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# The effect of consumption value on consumer changes behavior in usage of food delivery applications in the era of society 5.0

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**A B S T R A C T**

The outbreak of the Covid-19 pandemic and the introduction of Society 5.0 by the Japanese government in 2019 have resulted in significant changes to consumer behavior. The aim of this research is to examine the impacts of consumption value on customers' behavioral shifts. Furthermore, quantitative methods were used with a sample of 344 respondents, and data analysis using the structural equation model with the Lisrel 8.72 application. The stages in the structural equation analysis of this model are: development of theoretical models, development of path diagrams, conversion of path diagrams to structural equations, selecting input matrices and types of estimates, identifying models, assessing goodness of fit criteria, and interpreting results. The results obtained showed that consumers' attitudes and habits toward utilizing meal delivery applications can be influenced by factors such as their social, conditional, emotional, epistemic, and functional values. In the use of food delivery applications, consumers are not only interested in tangible benefits, but also in less tangible benefits, such as information provided by businesses.



## 1. Introduction

Society 5.0 aims to address multiple societal issues through a system that integrates the online and physical space, as a counterbalance to economic progression (Potočan et al., 2021; Keidanren, 2016). The concept represents an advancement of Industry 4.0 (Sarfraz et al., 2021). According to Aquilani et al. (2020), Industry 4.0, similar to previous industrial revolutions, will aid in the adaptation to the new social paradigm of Society 5.0. Thus, it provides a solution that will empower people in utilizing software in the post-PC era. The concept of society 5.0 can make it easier for people to do lots of different things in diverse areas, including in the field of marketing. This is because Society 5.0 refers to a time when technology is used in every aspect of human existence (Handayani et al., 2022). Smartphones and the Internet, which are classified as alternative data sources (Lv et al., 2022), have proven successful in becoming a stimulant of the ***changing online consumer behavior*** in the **digital age**. The internet and smartphone represent some external forces and have the potential to disrupt and change marketing as we know it today (Sheth, 2020). The market change in question is also related to changes in consumer behavior. Furthermore, there have been many shifts and ***changes in consumer behavior*** that occurred following the Covid-19 pandemic and the debut of Society 5.0 (Hendra et al., 2022). An example of altered consumer behavior is the utilization of food delivery applications (FDA) to purchase food during the pandemic lockdown (Algheshairy et al., 2022). This is because, in those days, people spent more time at home than outside (Basuki et al., 2022). FDA acts as an intermediary for consumers and restaurants of interest, i.e, applications that facilitate food delivery have altered the eating habits of the general public (Kumar & Shah, 2021), especially in metropolitan areas (R. K. Singh & Verma, 2020) of several countries such as Brazil, Malaysia, China, United Arab Emirates, Singapore, Mexico, Philippines, Thailand, and Indonesia.

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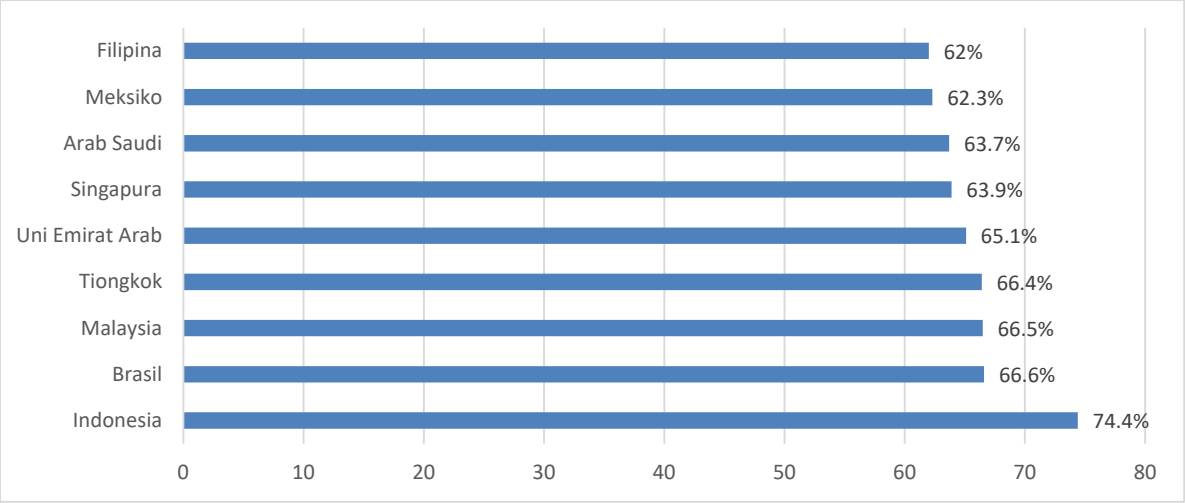


