PROJECT SALVAGE:

ENHANCING AN INNOVATIVE CLOTHING DONATION PROGRAM IN CUBUY-LOMAS, PUERTO RICO

TEAM MEMBERS:

Michael Duggan Theresa Ng Ryan Siepmann Youssef Benchikhi

ADVISORS:

Professor Melissa Belz and Professor John-Michael Davis, Worcester Polytechnic Institute

SPONSOR: Javier Valedón Id Shaliah SUBMISSION DATE:

February 28, 2024





Project Salvage: Enhancing an Innovative Clothing Donation Program in Cubuy-Lomas, Puerto Rico

An Interactive Qualifying Project Report Submitted to the Faculty of WORCESTER POLYTECHNIC INSTITUTE in partial fulfillment of the requirements for the Degree of Bachelor of Science by:

Team Members:

Michael Duggan

Theresa Ng

Ryan Siepmann

Youssef Benchikhi

Submitted to Advisors:

Professor Melissa Belz, Worcester Polytechnic Institute Professor John-Michael Davis, Worcester Polytechnic Institute

Sponsor:

Javier Valedón

Id Shaliah

Submission Date: February 28, 2024

This report represents the work of WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review. For more information about the projects program at WPI, please see: http://www.wpi.edu/Academics/Projects.

Abstract

Id Shaliah, a non-profit organization in Puerto Rico, partnered with a major retailer through Project Salvage, a program to redistribute unsold merchandise to support community development efforts. This program offers potential benefits to marginalized populations, so our project focused on enhancing the functionality of Project Salvage. We assessed current conditions through interviews and observations, identified four main issues improve (worker comfort, donation tracking, organizing financials, and promotion) and conducted online research and interviews to provide recommendations for each issue. Our project produced a collection of equipment to enhance worker safety, an automated donation tracking system through Google Suite, an organized financial system, and an advertisement plan.

Executive Summary

Background and Introduction

Over 92 million tons of textile waste are generated annually worldwide. The United States is one of the top three global contributors, producing 17 million tons (US EPA, 2017). Textile waste in the US is primarily driven by the emergence of fast fashion, a business model characterized by the rapid production of inexpensive clothing. On average, each American discards approximately 70 pounds of clothing annually, with many items worn fewer than five times before disposal (Conca, 2015). Consequently, textile waste significantly contributes to both environmental degradation and air pollution (Conca, 2015).

In recent years, many large retail companies have been making efforts to reduce textile waste. In the mountainous community of Cubuy-Lomas, Puerto Rico, the non-profit organization Id Shaliah has partnered with a major retailer to repurpose unsold clothing and household merchandise in a partnership called Project Salvage. The major retail company donates a regular shipment of unsold clothes and merchandise to Id Shaliah. For each shipment, 80% of the received items are donated to marginalized populations in Puerto Rico, while 20% is sold at a discounted price to generate funds through a thrift store, Armario, to support the program and Id Shaliah's community center. This partnership offers a novel approach to provide a triple win: the major retail company reduces waste sent to the landfill, Id Shaliah can generate a revenue source to financially support their community development work, and the remaining clothes are donated to support marginalized populations throughout Puerto Rico. However, there are still questions of how Id Shaliah can navigate this unique corporate partnership within the clothing donation industry. Id Shaliah is a small grassroots operation that would benefit from developing and systemizing their organizational progress for Project Salvage from beginning to end. The goal of the project was to facilitate the development of Id Shaliah's clothing donation program in order to support the Cubuy-Lomas community center. To achieve this goal for Id Shaliah, the group focused on two main objectives:

- 1) Identify challenges and opportunities to enhance Project Salvage
- 2) Develop strategies to improve the work environment and efficiency of Project Salvage



Figure A: Location of Cubuy-Lomas Community Center (Google Maps, 2023).

Methods

In order to learn about challenges faced within Project Salvage, the group conducted interviews with Id Shaliah volunteers along with observations of the current working process. Through these interviews, the group determined four intervention points and carried out a series of three methods (interviews, online research, and surveys) to develop strategies to improve the operational processes of Project Salvage.

The remainder of the summary will be structured as follows: we introduce the four intervention points we identified coupled with recommendations for immediate and long-term strategic improvements.

Improving the Work Environment of Project Salvage

Project Salvage volunteers are a critical resource, but face ergonomic challenges that, if left unaddressed, could hinder their long-term ability to work at Project Salvage. This partnership is operated by three Id Shaliah workers and ten elderly volunteers from a local church. Through observing the overall process of donating clothing and interviewing volunteers the team learned the volunteers faced ergonomic challenges.

Volunteers at Id Shaliah experienced back pain, cuts on their hands, and extreme temperatures. Through further observation, the group determined back pain was caused by a lack of enough or appropriately sized tables, places to sit, and safety equipment. Donations arrived in a large metal shipping container in which volunteers would unload boxes for hours. Temperatures inside the container often reached 120°F which resulted in volunteers becoming fatigued. After researching various options for tables, safety equipment such as protective gloves, support belts, and neck fans, the group recommended options to Mr. Valedón to purchase and implement.

