

## THE ROLE OF SATISFACTION IN MEDIATING THE INFLUENCE OF PRODUCT QUALITY ON CUSTOMER LOYALTY IN INDOMILK PACKAGED MILK PRODUCTS IN DENPASAR

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### ABSTRACT

Business in Indonesia is incredibly competitive, thus every company works hard to augment their customer base while simultaneously satisfying current customers and finding new ones. Indomilk, a brand of dairy products, is experiencing a phenomenon whereby customer loyalty is being impacted by falling sales volume and the Top Brand Index. Indomilk packaged milk products in Denpasar are the focus of this investigation, which aims to determine the role of consumer pleasure in mediating the relationship between product quality and brand loyalty. The sample for the investigation consisted of 110 participants chosen using a combination of non-probability and purposive selection methods. Information is analysed using Path Analysis in conjunction with the Sobel Test and the Variance Accounted for (VAF) Test. Product quality has a good and substantial effect on customer satisfaction, which has a positive and substantial effect on customer loyalty, in light of the outcomes of the study. Furthermore, product quality indirectly influences customer loyalty via customer satisfaction. In light of the investigation, Indomilk should improve the quality of its raw materials, augment the amount of attention-grabbing colours and patterns used in product packaging, and maintain a constant level of high-quality items.

**Keywords:** Product Quality, Satisfaction, Customer Loyalty.

### INTRODUCTION

Economic growth in the era of globalization requires that every company, whether operating in the industrial or service sectors, must be able to compete with other companies. Competition occurs in various sectors, both service and non-service sectors, one of which is the beverage industry. Competition in this field is quite high because drinks are a basic daily need, including milk because it is one of the important nutrients for humans, namely protein. As time goes by, milk can be processed into various forms of packaging in light of consumer needs, using various milk processing technologies that can produce, among other things, pasteurized, powdered, sweetened condensed, UHT (Ultra-High Temperature) and liquid milk in ready-to-drink packaging. Many new competitors are entering the packaged liquid milk industry today. Each brand is competing and developing its product

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advantages to dominate the market in order to gain market share. Businesses in Indonesia are always trying to outdo each other in terms of market share, customer retention, and client acquisition, which makes for a very competitive business environment.

Customer loyalty is of the utmost importance in the packaged liquid milk sector. In the cutthroat packaged milk business, loyalty might be the key to success. With more and more people moving to cities, more disposable money, and a focus on health and fitness, the ready-to-drink liquid milk market in Indonesia is poised for growth. Liquid milk in ready-to-drink packaging in boxes is quite popular because it can be enjoyed by anyone, both adults and children (Islamia and Trinada, 2023). Milk fans in the future will augment along with population growth, increasing income or ability to pay, as well as awareness of consuming nutritious food or drinks as a basic need and to meet vitamin intake.

Competition for packaged liquid milk products has augmented, the public's interest in consuming packaged liquid milk has resulted in the prospect of selling packaged liquid milk increasing, which could be one of the impacts of globalization which has made beverage producers compete to innovate to create something new, unique, different from the others in order to avoid consumer boredom and attract consumer attention to continue repeat purchases. For this reason, recently many new flavor variants and new packaging have emerged.

One of the companies in Indonesia that is involved in the processing of packaged liquid milk drinks is PT. Indolacto. IndoMilk is a milk brand founded by PT. Indolacto was founded in 1967 and is already widely known to the public. For example, producing many types of milk such as sweetened condensed milk, special milk for children, and packaged milk (UHT). One of the milk products that is popular with the public is UHT milk. Many people like this milk product because its packaging is practical and ready to drink and is easy to find, such as in stalls, supermarkets, etc. (Aqila et al., 2023). This milk is also considered safer because it is processed and packaged using super sophisticated high technology. Indomilk succeeded in getting Top Brand in the packaged liquid milk category until 2022. There are three parameters in measuring the Top Brand Index (TBI), namely top of mind awareness (the first product that comes to mind after hearing about a product category), last used (the last product that comes to mind), consumed or used, and future intention (products you want to consume in the future).

The TBI of milk products in Indomilk packaging shows that there is a phenomenon of TBI of liquid milk in Indomilk packaging which decreased in 2018, namely 18.5 percent to 12.5 percent in 2019. The TBI decrease was 6 percent. Then in 2020 there was an augment of 14.5 percent, an augment of 2 percent from 2019 and in 2021 to 2022 it decreased to 11 percent. The phenomenon of decreasing Top Brand Index of milk products in Indomilk packaging shows that liquid milk in Indomilk packaging is indicated to have decreased top of mind awareness, last used, and future intention among Indomilk customers. This could have an impact on decreasing customer loyalty towards milk products in Indomilk packaging. The decline in Indomilk TBI was also followed by low sales of Indomilk as shown by the

low sales quantity of milk products in Indomilk packaging which is presented in Table 1.

