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## DELIVERY FOOD PACKAGING: THE IMPORTANCE OF MATERIAL, DESIGN, AND PRODUCT INFORMATION

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### Article

#### Information

Received October 2020

Accepted March 2021

Published March 2021

Keywords:

pull market strategy,  
customer perspective, food  
packaging

### Abstract

*In recent years, the market for delivery foods has grown rapidly. The large-scale social restrictions that were announced by Indonesian government as a response to Covid-19 pandemic has continued the increasing trend of online food delivery. Convenient and health factors are the main motivator of this trend. Therefore, there is a growing concern about the effective packaging design for takeout foods. However, only a few a study published on this specific topic. It is important to understand the main concern of customers on the takeout foods packaging design. The purpose of this study is to design suitable takeout foods packaging based on the customer perspective using a pull market strategy. This study used various data collection methods such as observation, interview, literature study, and survey. Data collected was analyzed with descriptive analysis and SWOT analysis. A packaging design is proposed considering customer inputs on packaging material, design, and information needed.*

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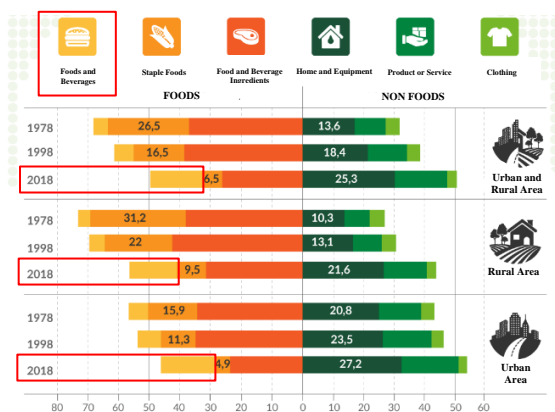
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ISSN XXX-XXX

## 1. Introduction

In the past few years, the demand for products that are easily available, especially for types of consumption such as convenient foods, has increased. Lifestyle changes caused by busy work and the development of online food delivery technology, either independently managed by restaurants or curated by food delivery service applications such as GoFood, Grab Food, and FoodPanda. Based on data on the development of population expenditures processed by Lokadata (Valenta, 2019) from the Central Statistics Agency as shown in Figure 1, there is a shift in consumer behavior for food and beverages that has continued to increase significantly over the three decades from 1978 to 2018. In 2018 alone, there were a total of 16,676,241 food portions that GoFood successfully sold (Valenta, 2019).



**Fig. 1.** Development of Indonesian Expenditure (1978, 1998, and 2018)

The momentum of large-scale social distancing established by the Indonesian government has also generated huge profits for the food delivery business. The government regulation to banned restaurants from providing on-site dining services increased the demand for food and beverage products online by 143% from February to March 2020 (Fajar, 2020). Food delivery applications also reported an increase in transactions. Grab in March 2020 said the number of foods ordered had increased by 4% (Hastuti, 2020), while its competitor, Gojek, reported that their food delivery transactions

increased by 20% during the large-scale social distancing in several cities (Setiawan, 2020).

Packaging for takeout or delivery foods usually does not get much attention. Many restaurants only used boxes made from styrofoam without an identity. The fact that this packaging is now the only intermediary between restaurants and consumers make it needs a special attention. Packaging that attracts attention of potential consumers may lead to a buying decision. The design of a package has proven to have a positive effect on consumer purchase interest (Hayati, 2016). The importance of packaging as a product identity has been stated previously (Hayati, 2016). Packaging is believed to be a way to communicate brand values to consumers. A packaging box will be of no value without the proper design, image, color and arrangement that goes with it (Hayati, 2016).

A good packaging is not only pleasing to the eye, but also must pay attention to its hygiene. Packaging materials must ensure that they will not damage the texture, taste, and nutritional content of the food product (Yildirim, Röcker, Pettersen, Nilsen-Nygaard, Ayhan, Rutkaite, Radusin, Suminska, Begonya, & Coma, 2018). Therefore, packaging is expected to maintain the quality and safety of food that has been produced until it reaches consumers for consumption (Ambrose & Harris, 2017). Another benefit of using packaging is that it protects food from environmental influences such as dust, light, bacteria, and others. For this reason, the existence of packaging in a product is not only to beautify the appearance and communicate the brand, but mainly it is needed to maintain the safety and quality of the product itself.