The group learned Id Shaliah planned to relocate the main clothing processing room to a new area of the Cubuy-Lomas community center for a more streamlined process. To support the organization with this move we created a room design that maximizes space while improving worker comfort.

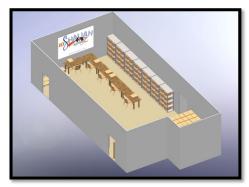


Figure B: Image of the CAD model for future Project Salvage processing.

Developing an Outgoing Donation Tracking System and Network

Project Salvage requires Id Shaliah to donate 20 pallets of merchandise monthly to non-profit organizations throughout Puerto Rico, which demands an organized and robust network of donation recipients. They currently have 20 organizations they work with, but it is not enough, their current system was ad hoc and relied on WhatsApp messages and forms for documentation. Through interviews with the Id Shaliah volunteers, one major fallback of Project Salvage was the lack of a streamlined donation system. The group identified two main objectives for improving their donation system, automating tracking and developing a network of organizations to receive donations.

Project Salvage also requires Id Shaliah to provide the retailer with proof of donation, including quantity and pictures. Through interviews with retail stores of various sizes, we determined that a barcode system was the most effective method of tracking outgoing merchandise. We developed a barcode system with an automated spreadsheet database so that Id Shaliah can automatically track quantity of clothing donated. The group created a Google Form for donation recipients to upload images. These two documents will allow Id Shaliah to digitize all their donation information to send by email to the retailer monthly.

Id Shaliah is required to limit and rotate donations to an organization once every other month. Prior to the project, Id Shaliah only had 20 partners to receive donations, which was insufficient to adhere to this requirement. The group sent an interest survey to 102 nonprofits across Puerto Rico to identify potential partners, and during the time of the project created new partnerships that resulted in over 5,200 pieces of clothing donated in one month. We recommended that Id Shaliah continue using this survey until they reach 40 total donation recipients.

Assessing the Financial Viability of Project Salvage

Project Salvage is an innovative partnership that allows Id Shaliah to provide humanitarian aid to marginalized populations across Puerto Rico, however it is currently unclear if it is a profitable program for them to fund other missions that the community center has. Through interviews with the accountant at Id Shaliah, the group determined that a financial analysis system would be important to determine the profitability of Project Salvage. Prior to the project all financial analysis was done on paper, by hand.

Through interviews with small retail stores in San Juan, the group determined that the most widely used method of tracking finances was Shopify. However, at \$150 per month on average, this is too expensive for Id Shaliah. Therefore, the group developed a monthly profit and loss statement that was integrated with an inventory and revenue tracking spreadsheet for Armario so that Id Shaliah can determine how much profit they make monthly. The group also recommended to Id Shaliah that once they make a sufficient amount of revenue monthly, around \$1,000 per month through Armario, and have an employee dedicated to the store that they consider switching to a Shopify plan, as it will allow them to have an online store to create more revenue.

We also believe that sending an annual report back to the major retailer on a yearly basis will allow Id Shaliah to strengthen their bond with them and ensure that Project Salvage is in place for years to come. An annual report like this will ensure the retailer that the clothing and

other goods are serving a good purpose and getting to marginalized populations in Puerto Rico. The group also developed this report, including data such as estimated monetary value of donations, profit from Armario, and a map of where clothing is donated.

Increasing Public Awareness of Armario

With the recent opening of Armario a clothing boutique store in Id Shaliah, the organization has sought to increase revenue from the store, ensuring it can continue to provide and support the community center financially.



Figure C: Armario, the boutique clothing store located within Id Shaliah.

As Armario suffered from inconsistent sales, lacked a formal promotional plan and with Armario's products arriving in the form of monthly and seasonal shipments, the group saw a need to devise a more comprehensive promotional strategy. As a result, the group developed a series of promotional materials and recommendations such as a Google business account, seasonal flyers and templates, a social media strategy, and a text message system to remind customers of new shipments.