**Fig. 1.** How Often People Use Delivery Applications in 2020 (Lidwina, 2021)

From the analysis shown in Fig. 1, It can be concluded that approximately 74.4% of the Indonesian internet population regularly makes use of food delivery applications, and when compared to other countries, this percentage is by far the greatest. This indicates that Indonesia has more people than any other nation using meal delivery applications. According to Kemp (2021), the average user of food delivery applications globally is 55.5%, and there are still many countries whose percentage is below that average. Furthermore, one benefit of using the FDA for restaurants is that it is more efficient and labor-efficient because, in terms of providing delivery services, the FDA does its job. As for consumers, the use of the FDA is certainly very beneficial because they do not need to cook by themselves but have to pay more for the use of FDA services. In this regard, Maskuroh et al., (2022) stated that currently, many consumers shop from e-commerce stores to meet their needs. Based on previous literature reviews, it was found that research on the FDA is geographically very diverse, especially in countries like Thailand (Sungboonlue et al., 2022), Indonesia (Indriyarti et al., 2022; Wiastuti et al., 2022), India (Chakraborty et al., 2022; Ramesh et al., 2022; Kaur et al., 2021; Gupta et al., 2021; Singh et al., 2020; Kaur et al., 2020; Ray et al., 2019), Romania (Gârdan et al., 2021), Vietnam (Tran, 2021), and Turkey (Kızılkaya & Rızvanoğlu, 2020). This shows that there are not so many studies related to *Food Delivery Applications* (FDA) in several countries such as Thailand, Vietnam, Turkey, and Indonesia, both using quantitative and qualitative approaches. Admittedly, consumers' decisions to buy food from the FDA are influenced by a wide variety of factors and one of them is the consumption value. Consumption value significantly influences consumers' decisions regarding what to buy. In the Teori consumption value put forward by Sheth et al. (1991), the term "decision-making" was described. The theory's three key postulates are as follows: (1) consumption values are a necessary condition for consumer choice; (2) consumption values contribute differently to various choice situations; and (3) consumption values are distinct from one another. With all three propositions, Sheth et al. illustrated that the TCV model, popularly known as the five values, influences customer choice.

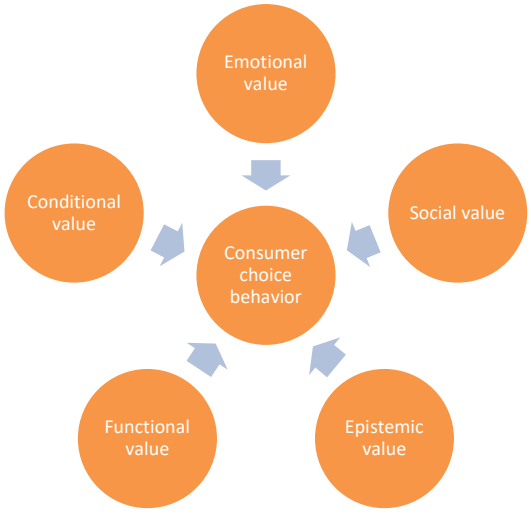


**Fig. 2.** Five Factors That Affect Purchase Decisions
Source: (Sheth et al., 1991)

There are 5 consumption levels in TCV that affect customers' decision-making (Fig. 2). Values can be broken down into several categories namely practical, interpersonal, affective, evaluative, epistemological, and contingent. Each of these 5 consumer priorities can influence a person's decision-making ability, background, experiences, etc. According to Choi & Johnson (2019), in addition to the service or product itself, consumers also take into account the aforementioned five values when making a purchase choice. Admittedly, consumption value is a crucial factor in consumers' decision-making processes (Joshi et al., 2021). In addition to the process of persuading a consumer to buy a thing, these values are often the driving force behind why a customer selects a certain product over another (Sheth et al., 1991). Although fundamentally, the consumption value is divided into five, and that of each individual varies and the customers' respective values elucidate their scope of perceptions (Paço et al., 2019). TCV, on the other hand, provides valuable insight into the underlying principles of the offer due to the illumination it brings to the relevant universe (Muhamed et al., 2019). Furthermore, considering the fact that only a few research have been conducted with regards to TCV in the context of the FDA, and because of several factors which include practical, social, contingent, emotional, and intellectual worth, which serves as the basis for developing a hypothesis in the relationship between consumption value and the aforementioned changes in consumer behavior, the TCV was selected in this study. The hypothesis obtained includes:

