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**ANALYZING FACTORS THAT AFFECTING PRODUCT LIFE CYCLE OF BEVERAGE  
PRODUCT BROWNICE BEVERAGE AND PASTRY****MENGANALISA FAKTOR YANG MEMPENGARUHI SIKLUS HIDUP PRODUK PADA PRODUK  
MINUMAN BROWNICE BEVERAGE AND PASTRY**

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**Abstract:** Drinking is a basic human needs that cannot be denied. In fact, to release your thirst there are alternative drinks that have a variety of flavors to meet our needs for our body. From there the current development and the interest of business people to make the beverage business increase and compete to produce innovations that attract the attention of customers. The purpose of this study is to determine the factors that affecting the product life cycle of Brownice beverage products. This study uses quantitative method using a questionnaire to obtain data and use purposive sampling as a sampling technique where 100 customers from Brownice Beverage and Pastry as respondents. This study uses factor analysis as an analysis tool. The results of this study indicates that factors there are 5 factors formed that affecting the product life cycle, namely: Customer Perception, Advertising, Promotion, Customer Perceive Value and Service Quality. Based on the results of the study, recommendations for Brownice Beverage and Pastry owners and entrepreneurs who want to open a beverage business should pay attention to these factors to create indicators or strategies when to launch a product forward.

**Keywords:** *beverage product, product life cycle, factor analysis*

**Abstrak:** Minuman merupakan kebutuhan pokok manusia yang tidak bisa dihindari. Bahkan, untuk melepaskan rasa dahaga ada alternatif minuman yang memiliki varian rasa untuk memenuhi keinginan sekaligus kebutuhan kita terhadap cairan tubuh kita. Dari situlah perkembangan zaman dan ketertarikan para pebisnis untuk membuat bisnis minuman semakin pesat dan bersaing secara berinovasi dan kreatif untuk menarik perhatian pelanggan. Tujuan dari penelitian ini adalah untuk menentukan faktor-faktor yang mempengaruhi siklus hidup produk pada produk minuman Brownice Beverage and Pastry. Penelitian ini menggunakan metode kuantitatif dengan menyebarkan kuesioner untuk mendapatkan data dan menggunakan purposive sampling sebagai teknik pengambilan sampel dimana 100 pelanggan dari Brownice Beverage and Pastry sebagai responden. Penelitian ini menggunakan analisis faktor sebagai alat analisis. Hasil penelitian ini menunjukkan bahwa ada 5 faktor terbentuk yang mempengaruhi siklus hidup produk, yaitu: Customer Perception, Advertising, Promotion, Customer Perceived Value dan Service Quality. Berdasarkan hasil dari penelitian ini, rekomendasi untuk pemilik Brownice Beverage and Pastry dan pengusaha yang ingin membuka bisnis minuman agar memperhatikan faktor-faktor ini untuk menjadikan sebuah indikator atau strategi untuk meluncurkan sebuah produk kedepannya.

**Kata kunci:** *produk minuman, siklus hidup produk, analisis faktor*

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**INTRODUCTION****Research Background**

Drink/beverage is one of the needs of every person to fulfil their needs and release of thirst because 80% of the human body contains water and always need drinks. However, with the presence of various flavoured drinks, what was once the need for the people to fulfill their thirst now starting to shift to become their wants according with their taste.

People now can fulfill their thirst with any flavour that they want. Some people see the opportunity in this section to start developing businesses in beverage because many people are not only seen this business in terms of needs but also to attract the attention of the customers. Since there are various kinds of drinks that are newly created or with various flavours to satisfy people's desires based on tastes, lifestyle trends and customer curiosity on new things. Many beverage industries try to develop any kind of beverage product like flavoured drinks to interest market or consumer to repurchased their products. They took advantage of consumer needs into desires trough beverage.

But, not all of enterprise that succeeded in making a beverage as a start-up for their business. According to because a competitor is the source of finance, business experience, knowledge, level of innovation in their product and network ties of the entrepreneur (Evers, 2003). The entrepreneurial start-up is characterized by both uncertainty, in terms of outcomes, success, failure, survival, lack of knowledge and understanding. (Deakins and Whittam, 2000)

Brownice is the one of the beverage and pastry enterprise or Small Medium Enterprise that serve variants of beverages and homemade pastries following the lifestyle and trends that is making the customer especially at young ages attracted to purchase their product to fulfill their desire. This enterprise/business was established back in 2016 by Zefanya Mokodongan as an owner of Brownice. This enterprise located at Innovation and Entrepreneurship Center Building, Sam Ratulangi University and have a branch that located near university exactly at Jl. Kampus Barat, Bahu, Kec. Malalayang, Kota Manado behind Faculty of Engineering Sam Ratulangi University. This business is one of the most successful SMEs that introduced by university from student that become an entrepreneur.