Promotional Service	Uses	Cost	Recommendations and Actions Takem
Facebook and Instagram	Promotion and visibility of the store to current and future clients.	Free	The team recommended that Id Shaliah continue to be active through their social media to be transparent with community members. In addition, a separate page for Armario should be made to remind customers of new monthly shipments and to retain visibility. Hashtags referring to local and surrounding communities should also be used spordaically to ensure outreach is being directed to potential customers especially if paid boost is being used (See box below)
Facebook and Instagram Boost/Outreach	Boost reach of Instagram and Facebook posts to more users	\$10 for basic promotion, more expensive for more targeted demographics	For monthly promotions, the team recommends that Id Shaliah should consider paying for boosts at Mr. Valedon's discretion
Google Maps Account	Allow customers to be able to locate the community centers. Contains contact information and hours of operation	Free	The team developed a Google Maps business account with the location of Id Shaliah, images of the community center, hours of operation, and contact information.
Text Messaging System	Remind customers of monthly shipments, retain visibility.	Free through manual copy paste (messages). Text magic \$5 a month for 100 messages. \$0.049 per message	We recommend that Mr. Valedon use a text message system. He will be able to send messages through the system to recurring customers at Amario.
Monthly Flyer System	Monthly flyer system to notify people in the surrounding community of new stock for Armario.	\$40 for 500 flyers (quickprintr Canovanas)	We recommend Id Shaliah send out monthly flyers for Armario. Once more shops open at Id Shaliah the flyer can be transitioned to a monthly newsletter.
Seasonal Flyer	Infographic to be sent out scasonally to promote Armaric	Free (for Facebook and Instagram) Possibility to get these in physical form through quickprintr	We developed a set of seasonal flyers for Armario as well as templates and a manual so they can continue to create new flyers once the team has left.

Figure D: Our recommendations and actions table detailing promotional findings.

Conclusion

Project Salvage exemplifies a circular economy by repurposing unsold clothing into a resource for Id Shaliah and the broader community. Through the sale of clothing at Armario and donations to community centers across Puerto Rico the program is able to minimize waste and establish a framework to support marginalized communities. Through the research and findings of the group, we developed a collection of short- and long-term recommendations and deliverables to facilitate the development of Project Salvage. The short-term recommendations focus on addressing immediate needs and challenges faced by Id Shaliah. Once Armario gains a more profitable revenue and the new sorting is established, the team recommends Id Shaliah to transition to the long-term solutions. These long-term solutions aim at ensuring the continued success and growth of Id Shaliah in the future. We believe that utilizing these systems as described above will allow Project Salvage to have a sustained impact throughout Puerto Rico for years to come.

Table A: Short-Term and Long-Term Solutions of Project Salvage and Armario's Current Problems

Problem	Short-Term Solution	Long-Term Solution
Volunteer Safety and Comfort	We recommend Id Shaliah invest in safety and comfort equipment like tables, gloves, and back support belts.	We recommend Id Shaliah utilize the 3D model created by the team when investing and building the new processing location for Project Salvage.
Donation and Tracking	We recommend Id Shaliah continue to use the barcode and tracking system created by the team when receiving shipments and donating items to community centers.	We recommend Id Shaliah purchase a Shopify plan once Armario becomes profitable enough to cover the monthly subscription.
Profits Created by Project Salvage	We recommend Id Shaliah continue to track revenue and inventory for Amario through the Amario spreadsheet and track overall profit in the Profit & Loss statement.	We recommend Id Shaliah continue to utilize the survey created by the team and review potential partnerships as they come in.
Increase Public Awareness of Amario	We recommend Id Shaliah to continue promoting the community center and Amario through Facebook and flyers.	We recommend Id Shaliah promote events through flyers, Facebook, and a no-reply text message system.

Acknowledgements

We wish to extend our heartfelt gratitude to those who have played pivotal roles in shaping our journey. Our esteemed advisors, John Michael Davis and Melissa Belz, deserve special recognition for their unwavering guidance and profound wisdom, which have been instrumental in the development of our project.

A significant debt of gratitude is owed to our sponsor, Javier Valedón, whose generous support has not only made this journey possible but has also been the bedrock of our progress. Javier's belief in our vision and steadfast commitment to fostering educational opportunities have been driving forces behind the realization of our goals. His enthusiasm and continuous support have served as a consistent source of motivation, propelling us to surpass the limits of our capabilities.

Moreover, we extend our profound gratitude to the dynamic community of Id Shaliah for generously inviting us to explore their culture through shared meals and immersive experiences. The warm embrace with which we were welcomed into the community has left us deeply thankful for the genuine hospitality extended to us.

Table of Contents

Abstracti	iii
Executive Summary	iv
Acknowledgements	x
List of Figuresxi	iii
List of Tablesx	iv
Authorship	v
1.0 Introduction	1
2.0 Background	3
2.1 Textile Waste and the Shift Towards a Circular Economy	3
2.2 Circular Economy Initiatives	3
2.3 Clothing Donation Programs	4
2.3.1 Business Models for Clothing Donation Programs	
2.3.2 Challenges Faced by Clothing Donation Programs	5
2.4 Cubuy-Lomas Community Center	7
3.0 Methodology	9
3.1 Identify Challenges and Opportunities to Enhance Project Salvage	9
3.2 Develop Strategies to Improve the Work Environment and Efficiency of Project Salvage . 3.2.1 Improving Worker Comfort	9 9 10
4.0 Findings	1
4.1 Assessing the Current Process of Project Salvage	1
4.2 Improving the Work Environment and Efficiency of Project Salvage 1 4.2.1 Receiving 1 Enhancing Volunteer Safety and Comfort 1 4.2.2 Donating and Tracking 1 Development of Outgoing Donation Network 1 4.2.3 Financing 2 Assessing the Financial Viability of Project Salvage 2 4.2.4 Promotion 2 Increasing Public Awareness of Armario 2	12 12 16 16 20 20
5.0 Conclusion	
	7

