IMPROVING FOOD & BEVERAGE INDUSTRY PERFORMANCE WITH PERFORMANCE PRISM AND AHP (ANALYTICAL HIERARCHY PROCESS) METHOD IN THE ERA OF DIGITAL TRANSFORMATION

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Abstract

MSMEs in the food and beverage industry are one of the leading sectors in Surabaya. MSMEs in the food and beverage industry still experience many difficulties in their development, especially in marketing, there is also the use of technology, lack of innovation, and low quality of human resources. Other obstacles often faced by MSMEs that are members of consumer cooperatives are marketing, many competitors and maintaining existing markets. In addition, MSME owners also pay less attention to marketing strategies and maintaining customer relationships. The quality of service in this case is closely related to sales which have a reference to the performance of the MSME. The many new culinary food and beverage industries that have emerged have made business competition increasingly tight to provide better service.Problem identification in this study is the unknown improvements to improve the performance of MSMEs, the unknown most effective way to improve *stakeholder satisfaction* and the unknown strategies that must be carried out, the processes needed to achieve these goals, and the capabilities that must be prepared to implement them in order to achieve the target. Measuring the performance of food and beverage MSMEs by identifying KPIs *(Key Performance Indicators)* and the performance *prism method* consists of five perspectives, satisfaction, contribution, strategy, process, and capability. The results of the study were obtained based on the processing of key performance indicators *(Key Performance Indicators, KPI)* with the highest weighting value from each stakeholder . The KPI with the highest weighting will be applied to the proposed improvements. By making improvements to these indicators, it is expected to improve the performance of MSMEs in the future.

Keywords: UMKM, Digital transformation, Prism method, AHP

Abstrak

UMKM di bidang industri makanan dan minuman merupakan salah satu sektor unggulan di Surabaya. UMKM makanan dan minuman masih banyak mengalami kesulitan dalam perkembangannya, terutama dalam pemasaran, ada pula pemanfaatan teknologi, kurangnya inovasi, dan kualitas sumber daya manusia yang rendah. Kendala lain yang sering dihadapi UMKM yang tergabung dalam Koperasi konsumen ialah marketing, banyaknya pesaing dan

mempertahankan pasar yang ada. Selain itu, pemilik UMKM juga kurang memperhatikan strategi pemasaran dan menjaga hubungan pelanggan. Kualitas pelayanan dalam hal ini sangat erat kaitanya dengan penjualan yang memiliki acuan pada kinerja UMKM tersebut. Banyaknya industry kuliner makanan dan minuman baru yang muncul membuat persaingan bisnis semakin ketat untuk memberikan pelayanan lebih baik lagi. Identifikasi masalah dalam penelitian ini adalah belum diketahui perbaikan untuk meningkatkan kinerja UMKM, belum diketahuinya cara paling efektif untuk meningkatkan kepuasan para stalkeholder dan belum diketahui strategi-strategi yang harus dilakukan, proses-proses yang diperlukan untuk dapat mencapai tujuan tersebut, serta kemampuan yang harus dipersiapkan untuk melaksanakannya agar mencapai target. Mengukur kinerja UMKM makanan dan minuman dengan mengidentifikasi KPI (Key Performance Indicator) serta Metode prism kinerja terdiri dari lima perspektif, kepuasan, kontribusi, strategi, proses, dan kapabilitas. Hasil penelitian diperoleh berdasarkan pengolahan indikator kinerja utama (Key Performance Indicators, KPI) dengan nilai bobot tertinggi dari masing-masing pemangku kepentingan (stakeholder). KPI dengan bobot tertinggi akan diberlakukan perbaikan yang diusulkan. Dengan melakukan perbaikan pada indikator-indikator ini, diharapkan dapat meningkatkan kinerja UMKM ke depannya.

Katakunci: UMKM, Digital transformation, Prism method, AHP

Introduction

In Indonesia, digital transformation has experienced significant growth. In serving several clients, it is clear that they intend to utilize digital channels to complement and strengthen their relationships with their customers. Thus, digital transformation must drive positive results, namely simplifying processes, utilizing data, or forming new ways of doing business, so that it can integrate every part of the company to achieve the same goal. Along with the rapid development of technology, many companies are utilizing technology to improve their company's sales and marketing systems.

