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Performance Analysis and Planning Strategies for Improvement of Banana Chips in Jember Regency

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ABSTRACT
Consumer perception is knowing and measuring how consumers think. The consumer will decide which brands are remembered and which are forgotten. The purpose of this study was to identify the attributes of food products and evaluate their performance to find out attributes based on consumer perception. This study uses marketing mix 7P namely Product, Price, Place, Promotion, People, Process, and Physical Evidence. The respondent in this research was the consumer that bought and consumed banana chips in Jember. The sampling technique used accidental sampling with several samples is 100 people, based on linear time function. The analysis of data used Importance–Performance Analysis. The result of this research showed that taste of the product, the thickness of the product, packaging, the price of the product, ease to get, and the promotion of the product were the key attributes of banana chips quality.

Keywords: *Important Performance Analysis, banana chips, consumer perception*

1. INTRODUCTION

The agricultural sector become one of those to be pursued for the development of agribusiness in order to improve modern agriculture. Indonesia as an agricultural country is aware of its life needs from farming, thus the agricultural sector is one sector that is being relied on to support the rate of national economic growth. One of the food crop commodities that can support the establishment of several industries is the banana. Banana has broad utility not only to be apart from being a raw material for the food industry and non-food industry, but also for household consumption. Banana's consumption is not merely as regular fruit, it can be as processed products traded in the market, such as various flavours of the banana chip.

The increasing market demand for the banana chip as a product commodity snack indicates a promising market opportunity. It can also be seen from the large number of demands' tendency that increases from year to year by 10%. The positive impact of this will encourage and provide motivation to increase productivity, to workers making the banana chip. To further increase the food market, banana chip producers must continue to improve product quality based on consumer demand. All industries, especially the food industry, need to measure, monitor, and improve product quality for business continuity and to achieve consumer satisfaction [1].

One method that can be used to measure the performance of a food product is the Importance Performance Analysis (IPA) method. This method is based on a four-quadrant matrix that identifies the strengths and weaknesses of attributes quality of a food product and determines improvement opportunities to develop strategic planning. The method is used to measure the gap in service quality attributes according to the consumer's point of view, thus it is useful for managerial purposes such as allocating insufficient resources for the performance area with a large effect on customer satisfaction. [2] investigated improving the quality of soy milk using the IPA method. [3] used the IPA method to measure the benefits of e-government from a user perspective. The advantages are to show

product or service quality attributes that need to be improved or reduced to maintain customer satisfaction, requires a fairly low cost, the analysis results are relatively easy to interpret, and the scale is relatively easy to understand ([4]; [5]).

Several attribute factors that have been obtained from IPA method, will then be analyzed in order to obtain a strategy for developing the quality of banana chip. SWOT analysis can identify various factors systematically to formulate strategies. In general, determining the right strategy for an industry begins with achieving goals effectively and efficiently. The purposes of this study are to identify the key attributes of improving the quality of various flavored banana chip in Jember Regency based on consumer desires, knowing the level of consumer satisfaction, and formulating strategies to improve the quality of various flavored banana chip using the IPA-based SWOT method.

2. METHODOLOGY

This study uses Importance Performance Analysis (IPA) to identify indicator that needs improvement the most, and strengths, weaknesses, opportunities, and threats (SWOT) analysis to formulate strategic planning.

According to [6], IPA is an easy application technique to manage the attributes of the level of importance and the level of implementation itself that is useful for the development of an effective marketing program. [7] and [8] explained, The first quadrant (I) shows lower performance than importance which means the producer fails to meet consumer expectations, possibly leading to dissatisfaction. The next quadrant shows both importance and achievement, has a high score in the second quadrant (II), which indicates the producer's performance is relevant to the attribute. The attributes in the third quadrant (III) are low in priority, which indicates that producers do not need to increase their efforts above the current level. Finally, the attributes in the fourth quadrant (IV) are excessive.

