

DESIGN THINKING APPROACH IN HANDLING FOOD WASTE IN PT ATIM AND WANTI SAIYO JAYA CATERING BUSINESS

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Abstract:

Background: Waste and environmental management are important factors to improve the quality of life of the community. As a business actor, especially a business engaged in the F&B sector, innovation in managing waste generated from their business is one of the major challenges to the sustainability of a business. Thus, the topic related to handling food waste in this food business is considered important to study.

Purpose: This study aims to obtain solutions in handling food waste that can be done to minimize the impact caused by food waste produced by the catering business of PT Atim and Wanti Saiyo Jaya.

Design/methodology/approach: The analysis of problems and solutions in this study uses a qualitative approach with the design thinking method.

Findings/Results: The results of the analysis show that this business's ability to process food waste is still lacking so it ends up in a landfill, which is widely complained about by the local community. Internal training, creating a waste cycle process, and establishing partnerships are alternative solutions that can be done to overcome these problems.

Conclusion: The design thinking approach is one of the comprehensive alternatives to help business people in mapping problems and finding solutions to these problems.

Originality/Value (State of The Art): The catering business of PT Atim and Wanti Saiyo Jaya is a catering business that has been established for quite a long time. The support of the government, community, and private sector in improving waste management can help this catering business become a more sustainable business.

Keywords: environment, food waste, design thinking, catering business, waste management

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INTRODUCTION

Indonesia's rapid economic growth, particularly in the Food and Beverage (F&B) sector, has been a major factor in the country's socio-economic transformation. However, this economic success also comes with serious environmental consequences, one of which is an increase in waste. Along with the rapid growth of the F&B business, there has been a significant increase in waste production, leading to increasingly troubling environmental issues.

One of the relevant studies is the research by Wibowo et al. (2021) published in the journal *Environmental Science & Technology*. The study revealed that the F&B sector is a significant contributor to waste production in Indonesia. With the increasing number of food and beverage outlets and the increasing public consumption, there is also an increase in the volume of waste generated by this sector. In addition, another study conducted by Tim Jones et al. (2022) in the *Journal of Cleaner Production* highlighted the direct impact of F&B business growth on increasing waste. The study found that the growth of the F&B business significantly contributed to the increase in waste production in Indonesia, with a strong correlation between the growth of the F&B business and the increase in waste volume in the country.

A study by Maria Sanchez et al. (2023) published in the journal *Waste Management & Research* provides a deeper insight into how the increase in F&B business impacts the increase in waste in Indonesia. The study highlights the need for effective waste management strategies to address the negative impact of the growing F&B business on the environment. Relevant data shows that the growth of waste in Indonesia continues to increase every year, with a significant increase in line with the growth of the F&B business. The correlation between the growth of the F&B business and the increase in waste illustrates the need for more serious action in managing the environmental impact of this sector.

The increase in F&B businesses in Indonesia not only provides economic benefits, but also poses serious environmental challenges. Concrete actions are needed to mitigate the negative impact of F&B business growth on the environment, including the development

of stricter policies related to waste management and the promotion of more environmentally friendly business practices.

Food waste in Indonesia is a very serious problem. Based on data from the Ministry of Environment and Forestry (KLHK, 2021), as much as 28,3% of the total waste is food waste in 2021. Food waste is the largest composition of waste in Indonesia not only in 2021, but also several years earlier. Plastic waste is in second place with a proportion of 15,73%. As much as 12,75% of the waste is woods/twigs. Then as much as 12,36% of waste is paper. Then, metal waste reached 6,86%. Furthermore, there is 6,57% in the form of cloths waste. The types of waste in the form of glass and rubber/leather with a proportion of 6,46% and 3,49% respectively. While 7,48% of waste is in the form of other types. Meanwhile, the amount of waste generated in Indonesia last year was 21,53 million tons. As much as 66,51% of waste was successfully managed, while 33,49% of other waste was still unmanaged. This problem is a special concern for relevant stakeholders so that it can be resolved properly.