**Table 1. Sales Data for the Packaged Liquid Milk Category in 2022**

<b>Brand</b>	<b>Sales Quantity</b>
Frisian Flag	17100
Greenfields	10900
Diamonds	8400
Ultra Milk	7200
Bear Brand	5200
Mine	4800
Indomilk	4600

Source: *Compas.co.id* (2022)

Table 1 shows sales quantity data in the liquid milk category in packaging in Indonesia. This shows that sales of Indomilk are very low compared to Frisian Flag, Greenfields, Diamond, Ultra Milk, Bear Brand and Milku milk. These low sales indicate that the product quality of the Indomilk brand is less able to compete with other competitors in terms of sales in the packaged milk product category. From the top brand index data and the low sales volume in the packaged liquid milk category, researchers are looking for further information.

The pre-survey which was conducted on January 3 2024 in Denpasar City utilized a Google form which was distributed to 30 respondents to evaluate the views of consumers in Denpasar City regarding Indomilk packaged milk products. This pre-survey was carried out because of the lack of secondary data in Denpasar City regarding Indomilk packaged milk products.

A pre-survey of 30 Indomilk packaged milk buyers in Denpasar City found that as many as 30% of those people believed the products were great. As many as 30 percent of respondents felt that Indomilk offered products in line with customer expectations. Then 30 percent of respondents said they chose Indomilk as their first choice if they wanted to consume packaged milk. Then 23.3 percent of respondents said they would not switch to other competitors who sell products similar to Indomilk. The low percentage of Indomilk consumers who say they will not switch to competitors indicates that there is a phenomenon within Indomilk related to customer loyalty that needs to be studied more deeply.

Customer loyalty is defined as the favourable impressions that a brand generates. In light of Fauzi (2019), this positive attitude is a sign of brand loyalty that will lead to more purchases in the future. For a firm to survive, customer loyalty must be maintained. Building and maintaining customer loyalty isn't something that happens by chance. Companies must be prepared to meet the needs of their customers, both now and in the future. An benefit of a loyal customer base is that it makes your firm less vulnerable to attacks from competitors. Both goods-based and perception-based rivalry fall under this category (Irnadha, 2016). Numerous factors, such as customer satisfaction and product quality, impact a business's capacity to maintain loyal clients.

The ability of a product to fulfil its intended function, including durability, ease of use and maintenance, and other significant attributes that enhance the product's

worth, is characterised by its quality, in light of Iskuntianti et al. (2020). Customers have high expectations for the quality of the products and services they buy since product quality is a key factor in business success (Putri & Rastini, 2020). Customers are more loyal to a business that consistently delivers high-quality goods, in light of Amaranggana (2018). Satisfying or surpassing customer expectations in terms of product quality is the key to customer satisfaction.

Product quality has a favourable and substantial effect on customer loyalty (Familiar & Maftukhah, 2015). Sari and Jatra (2020) state that product quality has a positive and significant influence, and the investigation supports this claim. This claim is in line with the findings of Anggarawati's (2021) research, which shows that product quality has a favourable and substantial effect on customer loyalty. Still, research by Budiono (2021) and Nurmingsih et al. (2023) shows that customer loyalty is unrelated to product quality.

There is a lack of research on the relationship between product quality and customer loyalty. Previous studies have shown that in order to understand this relationship, a mediating variable is necessary. The relationship between product quality and customer loyalty is more complicated when we include consumer happiness as a mediator. Because happy consumers are more likely to buy from a company again, research by Hasrat et al. (2020) discovered a strong correlation between high-quality products and satisfied buyers. Product quality has a substantial and positive effect on customer satisfaction, in light of research by Zamzami (2022), Amaranggana & Rahanatha (2018), and Andreas and Yuniati (2016). Customer satisfaction and loyalty are the company's first goals, thus it works hard to give only the best items.

In light of Purimartya et al. (2021), customer satisfaction is attained when a product satisfies both the needs and wants of the buyer. It is also believed that customer happiness has a role in shaping post-purchase attitudes that point to positive or negative outcomes (Elitan & Suhartatik, 2023). Satisfaction or dissatisfaction with the quality of the items received will impact customer behaviour. If the product's quality is just right in the eyes of the customer, they may be more likely to remain loyal.

Customer happiness was also the subject of study by Suarmita and Sukawati. in light of (2019), there is a positive and robust correlation between happy customers and loyal ones. Research by Anggarawati (2021) and others provide credence to the idea that happy customers are loyal customers (Anggarawati, 2021). client happiness has a favourable effect on client loyalty, in light of these two research. Lie et al. (2019) and Novandy & Rastini (2018) also found this. The optimum mediating variable between product quality and loyalty is customer satisfaction, as shown here.

## **RESEARCH METHODS**

### **Research design**

The design of this investigation is causal associative in light of the type of research in light of the level of explanation which aims to explain the relationship between two or more variables using quantitative analysis techniques. Sugiyono

defines causal associative investigation as an investigation of the potential relationship between many variables (2022: 13). A causal relationship is one that has a cause and an effect.

### **Data Type**

The type of data used in this investigation is as follows.

- 1) The quantitative data in this investigation is an assessment (scoring) of respondents' responses from the outcomes of questionnaires that have been distributed, pre-survey data, packaged milk drink product data and top brand product data by the Top Brand Index and data on the population of Denpasar City by the Central Statistics Agency
- 2) The qualitative data in this investigation is derived from the responses of consumers to questions about how customer satisfaction mediates the relationship between product quality and customer loyalty among Indomilk packaged milk product users.