Appendix A: Interviews with Id Shaliah Volunteers for Sorting and Organization	31
Appendix B: Interview Questions for Id Shaliah Accountant	32
Appendix C: Non-Profit Survey to Gauge Donation Partnership Interest	33
Appendix D: Interested Non-Profit Interview Questions	34
Appendix E: Retail Store Interview Questions for Employee Safety and Clothing Processing	36
Appendix F: Retail Store Interview Questions for Tracking Outgoing Sales	37
Appendix G: Retail Store Interview Questions for Promotion	38
Annendix H: Project Salvage Annual Report Template	39

List of Figures

Figure 1: The Charity Supply Chain at the Macro Level (Zanjirani Farahani et al., 2022)	4
Figure 2: Location of Cubuy-Lomas Community Center (Google Maps, 2023)	7
Figure 3: A flow chart of Project Salvage's donation process.	. 11
Figure 4: Volunteers sorting incoming donations	. 13
Figure 5: Photos of the CAD Model for the future processing location of Project Salvage	. 16
Figure 6: Accion Social de Puerto Rico Inc picking up donations for Id Shaliah	. 17
Figure 7: Map of potential donation recipients	. 17
Figure 8: Example Barcode Generation for Donation Tracking	. 19
Figure 9: Sample flyers for Id Shaliah's Grand Opening.	. 25

List of Tables

Table 1: Notes taken while observing volunteers during Project Salvage's process	12
Table 2: Information for ergonomic purchases.	15
Table 3: Comparative Analysis for Barcode Scanners.	19
Table 4: Comparative Analysis for Label Printers	
Table 5: Our recommendations and actions table detailing promotional findings	
Table 6: Short-Term and Long-Term Solutions of Project Salvage and Armario's Current	
Problems.	26

Authorship

Report Section	Main Authorship	Revised and Edited By
Abstract	Michael, Theresa	Ryan, Youssef
Executive Summary	All	All
Acknowledgements	Ryan, Youssef	All
1.0 Introduction	Theresa, Ryan, Michael	Theresa, Ryan, Michael
2.1 Textile Waste and the Shift Towards a Circular Economy	Theresa	Michael, Ryan
2.2 Circular Economy Initiatives	Theresa	Michael, Ryan
2.3 Clothing Donation Programs	Ryan	Theresa, Michael
2.3.1 Business Models for Clothing Donation Programs	Ryan	Theresa, Michael
2.3.2 Challenges Faced of Clothing Donation Programs	Ryan, Youssef	Theresa, Michael
2.4 Cubuy-Lomas Community Center	Michael	Youssef, Ryan, Theresa
2.4.1 Project Salvage	Michael	Youssef, Ryan, Theresa
3.0 Methodology	Theresa	Michael
3.1 Identify Challenges and Opportunities to Enhance Project Salvage	Ryan	Theresa
3.2 Develop Strategies to Improve the Work	Theresa	Ryan

Environment and Efficiency of Project Salvage		
3.2.1 Improving Worker Comfort	Ryan	Youssef, Michael
3.2.2 Development of the Outgoing Donation Program	Michael, Theresa	Ryan
3.2.3 Assessing Financial Viability of Project Salvage	Michael	Ryan, Theresa, Youssef
3.2.4 Increasing Public Awareness of Armario	Youssef, Theresa	Ryan, Michael
4.0 Findings	Ryan, Michael	Theresa, Youssef
4.1 Assessing Current Process of Project Salvage	Ryan	Theresa, Michael
4.2 Improving the Work Environment and Efficiency of Project Salvage	Theresa	Ryan
4.2.1 Receiving	Ryan, Theresa	Michael, Youssef
4.2.2 Donating and Tracking	Michael, Theresa, Youssef	Ryan
4.2.3 Financing	Michael	Theresa, Ryan
4.2.4 Promotion	Youssef, Theresa	Michael, Ryan
5.0 Conclusion	All	All
References	All	All
Appendices	All	All

1.0 Introduction

Over 92 million tons of textile waste are generated annually worldwide, with the United States being one of the top three global contributors, producing 17 million tons (Peter John & Mishra, 2023; US EPA, 2017). Textile waste in the US is primarily driven by the emergence of fast fashion, a business model characterized by the rapid production of inexpensive clothing. On average, each American discards approximately 70 pounds of clothing annually, with many items worn fewer than five times before disposal (Conca, 2015). When disposing of clothing, consumers frequently opt for the convivence of landfill disposal instead of utilizing clothing donation programs aimed at prolonging garment lifespans. Consequently, textile waste significantly contributes to both environmental degradation and air pollution (Conca, 2015).

