

# Using Lean and Voice of Customers to Fulfil Needs in the Charity Sector – A Reflective Case Study

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## ABSTRACT

Lean principles are widely adopted in the manufacturing and services industries. However, few organisations consider Lean in the operations nor implement Lean initiatives in the charity sector. This paper is a narrative reflection of an action case research study conducted in a charity organisation in Singapore - the Food Bank Singapore (FBS), where Lean principles were adapted to optimise available resources to meet the needs of beneficiaries and donors. We found three key priorities that must be established by gathering and listening to the voice of customers (VOC), including the beneficiaries and donors in the charity context. The three priorities relate to the roles of the key stakeholders that support FBS's mission of eradicating hunger and all forms of food insecurity in Singapore. The first priority is enabling donors to donate right to meet beneficiaries' needs. The second priority is enabling FBS operations to serve the diverse beneficiaries' needs better. The last priority is offering beneficiaries the "Dignity of Choice" of foods. This paper underlines the critical success factors for adopting Lean: - appropriate leadership, staff engagement, and stakeholder management. The reflective findings from this article will enable non-profit and charity professionals to better understand the application of Lean principles.

**Keywords:** *charity Sector; non-profit; lean; process improvement; customer-centricity*

## 1. INTRODUCTION

The organisations operating in the charity sector play a critical role in society. However, most of these organisations constantly struggle to manage operational efficiency and effectively serve the public. Charity organisations which are primarily non-governmental and other non-profit organisations, are under tremendous pressure to meet the rising demands from society. In addition, these organisations operate in a complex and dynamic environment due to declining governmental funds and reliance on unstable and limited resources (Boardman and Vining, 2000; Jevanesan *et al.*, 2021).

To deal with these challenges, which threaten the sustainability of the charity sector, non-profit and charity organisations have started exploring continuous

improvement methodologies such as Lean management to improve service quality and increase firm performance (Arik *et al.*, 2016). This paper features an action research case study conducted in the Food Bank Singapore (FBS), where applying Lean principles has aided FBS in optimising the use of available resources to meet the needs of beneficiaries and donors effectively.

Our premise is beneficiaries must be heard so that their needs can be met effectively by the donations and funding from the donors. Therefore, in our action research case study, we focused on the criticality of listening to the voice of customers (VOC) and aimed to provide insights on how to bridge the gap between the supplies (donations) and demands (beneficiaries' needs). This case research offers a reflective narrative of the Lean implementation journey in the FBS to improve the packing and replenishing of the food vending machines initiative (The Food Pantry 2.0). We raise the following research question to guide our study: *How can we use Lean management principles to establish a standardised process for fulfilling the needs of beneficiaries?*

To effectively meet the needs of the beneficiaries on the ground, beneficiaries of humanitarian relief operations and development programmes need to be heard (Blyth, 2018). Therefore, our primary objective was to understand VOC and map out the food replenishing and distribution operations processes to meet beneficiaries' needs.

This reflective paper describes and evaluates the process improvement journey at the FBS and integrates the author's perception with the Lean principles and continuous improvement domain. The conclusions of this paper emphasise the learning lessons derived from the reflective analysis. The article is structured as follows. Firstly, we provide an overview of the food assistance and food support by the FBS, highlighting the operational challenges this sector faces. Secondly, we present a summary of the Lean management methodology. Next, the research methodology for the paper is outlined, providing details on FBS as the case site, data sources and the verification process that we followed to ensure the feasibility of the proposed solutions. Finally, the paper synthesise the main findings, such as benefits and challenges experienced by implementing Lean in FBS and critical success factors, emerging trends and research gaps identified.

## 2. LITERATURE REVIEW

Food assistance is defined as “all actions that national governments, often in collaboration with non-governmental organisations (NGOs) and members of civil society, and with external aid, when necessary, undertaken to improve the nutritional well-being of their citizens who otherwise would not have access to adequate food for a healthy and active life” (FAO, 1996.a, p. 1). Direct food assistance can be food stamps, food packets, food coupons, etc., non-governmental organisations, private charities provide, or public funds (FAO, 1996.b). It usually appears in income transfer programmes and direct provision of food. Income transfer programmes are targeted at low-income families to supplement their cost of sustenance in the form of cash or food stamps/coupons for food redemption. There are also direct feeding programmes, such as soup kitchens and residential feeding programmes, which provide cooked meals to needy individuals (FAO, 1996.b).

There are various food assistance programmes targeted at individuals or households through the help of food support organisations in Singapore. The most common form of sustenance support is the provision of food ration packs that include dry food items such as rice, cooking oil and biscuits (Glendinning et al., 2018). These ration packs can be standardised by individual food support organisations or customised according to the beneficiaries’ preferences. The latter enables food support organisations to match the needs of the beneficiaries better and reduce wastage by providing food that the beneficiaries require. However, the food choices are limited by the type and quantity of food donations that food support organisations receive. Therefore, it is not easy to fulfil the request of each beneficiary completely. Apart from ration packs, food support organisations also provide packet cooked meals, communal cooked meals, supermarket vouchers and cash to needy individuals/households (Glendinning et al., 2018).