Micro, Small and Medium Enterprises (MSMEs) play an important role in the independent Indonesian economy and have great potential to improve people's welfare as seen from the three roles of MSMEs in the Indonesian economy including a means of equalizing the economic level of the common people, a means of eradicating poverty and a means of foreign exchange income for the country . The majority of Indonesian micro-small scale businesses or industries (IMK) are engaged in the food sector. According to data from the Central Statistics Agency (BPS), the number of MSMEs in the food sector reached 1.51 million business units in 2020.

The free market era has led to intense competition, which has an impact on competitive prices, especially for products that have the same characteristics. For this reason, MSMEs in food and beverages are required to determine the right strategy and be able to implement it well. MSMEs in food and beverages must change their strategy from focusing only on products to being customer-oriented, because understanding and retaining customers is one of the strategies for a company's success. Therefore, a model is needed that is able to describe the company's overall performance, such as the Performance Prism method and the Analytical Hierarchy Process.

The Performance Prism method is a performance measurement method based on five perspectives, namely, satisfaction, strategy, process, capability and stakeholder contribution. While the Analytical Hierarchy Process method is a decision support model that describes complex multi-factor or multi-criteria problems into a hierarchy. The Performance Prism method seeks to perfect previous methods such as IPMS and Balance Scorecard, this method is not only based on strategy but also pays attention to stakeholder satisfaction and contribution, process and capability (Moeheriono, 2012).

Literature Review

 A. Performance

The term "performance" comes from "work performance" or "actual performance", which is a person's performance at work. According to Sutrisno (2016:172) "Performance is the result of employee work seen from the aspects of quality, quantity, work time, and cooperation to achieve the goals set by the organization.". Meanwhile, according to Fahmi (2017:188) "Performance is the result of a process that refers to and is measured over a certain period of time based on previously established provisions or agreements". Suyadi Prawirosentono said that Performance is the result of the work of a person or group of people in accordance with their authority and responsibility to achieve organizational goals legally, morally, and ethically.

 B. Digital Transformation

The use of digital technology that has the potential to significantly improve company performance and achieve its goals is called digital transformation. Digital transformation can also be considered as a process that uses information, computing, communication, and connectivity technologies to make an entity better by making major changes to its properties. Previous research results state that digital transformation is an evolutionary process that uses existing digital skills and technologies to create or change business processes, operational processes, and customer experiences to create new value (Lestari & Priyono, 2022; Suginam, 2022).

 C. Prism Performance

Performance Prism (Cranfield University) is an innovative performance measurement and performance management framework from the second generation. The performance prism method is a measurement theory that views company performance as a three-dimensional structure with five aspects, namely stakeholder satisfaction, strategy, capability, process, and stakeholder contribution. (Neely, AD and Adams, CA (c). 2000) The five sides of the Performance Prism are as follows:

1. Stakeholder Satisfaction (Stakeholder Satisfaction) Knowledge about changes in stakeholder wants and needs and how well the organization satisfies them is an output of previous strategies that forms the basis for new strategies.
2. Stakeholder Contribution The second side is Stakeholder Contribution. Performance Prism is not only based on what stakeholders want and need from the company, but also what the company wants from those stakeholders.
3. Strategies (Strategy), What strategies do we implement, to satisfy the desires and needs of key stakeholders. Business strategies revolve around a focus on core activities, such as

operating cost reduction policies, while withstanding customer criticism and maintaining the organization's reputation (sometimes called "brand values").

4. Processes The fourth side of the Performance Prism is what processes we must run to achieve the strategy that has been set. What are the important processes that we need, if we run this strategy.

5. Capabilities (Capability} Capabilities are a combination of people, training, technology, and physical infrastructure that together enable the organization's business processes to run (now and in the future).

D. AHP *(Analytical Hierarchy Process)*

AHP is a way to break down complex and unstructured problems into smaller components. The next step is to compile or synthesize considerations about the relative importance of these elements, considerations are made to determine the variables that have the highest priority in solving the problem. So, this model uses human perceptions that are considered experts as input. AHP combines logical considerations with the influence of imagination, knowledge, and experience to create a hierarchy of problems and make considerations.