**$H_1$:** *Functional value affects alterations in how people use food-delivery applications.*
**$H_2$:** *Social values affect alterations in how people use food-delivery applications.*
**$H_3$:** *Emotional value also influences how people use food-delivery applications.*
**$H_4$:** *Epistemic value alters how people use food-delivery applications.*
**$H_5$:** *Conditional values affect alterations in how people use food-delivery applications*.

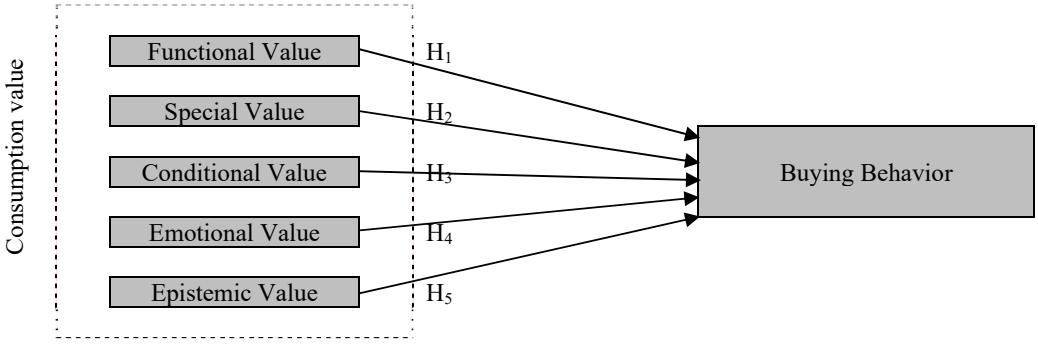


**Fig. 3.** Conceptual Framework Model

This model represents a hypothesized relationship between the elements of consumption value, namely epistemic, social, conditional, functional, and emotional values as exogenous latent variables, with buying behavior serving as endogenous latent variables.

## 2. Method

This research employs a quantitative survey method. Data was collected through online surveys distributed to 344 respondents who frequently use food delivery applications. The survey consisted of 24 questions related to the value of consumption and usage of the food delivery app. Furthermore, the respondents rated their answers on a 1-7 Likert scale, where 1 represents “strongly disagree” and 7 represents “strongly agree”. According to Munshi (2014), the 7-point Likert scale is more precise and reduces measurement errors. The data collected from the questionnaires were analyzed using SEM Lisrel 8.72.

## 3. Result and Discussion

### *3.1 Model Specifications*

The specification, which in this case relates to the formation of a model on the basis of theoretical references, describes the connection between exogenous and endogenous latent variables and between each latent and its manifest variable. Furthermore, the model which merges all components of the structural equation into a complete model is commonly known as the inner or structural model. Structural models are built with the equation: $\eta = \beta\eta + \Gamma\xi + \zeta$ (Fig. 4). Fig. 4 shows that a structural equation model is an integrated approach between measurement models. The notations used in this model are:

X = variable manifest of each consumption value;
Y = variable manifest buying behavior;
$\xi$ = Ksi, a latent variable of exogenous consumption value;
$\eta$ = Eta, endogenous latent variables of buying behavior;

δ = Delta, measurement errors on manifest variables for exogenous latent variables;
ε = Epsilon, measurement errors in manifest variables for endogenous latent variables;
γ = Gamma, a measure of the impact of outside factors on internal ones;
λ = Lambda, loading factor.