### **Method of collecting data**

#### **1) Literature Study**

Literature study is a way of collecting data by collecting literature, documents and other means of information related to research problems. The literature study in this investigation aims to collect secondary data obtained from literature, documents and websites that are available online

#### **2) Field Research**

Field research is the process of spending time physically observing a study's topic in order to collect relevant data. The investigation techniques used to collect primary data for this study were questionnaires. The survey is distributed digitally; more especially, the questions are linked to Google forms so that respondents may access them online. The Indomilk packaged milk quiz will be sent out to a number of people via various social media channels, such as Facebook, Instagram, Telegram, WhatsApp, and Discord.

### **Data analysis technique**

#### **Descriptive Statistical Analysis**

Analysing data in its raw form allows investigation to avoid making broad assumptions about the population at large, and descriptive analysis is a useful tool for doing just that (Sugiyono, 2022: 206). This statistical analysis focuses on data collection, management, presentation and analysis of data. This analysis is usually used to describe the data that has been collected and then presented in graphic or table form. The descriptive approach is useful for clarifying or describing the facts that occur in the variables studied, namely product quality, customer loyalty and customer satisfaction

#### **Inferential Statistical Analysis**

In order to generalise the outcomes from a sample to the whole population, statisticians use a technique known as inferential statistical analysis (Sugiyono, 2022:207). Prior to doing an inferential statistical test, a classical assumption test is

carried out using hypothesis testing statistics to guarantee that the study model is valid and that the outcomes are free of bias (Utama, 2016: 99).

## RESULTS AND DISCUSSION

### Data Analysis Results

#### Classic Assumption Test Results

Verifying that the outcomes match the regression analysis's basic assumptions is what the classical assumption test is all about. This study's outcomes from the traditional assumption tests of normality, multicollinearity, and heteroscedasticity. The outcomes of the classic assumption test, which was analysed using SPSS for Windows, are shown below.

#### 1) Normality test

To check whether the residuals were normal, this investigation employed the Kolmogorov-Smirnov test, a statistical tool. Data is said to be normally distributed if the coefficient is Asymp. In Sig, there is a value exceeding  $\alpha = 0.05$ . What follows is an analysis of the outcomes of the succeeding normality tests:

**Table 2. Structure Normality Test Results 1**

<i>Unstandardized Residuals</i>	
N	110
Asymp.Sig.(2-tailed)	0.200

*Source: Primary Data, processed (2024)*

In light of Table 2, it can be seen that the value of Asymp. Sig. (2-tailed) of 0.200. These outcomes demonstrate that the model of the regression equation follows a normal distribution, as predicted by the Asymp. Sig. 2-tailed is more than the significance level of 0.05.

**Table 3. Structure Normality Test Results 2**

<i>Unstandardized Residuals</i>	
N	110
Asymp.Sig.(2-tailed)	0.063

*Source: Primary Data, processed (2024)*

The significance of Asymp is seen in Table 3. Sig. was 0.063 when tested using a two-tailed statistical method. These outcomes demonstrate that the model of the regression equation follows a normal distribution, as predicted by the Asymp. Sig. 2-tailed is more than the significance level of 0.05.

#### 2) Multicollinearity Test

An effective method for assessing multicollinearity involves examining the tolerance value and the VIF value. If the VIF is less than 10 or the tolerance value is more than 10%, it may be concluded that there is no presence of multicollinearity. Below is a comprehensive analysis of the outcomes obtained from the multicollinearity test:

**Table 4. Multicollinearity Test Results**

Variable	Tolerance	VIF
Product quality (X)	0.578	1,731
Customer satisfaction (M)	0.578	1,731

**Source: Appendix 8, Primary Data, processed (2024)**

Table 4 shows that the tolerance value for the customer satisfaction variable exceeds 0.10, while the VIF value for the product quality variable is below 10. This demonstrates that the regression equation model is devoid of multicollinearity.

### 3) Heteroscedasticity Test

An effective method for determining the presence of heteroscedasticity is to use the Glejser test, which involves doing a regression analysis of the absolute value against the independent variable. Heteroscedasticity is absent when the p-value exceeds 0.05. If the significance value is more than 0.05, there are no indications of heteroscedasticity. Here is a summary of the findings from the heteroscedasticity test:

**Table 5. Structure Heteroscedasticity Test Results 1**

Model	<u>Unstandardized Coefficients</u>		<u>Standardized Coefficients</u>		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	3,255	0.692			4,706	0,000
Product quality	-0.062	0.035	-0.165		-1,744	0.084

*Source: Primary Data, processed (2024)*

In light of Table 5, the product quality variable shows statistical significance with a p-value of 0.084. The conclusion that the independent variables have no significant influence on the absolute residual may be inferred from the statistic that exceeds 0.05. This ensures that the final model does not display any indications of heteroscedasticity.

