

UBC Social, Ecological Economic Development Studies (SEEDS) Student Reports

UBC Electronic Waste Management Marketing Plan

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UBC ELECTRONIC WASTE MANAGEMENT

MARKETING PLAN



FSR MARKETING GROUP

April 15th, 2010

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EXECUTIVE SUMMARY

This report was commissioned by the University of British Columbia's (UBC) Electronic Waste Recycling Program (also known as UBC E-Waste) to conduct an extensive market research on three general themes: to capture the demand and amount of electronic waste generated by UBC departments, to assess the departments' willingness to pay for a recycling service and to find out the current awareness level of the existent of UBC E-Waste program as well as the environmental threat electronic waste poses. The FSR Marketing Consulting team was brought onboard to provide informed recommendations and solutions based on the research findings to the problems faced by UBC E-waste.

There are three overarching recommendations that complement each other to enhance UBC E-Waste program's service level. The first recommendation centres on creating a customer-focused business model that pushes for a stronger brand image with the key message of "recycling responsibly and reusing when possible." To do so, we suggest a new initiative to refurbish computers in working conditions and donate them on behalf of the UBC E-Waste program in partnership with undergraduate computer engineering students. In addition, we also recommend an automated service request form to solve communication problems between UBC departments and the E-Waste program. Secondly, our team recommends stimulating the demand for the UBC E-waste recycling program through the use of positive word-of-mouth in partnership with the Sustainability Coordinators Program. Thirdly, to take advantage of the different volumes of E-Waste produced by different departments and their respective price sensitivities, we suggest a pricing strategy based on price discrimination by quantity. Lastly, at the core of every recommendation, we heavily emphasize a thrust for creating awareness about the program and increasing preference over competing recyclers. Every recommendation in this report is heavily substantiated by the market research conducted and has as an aim to increase the quality of the service offered by the program. Finally, the suggestions made in this report are substantiated with field interviews and with the analysis of the Statistical Analysis for the Social Sciences (SPSS) computer software

It is our hope that the recommendations made in this report will help create a solid electronic waste recycling program that is self-sustained and that promotes the reuse and responsible recycling of all end-of-life products in the UBC campus.

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INTRODUCTION

FSR MARKETING GROUP

FSR Marketing Group was born in 2006 when Francisco Gonzalez, Sneha Sethi and Raquel Trinidad first met. Since then, FSR has worked in a variety of consultancy projects including Dan-D-Market, Wrigley 5 Gum and Starbucks Coffee. Our expertise area includes market research and consumer behaviour and, based on these skills, we create integrated marketing communication campaigns to help our clients meet their short and long term goals.



FSR AT WORK - COMMUNICATION COMES FIRST WITH US!

UNIVERSITY OF BRITISH COLUMBIA ELECTRONIC WASTE MANAGEMENT RECYCLING PROGRAM

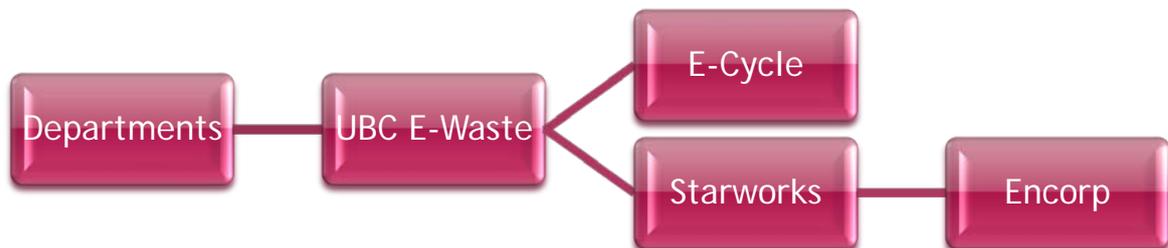
UBC's Electronic Waste Recycling Program (UBC E-Waste) operates as a division of the university's Waste Management Program and was founded to meet the electronic waste recycling needs of the UBC community. The program started three and a half years ago and operates as a non-for profit business-to-business (B2B) service provider. Their short-term objective is to become a self-sustaining waste management branch and to ensure that all electronic waste produced in the university is properly recycled in accordance with British Columbia's Electronic Stewardship Legislation.

Modus Operandi

UBC E-waste recycles two types of products: Tier 1 and Tier 2. Tier 1 products include computer-related items such as mice, computer monitors and keyboards. Tier

2 products are classified as non-computer related waste such as photocopiers, microwaves and mobile devices. The figure below describes the way the program operates. As a middleman, UBC departments contact the UBC E-Waste program and place an order with the waste management moving crew to pick up the waste. Once the products are brought to the building operations warehouse, they are sorted into Tiers 1 and 2. For Tier 1 products, UBC E-waste contacts Starworks, a company that packages and ships the waste to ENCORP. If the waste belongs to the Tier 2 category, the company E-cycle will be contacted and they will pick up the items for recycling. It is important to note that Tier 1 items are free of charge due to British Columbia's legislation, which pays ENCORP for the responsible recycling of Tier 1 items. UBC E-waste charges departments only a labor fee for the moving crew and a per-item fee for Tier 2 items.

Figure 1: Recycling Process



INDUSTRY BACKGROUND

In 1992, Canada signed the Basel Convention, banning the shipment of hazardous electronic waste to developing countries. Since then, British Columbia has become a world leader by taking steps to create public awareness regarding the environmental problem electronic waste causes and by facilitating the responsible recycling of electronic materials. As of August 1st 2007, the province levied an Environmental Handling Fee (EHF) on the sale of new products in the Tier 1 category. It also awarded Encorp Pacific Canada the contract to recycle all products covered under the Electronic Stewardship Act (mainly Tier 1), allowing Encorp to offer free of charge

recycling for anyone who drops electronics at designated “Return-it” sites. One-hundred percent of the revenues created by the EHF program are used to finance Encorp’s operations.

Naturally, there are other local recyclers that compete in the industry and that service businesses as well. The Electronic Stewardship Association of BC and the Basel Action Network are both non-for-profit organizations that audit and credit recyclers as responsible. It is important to note that although legislation has banned the illegal dumping of hazardous waste and mandates recycling, enforcement and policing of recyclers- legal or illegally -is not done and thus green-washing is a common practice.

CURRENT MARKET STRUCTURE

CONSUMERS

As a B2B operation, the core target customers of the UBC E-Waste program are UBC departments. The specific targets are decision makers that decide how to dispose of their department's end-of-life machines. These decision makers may be within the IT section of each department or they could be anyone in the position to contact their department's corresponding facility manager.

A secondary target is the rest of the UBC community: faculty, students, staff and campus residents. Consumers are segmented into these two categories due to UBC's E-Waste objective of being a self-sustaining program. It is only through strong demand coming from UBC departments that UBC E-Waste will be able to continue its position as a non-for-profit middleman. Thus, the focus of this report is on department decision makers.

MARKET SEGMENTATION

UBC departments vary in two criteria: size and type. The first factor measures the size of the building, disregarding its type or function. The rule of thumb states that the larger the size of a department building, the higher the chances that more electronic waste will be produced in that specific unit.

However, the type of work done in each department will also affect the turnover of electronic waste in a building. We chose departments based on the following criteria:

- Office and Administration
- Research Laboratories
- Teaching Laboratories
- Undergraduate Research
- Graduate Research

These types of departments are the ones that produce the most amount of waste in any given year. Based on this, we selected our representative and assorted sample of the UBC population to collect data for our report.

COMPETITION

E-Waste recycling is a competitive industry with several accredited and non-accredited players whose recycling processes are not thoroughly disclosed. However, the competitive framework for UBC E-Waste program is not a traditional one for

several reasons. First, the program acts as middleman, facilitating the collection of E-Waste on campus and by its partnership with Encorp and E-Cycle, ensuring that materials are responsibly recycled. As a non-profit organization, UBC E-Waste's main purpose is to provide a reliable solution for responsible recycling in the UBC campus. The program's objective is fulfilled as long as UBC departments recycle responsibly, even if it is not strictly through UBC E-Waste but through other certified recyclers. Thus, the way the term *competition* is usually defined in business does not apply in this special case. The dynamics of competition does not play a pivotal role for UBC's E-Waste program but it matters to the extent that competitors steal away potential market share.

Key Players in the Industry

Electronic Recycling Association (ERA): One of the most prominent recyclers is the ERA, with a strong online presence and 19.05% of UBC departments as their customers. They have operations in Alberta, Ottawa, Toronto and Montreal. ERA has a well-known electronic-refurbishing program that donates restored computers and other electronics to local charities. Their greatest advantages are their appealing pricing model, their online presence and charities' that promote good will. However, despite their reputation, they are not certified under the Basel Action Network or the Electronics Stewardship Association of BC.

Free Geek Vancouver: Free Geek Vancouver is very well known in the lower mainland and 19.05% of UBC departments utilize their services. They are certified under the Basel Action Network.

Genesis: The Electronics Stewardships Association of British Columbia approves Genesis. They have a strong pricing model that includes the membership option with additional benefits.