The AHP method will ask the user to compare every two criteria *(pairwise comparison)* so that for 4 criteria the following is obtained:

$$C(4,2) = 4!/(2!*(4-2)!) = 6 \text{ hasil perbandingan.}$$

The AHP method requires interaction with decision-making. Through this interaction, the AHP method will process it into a solution in the form of a priority scale for a number of alternatives (candidate solutions). Users of the AHP method must be consistent when comparing pairs of objects, so that the best solution will be produced. Inconsistent answers will result in an inappropriate/optimal solution. The sequence of steps in the AHP method is:

A. Do *a pairwise comparison,* which is to determine the comparison between one performance and another criterion. The comparison is done according to the level of importance/priority, which criterion is more important.
B. Repeat step A for each criterion
C. Sort each criterion based on its importance

The use of the AHP method may result in inconsistent priority value filling (comparative data between a pair of criteria). If this happens, the solution produced by the AHP method is not the best. To determine the level of consistency of user input, the AHP method must be equipped with a consistency index calculation. Using the formula is as follows:

$$CR = \frac{CI}{RI}$$

Prof. Saaty compiled the RI table obtained from the average consistency index of 500 matrices. CR (consistency ratio) is the result of the comparison between the consistency index (CI) and the random index (RI). If CR <= 0.10 (10%) then the user's answer is consistent so that the resulting solution is optimal. Here is the random consistency index table:

Table 1M Consistency Index

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Research Methods

 A. Research Object

The object of this research is the measurement of company performance from a stakeholder perspective. The subjects of the interview and questionnaire distribution were addressed to Owners, Employees, Suppliers and Consumers.

 B. Method Of Collecting Data

Data collection techniques in implementing this research, namely:

1. Observation is the systematic observation and recording of symptoms that appear in research objects (Margono, 2005)
2. Interviews are one of the data collection techniques that support the observation results in this study.
3. Documentation is a record of past events. Documentation can be in the form of writing, pictures, or monumental works of a person (Sugiyono, 2010)
4. The distribution of the questionnaire contains a list of statements addressed to all stakeholders related to the research topic that has been determined. This questionnaire is compiled based on 5 indicators in the performance prism method in the form of an open questionnaire.
5. Key Performance Indicator (KPI) Hierarchy Weighting with the Analytical Hierarchy Process (AHP) method is set on a quantitative scale of 1 to 9 to assess the comparison of the level of importance of an element to other elements. The weighting value is obtained from the AHP questionnaire distributed to respondents containing paired comparisons between performance prism perspectives, stakeholders and performance indicators.

Results And Discussion

Several case studies in previous research conducted company performance measurements with the aim of evaluating company performance, one of which was research conducted by (Severgnini et al., 2018) which raised issues regarding the satisfaction and contribution of stakeholders in small and medium enterprises in Brazil. This study uses stakeholder theory where stakeholders greatly influence and have an impact on organizations or companies. Therefore, in the performance measurement carried out, data is taken from the perspective of stakeholders. Other studies that raise issues with the aim of improving performance by creating standard units in measuring company performance, this study was conducted by (Kinanti & Nurhasanah, 2019) because standard units in performance measurement are important in analyzing the success of companies in carrying out existing business processes.

Side	Question
Satisfaction	What do you want and need from MSMEs?
Strategy	What strategies can be implemented to fulfill these desires and needs?
Process	What processes can be implemented to realize existing strategies?

Capability	What capabilities must the company have in order for the process to run?
Contribution	What can you give to the company to support the satisfaction you desire?