**Table 6. HResults of Structure Heteroscedasticity Test 2**

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
2 (Constant)	4,458	0.728			6,121	0,000
Product quality	-0.039	0.045	-0.107		-0.885	0.378
Customer satisfaction	-0.104	0.056	-0.225		-1,854	0.066

*Source: Primary Data, processed (2024)*

In Table 5 it can be seen that the significance value of the product quality variable is 0.378, and the word of mouth variable is 0.066. This value is exceeding 0.05, which means there is no influence between the independent variables on the absolute residual. So that the model created does not contain symptoms of heteroscedasticity.

### Path Analysis Results (Path Analysis)

1. Formulate hypotheses and structural equations
  - (1) The impact of product quality on customer satisfaction

In light of the hypothesis that has been prepared, structural equation 1 can be formulated for hypothesis 3 as follows.

$$M = \beta_1X + e_1$$

- (2) The impact of product quality on customer loyalty
- (3) The impact of customer satisfaction on customer loyalty

Structural equation 2 can be formulated for hypotheses 1 and 2 as follows.

$$Y = \beta_2X + \beta_3M + e_2$$

The path coefficient was calculated using SPSS 26. To see the outcomes of processing the data for regression equation 1, go to Table 6.

**Table 6. Results of Path Analysis of Regression Equation 1**

Mode	I	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,397	1,134		4,760	0,000
	Product quality	0.515	0.058	0.650	8,887	0,000

R<sup>12</sup> : 0.422  
 F statistic: 78.895  
 Sig. F : 0.000

Source: Primary Data, processed (2024)

The findings of the route analysis for regression equation 1 are shown in Table 5, and the structural equation is provided below:

$$M = \beta_1X + e_1$$

$$M = 0.650$$

The quality of a product has a beneficial impact on customer satisfaction, as shown by a  $\beta_1$  coefficient of 0.650. An increment of 0.650 in the product quality variable will correspondingly lead to a 0.650 increment in customer satisfaction. Achieving an R-squared score of 0.422 indicates a substantial impact of the independent variable on the dependent variable. The study indicates that several factors account for 57.8 percent of customer satisfaction, whereas variations in product quality constitute 42.2 percent.

**Table 7. Results of Path Analysis of Regression Equation 2**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,918	1,262		2,312	0.023
	Product quality	0.343	0.077	0.347	4,443	0,000
	Customer satisfaction	0.646	0.097	0.518	6,638	0,000

R<sup>22</sup> : 0.623  
 F statistic: 88.422

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Sig. F : 0.000

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Source: Primary Data, processed (2024)

Appendix 7 includes the structural equation that was derived from the route analysis of regression equation 2:

$$Y = \beta_2X + \beta_3M + e_2$$

$$Y = 0.347X + 0.518M$$

In light of this equation, it can be concluded that:

The  $\beta_2$  value of 0.347 demonstrates that there is a positive correlation between product quality and customer loyalty. By increasing the product quality variable, there is a corresponding rise of 0.347 in the customer loyalty variable.

The  $\beta_3$  coefficient of 0.518 suggests that there is a strong correlation between customer satisfaction and customer loyalty. This indicates that for each enhancement in customer satisfaction, there will be a corresponding augment of 0.518 in customer loyalty. The R square value of 0.623 indicates that 62.3% of the variation in customer loyalty can be attributed to changes in product quality and customer satisfaction. The remaining 37.7% can be attributed to other factors. Within the framework.

2. Testing the value of the coefficient of determination ( $R^2$ ) and error variable ( $e$ )

The final route diagram model may be constructed utilising the models of structures 1 and 2. Prior to generating the final model of the route diagram, the first calculation is performed to get the standard error value.

$$Pe_i = 2\sqrt{1-R_i}$$

$$Pe_1 = 2\sqrt{1-0.422} = 0.760$$

$$Pe_2 = 2\sqrt{1-0.623} = 0.614$$

Upon calculating the effect of error ( $Pe_i$ ), we determined that its influence was 0.614 and the effect of error ( $Pe_2$ ) was 0.760. After analysing  $e_1$  and  $e_2$ , the overall coefficient of determination is computed as follows:

$$\begin{aligned} R^2_m &= 1 - (Pe_1)^2 - (Pe_2)^2 \\ &= 1 - (0.760)^2 - (0.614)^2 \\ &= 1 - 0.577 - 0.376 \\ &= 1 - 0.953 \\ &= 0.047 \end{aligned}$$

The determination coefficient of 0.047 indicates that 4.7% of the variation in customer loyalty can be explained by characteristics related to product quality and customer happiness. However, there are other factors, not included in the model, that account for the remaining 95.3% of the variance.

3. Calculates path coefficients in light of regression coefficients

- (1) Direct influence (direct effect)

Direct influence occurs if a variable influences another variable without any other mediating variable.

1. Impact of product quality variables (X) on customer satisfaction (M):

$$X \longrightarrow M = 0.650$$

2. Impact of product quality variables (X) on customer loyalty (Y):

$$X \longrightarrow Y = 0.347$$

3. The impact of the job satisfaction variable (M) on customer loyalty (Y):

$$M \longrightarrow Y = 0.518$$

(2) Indirect influence (indirect effect)

Indirect impact refers to the existence of intermediaries that mediate between two variables. The correlation between consumer satisfaction (M) and the qualities of product quality (X), as well as the mediating variable of customer loyalty (Y)

$$X \longrightarrow M \longrightarrow Y = (0.650) \times (0.518) \\ = 0.336$$

(3) Total influence (total effect)

To understand the total effect, this can be done by adding the direct impact of product quality on customer loyalty and then multiplying the direct impact of product quality on customer satisfaction with the direct impact of customer satisfaction on customer loyalty.

