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A Social Entrepreneurial Effort to Ameliorate Food Insecurity: Obstacles and Opportunities Discovered

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Abstract
This paper describes the first level of a social entrepreneurial effort to enable supermarkets to donate surplus goods to food banks via an online Donations Management System (DMS). Interviews were conducted with seven supermarkets to explore their current practices. Results suggest that the established practices of supermarkets are sufficient in waste management and donation management and, as such, a DMS is not appropriate for that target.

By highlighting an approach that was not viable, results informed a further study of food banks to explore their needs, resulting in an opportunity to provide coordination services for inter-food bank supply being identified. The key conclusion of this current study is that food banks are in a better position to find innovative ways to manage their supply by working within their horizontal rather than their vertical network.

Keywords: social enterprise, food security, food banks
Track: Social Marketing

1. Background:
Supermarkets exist to create a profit through repeated sales of food products. In this process, they generate an amount of edible food waste. Food banks exist as a welfare back-up, providing food to people in need. The purpose of this current research is to examine how behaviors associated with food being donated from supermarkets to food banks could potentially be shaped by both parties contributing to the design of a Donations Management System (DMS). The product design link between supermarkets and food banks was facilitated by a university-based social entrepreneurial effort. Thus, this work relies on social marketing (regarding shaping behaviors) and social enterprise (in the development of a technology designed with the purpose of serving a social need). The underlying premise was that by involving both target markets (donors and recipients), a product could be co-created in such a way to facilitate efficient donation-related behaviors and, thus, deliver greater societal value.

Food security is the availability and access to nutritional and culturally acceptable food through constant, non-emergency sources (Allen, 1999; Gera, 2004; Riches, 1999, 2002; WHO, 2011). Food banks act within an often fragmented network of players, each with a role in ameliorating food insecurity. They largely operate without government support and rely on donations made, in cash or kind, to provide food parcels to food insecure citizens. The Christchurch Earthquakes of 2010 and 2011 placed particular strains on food bank stock; increased demand is both on-going and geographically shifted due to the residential displacement which has accompanied the repair and rebuilding of homes. Thus problems with both availability and access have heightened the social need and, accordingly, have provided the impetus to design a Donations Management System (DMS) that allows for the efficient distribution of food from those who have supply to those who have need.
This study identifies opportunities and obstacles in relation to modifying behaviors associated with food being donated from supermarkets to food banks. The current article reports the needs and concerns of supermarkets (the first phase of the overall study).

2. Literature Review:
The primary objective of a supermarket is to create wealth via repeated exchange transactions with consumers (Dixon, 1999). Operational practices lead to a certain amount of goods being surplus to an ability to generate profit (Alexander & Smaje, 2008; Tarasuk & Eakin, 2005). There are many reasons for classifying a good as surplus, including near-to-expiry dates, damaged packaging or ordering error (Tarasuk & Eakin, 2005). The challenge is in determining the method of disposal which provides the organization with the greatest economic advantages, while at the same time not hurting the organization’s image.

Food banks exist as a welfare back-up, to provide redistributed food to the food insecure within the community (Riches, 1999, 2002). The New Zealand Network against Food Poverty last estimated the number of NZ food banks to be 365 (McPherson, 2006) with core users being those who struggle with financial access to food; such as beneficiaries, the unemployed, or those on low-incomes. While some food banks operate under a large non-profit organizational body (for example, The Salvation Army), networking between food banks, and between supermarkets and independent food banks, is often ad hoc. While uncertainty in resource availability could pull formally affiliated groups together to strengthen their collective chance at survival, competition amongst not-for-profits (Weerawardena and Mort, 2006) could leave independent organizations more vulnerable to resource fluctuations. Resulting from the lack of any united organization or control, there is a lack of unifying protocols which qualify individuals to receive a food parcel, as well as inequalities in food banks receiving supply to redistribute (Riches, 1999, 2002). This can result in some food banks having excess resources, while others are unable to cope with demand. One approach to counter variability in resource availability might be in finding a way to pull unaffiliated food banks together with supermarkets under the umbrella goal of reducing a social problem that no one group could solve on its own.