This explanation shows that packaging is an important part of a product and has an impact on the whole business. There is no restaurant that should ignore the importance of good packaging. Another factor that encourages businesses to make and develop better packaging (Ndung'u, 2017) is:

- To renew a product when it reaches maturity in the product life cycle;
- To increase awareness of protecting the environment;

- To change in product positioning;
- To face competition and competition as a strategy to differentiate oneself from competitors;
- To change in strategy in terms of product display in stores;
- To increase the scale of production when entering new markets.

This study used a case study on a culinary business in Bandung, namely Ramen Gorilla Express. This business is going to launch a new product, a rice box with the brand "Teman Nasi" which is specifically distributed through delivery food services. This rice box is produced to meet the demand for employees/workers around Bandung who need lunch during busy times (convenience factor) or at times on avoiding the crowds during the Covid-19 pandemic (health factor).

The pull market strategy is used to find out information from the consumer's perspective regarding rice box packaging. Pull market is a strategy used by producers to retrieve information regarding matters relating to the needs and desires of consumers and customers about the products to be offered. An effective pull market strategy is applied because the products produced will be in accordance with market demand so that the profits obtained by the producers will increase (Putri & Aji, 2019). The pull market strategy is carried out by distributing questionnaires to potential consumers regarding the packaging criteria indicators needed and desired. From that survey results, appropriate packaging can be designed accordingly.

An example of a pull market strategy is advertising done by PT. Inti Daya Guna Aneka Warna (INDANA), a paint factory company, as a means of promotion. PT. INDANA introduces products and company names using a pull market strategy when conducting corporate CSR programs. The CSR program carried out by painting houses in a whole village to complements the villagers' needs. When the public's needs are met, the company can simultaneously introduce the product and company name. The results of the pull market that the company has implemented have been

successfully implemented because it can attract the public to better recognize the product and company name (Rusdiono, 2019).

The pull market strategy is also implemented by Gojek through word of mouth on social media. Gojek takes advantage of the large number of social media users in Indonesia. At that time Gojek made a meme with a picture of a beautiful woman wearing a gojek attribute while holding a cell phone. The meme received attention from social media users and even became a trending topic. Netizens consider the woman to be a Gojek fleet. This complements the public's need for entertainment. In addition, advertisements by utilizing Gojek riders who come from various circles with attractive appearances and vehicles are often a conversation and become the attraction of Gojek and increase the level of Gojek users (Wyrwa & Barska, 2017).

Therefore, the objective of this study is to find a delivery food packaging design that can function effectively to protect products while also simultaneously communicate brand values. For this reason, packaging design is designed based on a consumer perspective using a pull marketing strategy, where consumers define the shape of the product they want.

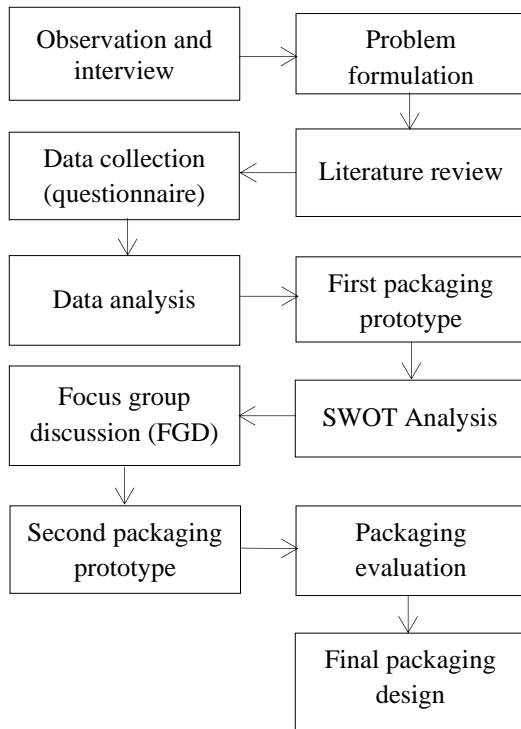
## 2. Methods

This study conducted literature studies and observations to define the problem background, problem formulation, and research objectives. Then data collection was carried out by distributing questionnaires to potential customers. After the data was processed, two alternative packaging was designed. These alternatives are discussed and evaluated in the focus group discussion to determine. The overall research methodology scheme is shown in Figure 1.

