

BUSINESS PROCESS MANAGEMENT DESIGN IN WASTE BANK APPLICATION BASED ON SWOT ANALYSIS

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ABSTRACT

This paper discusses the development of a waste bank application business using the SWOT method to shorten the waste bank process flow. One strategy for implementing waste management is a waste bank using a reduce, reuse and recycle pattern in the waste management process. The application of the waste bank in principle is one of social engineering to invite people to care about waste and be able to sort dry waste from wet waste so that it is easy to recycle. The purpose of this study is to find and explore facts that occur in the field that can answer research problems by making a technopreneurship development model in the waste bank application and recommending the most appropriate strategy for the development of technopreneurship in the waste bank application. This research method uses the SWOT analysis method (Strengths, Weaknesses, Opportunities, Threats) to produce a business strategy that can be considered for a Digital Waste Bank that uses three data collection techniques, namely observation, interviews, and documentation. The results showed that the design of the waste bank application was able to provide additional income for the community, both households, industries, collectors, final waste managers or waste recyclers.

Keywords: SWOT, Waste Bank Application, Technopreneurship.

INTRODUCTION

Waste is a material that comes from the process of unused human, animal and natural activities that can cause waste if it is not handled with good waste management. The accumulation of waste due to poor waste management can cause environmental damage such as flooding, ecological damage and disease outbreaks. Waste problems are often faced by developing and developed countries which cause problems such as flooding, dirty environment and poor public health. Waste management needs to be improved and developed which aims to protect and keep the environment clean and healthy. Waste management in Indonesia has several shortcomings, such as people who are not used to sorting waste, landfills with narrow land, waste management that does not run optimally. The waste bank is one of the waste management in the current era that makes the process of recycling waste faster, more efficient and generate profits (Valsan et al., 2020).

Waste management is the residue of human daily activities from natural processes in the form of solid objects which are systematic, comprehensive, and sustainable activities that include waste reduction and handling. The current lifestyle of the community in managing waste is not in accordance with the principles of waste management, namely recycle and reuse, which means reusing and managing waste that has been used. This is indicated by a large amount of garbage

that is often buried on the side of the road, in ditches and in places that should not damage the beauty of the surrounding environment. The use of reducing, reuse and recycle methods in waste banks is the best strategy in waste management in reducing and handling waste in the community. The need for a paradigm shift in waste management regarding collection, transportation, and disposal management is aimed at reducing waste and handling waste. The application of the waste bank in principle is one of social engineering to invite people to care about waste and be able to sort dry waste from wet waste so that it is easy to recycle. It also increases public awareness of waste in sorting waste that can be exchanged for money (Wulandari et al., 2017).

With this background, research is proposed on a waste bank application development model to support the waste recycling process. This proposed development strategy is expected to make Indonesian people accustomed to sorting waste, making the recycling process more efficient, increasing the number of people's economy and many parties participating in waste sorting and recycling.

STUDY LITERATURE

The literature section is a section to summarize the technopreneurship development model in the digital waste bank application which is analyzed using the SWOT method and business strategy development. In this study, the SWOT approach has been developed for selecting the right technology for sustainable waste management and disposal.

Waste Bank

The waste bank is a waste management system that is carried out collectively to make the community play an active role in the waste management system. This system will accommodate, select and distribute waste that has economic value to the community which will make the community obtain economic benefits from saving waste. The waste bank system has a system and managerial like a conventional bank usually. The more people sort and save waste, the more income users will have depending on the value of the waste that has been determined by the system (Fatimah et al., 2020).