### 2.1 Food Banking and Challenges Faced by Food Banks

Food Bank is a global concept that works on re-directing surplus food to feed the hungry as they strive to reduce food insecurity worldwide (The Global FoodBanking Network, 2018). The role of a food bank is to collect excess and wholesome food that is safe to consume from individuals or corporations and redistribute them to the needy through community service organisations (The Global FoodBanking Network, 2018). A food bank is a location for receiving and storing food donations in different forms, such as canned, fresh and frozen food/drinks (Handforth, Hennink and Schwartz, 2013). The food donations are considered non-marketable excess foods that are safe for consumption that would otherwise have been disposed of (Gonzales-Torre and Coque, 2015), as they are approaching their “expiry”, “sell by”, or “best before” date (Melo et al., 2016).

These food donations are stored in the warehouse of a food bank which varies in terms of area, capacity, infrastructure and capabilities, and they are divided into three main storage functions: (1) dry products, (2) refrigerated products (chiller) and (3) frozen products (freezer) (Melo et al., 2016). Besides serving as a distribution centre, a food bank can also serve as a

consumption centre to provide the needy with cooked meals instead of re-directing food donations (Gonzales-Torre and Coque, 2015).

### 2.2 Lean Principles

The Lean principles originated from the literature related to Toyota Production System (TPS) (Ohno, 1988; Shingo, 1989; Womack et al., 1990). It focuses on generating customer value as the basis for eliminating the seven types of waste – overproduction, waiting, transporting, inappropriate processing, unnecessary inventory, unnecessary/excess motion, and defects. The central premise of Lean is that customers will pay for only value-added work but not for waste (Womack and Jones, 1996).

Lean aims to create value for an organisation’s customers by eliminating the seven forms of waste identified by TPS while also increasing a company’s sustainability. Lean uses five core principles: identify customer values, focus on processes that create value, eliminate waste to create flow, produce only according to customer demand, and strive for perfection (Stevenson, 2021). In the fast-moving consumer goods industry, companies intend to increase productivity with less staff and lower inventory levels through lean implementation (Tanudiharjo et al., 2021). This approach is similarly applicable in the food charity sector, which relies mainly on volunteers and inventory built on solicited funding and donations. Throughout the rest of this paper, non-profit operations will be viewed through the lens of these five Lean principles and analysed with primary data gathered from field sources and case studies. There are several tools to support Lean management. These include the VOC, workflow diagrams, Define, Measure, Analyse, Improve, Control (DMAIC), and Plan-Do-Check-Act (PDCA) cycle to help organisations pursue continuous improvement and raise customer satisfaction (Cheng and Chang, 2012; Tay and Low, 2017).

### 2.3 Benefits of Lean Management in The Food Bank

#### 2.3.1 Identify Customer Values - The concept of customers in food bank operations

The core tenet of Lean principles is first to identify customer values (Sales and De Castro, 2021; Waterman and McCue, 2012). Like most charity organisations, for food banks, the key customers are beneficiaries or aid recipients who receive the food aids provided by FBS. The donors provide funding to support the operations and the employees and volunteers working within FBS. Identifying customer values is crucial to the effectiveness of a non-profit organisation like FBS (Kramer, 2001).

FBS operations are centred around adding value to their beneficiaries, who are their external customers. Non-profits play a critical role in delivering aid to the social networks in the local community. Therefore, non-profit needs to collaborate and cooperate with the stakeholders in the charity mission to understand the customer’s values. For non-profits, coordination and collaboration are essential competencies to help the charity develop a good understanding and link to the local community (Cheng and Chang, 2018; Kovach and Ingle, 2019). FBS cannot go into

an environment or region and expect to make a lasting impact on the community if they do not first put in the effort to understand the local culture and norms (Dover & Lawrence 2012). Understanding the local context within which a non-profit is working and fostering relationships among local organisations allows a non-profit to reach its target customers more effectively and earn their trust and support.

### 2.3.2 Funding

For non-profit organisations, a critical aspect of their operations is to source for donors and funding. However, fundraising activities can also pull resources away from the charitable services from the non-profit core activities of providing aid to their beneficiaries (Nunnenkamp and Oehler, 2012). An ex-post funding approach to fundraising can help to reduce the chance of a non-profit leaving its original mission in search of funds. This approach does not wait for the total funds to arrive before starting a project. The non-profit will use its initial funds to start a project and then present its results to donors, incentivising them to provide continual funds to support a particular project and future projects (Devalkar *et al.*, 2017).

### 2.3.3 Produce to Customer Demand

A non-profit has two sets of customers (donors and beneficiaries) with demands that the non-profit must meet. Since donors are the suppliers of a non-profit's funds, non-profits need to be attentive to the donors' requests; however, a non-profit cannot give up its original vision for the demands of its donors. Using the ex-post funding approach to fundraising is an excellent way to accomplish this. Under this approach, non-profits will start a project with their initial funds and present donors with results at each phase to see how effectively their funds are being used (Devalkar *et al.*, 2017).