### 2.1 Data Collection and Processing

When conducting a research, data collection techniques are needed to suit the objectives of the research being held. This study used observation, interview, literature study, and distributing questionnaires.

1. Observation and Interview  
 Researchers conducted observations and personal interviews with the company to find out about current conditions and find problems to be raised.



**Fig. 2.** Research Methods

2. Literature Study  
 Researchers conduct literature studies to obtain information about a suitable approach to developing product packaging design from various articles and books.
3. Survey  
 A questionnaire, adapted from Siswanto, Damayanti, & Dewi (2011) and Aday & Yener (2013), was distributed to 141 respondents consisting of prospective consumers of Gorilla Express Bandung. The measurement scale used to express the responses of respondents to each question or statement given, by using a Likert scale with a value classification as follows:  
 Strongly Agree : Score 5  
 Agree : Score 4  
 Neutral : Score 3  
 Disagree : Score 2  
 Strongly Disagree : Score 1

Prior to data analysis, the measurement instruments were evaluated for validity and reliability. This is done to determine the extent to which the observed variable measures value, and whether it is error free. Hair et al. (1998) suggested the minimum loading required to include items in their respective constructs if variables have a loading greater than 0.5. All items in the instrument used for this study have items with loading 0.5 or higher. Then, the construction was tested for reliability, using the Cronbach Alpha test. As suggested by Nunnally (1978), Cronbach Alpha score for each construct in the instrument is in the range of 0.7-0.8 (higher than 0.6). Thus, the instrument is considered to have sufficient internal consistency. In conclusion, the data were deemed suitable for further analysis.

## 2.2 Descriptive Analysis

Data collected from questionnaire was analyzed using descriptive analysis. Average value of each indicator on the research variable was obtained to provide an overview of the indicators that build the overall concept. Table 1 is the interval for each indicator.

**Table 1.** Class Interval

Scale	Assessment Criteria
1,00 – 1,80	Very bad
1,80 – 2,60	Bad
2,60 – 3,40	Moderate
3,41 – 4,20	Good
4,21 – 5,00	Very good

## 2.3 SWOT Analysis

SWOT analysis is carried out to evaluate the strengths, weaknesses, opportunities, and threats that exist in the packaging design that be made. By conducting a SWOT analysis, it is hoped that the design team can maximize the strengths and opportunities they have and minimize the existing weaknesses and threats.

SWOT analysis is carried out through a series of calculations known as IFAS (internal factor analysis strategy) and EFAS (external factor analysis strategy) calculations by taking

into account the weight and rating values. The strategy formulation is carried out at the matching stage through a matrix that describes the point of contact between IFAS and EFAS. The matrix shows the position of the organization, whether the IFAS and EFAS points of contact are in quadrant-1 (S-O), quadrant-2 (S-T), quadrant-3 (W-O) and quadrant-4 (W-T).

#### 2.4 Focus Group Discussion

Purposive sampling method was used to select participants for focus group. Participants in the focus group discussion were chosen based on these criterias: (1) product knowledge, (2) design knowledge, and (3) experience in packaging production. There were nine experts and practitioners selected to provide best information for packaging design.

### 3. Results and Discussion

#### 3.1 Survey Results

The survey results regarding the a good packaging criterias by potential customers are presented in Table 2. Some important information for packaging based on consumer perceptions such as the function of packaging is presented in Table 3, things that attract consumers' attention in Table 4, and the first thing that consumers see on the packaging in Table 5.