Based on (Chung & Crawford, 2016) stakeholders are divided into two, namely primary and secondary. Where primary stakeholders become stakeholders 57 who can have an impact on the company or influence the company such as owners, employees, consumers, and suppliers. While secondary stakeholders become stakeholders who are affected by the company or influenced by the company such as competitors and the media. These parties are adjusted to the activities carried out in the company, including:

1. Owner, in this UMKM the owner is also the leader in making the highest decisions and providing capital in carrying out each activity.
2. Employees, this UMKM has 8 employees divided into 2 shifts, each shift consists of 4 people, 1 person for cooking, 1 person for packing, 1 person for offline cashier and 1 person for online cashier who usually orders via applications such as (gofood, grabfood or shopeefood)
3. Vendors, the role of vendors is very important because these MSMEs use vendors to supply the materials they need.
4. Consumers are the target in a business that is run so that sales planning looks at the consumer side. The target is very broad from all ages and genders. MSMEs have online consumers who are buyers who make transactions online through the marketplace provided and offline consumers who are buyers who make transactions at the store.
5. Competitors, this UMKM is in a strategic location, so there are many competitors from sellers who have the same or different types of merchandise.

The above parties produce several *stakeholder needs* as follows:

Table 2Identification of satisfaction and contribution KPIs

Stakeholder Satisfaction And Contribution	
Employee	Comfortable working environment
	Good working atmosphere and relationships between stakeholders
	Constructive suggestions, aspirations and criticism are welcome.
	Timely salary payment
	Employee appreciation and leave bonuses
	Creating good communication
	Work disciplined according to the rules
	Promoting UMKM merchandise
	Providing the best service
Vendor	Vendor trust in the collaboration carried out
	On time payment
	Make deliveries on time
	Providing affordable prices
Consumer	Friendly and satisfying service
	Cheap price
	The quality of the material of the product is good
	Cleanliness guarantee

	Fast delivery and good response
	Ease of payment administration
	Providing benefits to MSMEs by promoting
Competitors	Compete healthily in business

Table 3Identification of strategy, process, and capability KPIs

	Strategy	Process	Capability
Employee	Improvement of employee performance and loyalty in providing services to consumers. improve employee comfort	Emphasis on work sanctions to improve work discipline and rewards for employees.	Budget provision for employee bonuses Attention to employee complaints
Vendor	Maintain communication with suppliers to facilitate cooperation and build trust.	There is an agreement on product quality standards to maintain service quality. Arrange contracts and plan orders in a planned manner	Quality check on ordered products Provides periodic stock condition information.
Consumer	Online payment system to facilitate transactions/services Increase variety	Frequency of giving bonuses when several purchases are made to attract visitors Convenience of services such as being able to be purchased through online applications	Expanding promotions with advertising media Collaborate with online food services
Competitors	Creating collaboration or cooperation	Adapting to customer needs	Making a collaboration or cooperation proposal

Table 4Identification of KPIs based on Stakeholder Satisfaction

	Strategy	Process	Capability
Employee	Improvement of employee performance and loyalty in providing services to consumers.	Communication between management and employees as a form of appreciation for employees	Budgeting for employee bonuses
Vendor	Continuous supplier work control	There is an agreement on product quality standards to maintain service quality.	Quality check on ordered products

Consumer	Increase variety	Frequency of giving bonuses when several purchases are made to attract visitors	Expanding promotions with advertising media
Competitors	Creating collaboration or cooperation	Adapting to customer needs	Conducting cooperation between MSMEs

Table 5Identification of KPIs based on Stakeholder Contributions

	Strategy	Process	Capability
Employee	Improving employee comfort	Emphasis on work sanctions to improve work discipline and rewards for employees.	Attention to employee complaints
Vendor	Maintain communication with suppliers to facilitate cooperation and build trust.	Arrange contracts and plan orders in a planned manner	Provides stock condition information periodically.
Consumer	Online payment system to facilitate transactions/services	Convenience of services such as being able to be purchased through online applications	Collaborate with online food services
Competitors	Creating collaboration or cooperation	Adapting to customer needs	Making a collaboration or cooperation proposal

Next, the satisfaction assessment stage that has been identified is carried out with the aim of seeing whether it is in accordance with existing conditions, the assessment is carried out by distributing a follow-up questionnaire containing satisfaction obtained from an open questionnaire to be given a Likert assessment on a scale of 1-4 to avoid middle or neutral answers. Where the scale 1 is very inappropriate - 4 is very appropriate. The following are the results of the assessment obtained.