Waste management in Indonesia remains a complex and challenging issue. In recent decades, the country has faced various problems related to waste management, including inadequate infrastructure, limited resources, lack of public awareness, and lackluster policies. In this paper, we will explore some of the main factors that have led to suboptimal waste management in Indonesia.

One of the main factors leading to the suboptimal waste management system in Indonesia is the lack of adequate infrastructure. According to research by Suryadi et al. (2019), many areas, especially in rural areas, do not have enough facilities to manage waste effectively. This includes adequate waste collection, sorting, and treatment facilities. Significant investment in waste infrastructure is required to address this issue. Limited resources are also a serious obstacle in waste management in Indonesia. Prasetyo et al. (2020) found that the lack of funds, manpower, and technology are the main inhibiting factors in the development of good waste management infrastructure. Without sufficient resources, it is difficult to improve the waste management system in Indonesia.

The level of public awareness about the importance of good waste management is also still low. Santosa et al. (2020) noted that many people still do not understand the concept of recycling and waste segregation. Wider education and effective environmental awareness programs are needed to change people's behavior regarding waste management. Lack of firm policies has also caused problems in waste management in Indonesia. Many regulations related to waste management are not well enforced. Principles such as reduction, recycling, and responsible management have not been fully implemented in national policies. In order to improve waste management in Indonesia, comprehensive and collaborative actions from the government, community, and private sector are needed. Stricter law enforcement, investment in waste infrastructure, effective public awareness campaigns, and policy improvements are steps that need to be taken to achieve a better waste management system in the future.

An environmentally-oriented approach to business has become a major focus for many companies in recent years. Understanding the environmental impact of business operations and efforts to reduce the environmental footprint has become a priority for many organizations looking to achieve long-term sustainability. In this paper, we will explore how a business's environmental orientation can be a competitive factor and influence business sustainability. One of the main advantages of adopting an environmental business orientation is a good reputation in the eyes of consumers. According to research by Hoffman (1999), companies that care about the environment tend to have a better reputation, which can enhance brand image and provide a competitive advantage.

Bansal and Roth (2000) also point out that business orientation towards the environment can also improve operational efficiency. By promoting more efficient use of resources and reducing waste, companies can reduce long-term operating costs and improve efficiency. In the context of innovation, Aragon-Correa and Sharma (2003) found that a focus on the environment can encourage innovation of more environmentally friendly products and services. Companies can develop new products or services that help customers reduce their environmental impact. Business sustainability also depends on the company's compliance with existing environmental regulations. Hoffman (1999)

emphasizes the importance of regulatory compliance as a factor that affects business sustainability in the long run. Finally, another journal source by Bansal and Roth (2000) highlights that business orientation towards the environment can open the door to access to new markets that are more sensitive to environmental issues. Consumers are increasingly concerned about environmental issues and tend to prefer more sustainable products and services.

According to Jorgensen and Perdesen (2018), a sustainable business is a line of business that is able to run and grow well in a seasonal period to an annual implementation time. The emergence of a business is expected not only to be oriented towards the profits obtained, but also to provide sustainable benefits that can provide social and environmental benefits in the future. In supporting a sustainable business, innovation is needed in an organization. Innovation is an idea, idea, practice, or object that is realized and accepted as a new thing by a person or group to be adopted and applied in a business (Stephen, 1994). So that innovation can be interpreted as organizational success both environmentally, socially, and economically by presenting new concepts or combinations with old concepts in converting inputs into outputs in such a way that provides a major change in the comparison between the value of benefits and prices according to the perception of consumers and/or society (Kuncoro, 2018). Thus, environmental business orientation is not just about complying with environmental regulations, but also about creating long-term value with environmental sustainability in mind. By considering these journal resources, companies can better understand how business environmental orientation can be competitive and affect business sustainability.