The total impact of variable X on Y through M can be formulated as follows:

$$\text{Total effect} = 0.347 + (0.650 \times 0.518) \\ = 0.683$$

4. Hypothesis test

The overall test is shown by the ANOVA table. Statistical hypothesis formulated as follows:

a) Calculating path coefficients simultaneously/overall (F Test)

In light of the significant final findings of the assessment. In light of the F-values shown in Tables 5 and 6, it is evident that customer happiness and product quality significantly impact customer loyalty, as indicated by the Sig.F value of less than 0.05 ( $0.000 < 0.05$ ). According on the F test findings, we may conclude that the structural equation model satisfies the criteria for goodness-of-fit.

b) Calculating path coefficients partially.individually (t test)

Calculating path coefficients partially

The test criteria to explain the interpretation of the influence between each variable are as follows:

If Sig.<0.05 then Ho is rejected and H1,2,3 is accepted.

If Sig.> 0.05 then Ho is accepted and H1,2,3 is rejected.

(1) The impact of product quality on customer loyalty

The hypotheses in the investigation that will be tested are as follows:

Ho : Product quality does not have a strong and notable impact on customer loyalty.

H1 : Product quality has a strong and notable impact on customer loyalty.

The findings of the data processing indicated that the null hypothesis (Ho) was rejected and the alternative hypothesis (H1) was accepted. The significance level was found to be 0.000, which is lower than the threshold of 0.05. The beta coefficient value was calculated to be 0.347, and the probability significance value was determined to be 0.000. These findings

indicate that product quality has a positive and significant impact on consumer loyalty.

(2) The impact of product quality on customer satisfaction

The hypotheses in the investigation that will be tested are as follows:

Ho : Product quality does not have a strong and notable impact on customer satisfaction.

H1 : Product quality has a strong and notable impact on customer satisfaction.

Using a significance criteria of  $0.000 < 0.05$ , the null hypothesis (Ho) was rejected and the alternative hypothesis (H1) was accepted. This decision was in light of the data processing findings, which indicated a beta coefficient value of 0.650 and a probability significance value of 0.000. These findings indicate that product quality has a significant and favourable impact on consumer satisfaction.

(3) The impact of customer satisfaction on customer loyalty

The hypotheses in the investigation that will be tested are as follows:

Ho : Customer satisfaction does not have a strong and notable impact on customer loyalty.

H1 : Customer satisfaction has a strong and notable impact on customer loyalty.

The data processing findings revealed a beta coefficient value of 0.518, a significance level of  $0.000 < 0.05$ , and a probability significance value of 0.000. Consequently, the null hypothesis (Ho) was rejected and the alternative hypothesis (H3) was accepted. The evidence indicates that customer happiness has a positive and significant impact on client loyalty.

c) Summarizing and concluding

Concluding and evaluating the extent of both the immediate and indirect consequences, as well as the overall influence among various components. The implications of the components, as calculated from Table 8, are summarised here.

**Table 8. Direct, Indirect and Total Effects of Product Quality (X), Customer Satisfaction (M), and Customer Loyalty (Y)**

Impact of Variables	Direct Influence	Indirect Influence Through Customer Satisfaction (M) $(1 \times 3)\beta\beta$	Total Influence
X→m	0.650	-	0.650
m→Y	0.518	-	0.518
X→Y	0.347	0.336	0.683

Source: Primary Data, processed (2024)

By using route analysis methods on each structural equation, Table 8 presents a summary of the values for both direct and indirect effect channels between variables. In the following sections, we will examine and interpret the facts shown in Table 8.

1) The impact of product quality on customer satisfaction

The path coefficient value obtained for the direct impact of product quality on customer satisfaction is 0.650. These outcomes show that product quality directly has a positive influence on customer satisfaction.

- 2) The impact of customer satisfaction on customer loyalty  
Obtained the path coefficient value of the direct impact of customer satisfaction on customer loyalty amounting to 0.518, these outcomes show that customer satisfaction directly has a positive influence on customer loyalty.
- 3) The impact of product quality on customer loyalty  
The findings indicate that there is a direct causal association between product quality and customer loyalty, with a path coefficient value of 0.347.
- 4) The role of customer satisfaction in mediating the impact of product quality on customer loyalty  
The path coefficient value of 0.378 indicates the indirect connection between product quality and customer satisfaction, as well as the mediation of this relationship. The findings suggest that there is an indirect relationship between the quality of the product and the loyalty of the customers. via satisfied customers.

d) Sobel Test

Analytically, the Sobel test may identify the significance of the indirect relationship between the independent and dependent variables, which is influenced by the mediator variable. Create your own Sobel test by using this formula. If the level of customer satisfaction is assumed to be 95%, a Z-calculation value higher than 1.96 suggests that the mediator variable plays a substantial role in mediating the link between the dependent and independent variables.