Table 6 Answers from each stakeholder

Questionnaire		*1*	*2*	*3*	*4*
Employees (8 people)	Comfortable working environment			2	6
	Good working atmosphere and relationships between				8

	stakeholders				
	Constructive suggestions, aspirations and criticism are welcome.			8	
	Timely salary payment			8	
	Employee appreciation and leave bonuses			8	
	Creating good communication				8
	Work disciplined according to the rules				8
Vendor (2 people)	Vendor trust in the collaboration carried out				2
	On time payment			2	
	Make deliveries on time				2
	Providing affordable prices				2
Consumers (10 people)	Friendly and satisfying service			5	5
	Cheap price				10
	The quality of the material of the product is good			5	5

	Cleanliness guarantee				10
	Fast delivery and good response			5	5
	Ease of payment administration				10
Competitors (5 people)	Compete healthily in business			5	

The mathematical formulation of AHP is done by using a matrix. Suppose in an operating subsystem there are n operating elements, namely elements A1, A2, A3 ....An, then the results of the pairwise comparison of the operating elements will form a comparison matrix. The scale of pairwise comparison values according to Saaty is as follows

Table 8 Pairwise comparison matrix

	Strategy	Process	Capability
Strategy	1	3	7
Process	0.333333333	1	5
Capability	0.142857143	0.2	1
Total	1.476190476	4.2	13

The number 1 in the strategy column illustrates the same level of importance between strategy and strategy. While the number 3 in the process column illustrates that the process has less importance than the strategy. Then the value of 0.33 is the value of the division of 1/total in the column, and so on.

1. Synthesis

Things that have been done in this step are:

a. Add up the values from each column in the matrix.

b. Divide each value of a column by the total of the respective column to obtain the normalization of the matrix.

c. Add up the values from each row and divide by the number of elements to get the average value.

Table 9 Matrix of criteria values

	Strategy	Process	Capability	Amount	Priority
Strategy	0.677419355	0.714285714	0.538461538	1,930167	0.6433889
Process	0.225806452	0.238095238	0.384615385	0.848517	0.282839
Capability	0.096774194	0.047619048	0.076923077	0.221316	0.0737721
Total	1	1	1	3	1

The value of 0.67 in the strategy column of the strategy row is obtained from the value of the strategy column and the strategy row in table 4.7 divided by the total number of strategy columns. The value of the total column in table 4.8 is obtained from the sum of each row. For the first row, the value of 1.93 is the sum of $0.677 + 0.714 + 0.538 = 1.930$. The value in the priority column is obtained from the value in the total column divided by the number of criteria in this case 3.

2. Measuring consistency

Things done in this step are:

a. Multiply each value in the first column by the relative priority of the first element, the value in the second column by the relative priority of the second element, and so on.

b. Add up each row

c. The result of adding the rows divided by the relevant relative priority element.

d. Add the result of the division above with the number of elements present, the result is called λ max.

Table 10 Matrix of Addition of Each Row

	Vector Priority	Weight	Eigen Value
Strategy	1.930166608	0.643388869	0.949764521
Process	0.848517074	0.282839025	1.187923904
Capability	0.221316318	0.073772106	0.959037378
Total	3	1	3.096725804

In the priority column of the strategy vector, it is the result of the total column in the previous table. Then in the weight column, it is the result of the value in the priority vector column divided by the number of criteria in this case 3. While the value of the eigenvalue column is obtained from the division between the priority vector column and the weight, such as the example $1.930 \div 0.643 = 0.949$ and so on.

3. Calculate the Consistency Index (CI) using the formula:

$CI = (\lambda maks-n) / n$ Where n = number of elements. This calculation is used to ensure that the consistency ratio (CR) value is $<= 0.1$. If the CR value is greater than 0.1, the pairwise comparison matrix must be repaired.