METHODS

This research was conducted at PT Atim and Wanti Saiyo Jaya, Nyangkowek Village, Cicurug Sub-district, Sukabumi District, West Java. The selection of the research location was carried out purposively with the consideration that PT Atim and Wanti Saiyo Jaya received criticism from the local community regarding the problem of organic waste and considering the openness of information from PT Atim and Wanti Saiyo Jaya.

Problems in business require proper resolution using various existing problem-solving methods. The Design Thinking approach is one of the methods based on business problems to get an innovative solution. In the book "Design Thinking Method for Business Innovation", Design Thinking is a tool used in problem solving, problem design, and problem forming. Every process in design thinking originates and is aimed at humans. So that design thinking becomes a framework for individuals or organizations to take a strategic innovative approach to value creation in a dynamic business world. The design thinking method is divided into five stages, namely Empathize, Define, Ideate, Prototype, and Test (Carrol, 2015):

Empathize

Empathize is the first stage to gain an empathic understanding of the problem to be solved. This stage involves the parties involved finding out more about the area of concern through observation, engagement, and empathizing with people to understand the experiences and problems in more detail. Empathy is critical to the human-centered design process and empathy allows researchers to set aside personal assumptions to figure out the problem.

Define

Define is the second stage to collect information that has been obtained at the empathize stage. At this stage, the information that has been obtained will be analyzed to determine the main problems that have been identified.

Ideate

Ideate is the third stage to start generating ideas. With the problems that have been analyzed at the Define stage, this stage is used to identify new solutions to the problem statements made and find alternative ways to solve the problem. This stage can be done by using ideation techniques such as Brainstorm, Brainwrite, Worst Possible Idea, and SCRAMPER, which aim to help researchers find the right solution.

Prototype

Prototype is the fourth stage of design thinking that is used to create examples of new products, services, or concepts from solutions that have been found in the previous stage.

Test

Test is the last stage used to test and evaluate the prototype that has been made at the previous stage. Prototypes can be tested both within the organization itself and external parties. This stage is an experimental phase whose purpose is to identify the best solution to each problem identified earlier. At this stage, researchers will have a better idea of the constraints inherent in the solution concept that has been created and have a clearer view of the impact on consumers, environment, social, after the new concept is implemented. This research uses primary data obtained directly through observations and interviews with companies and consumers from PT Atim and Wanti Saiyo Jaya, as well as secondary data obtained from literature studies in journals, books, and other related sources. This research is limited to the ideate stage of the problem solving process using the design thinking method, due to limitations on research time and sources of information to be obtained.

RESULTS

The results of this research using design thinking analysis in problem solving are as follows:

Empathize

Empathize is the initial stage or starting point intended to understand the consumer experience, problem-solving approach, and maintain focus on solving the appropriate problem (Lockwood & Papke, 2018). Interviews are conducted with the aim of obtaining information about user wants and needs (Pressman, 2019).

In order to make the appropriate solution, the author conducted a search regarding the amount of waste generated in the area occupied by PT Atim and Wanti Saiyo Jaya, namely the West Java area. The data obtained based on Figure 1. which comes from the National Waste Management Information System (SIPSN) there is an increase in the amount of waste generation every year. As for the waste categories recorded from SIPSN which can be seen in Figure 2. food waste is the most common type of waste (43,55%) compared to other types of waste. Organic waste is a type of waste that can cause air and soil pollution, and can cause various diseases such as gastrointestinal and respiratory infections (Syalva and Yusran, 2024).