Graph 1: Competitors



MARKETING MIX

Product

UBC E-Waste offers the service of guaranteed *responsible* recycling for all electronics on the UBC campus. Staff, faculty and students can drop off their personal Tier 1 waste in small quantities free of charge. The recycling service for Tier 2 is only available to UBC departments. Please see Appendix A for labour charges and service fees.

Promotion

Currently, the program has its own website, www.recycle.ubc.ca/services.htm, in which they have posted their contact information and further address the problem and consequences of electronic waste. As part of the Waste Management Program, the promotional activities that our clients take part are usually in conjunction with other promotions for the organization as a whole. In an attempt to create awareness for the general UBC population, education workshops and incentives are employed by the waste management team. However, these efforts have not directly impacted the E-Waste recycling program nor have they been designed to specifically promote the program to departments. Examples of promotional efforts are:

Workshops: "We offer interactive workshops on a variety of waste management issues including composting, litter reduction and recycling. Workshops can be tailored to any age or interest group, perfect for summer camps, conferences, or as a motivational tool for your department."¹

Presentations: UBC Waste Management Program provides educational presentations for new employees and for educating “the campus community about new Waste Management initiatives as they are adopted, including [their] ongoing Wastefree campaign.”

Consulting: UBC Waste Management offers compost consulting for the campus community. “We will assist UBC staff, students, and faculty wishing to start a small scale compost project at their office, department, workplace, or business.” ²

Price

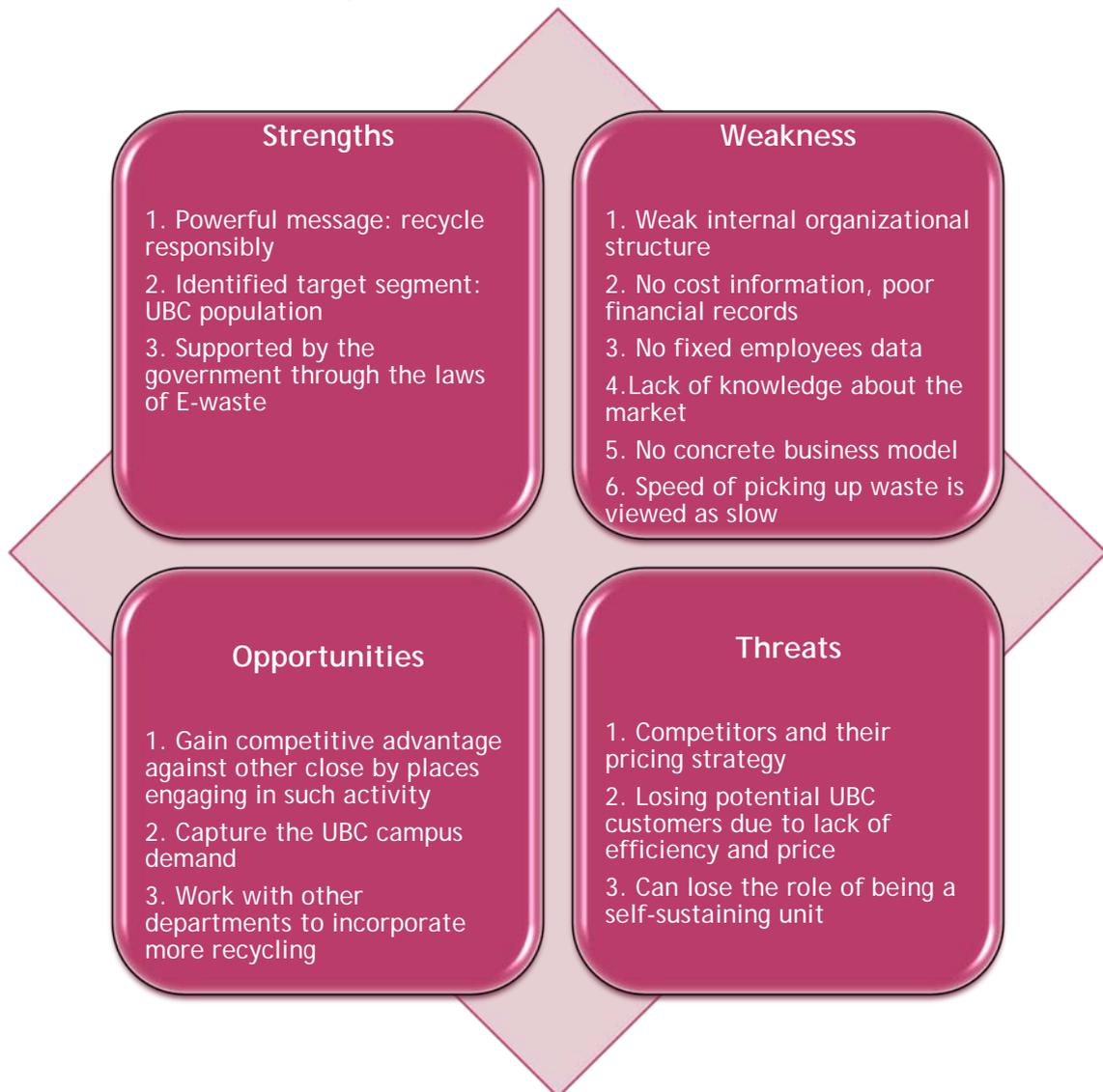
Unfortunately, since the program is at the early stages of development, our client has no information on how or why the current fees are chosen and were unable to provide us with any data on their current cost structure. Therefore, it is difficult to infer what profit levels or costs UBC E-Waste may expect to incur after taking our recommendations into consideration. Based on the organization’s website, UBC E-waste charges a labour cost of \$48/hr for pick up of e-waste items. In addition, the prices for each product are listed in Appendix A: Cost of Service.

Place

Distribution is already fixed at the Building Operations Warehouse at UBC. Currently, there is enough capacity in the warehouse to handle a larger influx of goods but it is not clear if the moving crew could be capable of answering an increase in pickup requests. However, issues of capacity and specific costs structures as well as scheduling are beyond the scope of this project due to insufficient data.

SWOT ANALYSIS

Figure 2: SWOT Analysis



MARKETING CHALLENGE

PROBLEM DEFINITION

We have identified four main problems that hinder UBC's E-waste program ability to become a self-sustaining branch of the Waste Management program and its objective of encouraging campus to recycle responsibly.

1. **The ambiguous current business model of UBC E-Waste.** The relationship between intermediaries, customers, employees and employers, and UBC departments shows a lack of organizational structure and communication. Thus, based on our discussion with the program's stakeholders, we concluded that the organization employs a Business- to- Business (B2B) model that needs to be further improved.
2. **Lack of demand structure and forecast of recycling E-waste in the whole of UBC population.** UBC E-Waste has very limited knowledge, mainly due to a lack of market research, on the quantities of e-waste turnover by departments. Our team had no solid benchmark on how to proceed with the cost or budget calculations in conducting market research. Thus, we had to rely on making various assumptions which are stated accordingly in the following sections of the report.
3. **Difficulty in trying to build awareness, participation, and promoting their service to the target audience** (For the purposes of this project, the department decision makers). Because this is a relatively new program with a weak value proposition for the service, customers are not aware that such a service exists in UBC and are unfamiliar with the concept of "recycling responsibly."
4. **Consumers' willingness to pay for UBC's E-Waste service.** The UBC community is a price sensitive target population. Thus the slightest change in price will lead consumers to use a competitor's service. We will provide recommendation on a solid pricing strategy to build a competitive advantage.

MARKETING OBJECTIVE

After extensive analysis of the main problems identified above in collaboration with our clients, we have defined our marketing objective as follows:

To evaluate the demand, consumer perception, and willingness to pay for UBC departments, especially their decision makers, in utilizing the UBC E-Waste management services and consequently increase awareness and participation through promotional schemes.

METHODOLOGY

In order to develop a suitable and sustainable marketing strategy for our client, our team conducted extensive market research to gauge the size and determine the nature of the electronic waste demand at UBC. Our **first step** was to prepare a list of UBC departments to survey and design the appropriate questionnaire. Since our clients had no data we could rely on, we had to use two non-probability sampling techniques, judgemental and snowballing sampling. The judgemental sampling method is used when the researcher selects the units to be sampled based on personal knowledge and information at hand. We selected departments based on occupational use with the underlying assumption that research, teaching, offices and administration facilities will produce more electronic waste than other facilities. The second method used, snowballing, entails finding new research participants, referred from existing study subjects. For instance, we started surveying the Sauder School of Business and were re-directed to the decision - maker of the Engineering and Leonard S. Klinck (LSK) building department.

We had to employ these surveying techniques because there was no list given to us of the exact decision makers for each department. We collected back our surveys from a total of 22 departments out of the 30 that we initially targeted, obtaining a 73.33% response rate. Our surveys were both paper- based and online questionnaires. (Appendix B: Survey Sample).

The **second step** was to analyze our data using the Statistical Package for the Social Sciences (SPSS) to uncover demand trends, attitudes, awareness level and the willingness to pay of our respondents.