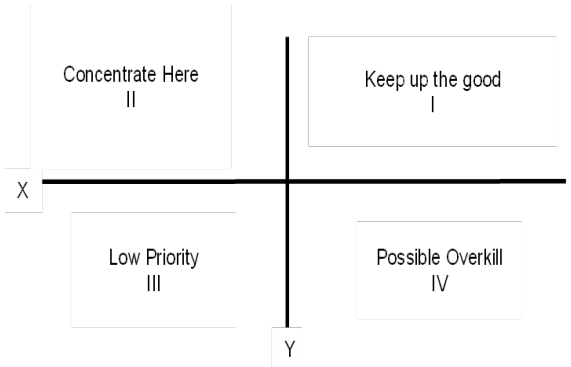

Figure 1. Matrix of 4 quadrants importance-performance analysis (Source: [9])

SWOT analysis is widely used in relation to strategic planning because it can simultaneously develop internal and external structures. SWOT analysis can be relied on in the face of an uncertain and uncontrollable external environment, SWOT analysis identifies opportunities and avoids threats, at the same time a business or organization can also analyze their internal factors as well as their current external conditions to get a strategy to implement the project [10].

2.1. Research Location and Time

The research was conducted from May to September 2021. The research location is in Jember Regency, involving all sub districts in Jember Regency.

2.2. Types and Methods of Data Collection

The data used in this research is primary data. The primary data is collected through personal interviews and questionnaires with a scale of 1-5 Likert [11]. The Likert scale is used as a rating scale because it gives a value to something [12]. The sample consisted of 100 untrained panellists selected randomly in Jember Regency, representatives of 8 sub-districts in Jember Regency.

2.3. Analysis Method

Statistical analysis is performed using SPSS version 18 (SPSS Inc., Chicago, IL, USA). A four-quadrant matrix plotted in the X-Y coordinate plane based on a combination of two factors including consumer perceptions of the current level performance of the banana chip and the importance of each quality attribute is used as the main guide for strategy improvement [13].

3. RESULTS AND DISCUSSION

Based on the test results, it is known that the relationship between item scores and total scores has a probability of r arithmetic (p) 0.05 so it can be concluded that the relationship is valid. The reliability test is carried out by looking at the value of Cronbach's Alpha. If the value of Cronbach's Alpha > 0.6, then the measured variable is reliable (www.spssindonesia.com). Based on the results of the study, all product attributes have a Cronbach's Alpha value of more than 0.6 so it can be said that each research variable is reliable.

3.1 Conformity Level

The level of conformity is a comparison between the score of level of performance (performance) with the score of level of importance (importance) which will determine the order of priority for improving the performance of each attribute in the product quality variable. The calculation of conformity level between

the level of performance and the level of importance can be seen in Table 1.

From the results of the analysis, the total average for performance is greater compared to the average of importance (3.28 for performance < 4.30 for interest), which means that there is still a gap between quality and expectations with a large average value of 1.01, in which the consumer expectations have been achieved enough but still need improvement to achieve the expectations that consumers want. The gap can be interpreted as the suitability level of the comparison result between the implementation performance score and the importance score so that it can be used to determine the priority scale [14] to find out the priority scale of the existing items, it is necessary to do a Cartesian diagram Importance Performance Analysis (IPA).

Table 1. Calculation of conformity level between the level of performance and the level of importance

No	Product Attribute	Performance	Importance	GAP
Produk				
1	Banana chip taste	4,01	4,12	0,11
2	Banana chip sweetness level	3,73	4,17	0,44
3	The smell of banana chip	4,03	4,07	0,04
4	Banana chip texture	4,33	4,05	-0,28
5	Packaging design	2,47	4,04	1,57
6	Availability of permission	2,13	4,29	2,16
7	Availability of product information	2,31	4,20	1,89
Price				
8	Price	3,11	4,08	0,97
Place				
9	Ease of getting product	2,80	4,16	1,36
Promosion				
10	Advertising promotion	2,61	4,28	1,67
11	Well-known brand	2,43	4,11	1,68
People				
12	Producer hospitality	4,35	5,00	0,65
13	Producer appearance	3,80	4,23	0,43
Process				
14	Service speed	3,71	4,63	0,92
Physical Evidence				
15	Product hygiene	3,41	5,00	1,59
Average		3,28	4,30	1,01

From the IPA mapping image above, it can be analyzed that the quality attributes of the banana chip are in quadrants A and B with the following results (Ming Seng, 2014):