Table 11 Consistency Ratio Calculation

CI	0.048362902	
Republic of Indonesia	0.58	
CR	0.083384313	CONSISTENT

From the table above, the following values are obtained:

The CI value is the total of the eigenvalue column in table 4.9 minus the criteria value divided by the criteria value minus 1, if described like this:

CI = (3.096 – 3) / (3 – 1) = 0.048

While the RI value is obtained in the random consistency ratio index column on 3 criteria, namely 0.58. So the CR value = CI / RI, namely CR = 0.048 / 0.58 = 0.08, it can be concluded that the calculation of the 3 criteria is consistent CR <0.1 because 0.08 <0.1, the consistency ratio of the calculation can be accepted. After that, the researcher carried out the same paired calculation method on the sub-criteria with the following results:

Table 12 Employee Strategy KPI Matrix

Employee Strategy Kpi	Vector Priority	Weight	Eigen Value
Improvement Of Employee Performance And Loyalty	0.285714286	0.142857143	2
Improving Employee Comfort	1.714285714	0.857142857	2
Total	2	1	4

Table 13 Employee Process KPI Matrix

Employee Process KPI	Vector Priority	Weight	Eigen Value
Communication Between Management And Employees As A Form Of Appreciation For Employees	0.333333333	0.166666667	2
Affirmation Of Work Sanctions And Provision Of Rewards For Employees	1.666666667	0.833333333	2

Total	2	1	4

Table 14 Employee Capability KPI Matrix

Employee Capability KPI	Vector Priority	Weight	Eigen Value
Budgeting For Employee Bonuses	0.666666667	0.333333333	2
Attention To Employee Complaints	1.333333333	0.666666667	2
Total	2	1	4

From the 3 matrices of paired calculation results on employee criteria, the priority weight of the performance improvement strategy and employee loyalty table has a lower value compared to increasing employee comfort with a result of 0.14 compared to 0.85. Then in the process table, Communication between leaders and employees as an award for employees is lower than Affirmation of work sanctions and giving rewards to employees, which is 0.16 compared to 0.83. Furthermore, the employee capability table on the item Provision of budget for employee bonuses produces a lower weight of 0.33 compared to Attention to Employee Complaints of 0.66 for the consistency value on this employee criterion is consistent because RI in the index ratio column is 0 so it can be said that CR = 0 <0.1 then the consistency ratio of the calculation can be accepted.

Table 15 Vendor Strategy KPI Matrix

KPI Strategy	Vector Priority	Weight	Eigen Value
Continuous Supplier Work Control	0.285714286	0.142857143	2
Maintain Communication With Suppliers To Facilitate Cooperation And Build Trust.	1.714285714	0.857142857	2
Total	2	1	4

Table 16 Vendor Strategy KPI Matrix

Process KPI	Vector Priority	Weight	Eigen Value
There is an agreement on product quality standards to maintain service quality.	0.4	0.2	2
Arrange contracts and plan orders in a planned manner	1.6	0.8	2
Total	2	1	4

Table 17 KPI Matrix Vendor capability

KPI Capability	Vector Priority	Weight	Eigen Value
Quality check on ordered products	0.333333333	0.166666667	2
Provides stock condition information periodically	1.666666667	0.833333333	2
TOTAL	2	1	4

From the matrix table above, the results of the paired calculations on the vendor criteria produce a priority weight for the strategy table Continuous supplier work control of 0.14 lower than Maintaining communication with suppliers to facilitate cooperation and foster trust of 0.85. Then in the process table There is an agreement on product quality standards to maintain service quality lower than Arranging contracts and planning orders in a planned manner, which is 0.2 compared to 0.8. Furthermore, the vendor capability table on the item Checking the quality of ordered products produces a lower weight of 0.16 compared to Providing periodic stock condition information of 0.83 for the consistency value on this employee criterion is consistent because the RI in the index ratio column is 0 so it can be said that CR = 0 <0.1 then the consistency ratio of the calculation can be accepted.

Conclusion

From the results of performance measurement using the performance prism method that has been carried out, it can be concluded that performance measurement using this method is not only based on the process strategy and capabilities of the MSMEs, but also pays attention to stakeholder satisfaction and contribution. Because it is proven in the study that the preparation of MSME KPIs begins with identifying the satisfaction and contribution of stakeholders to determine performance indicators from the criteria of strategy, process and capabilities of the MSMEs. From the above, it can be concluded that consumers play an important role in the development of MSMEs with a result of 0.1599 from all aspects, then followed by vendors in second place.

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