By following the ex-post funding method, non-profits can determine if they are truly fulfilling the demands of their donors, inciting donors to increase their giving, or if the donors' needs are unmet, causing them to withhold funds from the organisation. Non-profits can also benefit from using this method because it functions as a Just-in-time system where they only receive funds as required (Devalkar *et al.*, 2017). Previous work has shown that initiating projects before all the funds are received revealed the total expected utility "to be almost twice as much as the expected utility delivered when following a traditional approach and waiting for all funds to become available before implementation" (Devalkar *et al.*, 2017, p. 1047). The ex-post funding approach also allows the non-profits to find donors passionate about the non-profit's vision, who are more likely to continue offering funding support in the long term. By satisfying the passions of their donors, they are accomplishing their vision of adding value to the donors and beneficiaries.

### 2.3.4 Value Creating Processes

Lean management is centred around creating value for its customers. In the operations of a business, specific processes create value and others that do not are deemed wasteful. These processes look different in every organisation. Often in non-profit organisations, the value-creating processes will be the services or the processes they

use to create the products or services they provide to their customers (Mohan *et al.*, 2011; Jevanesan *et al.*, 2021). Engelseth (2015) suggested that value creation is achieved through time, place and transformation. Therefore, the time required to process and transform the food donations into food bundles to replenish the vending machines is deemed as value to the beneficiaries.

### 2.3.5 Eliminate Waste

There are several ways in which a non-profit can work to eliminate waste from within operations and management structure to allow for a greater flow of communication, services, and ideas. Sometimes changes in operations need to be made, quality control measures need to be established, or external factors need to be controlled. Reducing transport from the source to the area of consumption constitutes an example of waste reduction (Engelseth, 2015). In the FBS case, the food replenishment and distribution system use Lean to shorten lead times, reduce transport costs and maintain only a few intermediaries in the distribution routes. Apart from the benefits mentioned above, transport reduction can reduce fuel consumption and carbon emissions to the environment (Paloviita, 2017). Besides eliminating waste in its operation, a lean approach recommends that an organisation reduce its inventory, but stocks should be sufficiently available when required (Chakraborty and Gonzalez, 2018). This perspective is particularly apparent in FBS as it is vital to ensure that food donations with a short shelf-life period of two weeks to two months are kept minimal yet sufficient to meet the requirements of the beneficiaries. Since keeping high inventory levels is likely to result in wastage for FBS (Heaslip *et al.*, 2019). This section will analyse funding, supply chain management, and Lean principles to eliminate waste to create flow.

### 2.3.6 Strive for Perfection

The last principle of Lean management is to strive for perfection. According to Womack and Jones, 1996, Lean techniques are applied to a value stream to continuously evaluate and improve the process by reducing effort, time, space, cost, and mistakes, while offering a product that is ever more nearly what the customer wants. The scope for "striving for perfection" can be vast. This study establishes the continual pursuit for perfection in the Lean Management of the non-profit in meeting the needs of its beneficiaries. **Figure 1** presents an overview of the non-profit operations using the Food Bank Singapore as an illustrative example. The supply-side or inputs of a non-profit organisation such as The Food Bank Singapore include fundraising, earned income (profits), and foundations. The non-profit production is guided by its objectives and missions that drive its operations and value-adding activities, including centralisation and collaboration to produce the consumer-side outputs that meet beneficiaries or community needs, supported by continuous performance measurement and satisfaction evaluation. The operations and process management of the non-profit organisation involve managing the flow of information, resources, staff, volunteers, services and goods to meet the needs of beneficiaries and the expectations of government and corporations.

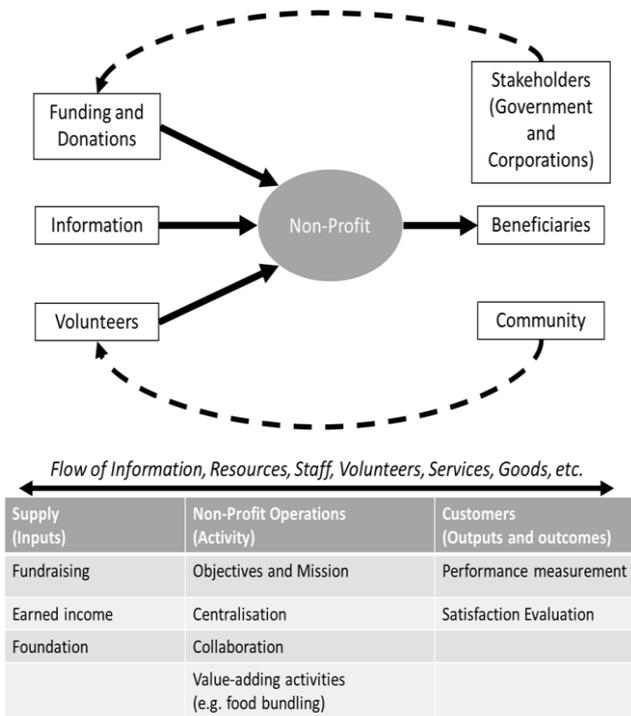


Figure 1 Non-profit operations of FBS case

### 3. METHODOLOGY

#### 3.1 Research design - Action Research Case Study

Extant literature is insufficient for the researcher to draw references for addressing the food security issues in Singapore. The uniqueness of the challenges faced by the FBS requires the researcher to participate and document the relevant findings to develop a solution to the issues facing FBS. Hence, it is more practical for the researcher to work together with FBS employees to understand the work process and brainstorm ideas to improve the work process.