The working principle of a waste bank is the same as the work system of a conventional bank, at a conventional bank the customer is made an account and a savings book. While in the waste bank application, the user downloads and registers on the application fill in biodata on the application and save which will then be formed by the waste bank system. In the waste bank system, the customer will not be given money directly, but the customer will be given money in the form of a savings book. The savings book will be in the form of a cash balance that can be withdrawn once or every three months. Waste bank management is based on the principle of community for the community. Three benefits can be obtained from this waste bank activity: (1) Creating or adding additional income; (2) Creating new job opportunities through participatory empowerment; and (3) Maintaining the cleanliness and health of the environment (Burke et al., 2018). Garbage pick- up service is one of the waste bank services that provide transportation to pick up the waste. Customers only need to provide a time to pick up the garbage that has been sorted and put the garbage in front of the house. Officers from the waste bank will weigh, record, and transport the waste that has been sorted by the community. Garbage that is clean and intact has a higher selling value. To make it easier to record in the waste bank account, minimum weight is needed for storing waste. The profit-sharing system in the waste bank system is

following the decision of the waste bank manager, which then the results of the decision will be socialized to customers. The amount of profit-sharing that is commonly used today is 85% for savers and 15% for waste banks.

Strengths, Weaknesses, Opportunities, and Threats (SWOT)

SWOT is an analytical method used to identify and analyze the strengths, weaknesses, opportunities and threats (SWOT) of a company that can give an organization an advantage in determining the company's position. According to the systems approach, the organization is a whole that interacts with its environment and consists of various subsystems. The importance of analyzing the environment using the SWOT method aims to create a planned and targeted waste management. The process of examining and analyzing an organization and its environment is called a SWOT Analysis. The SWOT work process also requires management to think critically in its operations. By identifying several action plans that can improve the company's position, SWOT analysis allows management to choose some of the most effective strategies and take advantage of existing opportunities (Aich & Ghosh, 2016). SWOT analysis is a systematic way to identify factors based on an effective strategy in maximizing strengths and opportunities and minimizing weaknesses and threats in a company. Anticipation of weakness and threat to the company can be described in the SWOT matrix by using the company's strengths and opportunities. The use of the SWOT matrix will provide alternative strategies commonly referred to as SO, ST, WO and WT. Strengths and weaknesses are internal factors and organizational attributes, opportunities and threats are external factors and environmental attributes. A SWOT analysis is usually made in a four-quadrant box which allows summaries to be organized according to four- part headings (Rusdiansyah et al., 2020).



FIGURE 1
SWOT ANALYSIS DIAGRAM

Figure 1 above describes in SWOT analysis, the process of examining the organization requires management to think critically in its operations. The environmental analysis aims to maximize available opportunities and determine a good strategy for the company. By identifying and analyzing using SWOT allows management to choose some of the most effective strategies and take advantage of the opportunities available to the company. The SWOT method provides useful information for organizations in matching organizational resources and capabilities with the competitive environment in which the organization can operate. Strengths and Weaknesses are helpful to achieve organizational goals, but Weaknesses and Threats are dangerous to achieve

organizational goals. Weaknesses and Threats are of no benefit to the organization. Therefore, the underlying of any successful strategy selection is an analysis of the organization's internal strengths and weaknesses posed by the internal environment as well as the opportunities and threats posed by the external environment (Yuan, 2013).

A sustainable waste management system cannot be made only with simple techniques but also requires analysis of strengths, weaknesses, opportunities and threats (SWOT). The use of the SWOT method in environmental management will provide a choice of technology and waste management in an area or urban area. The SWOT method will also help identify the risks that exist in the waste management business to build a good waste management chain. The SWOT analysis method approach as a technology selection in waste disposal management will help reduce uncertainty and minimize risks that occur in digital waste management companies. By identifying a waste bank management business process will help a sustainable waste management system (Srivastava et al., 2005).

METHODOLOGY

The research reported in this paper is focused on business process management in the implementation of a waste bank digital system. The research method starts from data collection, observation, interviews, documentation, problem identification and literature study which aims to find information in the form of references in this study.

Business Process Modeling

Business process modeling is a way of business modeling to understand, design, and analyze a business process with the aim that companies understand business processes well. A well-designed and analyzed business model will increase revenue, performance, and management of the business processes being undertaken. In this study, a business process will be designed that will be run by the waste bank application which aims to improve the performance of the waste bank and provide benefits for people who want to contribute to sorting waste and participate in maintaining environmental cleanliness (Weske, 2007).