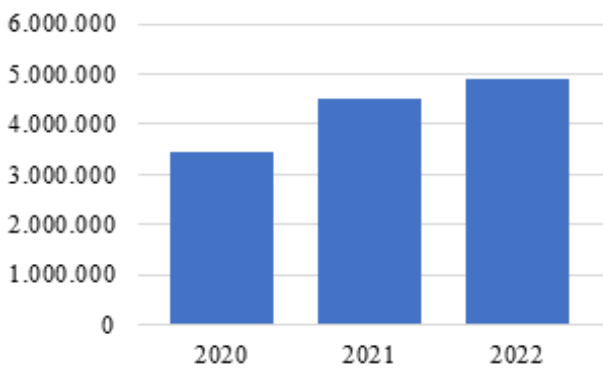


Figure 1. Diagram of West Java waste generation (SIPSN 2020-2022)

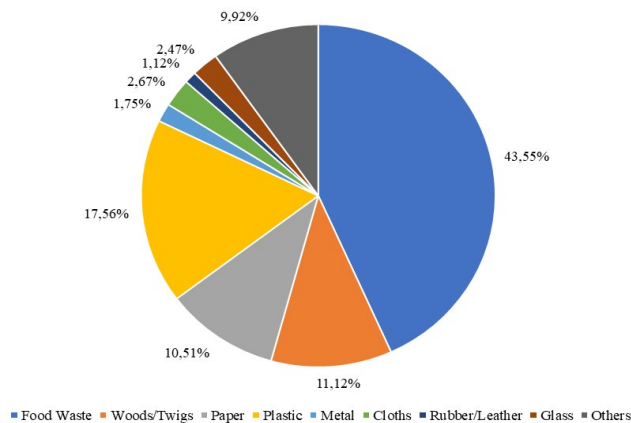


Figure 2. Average waste composition by waste generation in West Java (SIPSN 2020-2022)

Syalva and Yusran (2024) also stated that the unpleasant odor produced by waste can also interfere with the comfort and happiness of residents living around the disposal site. Food waste can also pollute the air through the production of methane gas, methane gas is produced when organic waste decomposes in a closed environment (Wang, 2018). The carbon production generated from food waste that is only released in the atmosphere openly is 3,3 billion tons of CO², which is equivalent to the greenhouse gas released per year (Douetal, 2016).

Wibowo et al. (2021) stated that the F&B sector is a significant contributor to waste production in Indonesia. With the increasing number of food and beverage companies and the increasing consumption of the community, the volume of waste generated by this sector is also increasing (Jones et al. 2022), including PT Atim and Wanti Saiyo Jaya Catering. Data on food

waste generated by PT Atim and Wanti Saiyo Jaya can be seen in Table 1.

The separation of food waste and other types of waste has been carried out by the company, but in the end, the processing of food waste is still not optimal. All types of waste still end up in the disposal site which is again put together. This is unfortunate because food waste processing should still be maximized by the company itself, in order to keep the business sustainable and also have a good reputation in the environment and from the assessment of company partners.

Define

The define step is carried out by utilizing the data that has been collected from the first stage, namely empathize. This stage is a convergent stage that aims to make decisions based on the information that has been obtained and clarify it. One of the ways in this second stage is to ask critical questions to relevant stakeholders (Ling, 2015). At this stage we can get the relevance of empathize that we have formulated by getting qualitative information from the company owner, head waiter, and head chef of the company.

The results of interviews with representatives of company employees (head waiter and head chef), as part of those directly involved with production, it was stated that there were no strategic steps other than separating organic and inorganic waste. This shows that there is still homework for the company about making SOPs that can be applied in the waiters and kitchen divisions so that food waste is not mixed with other types of waste.

Some important points obtained from the owner side, we get about food waste management awareness. Where there are still many F&B company owners who have not received good knowledge from the government regarding food waste management. This is very crucial because as a company owner who holds policies related to food waste management knowledge must be very well known and understood so that the company can issue policies that intersect and are supportive for optimizing food waste management. Apart from the owner, it is also very possible that food waste management can be done massively, but this requires support from the government.