**Table 2.** Packaging Criteria Based on Customer Survey

No	Criteria	Mean	Std. Deviation
1	Safe for health	4,86	0,4
2	Help with food consuming	4,74	0,46
3	Include important symbols (halal, BPPOM, etc.) in the packaging	4,55	0,7
4	Include brands name in the packaging	4,54	0,6
5	Not easily damaged	4,53	0,6
6	Help with carrying the foods	4,58	0,6
7	Have information on health permits	4,51	0,63

8	Not easily dented	4,48	0,62
9	The ability to withstand heat	4,45	0,69
10	Easy to open the packages	4,38	0,68
11	Have information on ingredients	4,35	0,73
12	Easy to re-close the packages	4,24	0,84
13	Have information on nutrition	4,09	0,82
14	Packaging color that does not fade easily	3,97	0,93
15	Attractive packaging colors	3,86	0,81
16	Interesting image on packaging label	3,74	0,8

**Table 3.** Main Functions of Food Packaging

Criteria	Percentage
Temporary storage of food	78%
Helps consume food easily	52,5%
Provide ingredients information	37,6%

**Table 4.** Things That Attract Attention in Food Packaging

Criteria	Percentage
Design	56,7%
Information on ingredients	27,7%
Price	9,2%
Brand	6,4%

**Table 5.** The First Thing Seen from The Packaging Design

Criteria	Percentage
Size/volume	39%
Shape (box, round, etc.)	31,9%
Graphics	15,6%
Color	11,3%
Font	2,1%

From the survey results in Table 2, it can be concluded that the requirements that must be owned by food packaging are:

1. In terms of packaging materials
  - Safe for health
  - Not easily damaged and dented
  - Has the ability to withstand heat
2. In terms of packaging design
  - Help with food consuming
  - Help with carrying the food
  - Easy to open and re-close the package

3. In terms of completeness of information
  - Include brands name and important symbols (halal, BPPOM, etc.)
  - Have information on health permits, ingredients, and nutrition

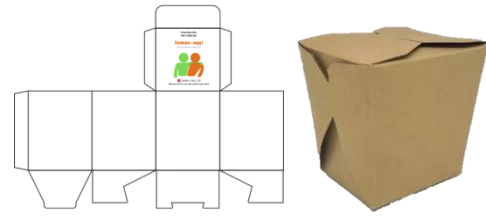
The information in Table 3 shows that most consumers' perceptions of packaging are to temporarily store food with a percentage of 78% and to help with food consumption with a percentage of 52.5%. This is understandable because this packaging is used for consumers who do not dine in the restaurant, but for takeout or delivery so that consumers need packaging that can temporarily yet safely store food. In addition, limited activities and time have created a need for packaging that makes it easier for consumers to consume food so that barriers to consuming food can be minimized.

Then in Table 4, there are criteria for things that attract attention to food packaging. The first is the design (56.7%) and then ingredient inclusion (27.7%). This is needed by consumers because an attractive packaging design will be remembered in the minds of consumers and stimulates an interest in buying. In addition, the inclusion of food ingredients is needed by consumers to know the content of the food they consume. This information is needed for consumers who have certain allergies or cannot eat certain food ingredients.

Furthermore, Table 5 shows that the criteria for size (volume) and packaging form are the first things seen from the packaging design with the respective percentages of 39% and 31.9%. Food is a means of satisfying hunger. Regular packaging produces first impressions of food. Packaging that can produce the impression of a food portion that suits consumer needs is not too large because it will generate a positive assessment in the eyes of consumers.

### 3.2 Packaging Design Alternatives

Based on the survey results, two alternative packaging designs were made according to the packaging criteria desired by consumers. The first packaging design is shown in Figure 3.



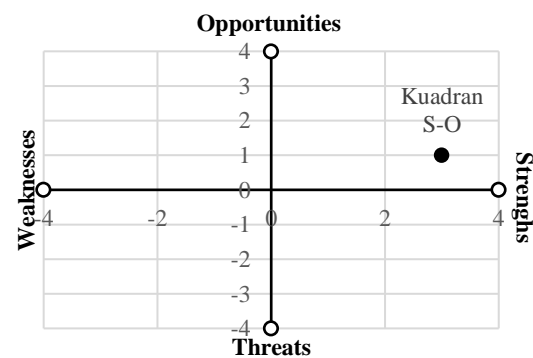
Feature	Specification
Packaging materials	Kraft paper 275 gsm
Packaging color	Light brown
Packaging size	9 x 8 x 11,5 cm

**Fig. 2.** First Alternative Packaging

The first packaging design is a type of food pail. This type is easy to use because the packaging lid is attached to the packaging container so that it meets consumer needs for ease of use of packaging. The packaging is made from kraft paper with a thickness of 275 gsm of good quality, environmentally friendly, and heat resistant. Then for the packaging color, light brown is selected. The packaging size is 9 cm long, 8 cm wide and 11.5 cm high. This size is also made to adjust the food portion. The results of the IFAS and EFAS analysis of the first packaging design are presented in Table 6.