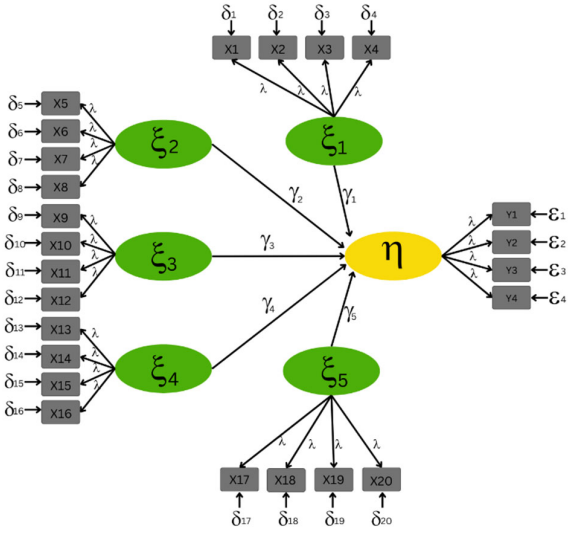


**Fig. 4.** SEM of consumption value and buying behavior/using FDA

**Model Identification**

Knowing the degree of flexibility allows for an accurate degree of freedom (df). The formula for calculating df is $\frac{1}{2}$ [(number of endogenous indicators + number of exogenous indicators) (number of endogenous indicators + number of exogenous indicators+1) + Estimated number of parameters] or $\frac{1}{2}\left[(4+20)(4+20+1)-29\right]=271$. If the DF value is greater than 0, in this case, DF = 271 > 0, the model can be considered *over-identified*.

**Model Estimation and Fit Test**

The most commonly used estimation methods in SEM are Maximum Likelihood Estimation (MLE) and Asymptotically Distribution Free (ADF). In this study, the ADF shorthand was employed because MLE techniques suggest using a sample size of between 100-200 or larger to handle abnormal data distribution unlike the ADF approach (Hair et al., 2006). With model estimation, both the structure and measurement of models can be known (Schreiber et al., 2006), for instance, the confirmatory factor analysis (CFA) is used to check the reliability level of research instruments. Following this, a validity test is used to determine the accuracy of measurements based on established standards. Anderson et al. (2010) suggested that a minimum loading factor value of 0.30 or higher in CFA analysis indicates strong validity in explaining latent constructs. Meanwhile, reliability tests determine the consistency and stability of a test instrument. A reliability score greater than 0.75 or close to 1 indicates a reliable instrument. (Table 1).

**Table 1**
Validity and Reliability of Measurement Models

| Manifest Variables | Loading Factor | Remark | Construct Reliability | Remark |
|---|---|---|---|---|
| X1←ξ1 | 0.79 | Valid | CR = $3.35^2/(3.35^2+1.17)$ = 0.906 | Reliable |
| X2←ξ1 | 0.86 | Valid | VE = 2.810/(2.810+1.17) = 0.706 | |
| X3←ξ1 | 0.83 | Valid | | |
| X4←ξ1 | 0.87 | Valid | | |
| X5←ξ2 | 0.80 | Valid | CR = $3.12^2/(3.12^2+1.55)$ = 0.863 | Reliable |
| X6←ξ2 | 0.81 | Valid | VE = 2.437/(2.437+1.55) = 0.611 | |
| X7←ξ2 | 0.77 | Valid | | |
| X8←ξ2 | 0.74 | Valid | | |
| X9←ξ3 | 0.84 | Valid | CR = $3.45^2/(3.45^2+1.01)$ = 0.922 | Reliable |
| X10←ξ3 | 0.85 | Valid | VE = 2.979/(2.979+1.01) = 0.747 | |
| X11←ξ3 | 0.91 | Valid | | |
| X12←ξ3 | 0.85 | Valid | | |

**Table 1**
Validity and Reliability of Measurement Models (Continued)

| | | | | |
|---|---|---|---|---|
| X13←ξ4 | 0.87 | Valid | CR = $3.42^2/(3.42^2+1.09)$ = 0.915 | Reliable |
| X14←ξ4 | 0.88 | Valid | VE = 2.932/(2.932+1.09) = 0.729 | |
| X15←ξ4 | 0.89 | Valid | | |
| X16←ξ4 | 0.78 | Valid | | |
| X17←ξ5 | 0.87 | Valid | CR = $3.43^2/(3.43^2+1.07)$ = 0.917 | Reliable |
| X18←ξ5 | 0.89 | Valid | VE = 2.950/(2.950+1.07) = 0.734 | |
| X19←ξ5 | 0.89 | Valid | | |
| X20←ξ5 | 0.78 | Valid | | |
| Y1←η | 0.82 | Valid | CR = $3.21^2/(3.21^2+1.41)$ = 0.646 | Reliable |
| Y2←η | 0.79 | Valid | VE = 2.578/(2.578+1.41) = 0.646 | |
| X3←η | 0.83 | Valid | | |
| X4←η | 0.77 | Valid | | |