When launching a product to the market one day, there will be a fluctuation in demand due to the launch of a new product that shows promising potential or the said product experiencing a saturation of purchase. It becomes a challenge for entrepreneurs who are new to business drinks / start-up enterprises. That they want to make a strategy to provide their beverage product, but not having an experience about that and curiosity to make it well according their planning and achieve their goals as entrepreneur.

The product life cycle reaches or will display the cycles that occur in each product. The concept of PLC or Product Life Cycle can be a framework to marketers for describing how some products cycle work. Many factors that affecting that cycle or mobilized people to repurchase some product. Factors that affecting some products cycle during time and demand, whether it is internal factors or external factors.

**Research Objective**

The objective of this research is: to identify the factors that affecting the product life cycle of beverage product of Brownice product.

**THEORETICAL REVIEW****Marketing**

Marketing is a process to creating, communicating, and delivering value for customers and managing customer relationships that will be have an advantage for the organization and its stakeholders. Marketing Management as the art and science of choosing target markets and getting, keeping, and growing customer trough creating, delivering and communicating superior value (Kotler and Keller, 2012:5).

**Product Life Cycle**

The product life cycle is period of time over which an item is developed, brought to market and eventually removed from the market. It is an important tool for analysis and planning of the marketing mix activity (Kamthe and Verma, 2013). Product Life Cycle is the cycle of the development product into the market going through four stages. They are: Introduction, Growth, Maturity and Decline

### Factors That Affecting the Product Life Cycle

There are 20 factors which is to analyze what factor are truly affecting product life cycle of beverage product at Brownice Beverage and Pastry. There is customer satisfaction, knowledge, loyalty, competition, service quality, brand, design, taste, accessible, lifestyle, advertising, word of mouth, social media, innovation, store layout, product of variety, promotion, discount, trend, and price.

### Previous Research

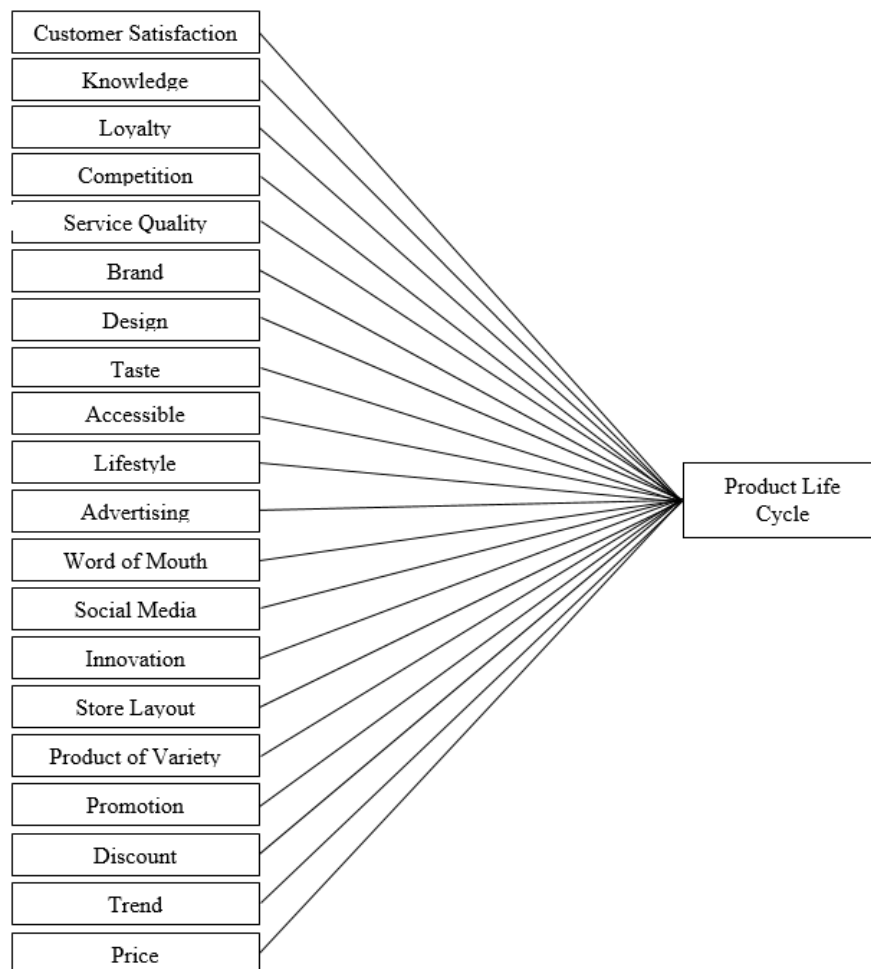
Product life cycle is an important concept that informs managers about dynamics competitive concepts. The assumption of researcher gets that satisfaction in some customers exists to the new developing product. With PLC model and simulation this research can defined several factors that affecting customer satisfaction and loyalty with new product (Kazemi, Eshlaghy and Tavasoli, 2011).