Methodology Limitations

Although our team conducted research as carefully and as consistent as possible, there are methodological limitations that must be addressed in order to improve the

extrapolation of results to the entire population. The first limitation lies in the non-probability sampling techniques used. Employing these techniques requires several assumptions regarding the UBC population of interest, placing limits on how much information a sample can provide about the population. Extracting information about the relationship between the sample size and the population is also limited. However, when you observe the sample size in proportion to the population size, the amount of surveyed subjects in this report is statistically significant.

Our second limitation lies on our survey design and questionnaire which was done in collaboration with our client. The survey took about 7 minutes to complete which may have been perceived by some respondents as too long. Some response biases include the problem of perceived anonymity or the wish to provide socially desirable answers. However, what we consider most important is the issue of telescoping, where respondents might have provided inaccurate answers from memory when asked how much waste they recycled in a typical past year.

ANALYSIS AND RESULTS

After administering surveys to approximately 25% of the UBC department population, we used both qualitative and quantitative analysis to understand the four problems defined in Marketing Challenge Section.

ANALYSIS FOR DEMAND

The main objective was to quantify the demand for electronic waste in UBC. We used the SPSS software to compute two One Sample T Tests to determine if there was a significant demand for Tier 1 and Tier 2 products in order to justify the existence of the UBC E-waste program.

As observed in Appendix C (One Sample T-Test Results for Tier 1), we can assume that, with 95% confidence, there is an existing demand for recycling Tier 1 E-waste.

We then ran the same test for Tier 2 products only. For this case as well, with 95% confidence, we can state that there is significant demand for Tier 2 products (For a more detailed statistical chart, please refer to Appendix D: One Sample T-Test Results for Tier 2).

Having already proved that there is demand for both Tier 1 and Tier 2, we proceeded to quantify each Tier's demand more specifically. Graph 2 shows the demand for Tier 1 & Tier 2 items, illustrating that more than three quarters of the 22 sampled departments

Graph 2: Demand for Tier 1 & Tier 2



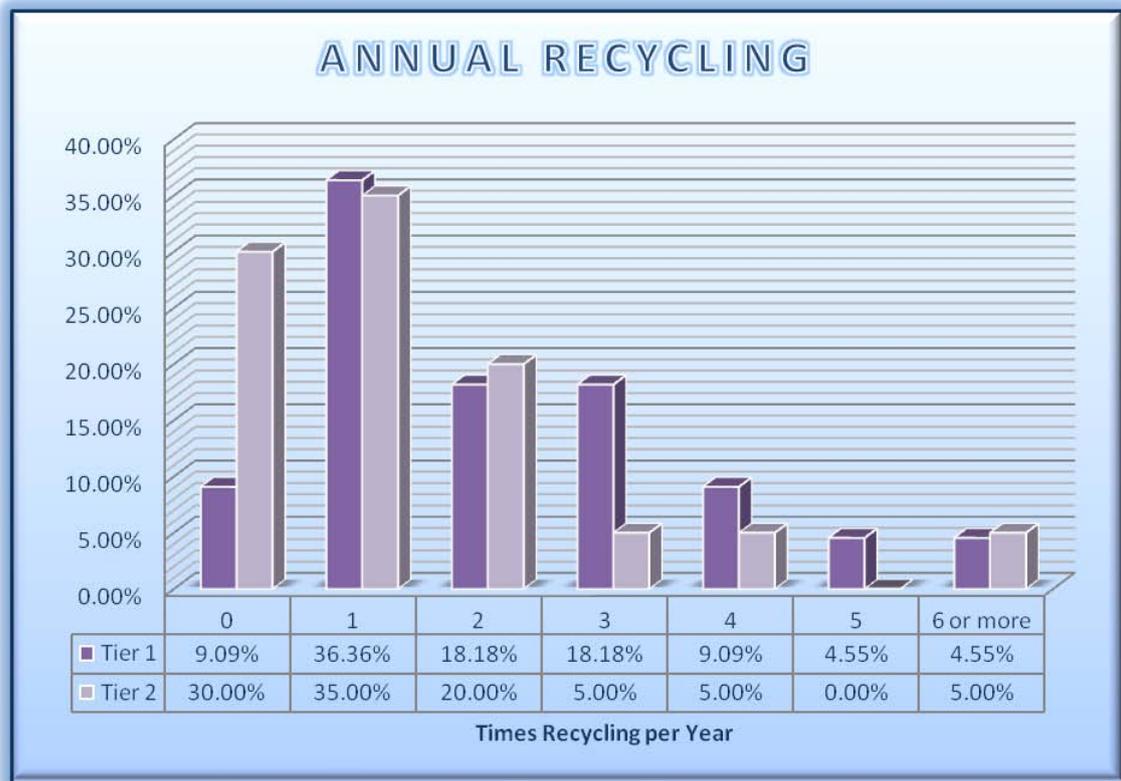
recycle both Tier 1 and Tier 2 products, regardless of price. In general Tier 2 is priced at a higher rate since customers have to

pay for their products to be recycled. However, the key finding is that regardless of price, departments do recycle.

When looking more in depth as to how many times departments are recycling annually, Graph 3 shows a positively skewed distribution for the survey question "How often do you recycle Tier 1 and Tier 2 items." This means that the amount of times departments recycle e-waste decreases as the percentage of e-waste recycled

in a year increases. Note that the smallest amount of e-waste is recycled 4 or more times per year. Most of the departments tend to recycle between 1-3 times (72%) for Tier 1 annually while Tier 2 is recycled only 0 to 2 times a year (85%). Also, it is important to note that 39% of electronic waste is not recycled at all, most of it Tier 2 products.

Graph 3: Annual Recycling



This analysis reveals that it is likely that departments stock up on their waste and call their recycler few times a year to dispose of it in larger batches. In addition, we wanted to observe the sampling distribution for the times a department calls a recycler in a year. Graph 4 below shows a decreasing trend in which fewer departments recycle their e-waste more often in a year. One must note that the skewness of both Graph 3 and 4 follow the same pattern. This is mainly a direct result from the positively skewed results of our data frequencies, where 75% of the departments contact their recyclers once or twice per year. However, note that the more a department recycles the more waste it tends to produce during a given year.

Graph 4: Annual Times to Contact a Recycler



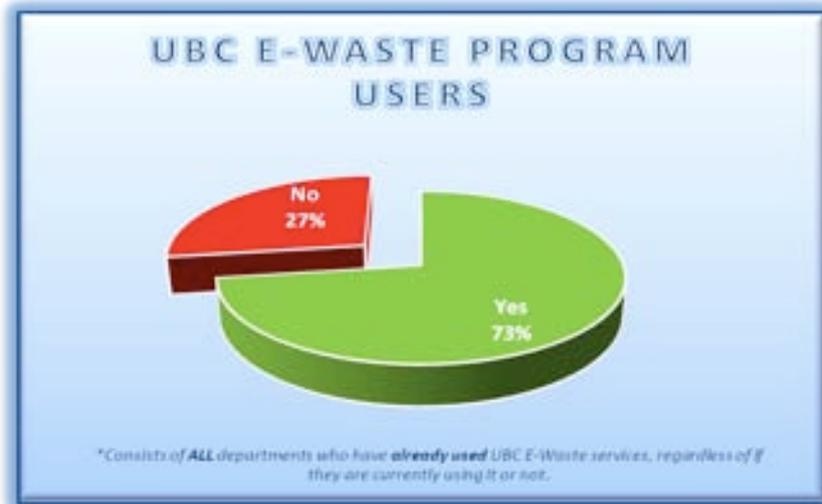
Knowing that departments only contact recyclers few times a year and recycle accordingly, we ran a Paired Samples T statistical test to contrast the demand for Tier 1 versus the demand for Tier 2.

As observed in Appendix E: Paired Samples T-Test Results, we can conclude with 95% confidence that the amount of Tier 1 recycled is significant and proportionally equal to the amount of Tier 2 recycled. This is of vast importance as a large part of the Tier 2 market segment is not being recycled nor exploited by UBC E-Waste and should be considered for future recommendations.