The preceding data reveals that the instrument construct is valid and has good reliability. The variance extracted (VE) and construct reliability (CR) values are less than 0.40, and 0.07 respectively, with all loading factors greater than 0.5. The purpose of the model fit test is to determine whether or not the estimated population covariance matrix is consistent with the observed diversity in the sample and, by extension, whether or not the observed diversity in the population is appropriate for the size of the sample. If the calculated population covariance matrix and the sample covariance matrix match, then the model is said to correlate with the data (Table 2).

**Table 2**
Model Fit Test Results

| Index Fit | Value | Standard Value | Remark |
|---|---|---|---|
| Chi-square | 0.00 | p-value>0.05 | Not Fit |
| RMSEA | 0.048 | 0<RMSEA<0.05 | Good Fit |
| NFI | 0.97 | >0.90 | Good Fit |
| NNFI | 0.98 | >0.90 | Good Fit |
| CFI | 0.99 | >0.90 | Good Fit |
| IFI | 0.99 | >0.90 | Good Fit |
| GFI | 0.89 | >0.90 | Not Fit |
| AGFI | 0.87 | 0.85<AGFI<0.90 | Acceptable Fit |

Note: standard cut-off sourced from Hooper et al. (2008) and Schermelleh-Engel et al. (2003)

It is well known that the chi-square index's p-value is less than 0.05, so it can be said that the model built is not good and this is because the number of samples used is too large. According to Bentler & Bonett, (1980) and Jöreskog & Sörbom, (1993), Chi-Square almost always rejects models when using large samples. Another measure of the model fit test is the RMSEA. The RMSEA values obtained were 0.048>0 and <0.05, which indicated that the model is a good fit. In addition to RMSEA, the obtained value of NFI, CFI, NNFI, and IFI is greater than 0.90, hence, it is considered a good fit. Furthermore, the obtained AGFI value, which was 0.87 >0.85 and <0.90, is considered an acceptable fit (Schermelleh-Engel et al., 2003). The GFI value, however, is 0.89 <0.90, hence, it is considered unfit. From the findings, it can be seen that 6 out of 8 fit indices indicated that the model is fit. So, in general, the SEM model built in this study is good because it has been tested with several methods, most of which indicated that the model is a fit.

## Measurement and Hypothesis Testing

After a "fit" is found in the model, the hypothesis was then measured and tested using a variety of indicators to contrast the endogenous latent variable with the external latent variable. Fig. 5 shows the outcomes of the measurements and hypothesis testing.

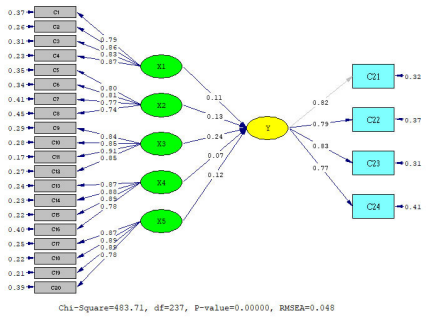


**Fig. 5.** Structural Diagram Standardized Solution

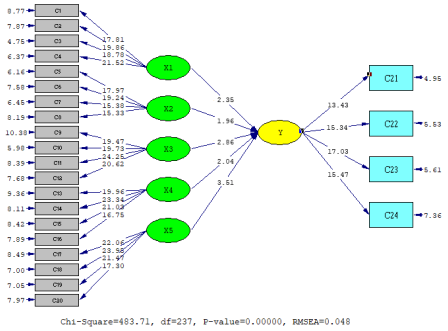


**Fig. 6.** Diagram Strucutural T-value

The results obtained from the study's structural equations $\eta = 0.110*\xi1 + 0.130*\xi2 + 0.24*\xi3 + 0.078*\xi4 + 0.12*\xi5$, $R^2 = 0.450$ shows that the value of $R^2$ is 45%. This means that the functional value (ξ1), social value (ξ2), conditional value (ξ3), emotional value (ξ4),), and epistemic value (ξ4),) can each account for 45% of the diversity in purchasing behavior (η). Following this, the t-values for the latent exogenous functional value are significantly different (2.35, >1.96), with an exogenous social value of 1.96, >/=1.96, the exogenous conditional value of 2.86, >1.96, the exogenous emotional value of 2.04, >1.96, and an exogenous epistemic value of 3.51, >1.96, as shown in Figure 6. Changes in customer behavior related to meal delivery apps are predicted by the latent variables of exogenous epistemic, conditional, social, emotional, and functional values.