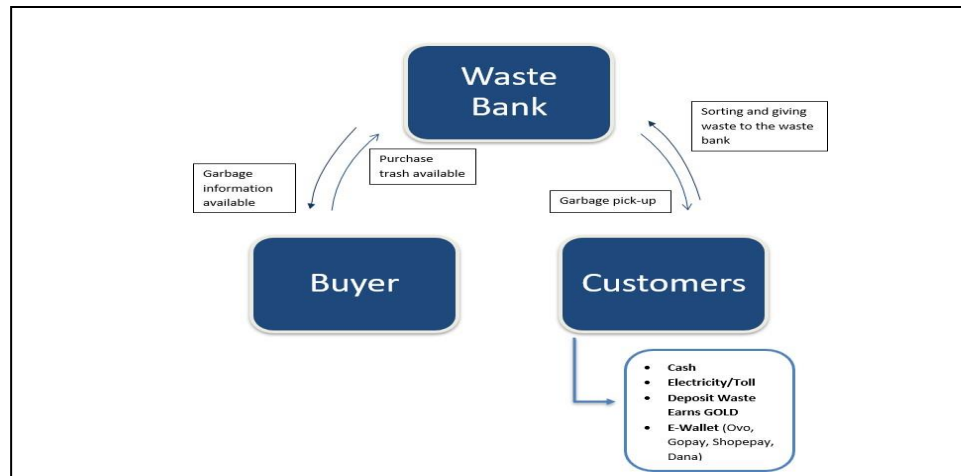


FIGURE 2
WASTE BANK MODEL

Figure 2 above describes the business model in the application at PT. Company XYZ explains the steps in following the digital-based waste bank business process. At the initial stage, the community or customers can sort the waste at home, it can be in the form of wet waste, dry waste, bottle waste, metal waste that is no longer used. Each type of waste will be assessed at different prices according to the quality of the waste. The second step is that customers or the public can download the waste bank application on the Play Store. The waste bank application above applies a waste bank work system, there are three main parties in the waste bank ecosystem, namely customers, waste banks and buyers which are advantages or innovations of the waste bank application above compared to other waste bank applications. The waste bank application provides three main parties in the waste bank ecosystem in the form of an application and is downloaded to customers to store waste which will then be weighed and assessed. Customers receive prizes in the form of Cash/Physical Gold/Credit in e-Wallet in one monthly cycle.

1. The Waste Bank application is an application used by the waste bank. The waste bank application is a center that receives and manages waste as well as communicates and sells waste to buyers. The waste inventory to be purchased will be displayed on the Garbage Bank application so that buyers can find out how much and the quality of waste can be purchased.
2. Buyer App is an app used by garbage collectors or buyers. Garbage collectors or buyers will only buy quality waste at optimal prices. The buyer's application is an application that bypasses intermediary customers by finding the location of the nearest waste bank through the provided application which then brings waste that has been sorted according to the criteria set by the waste bank.
3. The Customers application is an application used by customers to store sorted waste and then the waste will be weighed and assessed by the waste bank. Customers receive gifts in the form of Cash / Physical Gold / Credit in e-Wallet in a monthly cycle. The workflow of this customer application begins with the customer who has the waste, then the waste will be sorted and sell the sorted waste to the nearest waste bank.

The three applications above can be played by anyone who wants to participate in helping the cleanliness and health of the environment. Communities who participate in helping to maintain a clean and healthy environment will generate income and improve the economy for people who want to become waste banks, waste buyers, or just sort out waste from home.

The customer application helps application users or the public to find the nearest waste bank. After the waste is sorted and ready to be transported, the waste bank will take the waste that has been sorted and ready to be transported. Customers can choose the date and time the waste will be transported and deposited to the nearest waste bank. The next step after the results of the waste that has been sorted by the customer or the community will be deposited to the nearest waste bank and will be assessed by the waste bank. Recording and assessing waste following the quality of the given waste. The results of the calculation of the separated waste will be reported to the passbook and the value of the waste will be entered into the balance of the application that has been downloaded by the customer. Customers can exchange balances in the form of money, or customers can pay for electricity, credit, E-wallet such as Ovo, Go-Pay, E-toll, etc.