In the last 30 years, a burgeoning circular economy (CE) movement has worked to transition the textile industry towards more sustainable practices. Circular economy follows the principles of designs that extend the lifecycle of clothing (Brydges, 2021). Companies have implemented the CE system by creating better quality products designed to last longer, offering repair programs, and reusing materials from unsold merchandise, reducing the need for new production and minimizing waste (Brydges, 2021). These implementations promote resource efficiency by making the most of existing materials and reducing the demand for new materials. These practices are the beginning of the pipeline of CE initiatives, which is to create designs for products to last longer. The end of the pipeline for CE initiatives are CE philosophy that aims to increase the prevalence of thrift stores and donation centers. The goal of these organizations is to give clothing a second life by repurposing the clothing or recycling it. Discount clothing resale initiatives also serve a vital role for populations that need support in affording clothing. Unique partnerships between large retail companies and non-profit organizations increase opportunities to recirculate and donate unsold goods, in large quantities. For example, across the nation, The Salvation Army receives donations from Walmart in the form of unsold clothing and children's toys (The Salvation Army, n.d).

In the mountainous community of Cubuy-Lomas, Puerto Rico, the Id Shaliah community center has partnered with a major retailer¹ to repurpose unsold clothing and household apparel in a partnership called Project Salvage. This partnership offers a novel approach to provide a triple win: the major retail company reduces waste sent to landfill, Id Shaliah can sell a percentage of the merchandise to financially support their community development work, and the remaining clothes are donated to support marginalized populations throughout Puerto Rico. The major retail company donates a regular shipment of unsold clothes to Id Shaliah. Most of the clothes are donated to marginalized populations of Puerto Rico, while 20% is sold at a discounted price to generate funds through a thrift store, Armario, to support the community center in developing its library of resources that will be available to the community. There are still questions of how organizations like Id Shaliah can navigate this unique corporate partnership within the clothing donation industry. Because of the lack of an efficient system for Project Salvage due to its innovative approach, Id Shaliah has asked the group to find an effective approach to balance the donation of clothing and selling some received items for profit.

The goal of the project was to facilitate the development of Id Shaliah's clothing donation program in order to support the Cubuy-Lomas community center. To achieve this goal for Id Shaliah, the group enhanced the working environment and efficiency, developed a method for tracking outgoing donations, determined financial benefits associated with Project Salvage, and developed public awareness of Project Salvage.

The background chapter follows, exploring topics such as textile waste in the clothing industry, existing donation programs, and a detailed description of Project Salvage, including its impact on the Cubuy-Lomas community. The methods for this research are introduced in the following section, which includes semi-structured interviews with community center volunteers, observations, and economic analysis for Id Shaliah. Finally, we present our findings, along with recommendations for short-term and long-term strategies to improve the functionality and sustainability of Project Salvage.

2.0 Background

2.1 Textile Waste and the Shift Towards a Circular Economy

The largest contributor to textile waste and the second biggest polluter of freshwater resources on the planet is the textile industry (Conca, 2015). Consumers share responsibility for textile waste by incentivizing the production of low-quality clothing within the textile industry. The majority of textiles discarded by manufacturers, retail industries, and consumers end up in landfills as it is the easiest option.

The vast majority of textile waste in the United States is due to the surge of fast fashion. Most of the clothing industry is characterized by its rapid production of inexpensive and low-quality garments, which contributes to the problem of textile waste. A decade-long study examining various retail brands revealed a concerning trend – more than half of the brands struggled to adopt sustainable practices, particularly in the realm of "design for durability" due to the cost and slow production (Garcia-Ortega et al., 2023). The reluctance of companies to prioritize longevity and durability in designs has resulted in clothing being discarded after being worn less than five times in the United States because it exacerbates the disposable nature of fast fashion (Conca, 2015).

As a result, some clothing manufacturers have adopted a more circular production model by reducing, repairing, reusing, remaking, and recycling their products. The shift is often driven by a commitment to sustainability, environmental responsibility, and a desire to reduce the industry's ecological footprint, as well as due to the pressure from governments and advocacy groups to enact stricter regulations on environmental practices within the fashion industry (Brydges, 2021). The circular economy (CE) operates by minimizing waste and maximizing resource efficiency by prioritizing practices like design for longevity, reuse, recycling, and closed-loop systems, aiming to create a sustainable and regenerative economic model (Brydges, 2021). Companies have adopted the circular economy framework by producing more durable designs, implementing recirculation methods, and reselling returned or donated clothing at a discounted price (Bianchi & Birtwistle, 2010). The United States government has also provided retail companies with an incentive to reduce waste by providing a donor with a tax deduction of up to 15% of their taxable income. Implementing a circular economy supply chain model in the textile and clothing industries will have a positive impact on the environment and boost the economy (Das, 2022).