In digital era, lifestyle makes the line of product or product life cycle be changing every single year or another phenomenon happens, whether technologies, software or hardware, information etc. (Draskovic, Markovic and Znidar, 2018).

The key internal contributors for each stage of the PLC, their level of importance as well as the relevant strategies that should be use at each stage of PLC. That purpose to help managers to understand the performance or nonperformance of their emerging markets (Khan and Billah, 2013).

### Conceptual Framework

In this section, there are 20 factors that used in the form of conceptual framework of this research.



**Figure 1. Conceptual Framework**  
 Source: *Data Analysis Method, 2019*

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**RESEARCH METHOD****Research Approach**

This research used quantitative method. Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. (Kothari, 2004:3).

**Population and Sample**

The population on this research is all customers of Brownice Beverage and Pastry. The definition of Population refers to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications (Polit and Hungler 1999:37). The sample method on this research is purposive sampling, the samples are those who experiences or consume the product and services of Brownice customers that meets the criteria also. The purposive sampling is selected by some arbitrary method because it is known to be representative of the total population, or it is known that it will produce well matched groups (Pandey and Pandey, 2015:54)

**Data Collection Method**

This research gets the primary data from the result of questionnaire that distributed to respondents.

**Operational Definition and Measurement of Research Variable**

There are 20 factors as variables that will be used in this research that affecting Product Life Cycle. There is customer satisfaction, knowledge, loyalty, competition, service quality, brand, design, taste, accessible, lifestyle, advertising, word of mouth, social media, innovation, store layout, product of variety, promotion, discount, trend, and price.

**Data Analysis Method****Validity and Reliability Method**

Validity test to determine the measurable or questionnaire that will administer to the respondents, using analytical tools that will be use. Questionnaire is said to invalid if the question and questioner is able to reveal something that will be measured by the questionnaire (Ghozali, 2005:45). To analyze the validity of questionnaire, Pearson Product Moment Correlation is used. The main reliability test is to make sure that the measurement tools questionnaire is consistent in measuring some cases, even though the observation has been conducted frequently at the same object. To ensure that all question in questionnaire are meet criteria of reliable the measurement of the Internal Consistency is made. The Internal Consistency can be seen at the Cronbach Alpha Parameter.

**Factor Analysis**

Factor Analysis is an exploratory technique applied to a set of observed variables that seeks to find underlying factors (subsets of variables) from which the observed variables were generated. Application of factor analysis involves the following two stages, those are determining the number of common factors needed to adequately describe the correlations between the observed variables, and estimating how each factor is related to each observed variable such as estimating the factor loadings and trying to simplify the initial solution by the process known as factor rotation.

**RESULT AND DISCUSSION****Result****Validity and Reliability Test**

The Pearson Correlation value of all factors/variables are higher than value of R table which is  $> 0.197$  and the significant level of each variable are below the significant level of 5% or 0.05, it means valid. And reliability test result that the 20 variables in this research is utilized as reliability test in this research with following criteria. Alpha Cronbach must be 0.6 or it is better if the value is above 0.8 (close to 1). It is evident that the Cronbach's Alpha (Alpha Cronbach) score is 0.906 and it is concluding that the data is less bias and regraded as reliable.