We used action research as an investigative process as we worked alongside the employees of FBS to understand the key issues and develop workable solutions for solving real-world organisational problems by applying Lean knowledge in different fields (Tay and Aw, 2021). An action research approach aims to encourage organisational learning to generate realistic results through problem identification, brainstorming, implementation, and evaluation of the effectiveness of improvement actions (Saunders, Lewis, and Thornhill, 2016). The process of

Action Research starts with an understanding of the circumstances surrounding the issue in consideration and coming up with a research question. It requires the researcher to identify the problem, brainstorm ideas, implement them, and evaluate their effectiveness. Action research is usually done through in-person participation as the researcher works with the organisation’s employees as a facilitator to resolve and improve situations of concern to the organisation’s employees (Naslund et al., 2010).

#### 3.2 Data Collection

We collected the primary data required for this project by participating in the activities conducted in the warehouse and at the food vending machines location. Preliminary data was collected by observing and participating in the entire replenishment process of vending machines. During the procedure of replenishing the vending machines, we initiated informal interviews in the form of casual conversations with the customers of the vending machines (food aid beneficiaries) to understand and document their dietary needs and preferences.

Further, we collected primary data sources at the FBS warehouse and the vending machine site. The initial data collection phase provided an understanding of the sequences of activities required to complete the replenishment of the vending machine. Key metrics identified in the warehouse include measuring the time to complete each activity in minutes and identifying its significance based on its value-add. The focus was on identifying non-value adding (but required) activities and pure waste. At the vending machines site, the number of expired food and food that will expire before the next round of replenishment was recorded twice per week over four weeks on days when the replenishment was conducted (Tuesday and Friday).

In addition, informal interviews were conducted with the vending machine customers to understand their dietary needs and preferences. We interviewed the elderly customers who were always present whenever the volunteers were replenishing the vending machines. In total, we administered ten semi-structured interviews at the pilot vending machine site to gauge the dietary needs and preferences of the targeted population. **Figure 4** shows the research procedure and implementation timeline of the action research project that was conducted on FBS.

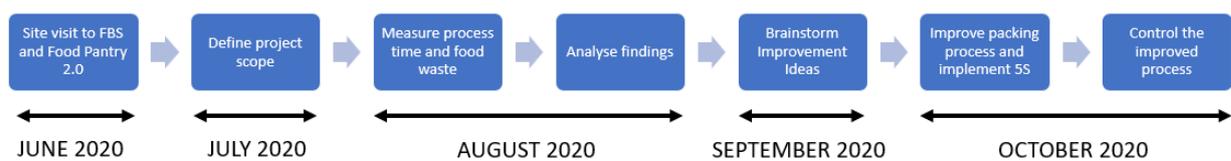


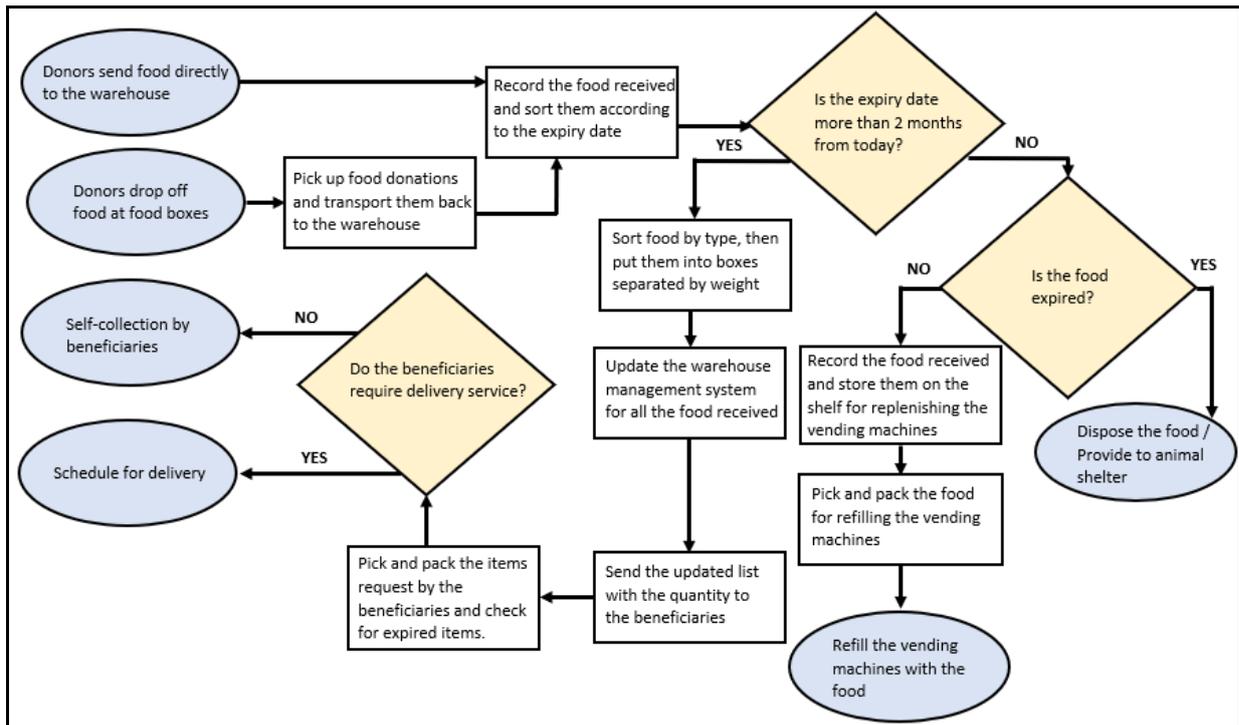
Figure 4 Research procedure of the action research project