**Table 6.** IFAS and EFAS Scores for the First Alternative

IFAS		EFAS	
Category	Total Score	Category	Total Score
Strengths (S)	4	Opportunities (O)	4
Weaknesses (W)	1	Threats (T)	3
Total (S-W)	3	Total (O-T)	1



**Fig. 4.** SWOT Matrix Based on IFAS and EFAS Scores for the First Alternative

The intersection of IFAS = 3 and EFAS = 1 points of contact are in quadrant-1 (S-O) as shown in Figure 4. This indicates that there is a great opportunity that must be exploited in accordance with the strengths of this packaging design. In other words, this packaging design can boost the company's performance and increase the company's growth and profits.

Then as an alternative in packaging selection a second packaging design is made. The second packaging design is presented in Figure 5. The second package design is made with almost the same specifications as the first package design with differences in the size and shape. A SWOT analysis was also carried out on the second packaging design alternative. The results of the IFAS and EFAS analysis of the second packaging design are presented in Table 7.



Feature	Specification
Packaging materials	Kraft paper 275 gsm
Packaging color	Light brown
Packaging size	18 x 11 x 5 cm (bottom) 20 x 13 x 5 cm (top)

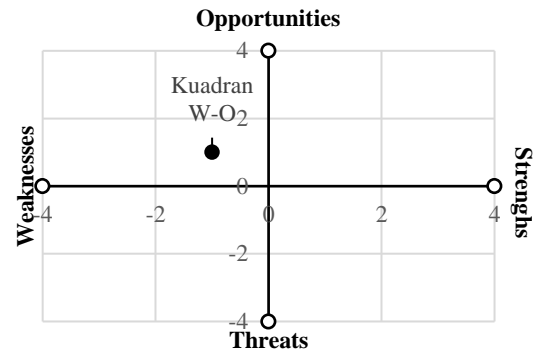
**Fig. 5.** Second Alternative Packaging

**Table 7.** IFAS and EFAS Scores for the Second Alternative

IFAS		EFAS	
Category	Total Score	Category	Total Score
Strengths (S)	2	Opportunities (O)	3
Weaknesses (W)	3	Threats (T)	2
Total (S-W)	-1	Total (O-T)	1

In Figure 6, it shows that the intersection of the points of contact of IFAS = -1 and EFAS = 1 is in quadrant-3 (W-O). This position indicates that the company has an opportunity but is in a weak position. Thus, the recommendation given

is to change this design. Based on the analysis, it is difficult for this design to be able to seize existing opportunities and improve company performance.



**Fig. 6.** SWOT Matrix Based on IFAS and EFAS Scores for the Second Alternative

### 3.3 Forum Group Discussion

The SWOT analysis recommend that the first packaging design has advantages when it comes to company conditions. In the next step, FGD is conducted to compile a strategic plan that will be carried out based on the SWOT analysis for the first package which is positioned in quadrant-1 (S-O).

The second FGD discussed and evaluated the packaging designs that had been determined. In this time, details of the various elements in packaging design were discussed. The activity begins with an explanation of the packaging criteria that prospective consumers need and want from the survey results, followed by an explanation of the selected packaging design. As the results of the FGD, a complete packaging design and its attributes such as material, color, size, logo placement, and other information were agreed upon as depicted in Figure 7.

### 3.4 Packaging Design Evaluation

Evaluation of packaging design is carried out to ensure that the packaging that has been designed in Figure 7 matches the needs and desires of potential customers. The survey results on the packaging are listed in Table 10.

The results state that all indicators in the packaging design are satisfying from the customer perspective. However, there were some respondents who gave suggestions regarding the

writing of the brand were not clear and the words “Teman Nasi” were still not clearly visible. Some respondents also said that packaging that is environmentally friendly and does not absorb oil is needed. Then for the type of writing on the brand, it is recommended to be more creative and interesting. Lastly, the selection of color is are not quite attractive. Therefore the design is improved again by considering these suggestions. The final packaging design results are shown in Figure 7.