3.1.1 Concentrate Here quadrant A

The majority of quality attributes fall into quadrant A. These quality attributes are advertising promotion, ease of obtaining product, price, speed of service, level of sweetness, product cleanliness, producer friendliness, producer appearance, taste, texture, and aroma. Factors located in this quadrant are considered important and are expected to be supportive factors for consumer satisfaction so that consumers can maintain the quality of their products. Although IPA is a simple tool, this might help evaluate the performance of a business, in this case, a banana chip producer in Jember Regency, so that the producer can formulate a new strategy to improve its performance. According to [15], the taste and aroma of the product greatly affect the level of preference of the panellists. To further optimize performance, it can also be done by maintaining a good relationship with consumers. According to [16], good relationships with consumers are the entire process of building and maintaining profitable connections with customers through delivering high value and satisfaction to customers. The increase in added value can also increase consumer loyalty to the product [17]. According to [18] having a good relationship with consumers has several benefits, which are a) Expanding knowledge about customers, b) Increasing customer satisfaction. c) Improved response time. d) Reduced time to reach the market.

3.1.2 Keep up the good work quadrant B

Items included in Quadrant B involve the availability of permits, availability of product information, well-known brand, and packaging design. Factors located in this quadrant are considered important and Expected as supporting factors for customer satisfaction so that the management and these factors are very important to be maintained. Therefore it is needed to be repaired. To further increase the income of banana chip producers, it is necessary to carry out a SWOT analysis in order to obtain a strategic formulation for the development of banana chips in Jember Regency.

3.2 IFE (Internal Factor Evaluation) Matrix

Based on interviews and validations that have been carried out using the IPA method, there are 9 indicators as actors or internal (strengths and weaknesses) of banana chips in Jember Regency. Based on the calculations in Table 2, it can be seen that the total internal matrix of strengths is 1.16 and the total internal matrix of weaknesses is 2.39 so the total internal matrix score is 3.55.

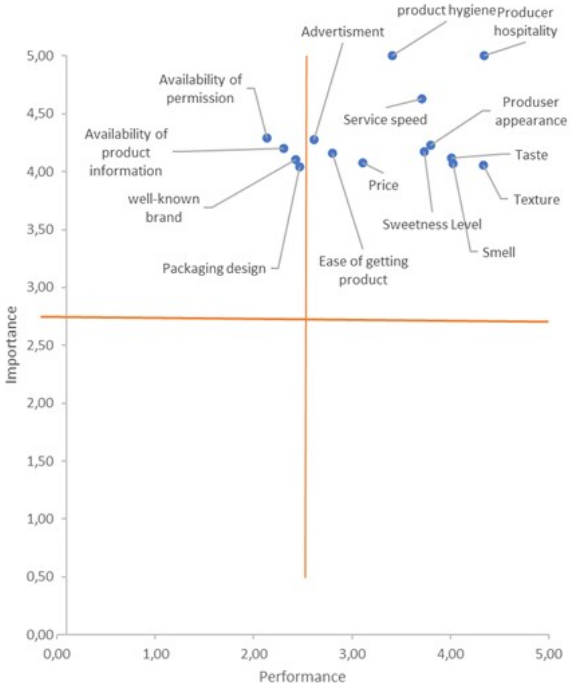

Figure 2. IPA mapping of banana chip (Source: Data analysis results, 2021)

Table 2. Matrix of banana chips internal actors in Jember Regency

NO	DOMINANT INTERNAL FACTOR STRENGTHS	Total	Rating	Weight	WeightxRating
1	Banana chips taste	5	1	0,04	0,06
2	Sweetness level	6	2	0,05	0,08
3	Crispy texture	13	3	0,12	0,38
4	Service speed	13	3	0,12	0,38
5	Affordable prices	11	3	0,10	0,27
NO	WEAKNESSES	Total	Rating	Weight	WeightxRating
1	Packaging design	20	5,00	0,18	0,89
2	No Permission Availability	18	4,50	0,16	0,72
3	No Availability of product information	15	3,75	0,13	0,50
4	Well-known brand	11	2,75	0,10	0,27
TOTAL		112		1,00	3,55