### 3.3 Case Analysis

#### The Food Bank Singapore (FBS)

Based on the Global Food Security Index (2019), Singapore ranked the most food-secure country out of 113 countries. However, Nagpaul *et al.* (2020) revealed that 10.4 percent of Singaporean households experience food insecurity at least once a year. As public health is closely linked to population nutritional outcomes, there has been increased emphasis on food security even in developed countries (FAO, 2008; Paloviita, 2017). The Food Bank Singapore, founded in 2012, aims to eradicate hunger and

all forms of food insecurity in Singapore by 2025 by serving as the main body for coordinating all food donations and distributions throughout the country (Nagpaul *et al.*, 2020). The operation of a food bank as a distribution centre starts with inspecting the food donations received in its warehouse and storing them temporarily in different categories before distributing them to the needy via community service organisations (Gharehyakheh and Sadeghiamirshahidi, 2018). **Figure 2** shows the process of FBS in the distribution of food donations to its beneficiaries.



**Figure 2** High-level process map of FBS food distribution process

As most food donations are considered perishable products due to their short shelf-life, the complexity of maintaining the quality and quantity of food donations is compounded (Gonzales-Torre and Coque, 2015). Therefore, these activities to inspect and process the incoming donations and distribute the food to the beneficiaries incurred additional expenses (Melo *et al.*, 2016). To ease and resolve food insecurity, food banks face the challenge of providing sufficiently nutritious sustenance to food-insecure individuals in terms of quality and quantity while attempting to minimise food waste. It is a complex undertaking to predict demand and supply in this food support supply chain (Gharehyakheh and Sadeghiamirshahidi, 2018). Hence, the mismatch in supply and demand could lead to two adverse outcomes: (1) food wastage in terms of expired food and (2) food-insecure individuals/households who will not receive any food support (Mohan *et al.*, 2011).

As a non-profit organisation, the primary objective of a food bank is to serve the public rather than generate business profits (Glover and Poopunsri, 2014). As a charity in Singapore, FBS sustain through funding from its members, private/public firms, and through support from government agencies (Nagpaul *et al.*, 2020). With low financing, insufficient staffing, and lacking proper

equipment, non-profit organisations have to fully utilise their resources to deal with increasing costs and lower budgets (Arik *et al.*, 2016; Pieńkowski, 2016). The same goes for food banks, as they operate with limited resources and are highly dependent on food donations and volunteers (Melo, Martins, and Pato, 2016). Therefore, non-profit organisations such as food banks need to increase their effectiveness, productivity, and efficiency.

With the drive towards contactless and automated self-collection of food donations, FBS launched The Food Pantry 2.0 – food vending machines initiative in October 2019 with the pilot site in a centrally located housing estate in Singapore. The vending machines pilot site dispenses food bundles that contain mainly food items with a shelf-life of less than two months (Foodbank 2020.b). Currently, FBS is installing 100 machines within housing estates in Singapore (Foodbank 2020.b).

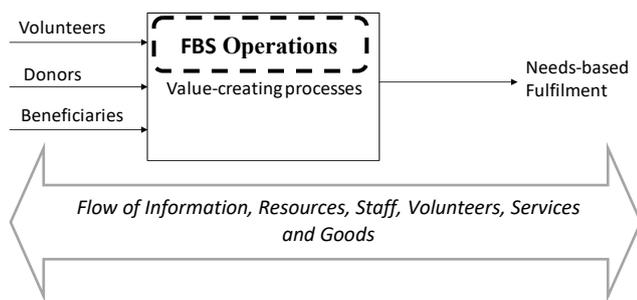
#### 3.3.1 Identifying Customer Values through listening to the Voice of Customer

To understand the Voice of Customer (VOC), one of the researchers served as a volunteer of FBS and initiated informal interviews with the customers of the vending machines to understand their dietary and daily needs and preferences. We conducted ten semi-structured interviews

at the case site to understand the flow of information, resources, staff, volunteers, services, food bundles, and necessity goods within the FBS warehouse and central distribution centre. Paloviita (2017) considers a sustainable food supply chain adept at responding to changing demands. Therefore, identifying the customer’s requirements allows FBS to customise the food bundles according to the customers’ nutritional needs. When the beneficiaries’ nutritional needs are fulfilled, there will be lower food waste resulting from expired and unpurchased food bundles.