ANALYSIS OF AWARENESS AND PARTICIPATION

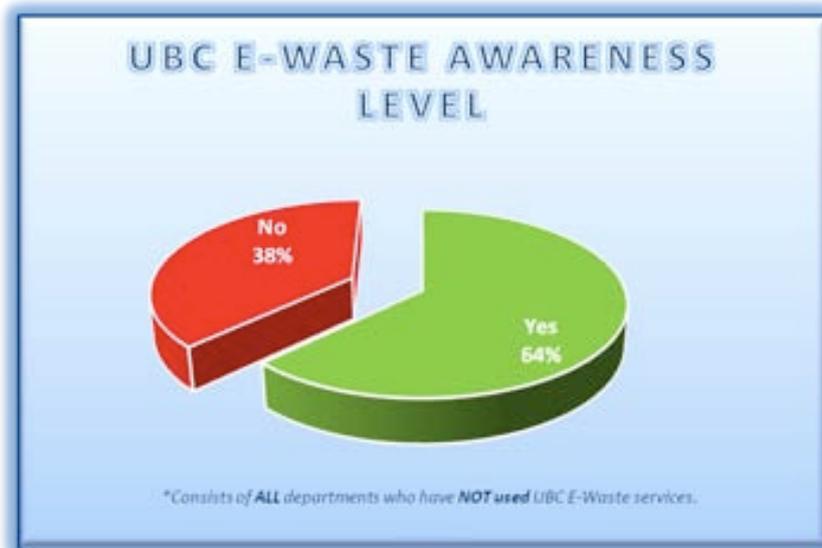
To determine the current awareness level at UBC, we asked whether respondents have ever **used** UBC's E-Waste program. If they answered no, we asked whether they have or have not **heard** about the program. As the graph below illustrates, 73% have used the program once before where as 27% have never used the program before. These users are an aggregate of people who have used the service in the past as well as current UBC E-Waste users.

Graph5: UBC E-Waste Program Users



Graph 6 displays the level of awareness from the non-UBC E-Waste users (the 27% of the respondents that answered “No” in graph 5). Interestingly, 64% of the respondents were aware about the existence of UBC E-Waste but still opted not to use it. From these results, we conclude that departments are well aware of the existence of UBC E-Waste but are not updated on how the process of the service functions.

Graph 6: UBC E-Waste Awareness Level



We now proceed to analyze the customers who claimed having used or still use the UBC service. Graph 7 shows that, of the 73% of the people that have used UBC E-Waste before (seen in graph 5), 69% do not use the UBC E-Waste service anymore. This was a key finding that revealed low customer satisfaction and low brand loyalty.

Graph 7: UBC E-Waste Customer Retention



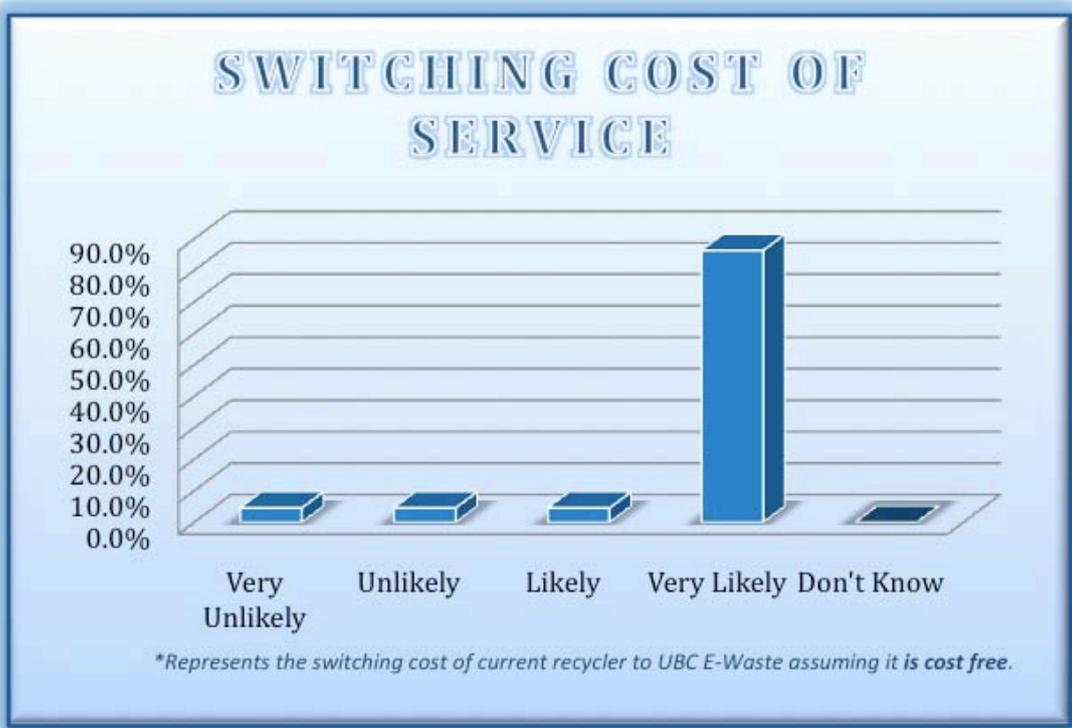
To understand why departments that were aware of the program chose not to use it and why departments that used the service once discontinued it, we allowed for open ended commentaries in the survey. The most common cited reasons were that UBC E-Waste service was “expensive, irresponsible, unavailable for their specific department to utilize, inconsistent with their delivery methods and the rules of picking up waste.” In addition, departments also complained that when they tried to contact the program, they would not get a reply. Two departments described the contact process as a “hassle” and they were told to look off campus.

Positive feedback from some departments include: excellent service, ensuring all items are recycled in a responsible manner, and convenient (on campus). These responses were from the current UBC E-Waste users only.

ANALYSIS FOR WILLINGNESS TO PAY

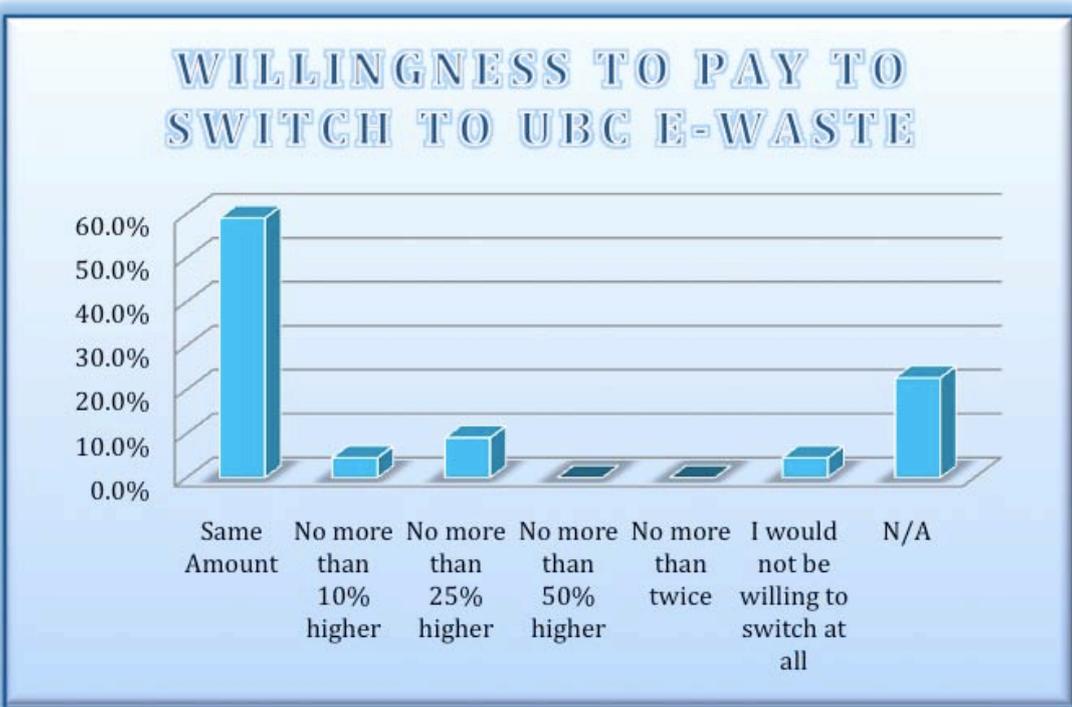
To measure the willingness to pay for UBC’s E-waste services, we first analyzed the price sensitivity of departments in general. As illustrated below in Graph 8: Switching Cost of Service, the vast majority of departments on campus would be willing to switch from their current e-waste recycler to UBC E-Waste if the cost of the service was free. This proves that their switching cost is inherently attached to the price of the service.

Graph 8: Switching Cost of Service



Knowing how significant the cost factor drives decisions, we analyzed the price sensitivity at different price points and switching costs to UBC E-Waste.