1) Hypothesis formulation

Ho : Customer satisfaction does not mediate the effect of product quality on customer loyalty

H1 : Customer satisfaction mediates the effect of product quality on customer loyalty

2) Test criteria

The test criteria used are as follows:

If Z count  $\leq$  1.96 then Ho is accepted, meaning customer satisfaction is a mediating variable.

If Z count  $>$  1.96 then Ho is rejected, meaning customer satisfaction is not a mediating variable.

3) Calculation of mediating variables uses test statistics.

The Sobel test findings indicate that there is a meaningful connection between product quality and consumer loyalty to milk products packed by Indomilk, with customer pleasure acting as a mediator. This is supported by a computed Z value of 5.354, which exceeds the critical threshold of 1.96. The satisfaction of consumers leads to an indirect influence on consumer loyalty due to the quality of the product.

### **VAF Test**

In this study, the mediation testing using the VAF technique yielded findings that satisfied one of the requirements. Specifically, the direct impact was shown to be substantial, despite the exclusion of the customer satisfaction variable (M) from the model. Furthermore, when including the job satisfaction variable (M) into the model, it was seen that the indirect impact (bxc) was also statistically significant. Furthermore, the b and c routes have great importance. To calculate the Variance Accounted For (VAF), you need use the following formula:

$$VAF = \frac{\text{Pengaruh tidak langsung}}{\text{Pengaruh langsung} + \text{Pengaruh tidak langsung}}$$
$$VAF = \frac{(0.650 \times 0.518)}{(0.347 + 0.650 \times 0.518)}$$
$$= 0.336 / 0.683$$
$$= 0.491 \text{ or } 49.1 \text{ percent.}$$

A mediation effect may be present, as shown by a VAF value of 49.1%, which above the threshold of 20%. Thus, it is evident that consumer satisfaction acts as a mediator in the relationship between product quality and customer loyalty.

### **Discussion of the Influence of Each Research Variable**

#### **The influence of product quality on customer loyalty to Indomilk packaged milk products**

The study's hypothesis testing findings indicate that product quality has a positive and significant impact on customer loyalty. In light of our findings, we can affirm that the initial premise is accurate: there is a direct correlation between the improvement in the quality of Indomilk's packaged milk products and the growth in consumer loyalty. The most accurate way to assess the quality of the product is by asserting that Indomilk milk products are entirely safe for consumption by both adults and children. The outcomes of this investigation indicate that the safety of milk products in Indomilk packaging for consumption by children and adults can be augmented. customer loyalty to Indomilk packaged milk products.

The study conducted by Wahyuni & Sanjaya (2021) shown that product quality has a positive and significant impact on consumer loyalty, which aligns with the findings of this study. Familiar and Maftukhah (2015) provide more data supporting the notion that superior goods have a beneficial impact on customer loyalty. Cardia et al. (2019) did a research which found that product quality has a significant and beneficial impact on customer loyalty. The findings of this investigation support the conclusions of Rukaiyah (2020) and Chaniego (2020), who discovered that premium items positively influence customer loyalty.

#### **The influence of product quality on customer satisfaction with milk products in Indomilk packaging**

The study's hypothesis testing revealed that product quality has a significant and favourable impact on customer satisfaction. Considering this, we may infer that the second hypothesis is accurate: Indomilk's packaging of higher-quality milk products outcomes in greater customer satisfaction. In the product quality variable, the statement that milk products in Indomilk packaging are very safe when consumed by children and adults has the highest average value. The outcomes of

this investigation indicate that the safety of milk products in Indomilk packaging for consumption by children and adults can augment satisfaction. customers for Indomilk packaged milk products.

Additional studies have also shown a strong and significant correlation between the quality of a product and consumer satisfaction. Notable examples include the study conducted by Andreas and Yuniati (2016), Putri and Rastini (2020), and Amaranggana & Rahanatha (2018). Our data confirm or support these conclusions. Hasrat et al. (2020) conducted study that found a direct correlation between superior goods and contented customers, since happy consumers are more inclined to make repeat purchases from a firm. The findings of this investigation support the conclusions of Zamzami (2022) and Cahaya et al. (2023), who both discovered that product quality had a positive and significant impact on customer satisfaction.

#### **The influence of customer satisfaction on customer loyalty to Indomilk packaged milk products**

The outcomes of hypothesis testing in this study show that customer satisfaction has a strong and notable impact on customer loyalty. So it can be concluded that the higher customer satisfaction will augment customer loyalty to Indomilk packaged milk products, so the third hypothesis is accepted. In the customer satisfaction variable, the statement that milk products in Indomilk brand packaging are very easy to obtain in Denpasar City has the highest average value. The outcomes of this investigation indicate that the ease of obtaining milk products in Indomilk brand packaging can augment customer loyalty to milk products in Indomilk packaging.

Consistent with the findings of Suarmita and Sukawati (2019), this study affirms that customer satisfaction has a favourable and significant impact on customer loyalty. The investigation conducted by Anggarawati (2021) and other scholars supports the notion that satisfied consumers tend to exhibit loyalty (Anggarawati, 2021). A study conducted by Agiesta et al. (2021) revealed that customer satisfaction positively influences customer loyalty. customer happiness has a beneficial impact on customer loyalty, as shown by these three studies. Both Novandy and Rastini (2018) and Lie et al. (2019) arrived at comparable findings.