2.2 Circular Economy Initiatives

A study conducted by Dr. Taylor Brydges argues that consumers and retail companies should consider clothing donation programs, reselling their clothes, using a company take-back program, and doing a clothing swap to repurpose clothing (Brydges, 2021). Retail companies choose to donate to charities all over the world. Figure 1 outlines a simplified version of the UK charity supply chain, showcasing how the CE is implemented by reusing and recycling donated clothing items.

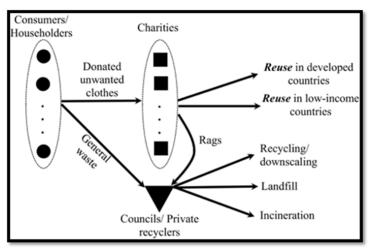


Figure 1: The Charity Supply Chain at the Macro Level (Zanjirani Farahani et al., 2022).

In the United States and Europe, 70% of unsold or returned clothes are shipped to countries in Africa, either distributed for free or sold at reduced prices. Companies opt to recycle unsold clothing as it reduces handling and allows them to benefit from tax deductions (Sonnenberg et al., 2022). However, it is important to note that when a company donates clothing, it does not guarantee that the clothes will avoid ending up in landfills. In Ghana, for instance, 15 million garments are donated weekly from the United States, Europe, and Austria (Sonnenberg et al., 2022). This influx leads to an oversupply of clothing, with a significant portion either discarded in landfills or redistributed to neighboring nations.

2.3 Clothing Donation Programs

Secondhand clothing donation programs are a growing trend worldwide. An example of very effective clothing donation programs are thrift stores, which sell gently used clothing and other household goods for discounted prices (Aldrich, 2020). In 2023, the United States had 28,849 thrift stores with 16-18% of the population shopping at them (Mohammad, 2023). By 2027, the global secondhand clothing market is expected to grow by 98%. Within the market, the US has seen an annual growth of 5% (Mohammad, 2023). Clothing donation programs are often driven by the goal of providing inexpensive clothing to those in need and promoting a healthier environment by extending the life of used clothing. Some examples of popular thrift store chains are Habitat for Humanity, Savers, Goodwill, and The Salvation Army. The United States government provides a tax incentive for clothing donations, allowing civilians to deduct up to 60% of their gross adjusted income (Editorial Team, T., 2023). This has led to an increase in the effectiveness of donation programs across the country (Hodges, 2022). A new endeavor in the industry is for for-profit organizations (FPOs), which utilize circular economy practices to benefit economically, societally, and environmentally, partnering with a non-profit organization (NPO). In 2019, charitable donations from FPOs and NPOs amounted to \$449.6 billion. For example, The Salvation Army formed a partnership with Walmart to provide approximately 1 million children with clothing and toys (Salvation Army, N.D).

2.3.1 Business Models for Clothing Donation Programs

Clothing donation programs within an NPO are comprised of three business models: opportunistic, civic, and diversified. An NPO receiving donations from an FPO is an example of an **opportunistic business model**, which is a beneficial partnership for both the NPO and FPO. By refraining from discarding unsold clothing, retail companies can benefit from a tax break, receiving up to 15% of their taxable income and cultivating a positive public reputation (Giving Back, 2022). In return, the NPO can receive a steady supply of unused clothing, which can be donated to individuals in need. Many clothing donation programs follow a **civic business model**, where clothes are donated by the public (Bocquet et al., 2020). The benefit of this business model is that the NPO receives shipments of clothes from public donors. This allows the NPO to have a wide variety of fashion trends to either sell or re-donate. A **diversified business model** is a popular model for NPOs, which combines civic and opportunistic business accepting both donations from businesses and the public (Bocquet et al, 2020). When an NPO utilizes a diversified business model, it gains the benefits of both a civic and diversified business model.

An example of a large and well-known organization that utilizes a diversified business model is The Salvation Army. It receives a large number of products from public donations and partnerships with corporations, such as Walmart. During the holiday season, The Salvation Army receives toys and clothing from Walmart to re-donate to over a million children in need every year (Salvation Army, N.D). Additionally, The Salvation Army contributes to the workforce and provides people with opportunities to serve their community and others. In the United States alone, it employs 62 thousand workers and 3 million volunteers. Furthermore, the Salvation Army donates its profits to a wide range of non-profit organizations. These organizations support the community in ways such as assisting the homeless or providing aid to natural disaster refugees (Careers, 2023). NPOs create an efficient network of support for each donation by donating profits and unsold clothing to other organizations (Bocquet et al, 2020). Therefore, when consumers purchase at thrift stores, they are fighting waste from fast fashion and contributing to people in need around the world.

2.3.2 Challenges Faced by Clothing Donation Programs

Every business model encounters its own unique set of challenges, which is no different in the clothing donation industry. Examples of these challenges include efficiently utilizing floor space, the sorting process, volunteer cooperation, managing expenses, and brand promotion.