Table 1. Food Waste PT Atim and Wanti Saiyo Jaya

Partner	Average (kg)
PT ABC 1	24
PT ABC 2	20.5
PT ABC 3	15
PT XYZ 1	34
PT XYZ 2	18
PT XYZ 3	9
PT RST	17.5

Ideate

Ideate is the third step aimed at finding solutions to existing problems. This process involves brainstorming with the team and relevant stakeholders to generate ideas for solutions to problems faced by users (Wibowo & Setiaji, 2020). From the results of brainstorming with the owner and also employee representatives, several ideations were produced:

1. Internal Training

This training aims to increase the knowledge of all levels of employees about waste classification, waste handling, and also independent utilization for certain types of waste, especially food waste.

2. Waste Cycle Process Creation

In addition to increasing knowledge, the company must develop a process from waste sorting to separating the types of waste that can be processed and those that must be disposed of in the landfill (TPA).

3. Establishing Partnerships

To launch the Waste Cycle that has been designed, with the involvement of third parties, namely poultry and maggot farmers to optimize food waste, and the Environmental Service (DLH) for waste that cannot be processed. Potential partners are expected to be located at a maximum radius of 7 km from the catering production site in order to reduce the barriers that occur. It is known that food waste can help farmers reduce the cost of purchasing animal feed, which is often expensive and must be imported from abroad. It is estimated that about 70% of the total cost of raising livestock comes from the purchase of feed. (Ketaren 2002). Apart from directly to poultry farmers, food waste can also be diverted to maggot farmers which will be useful as feed for poultry and fish farmers (Amran, 2020).

The growth of the Food and Beverage (F&B) industry in Indonesia has led to a significant increase in waste production, particularly food waste. Obstacles in waste management in Indonesia are also caused by lackluster policies and lack of adequate infrastructure. Therefore, comprehensive and collaborative efforts from the government, community, and private sector are needed to improve waste management, including stricter law enforcement, investment in waste management infrastructure, effective public awareness campaigns, and policy improvements.

Business environmental orientation has also become a key focus for many companies in recent years. Understanding the environmental impacts of business operations has become a priority for many companies and efforts to reduce those impacts have become essential. The benefits of adopting an environmental business orientation include a good reputation with consumers, improved operational efficiency, and opportunities to develop more environmentally friendly products and services.

The design thinking method was used to find innovative solutions for food waste management in F&B companies. Steps such as Empathize, Define, Ideate, Prototype, and Test were used to identify problems, formulate solutions, and test new concepts. The growth of the F&B industry in Indonesia not only brings economic benefits, but also poses serious challenges to the environment. Therefore, concrete measures are needed to reduce the negative impact of the growth of the F&B industry on the environment, including the development of stricter policies related to waste management and the promotion of more environmentally friendly business practices.

Managerial Implication

PT Atim and Wanti Saiyo Jaya must improve their human resource capabilities in managing food waste generated from their companies. Handling food waste that is managed properly can reduce environmental pollution, minimize complaints arising from the local community, and become a factor in the company's sustainability. The solution to handling food waste requires assistance from various parties, both internal and external. Internal parties can be given training to increase knowledge related to the classification and utilization of waste, especially food waste. Support from external parties such as the government, private sector,

or community is needed to optimize the process of the waste cycle that has been prepared. Good handling can have a positive impact on all parties, especially for the sustainability of the catering business of PT Atim and Wanti Saiyo Jaya.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The conclusion of this journal is that the growth of the Food and Beverage (F&B) business in Indonesia has a significant impact on the increase in waste production, especially food waste. The study found that the F&B sector has a major role in the increase of waste volume in Indonesia, which is closely related to its business growth. In sustainable business, the environmental impact of F&B growth is an important focus. In addition, many companies are also directing their business to pay attention to environmental impacts. Understanding the environmental impact of business operations has become a priority, which is reflected in the use of design thinking methods to find innovative solutions related to food waste management in F&B companies.

Recommendations

Further research needs to be conducted on the development of this research, there are several further variables that can be used in the design thinking method to reach the evaluation stage of the implemented solution.

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