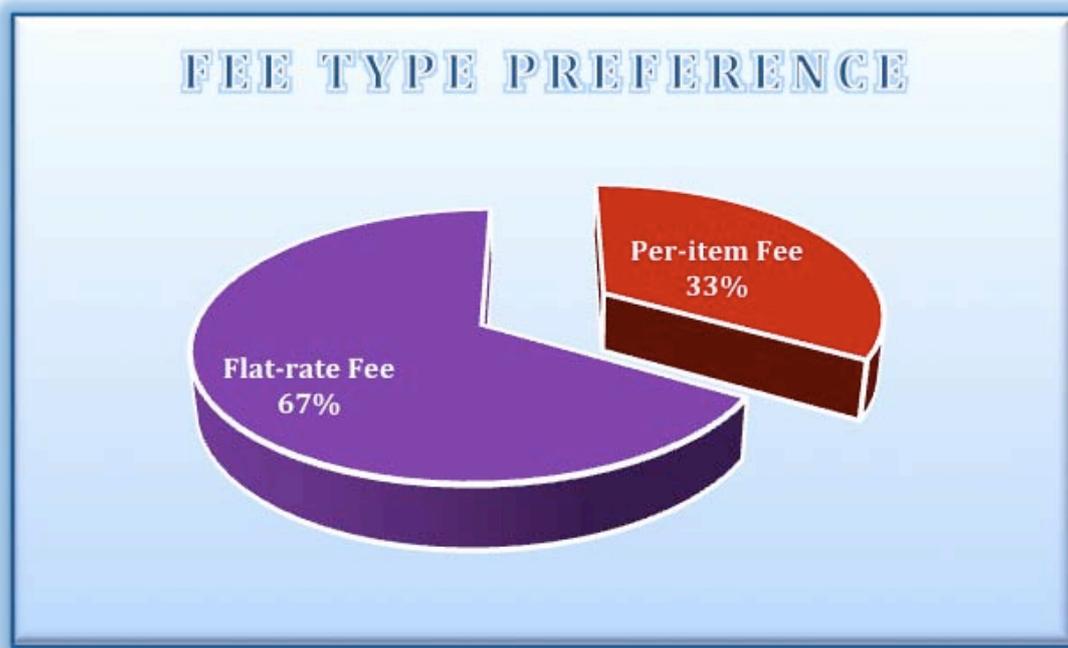
Graph 9: Willingness to Pay to Switch to UBC E-Waste



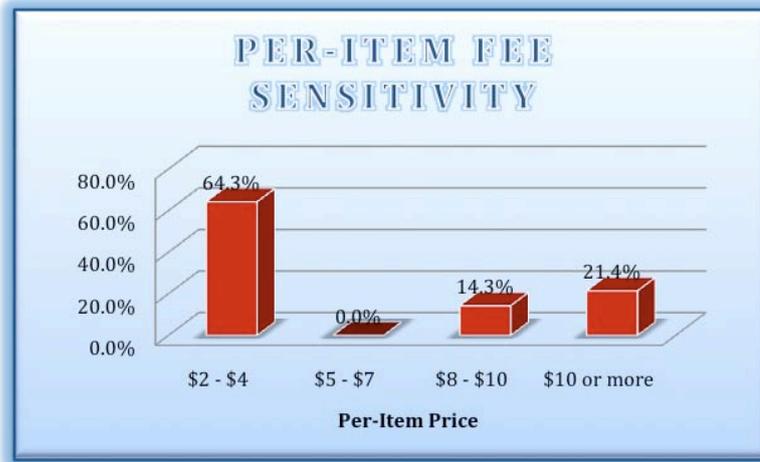
This graph 9 (above) is specific to the price factor. Note that this includes costs for both Tier 1 and Tier 2 and that some responses are considered not applicable since they correspond to departments that utilize UBC E-Waste services. The results demonstrate that more than half of the surveyed departments would be willing to switch if the fee paid was the same as the one they currently pay for their e-waste pickups where as 10% and lesser respondents are willing to pay a higher service fee. This means that UBC E-Waste incurs very high and challenging switching costs.

To further break down the price factor, we asked the subjects for their preference of fee type: flat-rate fee or per-item fee; 67% percent of the departments would prefer to incur the cost in a flat-rate fashion and 33% would rather have the payment method in a per-item manner (Graph 10: Fee Type Preference), the former aligned with the current fee pricing that UBC E-Waste charges.

Graph 10: Fee Type Preference



Graph 9: Per-Item Fee Sensitivity



Nevertheless, we analyzed the price sensitivity of per-item fee and flat-rate fee respectively. For the per-item fee (Graph 11: Per Item Fee Sensitivity), we observed that approximately 64% of the surveyed

population would only pay a range of \$2-\$4 per item whereas for the flat-rate fee, approximately 65% would be willing to pay maximum 50\$ (Graph 12: Flat-Rate Fee Sensitivity). On the other hand, we observed that the remaining 36% are willing to pay \$8 or even more per item while, in the case for the flat rate fees, only 18% are willing to pay up to \$100 and 12% are willing to pay

Graph 10: Flat-Rate Fee Sensitivity



up to \$200 per pickup. We can see a decreasing trend for the willingness to pay in the flat-rate fee as the fee charge increases.

With the breakdown of our survey findings what follows are the FSR recommendations to stimulate demand on campus, increase the program's awareness level and construct a solid business model.

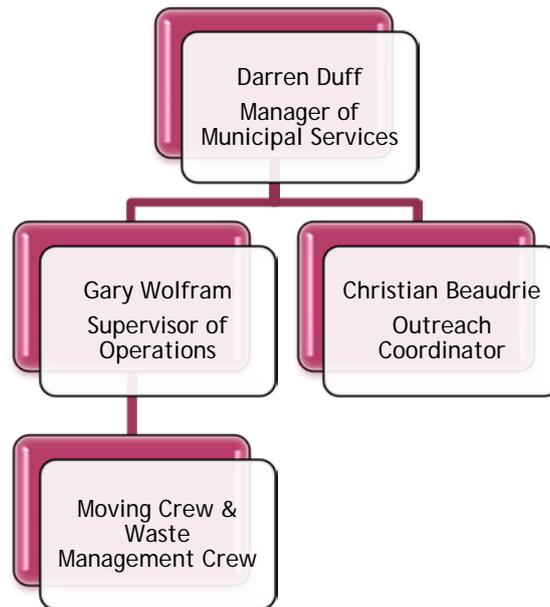
RECOMMENDATIONS

CUSTOMER - CENTERED BUSINESS MODEL

From our survey interviews and discussion with our client's representatives, Liska Richer and Christian Beaudrie, it became clear that there are several fundamental problems that need to be addressed before any marketing efforts can be made. When we first undertook this project, our team envisioned several marketing techniques that could be applied to generate more awareness and to establish a successful plan that guaranteed responsible recycling on the UBC Campus. However, it is a premise in the industry that advertising and promotion are a waste of time, effort and money if the customers cannot be properly serviced. We found it difficult to recommend any specific promotional material that would be able to be implemented due to the poor performance and current business model of the UBC E-Waste program. Therefore, we deem this section the most important one of our report as it is heavily supported by the commentary we received from the survey participants and our analysis.

The current organizational structure and flow of operations is hindering the program's ability to grow, to have an organized control of their customer base, and to set key accountable tasks for specific employees. The design of operations makes UBC E -Waste a middleman that has absolutely no control over how the money is collected and transferred from and to members. In other words, UBC E-Waste does not see any "money" in the entire process. What this causes is not only the inability to gather some funding for marketing and customer servicing initiatives, but makes it impossible to make any given employee accountable for basic tasks such as answering calls and questions or engaging in program improvement efforts. The organizational chart (Figure 3) is focused on the high level of management to the point that a clear description of the program's short and long term goals, mission statement, service level, partnership agreements, policies and more have not been formally instated. Unfortunately, this has made the program *less of a program* and more of an extra task happening at the building operations warehouse and a new part of the job description for the moving crew.

Figure 3: UBC E-Waste Current Organizational Structure



The solution to this is a new customer focused business model that centers in the two essential elements (as identified in the qualitative comments of our results) that customers require: speed of service and competitive pricing. However, we recognize that a business revamp strategy and business model is far beyond the scope of this project and thus the following recommendations are based on what we believe are identifiable, viable starting points of change for a better future of a UBC E-Waste program that accomplishes the mission of getting all UBC departments to recycle responsibly.

VALUE PROPOSITION

The value proposition statement formally explains how the business meets the customer's needs and why should they pick the company over any competitor. It frames the competitive advantages that the company has and it will help define the company's positioning in the market. Since the program follows a B2B model and from our research we understand that the key drivers of customer preference are speed and affordability; these two characteristics will be the corner stone of UBC E-waste program.

The UBC E-waste recycling program provides guaranteed responsible recycling and reuse when possible of all electronics at competitive pricing and with the convenience and mission to serve the UBC community to become a sustainable campus.

MISSION STATEMENT

Walking the Talk

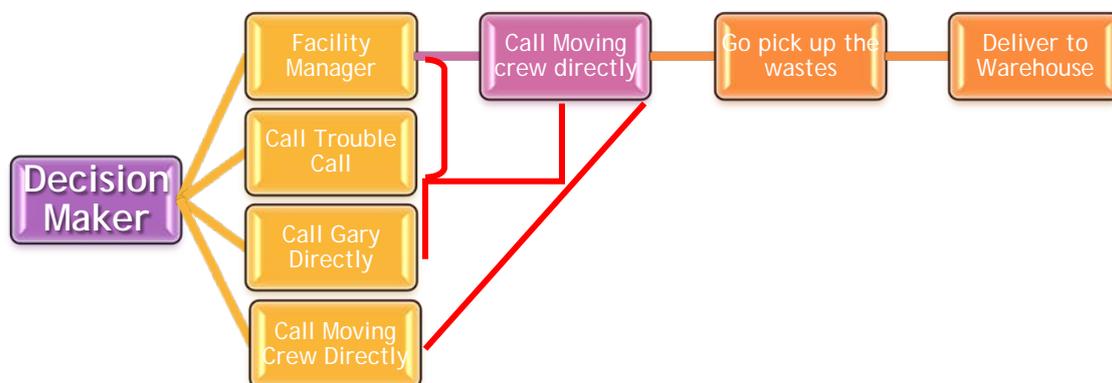
A company without a mission statement has no guidance as to what objectives should be set and what the performance expectations are. Even though the UBC E-waste recycling program is only a branch within a department that belongs to greater organization, the smallest business units within any large conglomerate must have a mission statement to inspire employees to be forward looking.