Using floor space effectively is an important part of the success of a clothing donation program. Shearer & Carpentier (2015) determined that the proper organization of floor space and acceptance policies for incoming donations played a role in an organization's profits. Based on simulations, the study determined that each organization requires an optimal acceptance policy to use the floor space correctly. These policies consider factors such as inventory space, sales, and donations, for varying item types. Shearer and Carpentier (2015) advised that a non-profit only accepts donations if they have the floor space and have current demand for the item with consideration for how much the item will be sold for. An acceptance policy ultimately assists the NPO in determining which donations and in what quantities to accept them. Some NPOs are beginning to implement optimal acceptance policies in their stores. An example of this is Habitat for Humanity, two ReStores in California are spending time collecting data on the supply and demand of 14 item types. The data is used to assist the owner in determining how much revenue can be expected from a store of varying sizes. Gazley and Abner (2014) explored floor space challenges in a study on Framing Hope to explore impacts associated with product donation programs. In the study, the NPO Framing Hope was analyzed to determine how capacity

challenges affected its mission and efficiency. Framing Hope received donations from Home Depot to distribute to other organizations. In a survey among recipients, one quarter reported that their capacity to store donations was either an "occasional" or "frequent" challenge. The efficiency of the organizations declined as they could no longer receive donations until available floor space became accessible.

Another challenge donation programs face is the time and monetary cost of sorting incoming donations. Alegoz et al. (2024) found that within an opportunistic or diversified business model, sorting the incoming goods at the origin point yields a higher cost than when the donations are sorted at the sorting facility. This results in the NPO having to sort the donations into their separate genders, garment types, and sizes. These specifications require the volunteers or employees to spend time handling the clothing. Along with sorting, the clothing must also be inspected for any damage. When clothing is donated it can be deemed unsellable or unable to be donated. These donations must be separated from the rest of the product and recycled. Depending on the amount of incoming goods, the NPO can waste resources and time on the disposal of damaged clothing.

Volunteer management has been identified as another challenge for clothing donation programs. For example, Stötzer et al., (2020) found the number one barrier faced by organizations at a charity flea market was securing volunteers. Having a reliable quantity of volunteers is difficult because it is challenging for donation programs to develop interest in the community to volunteer. Secondly, several organizations reported that the quality of volunteers was particularly important in the context of declining product sales, suggesting a direct link between volunteer performance and sales outcomes. Several organizations reported that the quality of the volunteers impacted the sales of products as undertrained volunteers have the tendency to pull staff away from their priorities. As a result, they need constant supervision and occasional training.

Second-hand clothing programs can also face difficulties managing and tracking expenses and establishing codified organizational processes. For example, Master (2021) found that 30% of nonprofits had lost money over the last 3 years, and 50% lacked even one month's worth of operating expenses, something that has likely been exacerbated post Covid-19. Limited budgets mean that many second-hand clothing programs lack a dedicated accountant. Good accounting practices can ensure they devote more of their resources towards their central mission and less time worrying about being blindsided by unforeseen expenses. Moreover, it is important to recognize that good financial practices are not a "set it and forget it" solution. A proactive mindset can help prevent many of the financial and legal implications that can come from poor financial management (Master, 2021).

A surge in nonprofits over the last 30 years has spurred competition, affecting boutique social enterprises that blend social missions with business strategies. This has made it crucial for these types of organizations to differentiate themselves through various measures such as rebranding, marketing, and self-promotion (Foley, 2014). While boutique social enterprises often operate with more constrained budgets than their for-profit counterparts, the allocation of 50-60% of marketing budgets to store flyers in Italy and France serves as an example of the potential impact of targeted marketing campaigns and investments (Pope et al., 2009). This is especially relevant to boutique social enterprises as flyers can often be presented as a low-barrier investment and can further solidify a consistent brand image as well as serve to demonstrate the impact of various social services on the local community (Reyes personal communication). An empirical analysis done on Spanish households found that company branding often had a

significant impact on consumers' decisions to shop (Gázquez-Abad & Martínez-López, 2016). Establishing a strong brand identity is crucial for boutique social enterprises as it can be a powerful tool for marketing that enhances their visibility and recognition in a crowded marketplace but can give a greater sense of purpose, fostering greater relationships with donors, volunteers, and the broader community. Boutique social enterprises are increasingly managing their brands strategically, not just as a tool for fundraising but to enhance their social impact and internal cohesion. (The Role of Brand in the Nonprofit Sector (SSIR), n.d.).maste

2.4 Cubuy-Lomas Community Center

Mr. Valedón founded Id Shaliah in May of 2020 in response to Hurricane Maria after the government took more than two weeks to provide first response aid to the Cubuy-Lomas community, located in the mountainous region southeast of San Juan (Figure 2). Mr. Valedón identified the Cubuy-Lomas community's need for resources to use when the government fails to do so. This prompted Id Shaliah to take over an abandoned school and start the Cubuy-Lomas Community Center, slated to open on February 22, 2024.