**Factor Analysis Result****Variable Determination****Table 1. KMO and Bartlett's Test Results**

<b>KMO and Bartlett's Test</b>	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy..825	
Bartlett's Test of Sphericity	Approx. Chi-Square981.985
	Df190
	Sig..000

Source: SPSS Output, 2019

That table result shows that the significance score which is 0.000. This indicates a significant correlation, since the Sig. result is lower than 0.05. The KMO test shows the value of 0.825 and consistent with 1 point above, which is if the KMO result is greater than 0.5, than the sample is regarded as fit or adequate for analysis step.

The next step in this test is Measurement of Sampling Adequacy. In this test, variables are analyzed further to obtain which ones are the variable to be included and which ones are to be excluded. To pass this step, each variables should have MSA score greater than 0.5 or 5%. The mentioned MSA score is gathered from the Anti-Image Matrices table, specifically in the part of Anti-Image Correlation.

**Table 2. Measurement of Sampling Adequacy**

<b>Measurement of Sampling Adequacy (MSA)</b>		
<b>X</b>	<b>Variable</b>	<b>MSA Value</b>
X1	Satisfaction	.841 <sup>a</sup>
X2	Knowledge	.824 <sup>a</sup>
X3	Loyalty	.786 <sup>a</sup>
X4	Competition	.469 <sup>a</sup>
X5	Service Quality	.704 <sup>a</sup>
X6	Brand	.841 <sup>a</sup>
X7	Design	.875 <sup>a</sup>
X8	Taste	.839 <sup>a</sup>
X9	Accessible	.831 <sup>a</sup>
X10	Lifestyle	.896 <sup>a</sup>
X11	Advertising	.880 <sup>a</sup>
X12	Word of Mouth	.741 <sup>a</sup>
X13	Social Media	.855 <sup>a</sup>
X14	Innovation	.855 <sup>a</sup>
X15	Store Layout	.825 <sup>a</sup>
X16	Product of Variety	.884 <sup>a</sup>
X17	Promotion	.798 <sup>a</sup>
X18	Discount	.812 <sup>a</sup>
X19	Trend	.870 <sup>a</sup>
X20	Price	.824 <sup>a</sup>

Source: SPSS Output, 2019

Based on Table 2 shows that all of variable are valid except Competition (X4) because its MSA result is below 0.5, so this variable will be eliminated in further analysis.

**Table 3. Communalities Result**

Communalities	Initial	Extraction
Satisfaction	1.000	.708
Knowledge	1.000	.541
Loyalty	1.000	.619
Service Quality	1.000	.649
Brand	1.000	.724
Design	1.000	.686
Taste	1.000	.707
Accessible	1.000	.717
Lifestyle	1.000	.676
Advertising	1.000	.685
Word of Mouth	1.000	.666
Social Media	1.000	.749
Innovation	1.000	.607
Store Layout	1.000	.711
Product of Variety	1.000	.595
Promotion	1.000	.736
Discount	1.000	.801
Trend	1.000	.591
Price	1.000	.516

Source: SPSS Output, 2019

Table 3 shows the communalities estimation results of the 19 variables. And the variance of each original variable can explained by factors that are extracted. All the variance above can be used to future test and analysis. The highest variance at variable Discount X18 with 0.801, it means that about 80% variance of variable X18 can explained by factors to be formed. And the lower variance at variable Price X20 with 0.516 it means that about 51% variance can be explained by factors that is formed.

**Table 4. Component Matrix<sup>a</sup>**

	Component Matrix <sup>a</sup>				
	1	2	3	4	5
Satisfaction (X1)	.511	-.121	.454	-.100	-.465
Knowledge (X2)	.532	.108	.190	.289	-.355
Loyalty (X3)	.402	.391	.525	.092	-.143
Service Quality (X5)	.410	.140	.406	.207	.504
Brand (X6)	.754	.136	-.166	.274	.184
Design (X7)	.662	.418	-.052	.267	.008
Taste (X8)	.434	.440	.442	-.335	.132
Accessible (X9)	.602	-.482	.306	.164	.023
Lifestyle (X10)	.604	-.468	-.015	.282	-.110
Advertising (X11)	.729	-.235	-.260	.171	-.028
Word of Mouth (X12)	.574	.334	-.343	-.321	.056
Social Media (X13)	.806	-.012	-.146	-.278	-.027
Innovation (X14)	.653	.015	-.233	-.216	-.281
Store Layout (X15)	.758	.121	-.211	.141	-.240
Product of Variety (X16)	.608	.394	-.261	.031	-.029
Promotion (X17)	.692	-.238	.071	-.434	.086
Discount (X18)	.685	-.338	.117	-.431	.135
Trend (X19)	.680	-.084	-.163	.146	.271
Price (X20)	.619	-.171	.063	.099	.299

Source: SPSS Output (2019)

Based on table 4 of component matrix table can determined how big the correlation of each variable with the factors that has been formed. This table contains components loading, which are the correlation between the variable and component. There are 19 variables into 5 components.