Source: Result of data analysis, 2021

3.3 EFE (External Factor Evaluation) Matrix

Based on interviews and validation conducted, it is obtained 6 indicators that become external indicators (opportunities and threats) of banana chips in Jember Regency. Based on the calculations in Table 3, it can be seen that the total external matrix of opportunities is 1.21 and the total external matrix of threats is 1.88 so that the total score of the overall external matrix is 3.09

Table 3. Matrix of Banana Chips External Actor in Jember Regency

NO	DOMINANT EXTERNAL FACTOR OPPORTUNITIES	Total	Rating	Weight	WeightxRating
1	Technological developments are advancing	10	3	0,15	0,37
2	The existence of an image as a regional specialty	10	3	0,15	0,37
3	Open to domestic and foreign markets	8	2	0,12	0,24
4	Population growth is getting higher	8	2	0,12	0,24
NO	THREATS	Total	Rating	Weight	WeightxRating
1	Fluctuating production costs	16	4,00	0,24	0,94
2	Existence of substitute products	16	4,00	0,24	0,94
TOTAL		68		1,00	3,09

Source: Results of data analysis, 2021

3.4 IE Matrix for Positioning

The values that have been obtained from IFE and EFE matrices will be entered into the Internal-External matrix to map the position of banana chips in Jember Regency. This Internal-External Matrix positions production in a nine-cell view. This IE matrix is based on two key dimensions, namely the total IFE weight score on the X axis and the EFE weight score on the Y axis. .

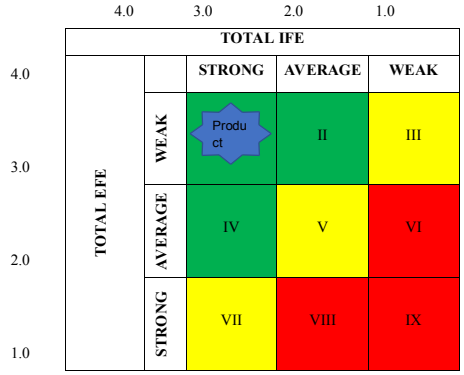

Figure 3. Banana chips IE matrix in Jember Regency
Source: Results of data analysis, 2021

3.5 SWOT Matrix

The SWOT matrix is a tool used to help determine the strategies by considering strengths, weaknesses, opportunities and threats. The SWOT matrix consists of SO (Strengths Opportunities), WO (Weakness Opportunities), ST (Strengths Threats) strategies and WT (Weakness Threats) strategies ([19]; [20]). A qualitative approach to SWOT analysis can produce strategic alternatives that can be taken by the company considering the relationship between SWOT factors [21]. These alternative strategies have different ways to improve the performance of an organization [22]. Based on the analysis through the IE matrix, it can be obtained that banana chips in Jember Regency are in Cell I. Where the company is located in a cell I include producers which are described as Grow and Build [23]. Grow and build strategy shows that the company needs a strategy to grow and develop the company better. The strategies that can be applied by companies nowadays are intensive strategy, integrative strategy, and concentration strategy. In these cells it is very suitable to apply the following strategies:

1. Provide food safety guarantees to producers by completing all food safety system certificates;
2. Improving the existing packaging design in accordance with the wishes of consumers who are more contemporary;
3. Provide product-related information on the packaging label.
4. Expanding the marketing network.

4. CONCLUSION

From the results obtained, it can be concluded that the IPA method can be applied to determine consumer satisfaction with the quality of banana chip products. All quality attribute items included in quadrant b must be corrected immediately. Factors located in this quadrant are considered important and are expected to be supportive factors for customer satisfaction. Based on the SWOT analysis, it is known that the banana chips in Jember Regency are in the cell I. Where the producers in the cell I are in the growth and build a position.

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REFERENCES

[1] Punnakitikashem, P. *et al,* 'Health care service quality: Case example of a hospital with lean implementation', in *POMS 23rd Annual Conference, Chicago, Illinois, USA, 2012*.

[2] Kurnianto, M. F. *et al.* 'The Analysis of Consumer Perception on Quality of Soybean Milk Used Importance Performance Analysis Method', in *IOP Conference Series: Earth and Environmental Science*. IOP Publishing, 2020, p. 12051.