**Table 7.** Strategic Plan Based on SWOT Analysis

Internal Factors	Strengths	Weaknesses
	Food portion looks bigger in this packaging; packaging can be closed tightly again after opening; has a hook on the cover, no need for extra rubber or tape; the packaging design is unique and is still rarely used	Packaging has product information space on the front and backside (not strategic) and divided into two sides (limited)
External Factors		
Opportunities	<b>S-O (Strengths-Opportunities) Strategy</b> 1. Improve positive customer perception of the brand through packaging that delivers good performance in terms of functionality and design attractiveness 2. Designing a font type, font size, and color that attracts attention of targeted customers	
Threats		

Feature	Specification
Model	<i>Chinese bento</i>
Packaging materials	Kraft paper 275 gsm
Packaging color	Light brown
Packaging size	9 x 8 x 11,5 cm

**Fig. 7.** Packaging Design Based on FGD

**Table 10.** Customer Perception of the Packaging

Statements	Mean	Std. Deviation
<i>I think...</i>		
the packaging capable to store the food without damage or leakage temporarily	3,57	0,83
the packaging model makes it easier for me to eat the food	3,97	0,74
the packaging design is very attractive	3,95	0,75
the size (volume) of the package is aligned to my food portion	3,45	1,02
the shape / model of chinese bento packaging is attractive	4,02	0,72
the graphics in the packaging are attractive	3,80	0,80
the colors of packaging are attractive	3,58	0,94
the writing in the packaging is interesting	3,59	0,82





Feature	Specification
Model	Chinese bento
Packaging materials	Ivory 265 gr
Packaging color	Grey
Packaging size	Bottom: 8,5 x 6,5 cm Top: 8,6 x 11 cm Height: 8,5 cm

**Fig. 7.** Final Package Design

The redesigned packaging continues to use the food pail type because it is suitable for its product, namely rice box. The material used is

made of ivory paper with a thickness of 265 gr. This material was chosen because it is sturdy so it can withstand the weight of food and does not easily absorb oil. This material also gives a glossy effect on the packaging so that the packaging looks cleaner and more special. The size of the packaging in the bottom area of 8.5 cm x 6.5 cm and the upper area of 8.6 cm x 11 cm with a package height of 8.5 cm. The packaging has redesigned to meet the needs and desires of consumers so that it is beneficial and has a positive impact on the company's performance.

#### 4. Conclusion

Several studies have examined the benefit of food packaging for every product. However, very limited studies cover the issue in the delivery foods context. The results of this case study indicated that the majority of delivery foods were purchased for direct consumption. Therefore the material and design of the packaging should be easy to handle and give more instructions or information rather than focusing on the brand promotion. The main features considered desirable in food containers were these: (1) the material is safe for health, is not easily damaged/dents, and has the ability to withstand heat; (2) packaging design helps when consuming food, makes it easier to carry, open and close packages; and (3) has information on brands, important symbols, health permits, composition, and nutrition. Consumers' perceptions are largely determined by the packaging design and packaging size. From the various criteria surveyed, a packaging design is made with the Chinese bento model. In addition, it is important to note the main function of delivery foods packaging is to store food temporarily and help food consumption. This is different from regular food packaging which focuses more on the ability to maintain products quality with long shelf life (Aday & Yener, 2015) and inspire consumers to take the product from this specific brand (and not other brands) from the shelf (Kapoor & Kumar, 2019; Imiru, 2017). This finding adds to the body of knowledge on food packaging, specifically for take-out and delivery.

## Acknowledgements

This work was supported by UPPM Politeknik Negeri Bandung under a grant Number: B/187.1/PL1.R7/PM.01.01/2020. The authors would like to thank M. Ardiansyah and Aldi Ramdani Fahlevi from Ramen Gorilla Express for positive cooperation during this project. The authors would also like to thank Dara Chandra Suci and Febri Mardianti, students from Business Administration Departments, who help the authors in administering the project and complete outcomes promised in this project.

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