**Table 5. Rotated Component Matrix**

	Rotated Component Matrix				
	Component				
	1	2	3	4	5
Satisfaction (X1)	.022	.262	.345	<b>.719</b>	-.057
Knowledge (X2)	.334	.325	-.043	<b>.565</b>	.045
Loyalty (X3)	.184	-.058	.028	<b>.663</b>	.376
Service Quality (X5)	.089	.181	.073	.126	<b>.766</b>
Brand (X6)	<b>.649</b>	.415	.094	.063	.343
Design (X7)	<b>.689</b>	.165	-.036	.286	.318
Taste (X8)	.217	-.299	.402	.422	<b>.480</b>
Accessible (X9)	-.040	<b>.700</b>	.319	.276	.220
Lifestyle (X10)	.169	<b>.768</b>	.175	.160	-.010
Advertising (X11)	.493	<b>.618</b>	.244	.032	.006
Word of Mouth (X12)	<b>.694</b>	-.111	.410	-.029	.048
Social Media (X13)	.553	.259	<b>.593</b>	.148	.053
Innovation (X14)	<b>.544</b>	.205	.426	.215	-.202
Store Layout (X15)	<b>.685</b>	.365	.158	.289	-.032
Product of Variety (X16)	<b>.740</b>	.043	.117	.131	.120
Promotion (X17)	.217	.270	<b>.766</b>	.118	.122
Discount (X18)	.131	.336	<b>.800</b>	.093	.153
Trend (X19)	.465	<b>.467</b>	.239	-.075	.306
Price (X20)	.249	<b>.463</b>	.298	.013	.388

Source: SPSS Output, 2019

Based on the table 5, the results obtained in this study it was found that there are 16 variables have greater correlation that will be used for the next analysis and Taste (X8), Trend (X19) and Price (X20) was eliminated because has extraction value below than 0.5.

## Discussion

Many people have a needs and wants personally and it's all different not same, so with marketing in some organization or company must have to creating, communicating and delivering some new innovation to affect people perceptions and make them repurchased the product. Especially for startup business that will start their business for the first time and rely on to experienced enterprise based on cycle of some success enterprise (their product life cycle). By doing this research, a new startup business/enterprise will get information about which factors that affects the product life cycle of beverage product in case study at Brownice Beverage and Pastry. Based on the analysis and discussion, there are 5 factors affecting the Product Life Cycle of Beverage Product Case Study: Brownice Beverage and Pastry. The first factor is Customer Perception, to relate/supporting this factor to Product Life Cycle the study of Wasson (1976) explain that competition and change strategy to parallel changes in consumer habits and perceptions with changes in the phases of the cycle. Second factor is Advertising, to relate/supporting this factor to Product Life Cycle study of Polli and Cook (1969) explain that concerning the level of advertising weight, nature of distribution, pricing strategy, and so forth, rest on the assumption that the product life cycle is largely independent of the firm's marketing activities. It may be true that changes in advertising, for example, will not significantly affect a product's life cycle, but this ought to be clearly established before it is accepted as a basis for planning. Third factor is Promotion, to related this factor to Product Life Cycle study of Kotler (2000:18) defined that marketing mix consists of product, price, place (distribution) and promotion (advertisement, personal selling, sales promotion and public relation) as 4Ps that play vital roles in different stages of product life cycle that consists of introduction, growth, maturity and decline. Fourth factor is Customer Perceived Value, to related this factor to Product Life Cycle study of Lin and Kuo (2013) explain that the perceived value has a strong impact beyond the satisfaction of new customers who switch from

competitors because customers have accumulated shopping experience and value awareness that's why it's can affect life cycle of the product. And the last factor is Service Quality, study of Gronroos (2007:33) service quality is an important outcome of comparison between customer expectations before and after their experience of the service. If customers view that their expectations for service performance conform their perceptions of the service, this situation may lead to induce the notion of service quality.