## 4. Discussion

Consumers are changing the way they buy goods, moving from traditional in-person shopping to digital channels like mobile applications. The convenience offered by modern technology and communication has altered people's consumption habits, notably in the area of food, and this shift cannot be disentangled from the value of consumption. Furthermore, according to Adzkia, (2018), The tendency of consumers to buy finished food has indeed begun to increase in the last 20 years. The rush for work and other demands of life made the time for daily cooking less, even more so during the pandemic, post-pandemic, and after the first Japanese government introduced Society 5.0 in 2019 (Hendra et al., 2022). In the end, many people turned to instant and fast food. The social, functional, emotional, conditional, and epistemic values all play a role in shaping consumer behavior as it relates to meal delivery applications. The functional value of a product or service can drive changes in customer behavior regarding the use of FDA based on the customer's perception of its practical worth, which includes factors such as physical performance and the usefulness of its features and utilities (Wong et al., 2019; Tanrikulu, 2021; Sheth et al., 1991). Also, customers are more likely to purchase if they understand the product's intended use (Wang et al., 2018). Because of the anticipated advantages of a good service that make it simpler to affiliate with a specific social class, often called social value, changes in consumer behavior as they relate to the FDA are acceptable (Sheth et al., 1991). When people wish to be a part of a certain social group, this principle helps them feel more like a part of the group (Tanrikulu, 2021). As a result, social influences may affect customers' intentions or decisions regarding purchases (Sheth et al., 1991). Peer influence often leads people to make purchases (Yang et al., 2021), thus, the social value obtained by the consumer is very strong in the purchase of products (Tanrikulu, 2021). According to Moshood et al. (2022), the effects of conditional value on changes in consumer behavior toward the use of the FDA are acceptable. This is because the conditional value is a benefit resulting from unforeseen circumstances that customers may experience throughout the product's evaluation, acquisition, and use. The phrase “conditional value” describes motivational moments when consumers feel compelled to buy a product (Wang et al., 2018). Furthermore, the conditional value was defined in research as an exceptional event that permits a purchase to be made from the perspective of the buyer (Tanrikulu, 2021). This means that purchase intentions are significantly influenced by conditional values (Akbar et al., 2019). The effects of emotional value on changes in consumer behavior towards the use of FDA are also considered acceptable given that a product's or service's emotional worth is determined by how strongly it stirs up feelings in consumers (Sheth et al., 1991). Admittedly, the level at which consumers are satisfied with a product or service is the source of emotional value (Tanrikulu, 2021). Emotional value can shape consumers' buying decisions, suggesting that people will enjoy using the product and have an emotional connection to it (Akbar et al., 2019). According to Sheth et al. (1991), the influence of epistemic value on consumer behavior with regard to the FDA is valid because products or services with the ability to provide consumers with fresh information and a sense of newness have epistemic value. Consumers can, thus, acquire knowledge about the food they buy by learning about the product's features or by discovering something new from the information on the package (Pauluzzo & Mason, 2022).

## 5. Conclusion

The ease of technology that has developed and the value of consumption in recent times have changed people's behavior patterns, especially in making purchasing decisions. People tend to buy ready-made food through digital applications instead of cooking by themselves or going alone. This study shows that consumers' perceptions and usage of meal delivery applications are susceptible to external influences such as their epistemic value, social value, functional value, conditional value, and emotional value. After the introduction of Society 5.0 by the Japanese government in January 2019 and the subsequent covid-19 epidemic, it is understandable that consumers would shift their attention to value over quantity. Consumers put aside their egos and hedonism in favor of things that enhance their lives. Consumers will also place a premium on health products including nutritious foods, nutritional supplements, and nutrient-rich beverages like jelly and milk. Consumers are not just interested in concrete benefits, but also in less tangible ones, such as the information provided by a business.

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