### 3.3.2 Value Creating Processes

Funding and food donations can be sourced from corporate and individual donors based on the information about dietary needs and feedback provided by the beneficiaries. An essential aspect of the food bank’s value-creating processes is sorting and packing food donations and daily necessities that are heavily dependent on the workforce provided by volunteers. **Figure 3** shows the value-creating processes of FBS that require inputs from volunteers, donors and beneficiaries so that food aid delivery can be effectively and efficiently designed to meet the needs of the beneficiaries.



**Figure 3** Value-creating process of FBS case

## 4. FINDINGS AND DISCUSSIONS

### 4.1 Eliminate Waste

Food Bank uses feedback mechanisms to eliminate waste from their processes and focus their energy on the customers they can help the most. An FBS effective feedback channel is its extensive application process (Foodbank 2020.a). The application process includes home visits, a financial review, and workshops, among other requirements (Foodbank 2020.a). In this way, Food Bank can ensure that they only work on projects with customers who genuinely desire to better themselves and are ready to take on such an endeavour.

Similar to the food sorting and distribution practices reported in Mohan *et al.*, 2013, the food donations are being checked for damages and expiry dates before bundling and distributing them. These practices were carried out in the FBS warehouse when food donations were received.

### 4.2 Produce Only to Customer Demand

Demand for the services of Food Bank is evident among the people of Singapore. For the case of FBS, a Food Delivery Point (FDP) model is used. This model envisions the concept of satellite locations which provide several fixed locations for community service organisations to pick up their food as a solution to a food bank’s limited

transport and staffing capacity constraints. Similarly, a hunger-relief organisation in North America, Feeding America, introduced the Mobile Pantry Program that uses delivery trucks to distribute pre-packed food boxes to the needy and provides them with the option to customise their food bundles (The Global FoodBanking Network, 2018). In India, the Dabbawallah adopted the hub-and-spoke approach for their food delivery operations combining milkman route and inter-hub transfers (Mahadevan, 2021).

Besides looking at the different channels to transport food aid to the beneficiaries, it is important to consider the different forms of food support such as ration bundles, cooked meals or vouchers. These ration packs can be standardised by individual food support organisations or customised according to the beneficiaries’ preference (Glendinning *et al.*, 2018). The latter method enables food support organisations to match the beneficiaries’ needs better and reduce wastage by providing food that beneficiaries require. However, the choices were limited by the type and quantity of food donations that food support organisations receive. Therefore, it can be challenging to fulfil the request of each beneficiary completely.

For the FBS, the concepts of using FDPs and food trucks as a common location for reaching out directly to the needy individuals and households together at a single point coincide with the idea of redistributing food donations via the use of vending machines in the concept of **Food Pantry 2.0**. The Food Pantry 2.0, launched in 2019, took over the previous food pantry stall operations located in a central region of Singapore (Foodbank, 2020.b). The Food Pantry 2.0 is located in a mature estate. It operates as an automated platform for dispensing food bundles on a 24/7 basis, targeted at food-insecure individuals/households (Foodbank, 2020.b; Foodbank, 2020.c).

Needy individuals/households identified by Family Service Centres are provided with a “Bank Card” pre-loaded with 50 credits every month to redeem up to 25 bundles that cost two credits each via the Food Pantry 2.0. As both Glendinning *et al.* (2018) and Nagpaul, Sidhu, and Chen (2020) agreed on the difficulty of identifying and providing food support to every food-insecure individual/household due to the social and emotional stigma of receiving food support, the general public can also purchase food bundles for \$2 each.

As the Food Pantry 2.0 dispenses food that has less than two months of shelf-life, its operation is similar to the social supermarket concept suggested by Glendinning *et al.* (2018) on pricing food near the expiry date at a significantly lower price. Unlike a physical supermarket that must be managed by available staffing, food bundles are available 24/7 through a vending machine. Furthermore, there is the benefit of reducing the operating costs in transport and workforce. Therefore, Food Pantry 2.0 aims to provide 24/7 food support through affordable and nutritious food accessible to food-insecure individuals/households.

The number of locations where the vending machines are located is slowly increasing from a single site in Singapore to three additional areas at the time of this research. The objective is to increase the productivity and efficiency of the food supply activities based on the needs of the beneficiaries in different regions of the island (See and Tay 2021). With the launching of more vending

machines sites, FBS is operating toward a hub-and-spoke approach because the food donations are collected in strategic locations through donation boxes before being processed and bundled in the FBS warehouse to replenish the island-wide vending machines.

### 4.3 Strive for Perfection

The last Lean principle found in Food Bank is striving for perfection. As exemplified by Toyota, perfection is a philosophy that must permeate even the lowest levels of an organisation or company. When the philosophy of perfection is integrated into a company's organisational structure, it will trickle down into its conduct, increasing the value customers receive from its performance. According to Tanudiharjo *et al.* (2021), organisational culture plays a critical role in lean implementation success. The work environment, employees' perspective toward the organisation, willingness to adapt to lean working methods and the time frame provided to employees for lean implementation are critical factors linked to organisational culture (Tanudiharjo *et al.*, 2021). Further, Mahadevan (2021) agrees that culture is essential in implementing lean processes in an organisation. Therefore, FBS regularly appraises what they expect from their employees and customers to strive for perfection.