The business process at XYZ company that will be studied is the waste bank process that uses digitization in the form of an application that will make it easier for application users to find out how much they save in the waste bank. In the waste bank business process, there is a profit-sharing between the waste bank manager and the customer who has sorted the waste. The distribution of proceeds between waste banks and customers or the public has been regulated in a Regulation of the Minister of the Environment. The following is the calculation of customers or the public when using the waste bank application.

The Table 1 above is an example of calculating customer applications or customers who contribute using the waste bank process with the customer applications that have been provided. All waste that has been sorted by customers will be counted by the waste bank with a predetermined waste value. The types and weight of waste will affect the total price of customers savings.

Customer Garbage	Garbage Weight (Kg)	Price of Types of Waste per- kg(Rp)	Total Customer Savings
Iron	5	Rp2,500	8p12,500
Paper	3	Rp3,000	Rp9,000
Plastic bottles	4	Rp4,000	Rp16,000
Total			
85% (Net Profit for Customers)			Rp31,875
10% (Income For Waste Bank)			Rp3,750
5% (Revenue for App Provider Companies)			Rp1,875

RESULTS AND DISCUSSION

Waste Management, such as a waste bank, has a goal to help the city government reduce the volume of waste, make people care about maintaining a clean environment from waste, educate people to sort waste and improve the community's economy by saving waste. Waste management models such as waste banks will provide benefits for customers who are involved in waste management. Waste will be rewarded according to the type of waste that has been sorted and given to customers. The higher the waste price, the customers will get more money. The prices of the waste have been determined by the waste bank application that has been provided. Starting from the goal of contributing to maintaining a clean environment from waste. With the existence of a waste bank with digital applications, people do not consider waste as an environmental problem, but as a means of printing money or saving gold. The benefits that will

be obtained from the community are numerous with the existence of waste management such as this waste bank, in addition to maintaining a clean environment as well as improving the community's economy.

Waste bank socialization needs to be developed continuously with the aim that the community can understand and participate in collecting and sorting waste. Additional income by sorting household waste into something of economic value for housewives to improve the family economy. In addition to making waste into an economical value, the waste bank application also provides encouragement to the community to maintain environmental cleanliness, make people aware of a clean environment, increasing environmental health, reducing environmental damage and the risk of flooding due to improperly made waste.

The impact of waste banks on the regional economy through the waste management model proposed above will result in a communication between customers, waste banks and collectors. The creation of a symbiotic mutualism relationship will increase people's income and environmental cleanliness for the community itself.

Figure 3 above explains that by using the waste bank application from PT. XYZ will form a symbiotic mutualism. Where all parties benefit each other, with customers giving sorted waste to the nearest waste bank and of course customers will benefit from the waste sorting. Garbage banks will benefit from buying waste from waste collectors/buyers, and collectors will benefit from selling waste to waste recycling factories or collectors/buyers can make their recycling so that the profits for collectors can increase further. And the benefits of the mutualism symbiosis above are only from the application point of view or the community that contributes to the process of sorting waste to recycling waste. From the point of view of the city government, of course, it will also benefit from this waste bank system, the more people who contribute, the city environment will also be cleaner and ultimately the city will also be cleaner.

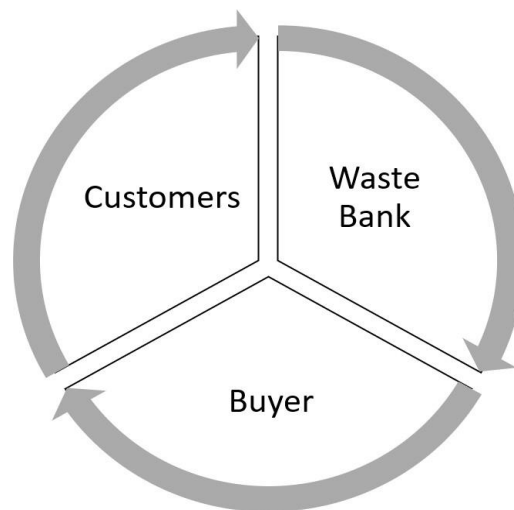


FIGURE 3
WASTE BANK CIRCULATION

The waste bank management model as in the picture above will create a symbiotic business flow of mutualism. Starting from customers who give sorted household waste to the waste bank. The waste bank will assess the waste that has been sorted and rewarded according to

the type of waste. Garbage that is already available at the waste bank will be informed to the buyer/waste collector to exchange sales and purchases between the waste bank and the buyer.