#### **Customer satisfaction mediates the effect of product quality on customer loyalty on dairy products in Indomilk packaging**

In light of the outcomes of hypothesis testing in this investigation, it has been shown that customer satisfaction might potentially influence the relationship between product quality and customer loyalty. Therefore, the fourth hypothesis is considered valid. In other words, if Indomilk's packaged milk products are already of exceptional quality, it will result in higher overall customer satisfaction and thus foster more consumer loyalty.

The outcomes of this study indicate that customer satisfaction plays a mediating role in the positive connection between product quality and customer loyalty. These findings are consistent with the investigation conducted by Wijaya and Nurcaya (2017). The quality of a product acts as an intermediary in determining consumer happiness, which then leads to an augment in customer loyalty

(Dharmawati et al., 2022). The outcomes of Rajab and Nora (2021) suggest that customer satisfaction might potentially impact the connection between product quality and customer loyalty, which aligns with this concept. Amaranggana and Rahanatha (2018) discovered that customer satisfaction acts as an intermediary factor in the connection between product quality and customer loyalty.

## **CONCLUSION**

The study findings enable us to derive the following conclusions:

- 1) The outcomes of this investigation show that product quality has a strong and notable impact on customer loyalty, meaning that the better the product quality, the greater the ability to augment customer loyalty to milk products in Indomilk packaging.
- 2) The outcomes of this investigation show that product quality has a strong and notable impact on customer satisfaction, meaning that the better the product quality, the greater the ability to augment customer satisfaction with milk products in Indomilk packaging.
- 3) The outcomes of this investigation show that customer satisfaction has a strong and notable impact on customer loyalty, meaning that the higher the customer satisfaction, the greater the ability to augment customer loyalty to Indomilk packaged milk products.
- 4) Superior products are more inclined to enhance consumer satisfaction and foster customer loyalty, indicating that customer enjoyment serves as an intermediary in the relationship between product quality and customer loyalty.

## **BIBLIOGRAPHY**

- Abdillah, W., & Hartono, J. (2015). *Partial Least Square (PLS) Alternative to Structural Equation Modeling (SEM) in Business investigation*. Yogyakarta: Andi Publishers.
- Agiesta, W., Sajidin, A., & Perwito, P. (2021). The influence of service quality and customer satisfaction on local customer loyalty in Bandung Raya. *Scientific Journal of Management, Economics & Accounting (MEA)*, 5(2), 1653-1664.
- Almassawa, S. F (2018). *The Influence of Service Quality, Company Image and the Implications of Customer Satisfaction on Customer Loyalty*.
- Amaranggana, A., and Rahanatha, G. B. (2018). The Role of Satisfaction in Mediating the Effect of Product Quality on Customer Loyalty. *Udayana University Management E-Journal*, 7(2), 6872-6900
- Andreas, C., and Yuniati, T. (2016). The Influence of Product Quality on Customer Loyalty with Satisfaction as an Intervening Variable. *Journal of Management Science and Research*, 5(5), 1-16
- Anggarawati IR (2021). The Influence of Product Quality, Service Quality and Customer Satisfaction on Customer Loyalty of PDAM Tirta Marta Yogyakarta. *Indonesian Journal of Social Science*, 2(1), 1-11
- Anwar, RN, and Wardani, FA (2021). The Influence of Product Quality and Service Quality on Repurchase Interest in Scarlett Products on Shopee E-Commerce. *Journal of Social Sciences*, 8(5), 1370-1379