Social marketing provides a basis from which solutions to the problem of food insecurity due to the uneven distribution of donated food might be conceptualized. We rely on Andreasen’s (1994) definition of social marketing as: “… the adaptation of commercial marketing technologies to programs designed to influence the voluntary behavior of target audiences to improve their personal welfare and that of the society of which they are a part (p. 110)”. As it stands, most supermarkets already have a process for dealing with their surplus goods and food banks have access to some level of supply. The challenge is in finding a way to make exchange processes between these two groups better. Required behavioral changes could be supported via technology but, before a technological solution can be built, more needs to be known about current donations-related behaviors, and what the motivations and obstacles might be towards changing these behaviors. This formative research step is aligned with Andreasen’s (2002) benchmarks for social marketing programs. Viewed through the lens of social marketing, supermarkets and food banks are target markets for a social enterprise-backed effort to introduce a web-based application that allows donations to be managed efficiently. For this technology to actually improve the current situation, it has to be used. For it to be used, designers must first have a broad understanding of what would motivate or prevent the targets to adopt a change in the ways they are currently servicing their needs. The product in terms of behavioral change is getting the right type and amount of food into the right communities at the right time. The DMS application itself could potentially facilitate...
convenient and easy exchanges between the target markets (gives the targets a “place” for the new behaviors to take place).

The proposed DMS directs the limited, existing resources into a social development opportunity, thus putting the effort into the area of social entrepreneurship (Kraus, et. al., 2014) as well as social marketing. Social entrepreneurship relies on the entrepreneur becoming aware of not only an underserved social need, but also on the creative ability to direct business innovations and processes into serving this need. The underlying mission of this form of entrepreneurship is not financial gain, but the fulfilment of social development and furthering the position of others in the community (Dees, 1998). This differs from the view of other authors who maintain that it is only when profit is earned that such activities can be classified as “entrepreneurial,” otherwise these efforts would be more appropriately termed as social service provision or social activism (Cukier, et. al., 2011).

Shaw (2004) has categorized social entrepreneurship along four dimensions:

- **Opportunity recognition**: An unmet, local social need is identified
- **Entrepreneurial effort**: A common vision and leadership drives the social initiative
- **Entrepreneurial organizational culture**: Initiatives are open to suggestions and creative in how those suggestions are embodied in design decisions made
- **Networks and networking**: Local networks are used to identify social needs and provide the contacts needed to obtain resources which could meet those needs

A university-based software applications design team fit Drucker’s (1985) concept of entrepreneurs as those who look for opportunities; in this case, opportunities to initiate social innovation and change. As food banks themselves are constrained by their social mission and financial resources, it would be unlikely that they could pursue a technologically-based networking solution without the support of a social entrepreneurship effort.

This design team built a prototype DMS platform product around four social goals:

- Reducing chronic hunger and food waste through the redistribution of surplus goods;
- Reducing the amount of food being wasted;
- Strengthening the capacity to reduce hunger and provide for those in need;
- Providing access to quality food (Hou et al., 2011).

The opportunity to ameliorate the problem of food insecurity was thus recognized and acted upon by the design team. Without the buy-in and cooperation of both identified targets, it was feared that the proposed product would fail. Therefore, the plan was for the product design effort to ensure that, by helping further the aims of one target, the other would not be disadvantaged. Understanding the individual targets’ needs set the basis for them to be integrated in a way that would pose the greatest likelihood for the objectives to be achieved.

### 3. Method

Stage one of this research was comprised of interviews with managers from Christchurch supermarkets. Of the 29 supermarkets in Christchurch, 23 were contacted for participation and seven agreed to an interview. The sample comprised a mix of urban, rural, and mall outlets with representation from four supermarket brands. All interviews were conducted between the 27th of February and the 3rd of March, 2012. Each interview was recorded using the iProRecorder on an Apple iPod Touch.
An interview script was developed based upon a literature review and the desire to understand each organization’s needs in consideration of a DMS. The qualitative nature of the research sought to discover insights not previously thought of by allowing for digression within the interview. Research questions explored the nature of disposal/supply problems encountered, how they are being solved currently and how a new system could potentially meet these needs in a better/more efficient manner. Questions of this nature align closely Interpretative Phenomenology Analysis (IPA). IPA focuses on personal meaning and sense-making in a particular context for people who share a particular experience (Smith et al., 2009). After all transcripts were analyzed as individual responses, the combined transcripts were used to discover themes which were then grouped together and named, taking into account variations in speech and comment.