## 5. THEORETICAL AND PRACTICAL IMPLICATIONS

Like FBS, many non-profit organisations are focused on fulfilling the beneficiary's needs. Still, a standardised process-oriented approach to ensure equity and continuity of needs and service fulfilments is often absent. Adopting Lean management principles can aid non-profit charity organisations to work in a more standardised and process-oriented approach and provide an institutionalised way toward customer-centricity. Reflecting on our experience of Lean implementation in FBS, the following elements are essential for Lean management in non-profit settings of (1) Customer Focus, (2) Active Leadership, (3) Staff Engagement, (4) Process-oriented approach, (5) Continuous Improvement, (6) Evidence-Based Decision Making, (7) Stakeholders Management.

Lean management takes a customer-centred approach with attention to leadership, learning and continuous improvement. In the case of FBS, the above components are elucidated as follows:

### (1) Customer focus

Engelseth (2015) suggested that the marketing perspective is vital in understanding the customers' requirements to achieve customer satisfaction. The core mission of the FBS is to eradicate hunger and all forms of food insecurity in Singapore by the year 2025 (Foodbank, 2020.a). The core tenet of Lean management that emphasises continual review and improvement makes sure that organisations take time to regularly review the needs and the expectations of both the end beneficiaries, donors and other stakeholders in the community by taking into account their feedback on the activities. These regular reviews can guide decisions and point out where improvements are needed. Not only is this helpful to reach the expectations of the beneficiaries, but it also improves

efficiency and frees up resources and time to help more people.

### (2) Active Leadership

Involvement and commitment from the top management and leadership play a vital role in shaping and sustaining the non-profit organisational structure and culture (Tanudiharjo *et al.*, 2021, ). Top management can be involved in the lean implementation during resource allocation, providing guidance on lean processes and training for employees on Lean methods and tools (Tanudiharjo *et al.*, 2021; Sohal *et al.*, 2022). A transformational leadership style is recommended for organisations adopting a lean approach. Such leadership style is regarded as having a strong influence on the employees to achieve the desired results (Tanudiharjo *et al.*, 2021). In FBS operations, the end-to-end food distribution processes are reviewed and anchored in the Lean management principles, described in five-year strategic plans, translated into quantifiable goals and projects. FBS translate these goals in its roadmap with its measurable objectives and tasks. An engaged team starts with having the right leader. Transparent and inclusive communication is vital when forming a well-coordinated and motivated team.

### (3) Staff Engagement

Staff engagement is done using various means, including involving the entire team in writing and improving the procedures, establishing different communication streams that encourage staff engagement, and supporting staff development from all levels to reach their full potential. The aim is to develop skilled and trained employees to implement and execute lean processes and drive the organisation towards continuous improvement initiatives (Tanudiharjo *et al.*, 2021). These elements will ultimately lead to sustainable corporate performance as employees of FBS are equipped with lean knowledge to carry out continuous improvement initiatives instead of relying on help outside of the organisation (Sohal *et al.*, 2022). Streamlined communication is a crucial factor as the organisation's Lean initiatives need to be conveyed across all levels of the organisation to equip staff with the proper understanding of the lean concept (Tanudiharjo *et al.*, 2021).

### (4) Process-oriented approach

One of the strategic goals of FBS is to work with high-quality processes based on clear standard operating procedures. Logistics activities must be designed to have an efficient flow of goods from the point of origin to the place of consumption in mind. Goods, information and funds between players along the supply chain are critical to producing effective results (Engelseth, 2015). Being process-oriented is essential as it assures that the advice given by the FBS team is consistent for every beneficiary in the same situation. When processes are standardised and documented, errors and waste can then be effectively identified and minimised (Tanudiharjo *et al.*, 2021; Sohal *et al.*, 2022). Every process within FBS is documented as standard operating procedures with a clear listing of the risks that must be monitored.

### (5) Continuous Improvement

Continuous improvement refers to gradual improvement in the quality of the outputs of a firm regularly (Chakraborty and Gonzalez, 2018). To sustain a continuous improvement culture in FBS, the Plan-Do-

Check-Act (PDCA) cycle underpins the basis of the quality management system in FBS operations. By following the Plan-Do-Check-Act (PDCA) cycle, the operation processes and procedures described above are subjected to regular revisions based on the inputs and feedback of stakeholders. After that, there are follow-up refinements and changes, regular risk monitoring, feedback, and ideas from FBS's full-time staff team and volunteers. Engelseth (2015) pointed out that the shorter the distance food travels, the more secure and safe the food is for consumption by the customers. As FBS deals with food with short shelf life, continuous improvement is vital to ensure that the shelf life is optimised for the customers. Customers are generally more satisfied when lead times are shortened from order to delivery (Tanudiharjo *et al.*, 2021). For internal operations, Chakraborty and Gonzalez (2018) have suggested the method of lean waste management, citing hospital operations as an example when improvements are made to the ordering, receiving and handling process to achieve shorter lead times. Similar observations and implementations shaped FBS's continuous improvement goal, as observed in their tracking of delivery, warehouse sorting and bundling process performances and lead times that form the replenishment process for the vending machines.