"To be the number one choice of the UBC community to responsibly recycle all electronics and to encourage the reuse, refurbish and donation of computers when possible"

AUTOMATED CUSTOMER SERVICE

UBC Housing is the prime example that we recommend UBC E-waste emulates. The housing program services thousands of students every year and is able to keep perfect record of applications, maintenance requests, payments, room assignments and more. Likewise, as we are recommending our client to establish a new business model, we believe that UBC E-Waste should make the effort to computerize their system. Their current way of operations (Figure 4) demonstrates a communication problem in which departments do not know what is the best way to contact UBC E-Waste Recycling.

Figure 3: Current Communication Process



DATA COLLECTION INITIATIVES

One of the major obstacles that the program faces is the absence of a data collection system. The program has no information regarding neither customers nor volume of collected waste. The lack of data has hindered the program's ability to improve at any level and has stopped them from making informed decisions, especially regarding pricing. The current prices charged for collection of Tier 2 items are arbitrary and we fear that this absence of strategy is a real threat to the program's existence. Simple changes to the chain of operations and designating staff to look out after data collection can make a difference in knowing what departments use the service and which ones should be targeted. For example, when the moving crew receives a waste collection request they usually answer it from 2 to 5 business days depending on the route they are on campus and their availability. They bill the department for the corresponding hourly labour charge and keep the money and receipts for their own purposes. A simple custom made notepad with carbon copies that the moving crew could carry around in the truck and have departments verify the information can generate records of quantity, day serviced, and amount charged. Furthermore, if the online request form were implemented this notepad would not be necessary or could serve as a backup hardcopy record. Whatever the system our client chooses to implement, it must be easy and fast to process reliable data collection.

ORGANIZATIONAL STRUCTURE CHANGES

Data collection will also help assign responsibility and hold employees accountable for tasks such as service level. However, a main obstacle to strategizing for progress with a clear leadership role is the program's organizational structure. In the organizational chart shown before (Figure 3), it is clear that the designated management team for UBC E-waste recycling program is too high level as their positions were not created for the specific E-waste recycling initiative. Furthermore, at the ground level, the moving crew is shared among the entire building operations and often times, too much responsibility falls into their hands, making it difficult for them to prioritize the amount of tasks they must do. In an informal interview a member of the moving crew expressed that the way the system was currently working increased their workload.

REVISED PARTNERSHIP MODEL

Show me the money!

Under the current system, none of the program stakeholders actually witnesses the exchange of money from departments paying the moving crew or the money used to

pay Encorp or E-Cycle for recycling electronic products. As a B2B and a middleman, it is almost inconceivable that the program has been operating for as long as three years without a clear financing option. We suspect that this has added strain on other resources such as the moving crew and the warehouse space. Furthermore, without any adequate cost model it is impossible that the program self-sustains and finances its own operations.

BUILDING A BRAND IMAGE

Refurbishing Computers Program and Other Initiatives

The communication strategy from UBC E-Waste program is to *recycle responsibly and reuse when possible*. A brand image should be built around this communication message. For this we propose the creation of a refurbishing computer program. The initiative could be run by volunteering IT engineer undergraduates to donate the refurbished computers. In addition, the other outlined initiatives (mentioned later in this report) will contribute to the brand image throughout campus.

PRICING STRATEGY

Options for our Customers!

According to our willingness to pay data analysis, a price discrimination based on quantity model will best accommodate departments' needs based on the frequency and amount of waste they produce. We suggest based on our membership plan (shown in Appendix F) that the more waste a department produces, the less they pay (in aggregate), ranging from a bronze to platinum plan. Heavy e-waste producers that recycle more than two times a year will find this pricing strategy more appealing as they will be able to pay a one time flat fee that is comparable to competitors' pricing and get the benefits of speed and convenience. A price discrimination model will also help UBC E-waste reap the benefits of each willingness to pay level for each department.

DEMAND STIMULATION

MORE, MORE, MORE CUSTOMERS!

Our survey results revealed two key insights about demand: firstly that 71.36% of sampled departments recycle only once a year and secondly, that 39% of departments do not recycle Tier 1 and Tier 2 products at all. These results provide an opportunity for the UBC E-Waste program to stimulate and capture this "untouched" demand in order to maintain as a self-sustaining program with a solid client base.

Incentive Coupons

To capture this (39%) demand we propose our client to implement a special incentive program with electronic coupons that are e-mailed to the 8 facility managers. For further information about the Facility Manager's role, please refer to Appendix J. These facility managers, at their discretion, will hand out the coupons to their departments. These coupons will be designed to guarantee a repeated purchase by only being redeemable at the time the department holder calls UBC E-waste for the second time.

For UBC E-waste to be a sustainable program, it is extremely important to encourage recycling of both tier products more than once a year. Our analysis confirms that there is sufficient e-waste turnover on campus to stimulate the recycling cycles departments go through. However, there is variability in the number of e-waste turnover that each department will produce as this depends on size and occupation. With this in mind, we have segmented departments into "heavy e-waste producers" (that recycle more than 2 times a year) and "low e-waste producers" (recycling only 1-2 times a year). For the heavy e-waste producers, we believe that the price discrimination based on quantity pricing strategy mentioned above will satisfy their needs. However, to stimulate low e-waste producers to dispose their waste more often, we recommend a slight change in the marketing communication message. The communication strategy entails preventing low e-waste producers from stockpiling their electronic waste. The message that we will communicate is that because labour cost is charged by the hour, disposing smaller quantities in the range of 10 to 20 items will not only increase the speed of E-Waste pick service but also reduce the hourly labour costs as it takes lesser time for the moving crew to pick up the goods and deliver to the building operations warehouse.

Finally, in order to capture the general demand for the UBC E-waste Program we have created a micro-campaign that involves the placement of posters and specific e-waste bins next to the usual three recycling bins of paper, plastics and compost. For the short-term, to lower promotional costs, we recommend our client to place the bin posters (Appendix G for Sample Advertisement) along with the three standard recycling bins (compost, paper, plastic bottles) that are already placed in multiple locations on campus. These posters can be placed within and outside building facilities. In the long term, an actual "e-waste bin" will be located at the most central location of every building. Each e-bin will start by having sample old batteries, computer mice and keyboards, in order to generate awareness that these products should be recycled as well. In addition, having only one e-bin facilitates the

collection of the small items that might be left there for collection by the moving crew. This will also help generate awareness amongst decision makers and staff members of all departments.

We would also like to draw our client's attention that the micro-campaigns recommendations are also applicable in the following "Generating Awareness" section. It is important to note that the objective to create awareness and stimulation of demand go hand in hand and thus there are positive spill-over effects in all of our recommendations.

GENERATING AWARENESS

Capture Attention!

One of the most important findings from our survey showed that there is a customer dissatisfaction issue that has led to the deterioration of both the image of the program and of the business. Consequently, in order to take steps into establishing a sustainable brand awareness strategy, we cannot fail to address this customer dissatisfaction issue. We have divided our strategy to cater to two different segments: 1) those who knew of the UBC E-waste program and actually used it but turned to another competitor and; 2) those who heard about the UBC E-waste program and yet decided to go with a competitor (Refer to graphs 5, 6, 7 above).

Once Were Customers, Now No More

Departments that discontinued the use of UBC E-waste's services have experienced cognitive dissonance and have taken their business elsewhere without UBC E-waste noticing. In order to address the negative image and announce the re-invention of the program, we suggest a massive professional memorandum that should be sent out to all facility managers and decision makers within each department. The memorandum should outline the value proposition the program offers and an incentive coupon stating that if the department previously used UBC E-waste recycling services and ceased, they should let us know and they will receive a free pick up. In addition, the revamped website should include a customer feedback form that is monitored frequently to keep track of the service level offered by the program. These recommendations are the beginning steps towards the building of the program's brand and the reinvention of services. Furthermore the two step process of sending out the memorandum and supporting its claims by the incentive coupon and customer feedback form provide visible changes that will help restore the programs' credibility.

Customers Who Heard About E-Waste But Did Not Care

Convincing customers who know about the program and yet decided to use competitors requires a strategy that helps change their attitudes towards UBC E-waste and strengthens the perceived value of the program. For this we have three very specific recommendations that include channelling word of mouth, updating the website and a recognition badge for UBC E-waste recycling users.