The prototype DMS software that the supermarket managers were asked to comment and make suggestions on was developed around five key features (Hou et al., 2011):

1. Provide a platform by which supermarket managers can upload donations onto the DMS, to be viewed and accepted by local food banks.
2. Allow dual communication, whereby food banks can request certain items from members of their vertical supply network (where shortages exist). This feature mitigates the food bank’s need to purchase food from supermarkets or food wholesalers for redistribution, thus decreasing their costs.
3. Allow food banks to submit donations of excess goods onto the system. This feature reduces potential waste within food bank supply, given that storage room for inventory might be limited.

These first three features follow network design precepts to not be too structured but, instead, be interactive and flexible to individually defined needs, resources, and expertise. The base design allows for targets to work in a proactive, passive, or reactive manner depending on the situation for interaction and also allows for time-scales to vary from frequent to occasional interaction (Gilmore and Carson, 1999).

4. Enable supermarkets, over time, to select their ‘preferred destination’ once the relationship has been built. This feature rewards food banks who manage the relationship as agreed upon, potentially mitigating the sometimes unreliable impressions that food banks may make due to volunteer staffing issues (Riches, 1999).
5. In time and after consultation with the parent company of the supermarket, it was envisioned that the software would be developed to be able to be compatible with the inventory management system. This would allow the system to automatically ‘check’ which items are nearing the expiry date, and upload these onto the DMS software. By decreasing level of human interaction involved, time (a cost) is saved and system efficiency is promoted.

After explaining the basic DMS concept to the respondents, the first set of interview questions explored whether the application was viewed as practical in the context of current business operations, systems, technology and needs. The respondent was then asked to describe their role in making decisions about technology, with the goal of qualifying comments about how important certain product features would be. Perceptions about central benefits and barriers with regards to the adoption and implementation of a DMS were then explored. The next group of questions sought to uncover the form of the product, which features were thought to be necessary, and how the system should operate. Maintenance-themed questions followed with the goal of understanding failures which can take place, both in technology and the system of receiving donated goods. The purpose of the final questions was to assess the resilience of each organization in terms of how system outages could be tolerated without
imparing their desire to use the system. Given they would have had a resource investment in product adoption (time, information and synthesis with current systems) there will be some degree of resistance to avoid wasting committed resources. Overall, data were expertise and experientially-based, covering issues which have arisen in the past, may arise, or fears that respondents may have about how things can go wrong.

4. Results
Each of the supermarkets participating in this research have relationships with food banks imposed via their head offices. These corporate protocols specify which food banks to work with, but not at what capacity. Some outlets only use the customer bins (in which customers have donated purchased food at the supermarket) and some outlets add to this with goods which are able to be distributed (such as dented cans or label damaged stock).

Brand One is not allowed to donate items due to their Food Safety Programme (FSP):

The waste is either out of date product or damaged products (compromised packaging), therefore because of our (franchises) food safety programme; what we can't sell gets thrown out because we can't guarantee the safety aspect of things. So we basically throw those at a cost or we reduce to clear what we can *(if the product is still good to eat or use)*. Once the product is no good, out of date, we don't sell it - it goes down as waste and that is just a cost to the company. Thus, for security and health reasons, no donations can be made to food banks of products which are not in a saleable condition. This was confirmed by other supermarkets in the chain which were contacted. Uploading donations solely coming from customer bins would pose a high cost/benefit for the store and would not serve the established objectives. A DMS as proposed is therefore not appropriate for Brand One.