#### (6) Evidence-based decision making

Evidence-based decision making *based on facts and data* is an essential business principle of FBS. This adds value to planning and development by providing real-time data and results. The identified strategic and key operational indicators to monitor the ongoing food distribution services enable FBS to learn from the past and strive for continual improvement. Although Tanudiharjo *et al.*, (2021) recommended using simulations and forecasting to manage the production planning process, such an approach may be unsuitable for FBS due to the nature and uncertainty of food donations. The food supply is largely dependent on the type of food donated to FBS. Still, the type of food items provided to replenish each vending machine can be tracked to optimise the allocation of food bundles to each location. FBS track the shelf-life of their inventory and have visibility on the daily availability of volunteers to coordinate their operations by sharing vital information via a centralised information system, which is a common practice echoed in the literature to reduce operational uncertainty and coordinate operations (Chakraborty and Gonzalez, 2018).

#### (7) Stakeholders management

FBS has expanded the identification of the relevant stakeholders both inside and outside the organisation. Their expectations, risks, and opportunities are analysed and evaluated annually to ensure a continuity of reviews of community needs. Hence, information sharing is an essential factor for stakeholders management. Mahadevan (2021) revealed that information sharing adopted by the Dabbawallahs in their food delivery operations consists of scheduling and network planning approaches. Such an approach allows various internal and external stakeholders to have visibility and synchronise all stakeholders on the operations (Sohal *et al.*, 2022). Information on manpower availability must be shared as FBS relies heavily on volunteers. Timely communication is critical to resolving inventory issues (Chakraborty and Gonzalez, 2018). It

affects the delivery and replenishment schedule of the delivery vehicle fleets for the food pantry. As FBS relies heavily on volunteers for its operations, these stakeholders are considered suppliers of goods and services. Therefore, communication is critical, especially when faced with low inventory levels and the need to perform urgent deliveries when food bundles are redeemed faster than usual, with the need to conduct replenishments earlier than scheduled.

## 6. REFLECTIONS AND CONCLUSIONS

Adapting Lean in non-profit operations such as FBS can enable non-profits to operate more economically viable and impactfully, realising long-term results. The case study showcased through the adaptation of Lean principles and the focus on VOC highlighted the importance of listening to the voice of customers – the beneficiaries and funders of charity operations. Non-profits need to establish a Lean management mechanism to enable dialogues so that the charity can listen effectively to the needs of both the beneficiaries and the donors. It is also critical to recognise the dignity of the beneficiaries by offering them the choice of food items within reasonable means.

This paper shows that VOC can be a powerful technique to listen to the needs of the beneficiaries in establishing a pull or needs-driven supply chain. Thus, charities should develop access to facilitate timely information exchange and communications to reach the beneficiaries. In addition, to improve the reach to hear from the beneficiaries and the donors, we need to consider both the hard and soft enablers - technology, techniques and instruments, and build trust and establish support and partnerships.

The FBS case shows that Lean management can positively impact the structure of a non-profit organisation, cultivating a culture that expects perfection from its employees, processes, and operations, which will benefit the non-profit's performance. Five core principles underpin lean management: (1) identify customer values, (2) focus on processes that create value, (3) eliminate waste to create flow, (4) produce only according to customer demand, and (5) strive for perfection (Stevenson, 2021).

Based on our experience and reflections on the Lean implementation journey at FBS operations, the beneficial results of non-profits operating under Lean principles are evident. FBS was able to serve beyond the surface level needs of its customers, form personal bonds with them, eliminate waste in their value-creating processes, and tailor its operations to the needs and desires of its customers (beneficiaries). They are bridging the gap between the supplies (donations) and demands (beneficiaries' needs) and achieving the three key priorities by gathering and listening to the VOC (beneficiaries being the customers in the charity sector). We conclude by offering three priorities that charity professionals should consider. They relate to the critical roles of the stakeholders in most charity operations, and they are essential to FBS's mission of eradicating hunger and all forms of food insecurity in Singapore. The first priority is enabling donors to donate right to meet beneficiaries' needs. The second priority is enabling FBS operations to serve the diverse beneficiaries'

needs better. The last priority is offering beneficiaries the “Dignity of Choice” of foods.

The charity and non-profit sectors face challenges related to resource constraints, limited funds, manpower and volunteers shortage that further exacerbate the need to optimise the use of resources (Arif *et al.*, 2016; Boardman and Vining, 2000). A needs-driven supply chain based on the Lean Management principles enables a pull system that facilitates charity organisations to meet beneficiaries’ needs more effectively (Sales and De Castro, 2021). Through this article, we call upon policy-makers, practitioners and academia to relook our assumptions of the needs and expectations of the beneficiaries, donors and funders and start listening and taking in the real needs on the ground. Lean principles can be used to set up an operations mechanism to listen to the voice of the customers, which includes the beneficiaries, donors and community volunteers. While doing so, organisations could also consider leveraging enablers such as digital technologies, techniques and instruments to build trust and establish support and long-term partnerships to ensure continuity of funding and resource for the longevity of charity operations that serve the needy in the community.

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