[3] Wong, M. S., Hideki, N. and George, P. 'The use of importance-performance analysis (IPA) in evaluating Japan's e-government services', *Journal of theoretical and applied electronic commerce research*, 6(2), 2012, pp. 17–30.

[4] Yang, H.-C., Huh, M.-Y. and Yang, W.-R. 'GAP: A study on strategic derivation approach using perceptual difference', *The Journal of Industrial Distribution & Business*, 9(2), 2018, pp. 17–26.

[5] Kim, Y. *et al.* 'Hi Herzberg?: The role of compensation factors and suggestions for performance compensation system', *Journal of Economics, Marketing, and Management*, 5(1), 2017, pp. 21–26.

[6] Anggraini, L. D., & Deoranto, P. Analisis Persepsi Konsumen Menggunakan Metode Importance Performance Analysis Dan Customer Satisfaction Index. Jurnal Teknologi dan Manajemen AgroIndustri 4, 2015, p: 74-81.

[7] Park, K.-S., Kim, J.-B. and Yang, H.-C, 'Food and nutrition students' evaluation for home meal replacement quality using importance-performance analysis', *The Journal of Distribution Science*, 13(7), 2015, pp. 19–24.

[8] Yang, H.-C., Kwon, W.-T. and Kim, D.-H, 'An IPA-based study on the sextic industry's potential for continued development from producers' viewpoint', *The Journal of Distribution Science*, 12(11), 2014, pp. 15–23

[9] Meng Seng Wong, Nishimoto Hideki and Philip George, The Use of Importance Performance Analysis (IPA) in Evaluating Japan's E-government Services, Journal of Theoretical and Applied, 2014.

[10] Lee, Monle & Johnson, Carla, Prinsip-Prinsip Pokok Periklanan Dalam Perspektif Global, trj.Haris Munandar. Jakarta: Kencana Prenada Media Group. 2004.

[11] Sugiyono, Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: PT Alfabet, 2016.

[12] Maryuliana, dkk, Sistem Informasi Angket Pengukuran Skala Kebutuhan Materi Pembelajaran Tambahan sebagai Pendukung Pengambilan Keputusan Di Sekolah Menengah Atas Menggunakan Skala Likert. Jurnal Transistor dan Informatika (TRANSISTOR EI), 2016, 01(02).

[13] Olfat, L. and Barati, M, 'An importance-performance analysis of supply chain relationships metrics in small and medium sized enterprises in automotive parts industry', *Industrial Management Journal*, 4(2), 2012, pp. 21–42.

[14] Yola, M. and Budianto, D. 'Analisis kepuasan konsumen terhadap kualitas pelayanan dan harga produk pada supermarket dengan menggunakan metode Importance Performance Analysis (IPA)', *Jurnal Optimasi Sistem Industri*, 12(12), 2013, pp. 301–309.

[15] Hariono B, Wijaya R, Kurnianto MF, Sutrisno, Seminar KB, Brilliantina A. Quality of goats milk exposed ultraviolet and high pulsed electric field. IOP Conf. Series: Earth and Environmental Science 411 (2020) 012052

[16] Kothler,Philip, Amstrong. Pemasaran, Edisi pertama. Salemba Empat. Jakarta, 2017.

[17] Hermanuadi D, Brilliantina A, and Sari E K N. *IOP Conf. Series: Earth and Environmental Science* 672 (2021) 012021

[18] Al-Shammari, M. *Customer Knowledge Management: People, Processes, and Technology: People, Processes, and Technology*. IGI Global, 2009.

[19] Hermanuadi D, Brilliantina A, and Novitasari E N. 2020. *IOP Conf. Series: Earth and Environmental Science* 411: 012016

[20] Kasutjianingati, A Wahyono, A Brilliantina, E K Novitasari. 2020. *IOP Conf. Series: Earth and Environmental Science* 411: 012019

[21] Marimin. 2004. Teknik dan Aplikasi Pengambilan Keputusan Kriteria Majemuk. Edisi Ketiga. PT Gramedia Widiasarana Indonesia. Jakarta

[22] Sammut-Bonnici, T. and Galea, D. 2014 'PEST analysis'.

[23] David, F. R. 'Strategic Management Concept & Cases, Eighth Edition'. Prentice Hall International, Inc. 2013.