The waste bank model used above has several conclusions which suggest that company XYZ has several opportunities. The waste bank application that is integrated with the community who joins in the waste sorting will be one of the choices for residents to carry out waste disposal more effectively and usefully. The use of applications that are integrated with the waste bank is expected to attract a wider range of customers so that the company can develop more rapidly. The company's opportunity to develop faster is very high seen from several aspects such as cooperation, environmental cleaning and improving the community's economy. Collaborating with e-commerce and fintech companies such as fund applications, ovo, gopay is one of the company's opportunities to grow bigger. Integration with e-commerce and fintech will make it easier for people to withdraw money that has been saved from waste sorting. After conducting the interview process, observing and collecting data on the waste bank application, an analysis will be obtained regarding the company's internal strengths, weaknesses, opportunities and threats and the waste bank application, external threats and opportunities owned by the company. The following are the results of the SWOT analysis of the company PT XYZ.

In Table 2 above, it can be concluded that the strength of the digital waste bank business provides convenience in saving waste by sorting waste through the waste bank application that has been provided. The customer application will search for the nearest waste bank to weigh the price of the sorted waste. By sorting the waste and submitting it to the waste bank, the customer will benefit from the waste sorting. In addition, the community also helps maintain a clean and healthy environment. From these advantages, this digital application has the opportunity to become an application that is in demand by the public. Garbage will have a high value in the eyes of the community because the community will benefit from sorting waste as well as maintaining a clean environment.

Table 2		
SWOT MATRIX ON WASTE BANK APPLICATION		
EFAS	Strength (\$)	Weakness (w)
	Solutions for handling waste in big and small cities. Convenience for customers by searching for the nearest waste bank. Earn revenue for customer app users, buyers and junk banks	A lot of waste that has not been included in the category of waste that can be sold. There is no cooperation with large waste industries. it has not reached all Indonesian waste banks. The waste bank application community is still low. There is no platform that accommodates complaints from users of the waste bank application
IFAS	Strategi so	Strategi wo
Opportunity (0) Creating a culture of environmental care, especially in waste sorting. Benefit from waste sorting. Become a waste bank application that is in demand by the public. Support the community's economy. The results of the recycling of waste can be used again by the community.	Addition of digital payment features such as ShopeePay to simplify and expand transactions (51,52,53 03,05). Addition and development of waste bank partners and collectors in each region (52, \$3 01. 04). Addition of a waste pick-up system strategy by the waste bank (\$1, \$2, \$3+04, 05). Working closely with the environmental community (51, 56. \$7 01. 04, 05).	Opening cooperation with industries that have quite a lot of waste (W1 (01,02.03). The three applications can be combined into one application that can be connected and connected to make it easier to operate (W2+01, 05). Improve good relations between customers, waste banks and collectors or end managers so that they can become regular users (W4, WS 03, 04, 05). Develop applications and related systems so that they are not easily

		disturbed and provide a sense of comfort to users (W3, W4+OS).
Threats (T)	Strategi ST	Strategi WT
There is still a lack of trust in the use of the waste bank application Has a waste bank application competitor. Changing people's habits of sorting waste. Lack of people who contribute to the waste bank process to become customers, waste banks and buyers.	Expanding marketing both through digital marketing and offline Continue to develop and provide innovation in digital waste bank applications such as feature updates that make it easier for users and beat competitors (51, \$3-T3). Offering cooperation to buyers by ensuring the quality of the waste produced provides a high and useful selling value (51,52, \$3 T3. T4).	Bulling collaborative innovations with organic waste managers such as leaf waste, food waste and others (W1, W2, W3, W4 T2, T3). Selling waste processing results in applications and various marketplaces (W3,W4-T3).