## CONCLUSION AND RECOMMENDATION

### Conclusion

Based on the analysis and discussion, there are 5 factors affecting the Product Life Cycle of Beverage Product (Case Study: Brownice Beverage and Pastry). These 16 factors are divided into 5 group or new factors. The first factor is Customer Perception that consist of 6 initial factors which are brand, design, word of mouth, innovation, store layout and product of variety. The second factor is Advertising that consist of 3 initial factors which are accessible, lifestyle and advertising. The third factor is Promotion that consist of 3 initial factors which are social media, promotion and discount. The fourth factor is Customer Perceived Value that consist of 3 initial factors which are satisfaction, knowledge and loyalty. The fifth factor is Service Quality that consist of 1 initial factor which is service quality. From the result of total variance explained the first factor explain about 39% variation of data it means that this new factor is the most affecting the product life cycle of beverage product at Brownice Beverage and Pastry. Followed by the second factor with 8%, and the third factor with 7%, and then the fourth factor with 6%, and the last fifth factor with 5%.

### Recommendation

Based on conclusion, the following recommendations can be proposed. The researcher recommends to the owner of Brownice Beverage and Pastry hopefully this will give benefit to enterprise and also for those who want to start a startup business in the beverage product which can make this recommendation as a strategy for developing the business.

1. Brand: Brownice Beverage and Pastry brands should keep their standards for their quality product that they used in order to keep their good reputation and trust from customers about their brand. Representing their brand image to the maximum through the product, service and store layout so customer will always be interested to purchase their beverage product.
2. Design: Brownice Beverage and Pastry should improve their custom design of their product with innovative, contemporary and unique so customer perception about the design of the product make them interest and consider buying decision in the future.
3. Word of Mouth: Brownice should listen to the opinion of customers in order to improve the strategy and keep it if the opinion about that is positive and the feedback/opinion about something on Brownice is negative. the enterprise should accept that and find way to improve or change their deficiency to be better.
4. Innovation: Brownice should keep their innovation if it doing well for their product and also increasing their innovation in order to keep customer attracted and interested with new innovation that Brownice provide. such as partner with suppliers for new ideas and build relationship with customers in order to know their expectation and enterprise make it as a plan to improving their quality.
5. Store Layout: Brownice should expand their store in order to make customers feel comfortable, make a good atmosphere such as adding more fan, adding a cozy furniture, and entertainment so customer can enjoy while stay at the store.
6. Product of Variety: Brownice should offers personalized recommendation so that make easier to customer to choose what they want according the recommendation/signature or interested product that Brownice provided.
7. Accessible: Brownice should keep their partnership with Gojek and Grab in order to make it easier to get the product by ordering Go-food and Grab-food.
8. Lifestyle: Brownice should considering and understanding the customer lifestyle that change in period of time. So, the enterprise should pay intention about lifestyles change.
9. Advertising: Brownice should make an advertisement attracted customer such as demonstrate the value of the product, ensure the advertisement is well organized and easy to follow by the customers and use simple and direct language with everyday words that are easy to understand.



10. Social Media: Brownice should keep their social media to posting contents in order to attract customer and use the language of your target audience to keep them engaged.
11. Promotion: With social media and discount Brownice can offer the promotion easier to customer. and also Brownice can adding promotion to attract consumer such as in-store promotion, with in-store promotion Brownice have an opportunity to promote their product easier and less cost. Adding promotion such as discount, coupons, one get one free and etc.
12. Discount: Brownice should spread the news when giving a discount on the products, so it will be easier for consumer to notice if there are discount and will decide to purchase the product.
13. Satisfaction: Brownice should have listening to their customers to know about their expectation and perception in order to improving the product and service quality. Knowing your potential customers to know what make them satisfy and build brand awareness.
14. Knowledge: Brownice should have receive customer reviews because it was helpful, enhanced customer trust on a one-to-one level, faster resolution rate for customer issues and complains.
15. Loyalty: To keep customer loyal to the product, Brownice should have understand what consumer perception and expectation. Keep the quality of the product, keep in touch with your customers such as accepting their feedbacks and opinions, still provide value of the product and showing your appreciation to your loyal consumers.
16. Service Quality: Brownice should deal with the issues, with focusing the performance the team should taking approach and eliminate performance deficiency by properly explain each part. So your team can understand and accepted the solutions. Encourage customer interaction and utilized customer suggestions.

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