Brand Two has software in place which gives an electronic printout of all the products within the store expiring within the next two weeks, and effectively removes the prevalence of surplus goods within their stores.

As the goods come in (when they are scanned in to become live items) they have their (expiry) dates noted beside them. The system will automatically warn the manager when they are close to the date to be reduced and sold, and each manager gets a daily print-out… We tell the system how many items we have of one particular product, how many will actually fit on the shelf and when we want them to send us a box. With this new auto stocker system everything that comes in our back door pretty much goes out straight into the shop. They have minimal inventory storing only on-sale items; overall, a just-in-time supply philosophy. Goods declared as waste are primarily in an inedible condition. A DMS as proposed is therefore not appropriate for Brand Two.

Brand Three has the ability to implement technology of their choice.

We are working with software and we can choose to use things or not. It can be better if the whole group is using it and get everyone into it, but we can still choose things we want or not. We have a stock loss figure and we scan stock and take our losses.

The cost of purchasing and implementing software falls to the individual store rather than being brand-wide, and this directly impacts their choice of technologies. Thus, for financial reasons, Brand Three stores may be unlikely to adopt a DMS system unless it can be supported by an outside funding mechanism.
Brands Three and Four rely solely on human effort to check, rotate and know their stock.

There are dates on the product and it is up to the managers to rotate the products and make sure they aren't carrying any old stock… The clever ones manage it well and they know what is on the shelf when they go away at night.

Staffing competence therefore has the ability to impact the amount of surplus goods within these stores. While a DMS may be suitable for Brands Three and Four, estimates of the size of the target market (of New Zealand supermarkets) has been substantially reduced by this finding.

5. Conclusions

This paper communicates the first step of research backing a social entrepreneurial effort to ameliorate food insecurity, with the applicability of social marketing to this effort being described. Although it was initially thought that involving target markets in the new product design effort would increase the chance of product adoption, it was equally important that the barriers to product adoption be identified as this reset the expectations for who the target market should be.

Before social entrepreneurs can understand how to direct change to improve the social good, they need to recognize the ideas, attitudes, practices, and behaviors of the relevant actors as they are. In Christchurch, the problem of food insecurity exists, as does a potential aid to mitigating the problem, if ways to encourage the adoption of a Donations Management System can be found. What has been learned through the first part of this study is that the two groups initially envisioned as being the targeted adopters of this change, supermarkets and food banks, needs to be revised. Whether from operating standards, constraints posed by existing technology, the lack of willingness/ability to incur a private cost for a social good, the small size of the target market, or mere bad timing (“The amount of stock we have now that is able to be salvaged is very minimal compared to years ago. Maybe years ago it would have been good to have something when our backroom door was overflowing with damaged stuff”), innovation in changing the process of food bank donations is thought to be unlikely to occur unless there is flexibility in how the target market is defined. The reoccurring theme coming from those interviewed was that “what they are doing now works really well” wherein surplus goods are salvaged if possible, and anything else is either given to a pig breeder (who collects waste food), thrown out or added to the food bank bins at the store (in which food bank volunteers do the collection). In social marketing terms, these existing behaviors represent competition that are deemed to be too strong for a social entrepreneurial effort to overcome.

This first level of exploration (to assess the potential of a DMS network between supermarkets and food banks) did lead to additional opportunities being identified, just not between these particular targets. Rather, by highlighting paths that do not appear to be feasible, direction is given as to the importance of investigating alternatives, as identified in subsequent interviews with food bank managers. Recognizing that food banks can also be envisioned as organizations that are, at times, in the position to donate their own surplus goods to other food banks gave the guidance needed about who to consult in the next round of product design. As long as the social need is still present, investigating possible systems in which the DMS software could ameliorate the problem of food insecurity is still worthwhile.

6. Limitations:
The study is limited by its narrow geographic sampling reach. The concerns that supermarket representatives in the South Island of New Zealand might be markedly different from those in
the North Island or any other location. While the major supermarket chains were represented, there was no attempt to involved owners of independent food retailers who may have unique concerns or who might present unique opportunities to adopt different donations-related behaviors.

7. References:
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