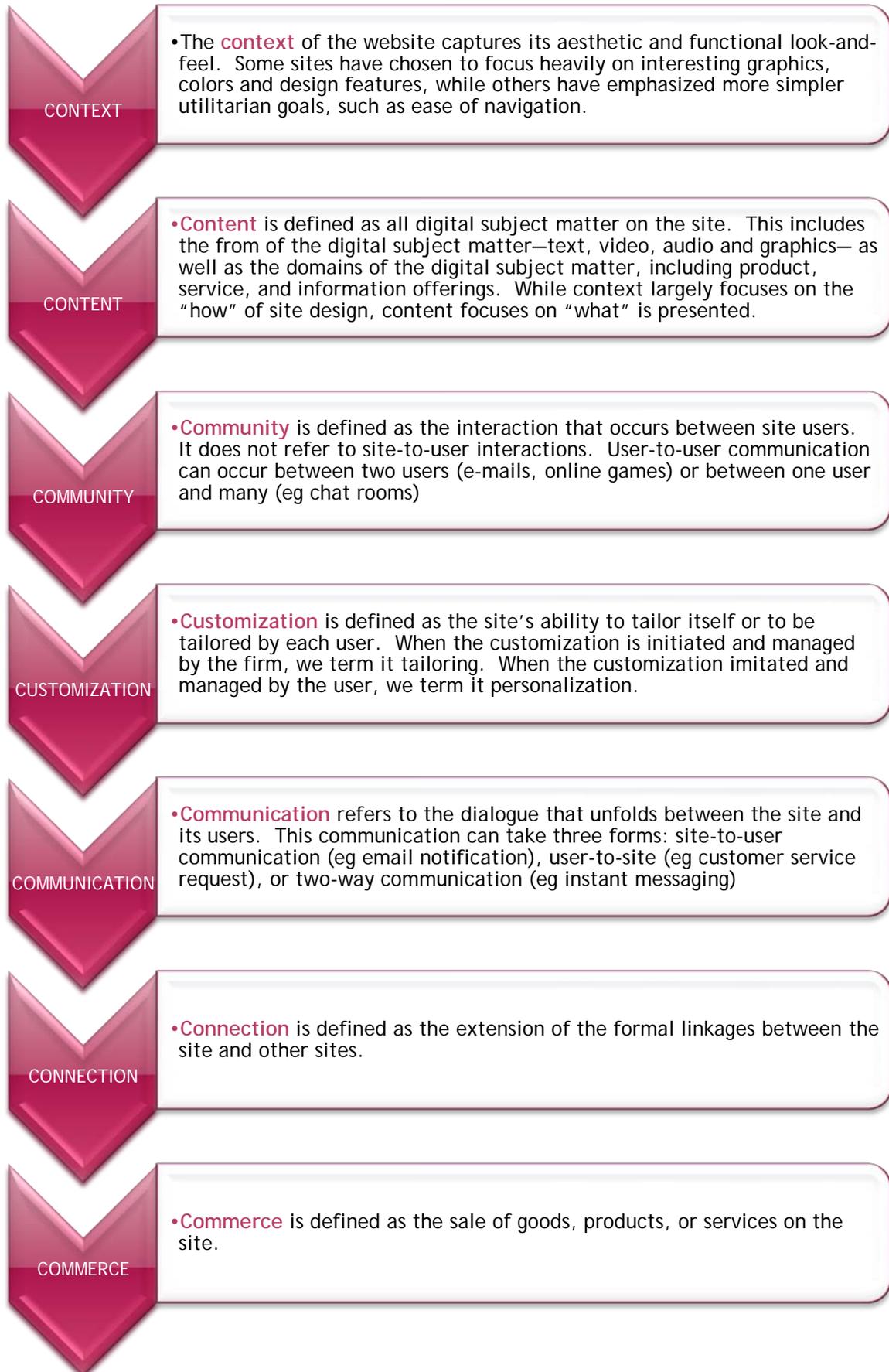
Talk, Talk, Talk: Word of Mouth

Channelling word of mouth will entail a cooperative partnership with the Campus Sustainability Coordinators (SC) and their program to establish a cross promotion campaign. Information about UBC E-waste should be displayed on their website and training should be provided for their volunteers. The role of sustainability coordinators on campus is very important as their programs aim to develop support, awareness, skills and tools necessary to foster sustainability in their department. It is important to note that although being an SC is a full time job, active initiative should be taken on the side of UBC E-waste management in order to fully take advantage of their services.

Revamping the Website

Suggestions to revamp the UBC E-waste website could be an entire report by itself. Our understanding is that as of now, a new website development project is currently being developed. We suggest the use of the Seven C's for a website design framework can help obtain a flexible design making use of the expectations of web 2.0. The 7 C's framework is as follows (Figure 4):

Figure 4: 7 C's Model



In order to maintain and improve the new website, Appendix H displays a feedback form that allows you to keep track of the website's status. This checklist will give a raw score that indicates if there is a problem with the website and which area the problem is arising from.

Who Wins The Most Sustainable Department Award in UBC?

Our final suggestion ties in the sustainability coordinator's partnership effort and the revamping of the website in an effort to produce brand awareness and recognition. We are suggesting the creation of a special award badge that is given to departments that recycle with UBC E-waste under a certain designated quantity. In addition, such departments will be encouraged to make the effort to donate electronics that can be refurbished for donation. The badge can be displayed on the department's micro-site. For example, a badge shown like the one in Appendix I states that if the Sauder School of Business were to be awarded the badge, it could be displayed saying "The Sauder School of Business proudly has recycled 420 computers in the past year through the UBC E-waste Recycling program and through them, donated 60 refurbished computers to Kids for Learning Kenya". This badge has two positive effects: it helps increase awareness of recycling responsibly and reflects positively both on the department and on UBC E-waste. It also creates a switching cost and commitment to the program.

CONCLUSION

If UBC E-Waste recycling would like to implement our suggested recommendations, they need to do further research on the internal and external implications and costs of implementing our programs. Internally, they need to analyze the options they have to improve the organizational structure and sequence of operations. Re-organizing the organizational structure is particularly important to establish responsibilities and make stakeholders and staff members accountable for the adequate functioning of the program. The sequence of operations merits more careful analysis to establish a better way to finance the program's activities and make it a self-sustaining program. A non-profit organization means that they reuse their funding to enhance the program, but as it is, UBC E-Waste recycling program "piggybacks" from the resources of Building Operations leaving many loopholes in their current cost structure.

Externally, the program should explore the possibility of partnering with the Engineering Undergraduate Society and promote the refurbished computers program. It is also of utmost importance that the website is updated and that the communication chain is fixed. FSR would like to advise our client in saying that the longer time it takes to implement the changes, the harder it will be to regain credibility, to establish a presence on campus and to overtake competitors.

APPENDICES

Appendix A: Cost of Service

UBC PLANT OPERATIONS

WASTE MANAGEMENT E-WASTE DISPOSAL

ITEM	UNIT PRICE	Qty.
<i>Free of charge - Part of the BC electronics recycling program</i>		
CPUs	\$0.00	
Monitors	\$0.00	
Laptops	\$0.00	
Keyboards and Mice	\$0.00	
Printers	\$0.00	
Systems	\$0.00	
TVs 21" and over	\$0.00	
TVs under 21"	\$0.00	
<i>Not part of the BC electronics recycling program</i>		
Battery Back Up (UPS)	\$20.00	
Box of Wires	\$5.00	
Confidential Shredding per Box	\$5.00	
Microwaves	\$10.00	
Miscellaneous	\$9.00	
Movie or LCD Projector	\$6.00	
Photocopier	\$25.00	
Photocopier full size	\$30.00	
Record Player	\$6.00	
Scanners	\$5.00	
Server	\$8.00	
Stereos	\$10.00	
Typewriter	\$6.00	

WORK REQUEST:

Please note that a labour charge of \$48/hr may apply for pick-up of your ewaste items. For more information please contact: operations@recycle.ubc.ca

SURVEY: UBC E-WASTE PROGRAM

Department: _____

Position Title: _____

We are interested in learning about Electronic Waste Recycling Program and would really appreciate your contribution in filling out this survey.

QUESTION 1: DEMOGRAPHIC

a) How many people work in your department?

_____ individuals

b) What facilities is your department comprised of? (Check all that apply)

- Offices/Administration
- Research Lab
- Teaching Lab
- Undergraduate research
- Graduate research
- Other:

QUESTION 2: RECYCLING

a) What materials do you typically recycle? (Circle each option)

Tier 1

Tier 2

** Tier 1 consists of **computer related** devices such as non-broken monitors, computer towers (with mice and keyboard), laptops, small printers, etc.

** Tier 2 consists of **non-computer related** devices such as broken computer monitors, microwaves, stereos, telephones, lab equipments, televisions, etc.

b) How often, per year, do you typically recycle: (Circle most appropriate)

Tier 1

0 1 2 3 4 5 6 or more

Tier 2

0 1 2 3 4 5 6 or more

QUESTION 3: WASTE

a) In a typical year, how many pieces of **computer related** waste are produced in your department?