- Ariella, I. R (2018). The Influence of Product Quality, Product Price and Product Design on Mazelnid Consumer Purchasing Decisions. *Journal of Management and Business Start-Ups*
- Badriyah, N., Wibowo, E., and Sumaryanto. (2020). Increasing Customer Loyalty with the Strength of Product Quality and Service Quality through Customer Satisfaction (Survey of JCO Chinese food and Seafood Sragen Customers). *Journal of Economics and Banking*, 5(2), 227-240
- Budiastari S. (2016). The Influence of Product Quality, Price Perception and Brand Image on Customer Satisfaction and Loyalty of Holcim Readymix Concrete in Jakarta. *Indonesian Science Management Research Journal (JRMSI)*, 7(2), 345-362
- Budiono A. (2021). The Influence of Product Quality, Price Perception, Promotion, Service Quality on Consumer Loyalty Through Consumer Satisfaction at the Bebek Kaleo Tebet Restaurant, South Jakarta during the Covid-19 Pandemic. *Segment Journal of Management and Business*, 17(2), 223-247.
- Cardia, DINR, Santika, I. W and Respati, NNR, (2019). The Influence of Product Quality, Price, and Promotion on Customer Loyalty. *Udayana University Management E-Journal*, 8(11), 6762-6781
- Cahaya, YF, Siswanti, I., Putra, YM, And Pattiwael, AC (2023). Contributions to Customer Satisfaction from Product Quality, Promotion and Price. *Journal of Economics, Finance and Management Studies*, 6(6), 2434-2440
- Elliran, L., and Suhartik, A. (2023). Increasing Repurchase Intention through Product Quality, Service Quality, and Customer Satisfaction. *International Journal of Research*, 10(10), 25-36
- Karamah, R., Arifin, R., and Hufron, M. (2018). The Influence of Product Quality, Service, Price and Location on Customer Loyalty Through Satisfaction as an Intervening Variable. *E-Journal of Management Research*, 7(11), 25-39
- Kotler, P., and Keller, K. L. (2016). *A Framework For Marketing Management*. Boston, MA: Pearson
- Kotler, P., & Armstrong, G. (2018). *Principles of marketing (17th ed.)*. New Jersey: Pearson Prentice Hall.
- Kurniawan, D., Mazna., Saputri, MH, and Sanjaya, VF (2021). The Influence of Price, Product Quality and Service Quality on Telkomsel Card Customer Loyalty (Case Study of Students in Lampung). *Journal of Sharia Business Management*, 3(1), 1-10
- Lie, D., Sudirman, A., Efendi, and Butarbutar, M. (2019). Analysis of Mediation Effect Of Consumer Satisfaction On The Effect Of Service Quality, Price and Consumer Trust On Consumer Loyalty. *International Journal Of Scientific & Technological Research*, 8(8), 421-428
- Marifah, DN, Jatmiko, RD, and Andharini, SN (2022). The Influence of Service Quality on Customer Satisfaction Mediated by Customer Loyalty (Study on Garnier Customers In Malang City). *Journal of Business Management and Entrepreneurship*, 2(1), 13-20
- Muhammad, I. (2019). Career women from an Islamic perspective. *AL-WARDAH: Journal of Women, Gender and Religion Studies*, 13(1), 99-108

- Novandy, MI, and Rastini, NM (2017). The Role of Customer Satisfaction in Mediating the Influence of Service Quality on Customer Loyalty (Case Study: Tiki Expedition Business in Denpasar City). *Udayana University Management E-Journal*, 7(1), 412
- Nurmingsih, Somalua, R., Supriyanti, M., and Bawazir, M. (2023). Analysis Of Product Quality And Product Innovation On Consumer Loyalty Of Convention Companies. *Journal of Management, Accounting, General Finance And International Economic Issues (Marginal)*, 2(4), 927-934
- Pramesti, MA, and Chasanah, U. (2021) The Influence of Product Quality and Price on Customer Loyalty with Customer Satisfaction as a Mediating Variable. *Journal of National Development Economics*, 14(2), 281-287
- Putri, YL, and Utomo, H. (2017). The influence of service quality on customer loyalty with satisfaction as an intervening variable (Study of perceptions of Dian Comp Ambarawa customers). *Among Makarti*, 10(1).
- Purimartyas, A., Jatmiko, RD, and Aziz, N. (2021). The Influence of Website Quality On Customer Loyalty Mediated by Customer Satisfaction of Shopee Career Women Customers. *Journal of Business Management and Entrepreneurship*, 1(3), 158-165
- Son R. (2021). Determination of Customer Satisfaction and Customer Loyalty on Product Quality, Brand Image, and Price Perception (Literature Review of Marketing Management. *Economic Journal of Information Systems Management*, 2(4), 516-524
- Putri, KAAAD, and Rastini, NM (2020). The Role of Consumer Satisfaction in Mediating the Effect of Product Quality on Customer Loyalty. *Udayana University Management E-Journal*, 11(10), 1771-1791
- Rahyuda, K. (2020). *Business investigation Methods Base of The investigation Pyramid*. Denpasar: CV. PRIMARY LITERATURE.
- Rajab, A., and Nora, L. (2021). The Role of Consumer Satisfaction in Determining the Effect of Product Quality on Consumer Loyalty. *Muhammadiyah Journal of Business Management*, 2(2), 73-84
- Ridwan and Kuncoro, E. A (2011). *How to Use and Interpret Path Analysis*. Third Printing. Bandung: Alfabeta.
- Rofiah, C., & Wahyuni, D. (2017). Service Quality and Its Influence on Customer Loyalty Mediated by Satisfaction at Bank Muamalat Jombang. *Exist: Journal of Economic and Business investigation*, 12(1)
- Rosyad, AA, Febrilia, I., and Rahmi. (2023). Influence Of Customer Relationship Management And Service Quality on Customer Loyalty Mediated By Customer Satisfaction. *Scientia Journal*, 12(3), 2861-2872
- Rukaiyah, S. (2020). Effect of Product Quality and Product Value on Customer Loyalty: Empirical Study on Seaweed SME. *Point of View Research Management*, 1(4), 144-153
- Sari, NMDS, and Jatra, IM (2019). The Role of Customer Satisfaction in Mediating the Influence of Product Quality on KFC Customer Loyalty in Denpasar City. *Udayana University Management E-Journal*, 8(12), 7349-7369

Somalua, R., Asim., Nurmingsih., and Siregar, R. (2022). The Effect of Product Quality and Product Innovation on Consumer Loyalty in Fizzul Putra Mandiri Convection, Jombang regency. *Journal of Management, Accounting, General Finance and International Economic Issues (Marginal)*, 1(2), 43-52