Although there are several benefits and opportunities obtained in the waste bank application above, it also still has some drawbacks such as:

1. There is still a lot of waste that has not been included in the waste category that can be sold like the community. Do not have yet.
2. Do not have a garbage collection system by a waste bank.
3. There is no extensive waste industry cooperation network and there are no waste banks scattered in each region.
4. There is no feature to accommodate customer complaints.

Some of the shortcomings above will certainly be a threat to the company which makes some customers still do not have strong trust in using the digital waste bank application, many collectors who do not want to become partners and the community still considers littering or burning garbage more effective. From the Strengths, Opportunities, Weaknesses and Threats above, a strategy that combines strengths and weaknesses and Strategies by Combining Opportunities with Threats will be formed as follows:

Strategy by Combining Strength (S) and Weakness (W)

Added category of trash that can be sold

This strategy is a combination of the strength of the application business that makes it easy for users to increase the value of waste and cooperate with various parties, but there is a weakness that is there is still a lot of waste that cannot be assessed for its price, even though almost all (non-hazardous) waste can be recycled by recycling. certain things, such as food waste that can be recycled into animal feed, leaf waste that can be recycled into compost, electronic waste (e-waste) that can be recycled into useful goods and so on, so the strategy for adding this waste category is needed to be considered.

Integrated digital waste bank application strategy

This strategy needs to be considered so as not to create two applications that make it inefficient in use, because it is better in one application that contains complete features and is integrated with one another. This is also useful for users to save RAM on their cellphones and also make it easier for users if they are current customers, but one day they become garbage recyclers.

Garbage pickup strategy

This strategy needs to be considered considering that customers who want to sell their garbage but are hindered by transportation, so they can call collectors to come to their homes.

User loyalty feature strategy (XYZ Care)

This strategy is important to accommodate ratings and complaints from application users. In addition, application users can provide suggestions and input to the applicator so that later it becomes an evaluation material for the XYZ digital waste bank application.

Strategy games waste bank XYZ

This strategy is intended to increase the intensity of using the XYZ waste bank application even though users do not make transactions. This creates user engagement with the XYZ digital waste bank application.

Strategy by Combining Opportunities (O) with Threats (T)

Application improvement strategies become easier to use and integrated

This strategy is intended so that this business is not inferior to competitors regarding the quality of applications and systems that are easier and more practical. If this strategy is developed optimally, it will be a big thing in digital business.

Strategy for adding bank partners and buyers

The more waste banks and recyclers that can be invited to work together, the greater the opportunity for this business to run in a sustainable manner. This business is able to provide new life for waste banks, communities, industries and also final waste managers (waste recyclers), so it is important to add and multiply partners.

Strategy for buying and selling recycled waste products

This strategy is needed by waste recyclers so that they gain a wider market share and this business can run sustainably if the demand for recycled waste products is higher.

CONCLUSION

A. Conclusion

Waste bank management is an approach that needs to be developed to reduce waste and provide opportunities for the community to participate in protecting the environment and benefit from the contribution of sorting waste. Based on the research that has been done and the results of the analysis from the above discussion, some conclusions can be drawn as follows:

1. By participating in the waste recycling process, such as the community by sorting waste, waste banks that manage waste and waste management industries that recycle waste. Garbage which is a problem in every big city will become an economic value and increase public.
2. The design of this digital-based waste business will assist an organization in overcoming risks and anticipating possible failures in implementation and increasing the presentation of success.
3. Development of a digital waste bank strategy using the SWOT matrix will make an organization have several options for designing future strategies.

B. Suggestion

Based on the research that has been done, there are several targets to develop a sustainable waste bank. Here are some suggestions on digital waste banks:

1. Garbage banks, communities and final waste managers (waste recyclers) can use this digital waste bank application with the aim of increasing the economy and increasing income for the community.
2. The business model design can be developed by adding waste bank partners, waste recyclers and industry, with the development of business networks will increase opportunities for company performance and regional/network development will be wide open with additions.
3. The waste bank mobile application can be used on a small scale for suburban areas or remote areas that require easy waste transactions. With this mobile application and business model, it is hoped that the people in the area can be helped and can support its development.

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