TOTAL _____ pieces
total

Non-broken Monitors _____ pieces
total

Computer towers (includes mice and keyboard) _____ pieces
total

Laptops _____ pieces
total

Small printers _____ pieces
total

Other _____ pieces
total

b) In a typical year, how many pieces of **OTHER** e-waste items are produced in your department?

TOTAL _____ pieces total

Broken computer monitors _____ pieces
total

Microwaves _____ pieces
total

Stereos _____ pieces
total

Telephones _____ pieces
total

Lab Equipment _____ pieces
total

Televisions _____ pieces
total

- Other _____ pieces
total

QUESTION 4: RECYCLERS

a) How many times per year do you typically need to contact an e-waste recycler for a pick-up?
(Circle best option)

0 1 2 3 4 5 6 or more

b) What is your primary method for finding an e-waste recycler? (Check all that apply)

- Department policy
- Look for services internally at UBC
- Word-of-mouth
- Phone book
- Internet search
- Other

c) Who do you currently contact for e-waste pick-ups/recycling?

Name: _____

What are their reasons for using that service?

- Cost effective
- Convenience
- Environmental (eg. Landfill, recycling, pollution/toxics)
- Social considerations (recycling in developing nations, health & safety of workers)

Please comment on other reasons:

d) How confident are you that your current e-waste recycler manages your e-waste in a way that is economically, environmentally, and socially responsible?

Very Unconfident

Unconfident

Confident

Very Confident

Don't know

QUESTION 5: UBC E-WASTE MANAGEMENT

a) Have you ever used the UBC's e-waste program?

YES

NO

If YES,

What do you know about this service?

If NO, please read this brief description of UBC's E-waste recycling Program and answer the question below:

"UBC's E-waste Program recycles computers and other electronic waste through the Encorp Pacific "Return-It Electronics" program, which is the only BC Government-approved e-waste stewardship program in the province. This program ensures that all electronic waste is recycled in facilities in Canada through strict requirements and 3rd party auditing of all recyclers and processors, with no e-waste shipped to developing countries for recycling. The UBC E-waste Program works with the moving crew at UBC who pick-up e-waste directly from departments across campus, and individuals can also bring e-waste directly to the Waste Management warehouse on campus. The UBC E-waste Program accepts all Tier 1 (computer related) and Tier 2 (non-computer related) e-waste."

Have you heard about UBC's e-waste recycling program?

YES NO

QUESTION 6: PAYMENTS

a) If UBC offered an e-waste recycling service, how likely are you to use UBC's e-waste recycling service instead of competitor's service **if the UBC service is free?**

Very Unlikely Unlikely Likely Very Likely Don't know

b) How much are you willing to pay now for UBC e-waste recycling relative to the one you currently use/competitors? (Please select best option)

- Same Amount
- No more than 10% higher
- No more than 25% higher
- No more than 50% higher
- No more than twice
- I would not be willing to switch at all

c) Would you prefer a 'per-item' fee or a flat-rate fee? (Please select **only one**)

- Per-item fee
- Flat-rate fee

d) If you selected a '**per-item**' fee, what is the **maximum** you would be willing to pay for this service? (Circle best alternative)

\$2 - \$4 \$5 - \$7 \$8-\$10 \$10 or more

Comments:

e) If you selected a '**flat-rate**' fee, what is the **maximum** you would be willing to pay for this service per pick up? (Circle best alternative)

Up to \$25 \$50 \$75 \$100 Up to \$200

Comments:

Thank you for your time and honesty in filling out this survey. Your support is greatly appreciated.

Appendix C: One Sample T-Test Results for Tier 1

Table 1.1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q3_WAST_A_1	21	94.2381	200.03647	43.65154

Q3_WAST_A_1 stands for amount of total Tier 1 waste recycled in a typical year.

Corresponds to Question 3 of the Survey.

Table 1.2

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q3_WAST_A_1	2.159	20	.043	94.23810	3.1826	185.2936

Appendix D: One Sample T-Test Results for Tier 2

Table 2.1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Q3_WAST_B_1	21	13.1905	19.58474	4.27374

Q3_WAST_B_1 stands for amount of total Tier 2 waste recycled in a typical year.

Corresponds to Question 3 of the Survey.

Table 2.2

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q3_WAST_B_1	3.086	20	.006	13.19048	4.2756	22.1053

Appendix E: Paired Samples T-Test Results

Table 3.1
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Q3_WAST_A_1	94.2381	21	200.03647	43.65154
	Q3_WAST_B_1	13.1905	21	19.58474	4.27374

Table 3.2
Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Q3_WAST_A_1 & Q3_WAST_B_1	21	.936	.000

Table 3.3
Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Q3_WAST_A_1 - Q3_WAST_B_1	81.04762	181.83165	39.67892	-1.72115	163.81639	2.043	20	.054

Appendix F: Price Discrimination Model by Quantity



Appendix G: Bin Advertisement

There Is A Bin Missing Here

Recycle at UBC E-WASTE!

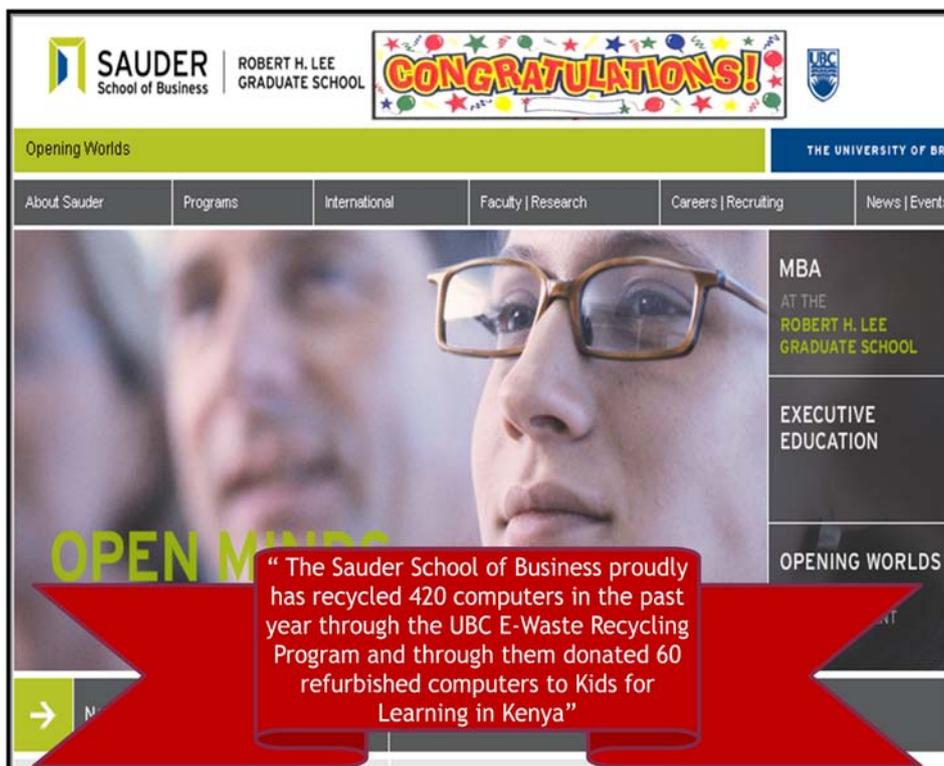
CALL NOW: 604 822-3270
EMAIL: <http://www.recycle.ubc.ca/ewaste.htm>

Appendix H: Website Checklist Form

Criteria	Yes	No
Impression on first entry		
The URL/Domain Name is appropriate and meaningful		
The surfer sees something meaningful within 8 seconds		
The Site Name and Product/Purpose come up instantly		
Text is visible (and held steady) while graphics are loaded		
The Homepage is exciting, interesting, attention-grabbing		
There is useful information on the Homepage		
The Homepage looks good, and has a clean, uncluttered look		
Important information is 'above the fold' (top 600 x 300)		
Not distracted by excessive animation or flash		
The Homepage contains the key facts		
Name of Organization (preferably in H1 text heading)		
Shows business, products, where based		
Style appropriate for target audience		
Shows the sort of information available in the site		
Shows name, address, telephone, fax, Email		
TITLE is meaningful		
Shopping Experience		
Friendly and quick route to buy		
Secure handling of credit card information		
Order acknowledged with delivery date stated		
Order tracking provided		
Delivery reliable		
Returns policy stated		
Certificates obtained from trade bodies		
Privacy of Data statement		
Appropriate use of cookies		

Back Office Support		
Email response address on every page		
What to do about faults, comments, suggestions, feedback		
Same day acknowledgement of all Emails		
Timely and full answer to Emails		

Appendix I: Department Badge Award



Appendix J: Facility Manager's Role

"The Facility Manager Team has been assembled to help you with any building related problems and to serve as your connection to the range of custom services provided by Building Operations. If you're not sure how to get something done in your building, we should be the first people you call. We have eight Facility managers assigned to different zones of the campus. To find out who is representing you, just locate your building on the pull-down menu below and give us a call."³

3. http://www.plantoperations.ubc.ca/about_us/new_facilities_managers.asp