criteria of "satisfaction".

| Variables       | Attribute                        | MIS | Importance WF | MSS  | WS    |
|-----------------|----------------------------------|-----|----------------|------|-------|
| Product (XI)    | Taste                            | 4.2 | 0.07605        | 3.67 | 0.27909|
|                 | Aroma                            | 3.74| 0.06772        | 3.76 | 0.25462|
|                 | Menu variations                  | 3.91| 0.07079        | 3.69 | 0.26123|
| Price (X2)      | Price comparison with quality    | 3.93| 0.07116        | 3.96 | 0.28178|
|                 | Price comparison with other coffee shops | 3.51| 0.06355    | 3.07 | 0.19511|
| Place (X3)      | Location                         | 3.25| 0.05884        | 3.1  | 0.18242|
|                 | Cleanliness of the place         | 3.02| 0.05468        | 2.94 | 0.16076|
| Promotion (X4)  | Brand                            | 3.55| 0.06428        | 3.68 | 0.23654|
|                 | Advertising media                | 4.28| 0.07749        | 4.04 | 0.31308|
| Physical Evidence (X5) | Decoration       | 3.61| 0.06536      | 3.76 | 0.24576|
|                 | Facilities                       | 3.91| 0.07079        | 3.88 | 0.27468|
| Process (X6)    | Presentation speed               | 3.92| 0.07098        | 3.93 | 0.27894|
|                 | Transaction speed                | 3.77| 0.06826        | 3.81 | 0.26007|
| People (X7)     | Barista appearance               | 3.03| 0.05486        | 3.39 | 0.18598|
|                 | Barista explanation              | 3.6 | 0.06518        | 3.8  | 0.24769|
| Total           |                                  | 55.23|                |      |       |
| WAT             |                                  |     | 3.65774        |      |       |
| CSI (%)         |                                  |     | 73.15          |      |       |

Although the customer satisfaction index value is in the satisfied criteria and in accordance with the research hypothesis, namely the level of customer satisfaction in choosing a coffee shop is satisfied,
the coffee shop still has to improve its performance because with the value of Customer Satisfaction Index (CSI) of 73.25% it means there is still 26.85% of customers who have not been able to be fully satisfied by the coffee shop in Medan. Therefore, the coffee shop needs to explore customer satisfaction with the performance attributes of mandheling coffee, besides that the level of customer satisfaction can change over time, depending on the level of interest needed by customers.

3.2. Importance Performance Analysis (IPA) attribute repair analysis

Improvement of attribute performance for increasing satisfaction of each attribute cannot be done simultaneously, because the coffee shop has limited resources. This limitation causes the coffee shop to be able to allocate existing resources to improving the performance of attributes that provide greater benefits to the level of total satisfaction. The attributes that need to be prioritized are attributes that have a high level of importance for customers, but the level of performance is still considered low by customers.

The average value of importance is 3.68 and the average value of the performance level is 3.63. These two values will be the centre line, because the diagram is divided into four parts and rounded up by two lines that intersect perpendicular to the points \((a, b)\) in the Cartesian diagram of the Importance Performance Analysis (IPA) so that the Cartesian diagram will be divided into four quadrants. Each quadrant in the Cartesian diagram illustrates different circumstances.

In detail, the Cartesian diagram of the Importance Performance Analysis (IPA) is illustrated in the following Figure.

![Figure 1. Diagram of the Importance Performance Analysis (IPA)](image)

**Information:**

1. Taste
2. Aroma
3. Menu variations
4. Price comparison with quality
5. Price comparison with other coffee shops
6. Price comparison with quality
7. Advertisement
8. Menu variations
9. Advertising media
10. Decoration
11. Facilities
12. Presentation speed
13. Transaction speed
Mapping on the Cartesian diagram based on the level of importance and level of performance allows the company to make improvements to attributes that are considered very important by customers, both in the short and long term. Improving this attribute depends on the position of each variable in the four quadrants.

Quadrant I in the Cartesian diagram Importance Performance Analysis (IPA) shows the level of importance of a product attribute that is considered very important by customers, but the performance shown by this attribute is considered still low or not maximal. Attributes that are in quadrant I must be a top priority for the company in improving performance so that it can meet and improve customer satisfaction. Based on the image, there are no attributes in this quadrant.

Quadrant II in the Cartesian diagram Importance Performance Analysis (IPA) contains attributes that are considered important by customers and their performance level is in accordance with customer expectations, therefore the performance of these attributes must be maintained by the coffee shop. Attributes included in this quadrant are taste, aroma, menu variation, price comparison with quality, advertising media, facilities, transaction speed, and presentation speed.

Quadrant III on the Cartesian diagram Importance Performance Analysis (IPA) describes attributes that are considered less important by customers and the level of performance in reality is not very good. Priority improvement of attributes in this quadrant is low, because it is considered not too important for customers. The following are the attributes included in this quadrant are price comparisons with other coffee shops, location, cleanliness of the place, and barista appearance.

Quadrant IV in the Cartesian diagram of Importance Performance Analysis (IPA) contains attributes that are considered less important for customers, but the level of performance is felt to be too excessive. The following are the attributes included in this quadrant: barista brand, decoration, and explanation.

4. Conclusions
Measurement of customer satisfaction with the attributes of mandheling coffee in Medan is 73.15%, meaning customers are satisfied. Attributes that need to be maintained, namely attributes in quadrant II (taste, aroma, menu variation, price comparison with quality, advertising media, facilities, speed of presentation, and transaction speed). Attributes that need to be improved, namely attributes in quadrant IV (brand, decoration, and barista explanation). Developing mandheling coffee from the trade sector is a prospect and opportunity for every coffee farmer, trader and entrepreneur to reach the national and international markets.

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