With a population of just over 10,000 people, the majority of the Cubuy and Lomas communities, just about 75%, are aged 65 or older according to local estimates. These local sources also indicated that there is a large homeless population vulnerable to drug use, lack of food and shelter, and other risks (Valedón, personal communication Nov 8, 2023). The Cubuy and Lomas communities have an average employment rate of 32% and an average median income of \$18,781. There is also a considerable lack of health care coverage in these communities, with an average of 5.67% lacking it across both communities (United States Census Bureau: Cubuy Barrio, 2021; United States Census Bureau: Lomas Barrio, 2021). With these citizens residing within a mountainous region making them difficult to reach, the further development of this community center is essential in ensuring that these vulnerable populations receive the necessary aid on a regular and timely basis.



Figure 2: Location of Cubuy-Lomas Community Center (Google Maps, 2023).

2.4.1 Project Salvage

In 2023, Id Shaliah partnered with a large retail company in Puerto Rico to receive monthly shipments of unsold clothing to donate across the island. Id Shaliah receives 24 pallets of clothing monthly, 20% of which are kept and sold within the community center at a boutique

shop located in the community center, called Armario. The remainder of the clothes are donated to partner organizations throughout Puerto Rico who distribute clothes to marginalized populations, and images regarding the endpoint of each donation must be sent back to the retail company due to a 10% allowable margin of error provided by the retail company (Valedón, personal communication Nov 8, 2023). This program differs from other donation programs mentioned in this report, because it accepts unused articles of clothing while previous research focuses on used clothing from the consumer.

Project Salvage offers two major advantages to the Cubuy-Lomas Community Center: funding and donations. By selling clothing through the boutique shop operating out of the community center, Id Shaliah can cover the distribution costs associated with this program, as well as create some additional profit that will be reinvested back into the community center to maintain operations and possibly offer broader community development opportunities. Clothes that are received through Project Salvage will also be donated throughout Puerto Rico, increasing the overall impact the Community Center has.

3.0 Methodology

The goal of the project was to facilitate the development of Id Shaliah's clothing donation program in order to support the Cubuy-Lomas community center. To achieve this goal for Id Shaliah, the group focused on two main objectives:

- 1) Identify challenges and opportunities to enhance Project Salvage
- 2) Develop strategies to improve the work environment and efficiency of Project Salvage

3.1 Identify Challenges and Opportunities to Enhance Project Salvage

The first objective identified challenges of Id Shaliah's Project Salvage donation processing system and provided the team with an opportunity to learn current methods utilized. The team took a multi-method approach, which was comprised of participant observation and interviews. We observed the entire Project Salvage process, including unloading the shipments, unpacking and labeling clothes to prepare boxes for donations, repacking, and donating the boxes to community centers. We compiled our observations into a table. We then conducted three semi-structured interviews: two with volunteers involved in the sorting process of clothing and shoes, to become more familiar with the current methods utilized (Appendix A), coupled with one interview with the accountant of Id Shaliah to learn about the finances of the community center (Appendix B).

3.2 Develop Strategies to Improve the Work Environment and Efficiency of Project Salvage

To improve the sustainability of Project Salvage for the Cubuy-Lomas community center, we conducted interviews with retail chain stores, community centers, and small retail stores. The following section presents the different methods the team utilized to improve worker ergonomics, develop the outgoing donation program, assess financial realities of Project Salvage, and increase public awareness of Armario.

3.2.1 Improving Worker Comfort

To improve the comfort of Project Salvage's processes, we interviewed managers of three large chain retail stores like Savers, Burlington, and Sears, to learn about best practices for employee safety and workplace comfort. These interviews took approximately 30 minutes and were recorded for note-taking purposes and a comparative analysis of challenges faced by clothing donation programs. After interviewing stores, we conducted research online surrounding best worker ergonomic practices.

We analyzed the data collected from interviews, observations, and research to determine changes that could be made to shipment processing. We asked volunteers at Id Shaliah to process a shipment of clothing utilizing new approaches provided by the team. During this shipment, the team observed how the implemented changes were received by the volunteers.

3.2.2 Development of the Outgoing Donation Program

To determine how Mr. Valedón and Id Shaliah can grow their network of community center partners to donate clothing to, the group sent out an interest survey to 102 community centers and nonprofit organizations in Puerto Rico. To find these potential partners, the group utilized government databases of 501c tax-exempt organizations in Puerto Rico to find nonprofits that might benefit from receiving donations of clothes. The team's criteria for researching community centers and organizations that would benefit from receiving donated clothes from Id

Shaliah focused mainly on their mission, which was ideally to service smaller communities that lack representation and help from other major non-profits. This criterion was crucial in selecting centers where the donations would have the most significant impact and align with Id Shaliah's values. An email containing a survey was sent out to email lists of non-profit organizations, for more information on this refer to Appendix C. Upon receiving responses from this survey, the group conducted semi-structured interviews with seven community centers to determine if they would be a viable fit for the program. These interviews took place either virtually or at the respective community center, took on average 30 minutes per interview, and were recorded for note-taking purposes. For further details on interview questions, refer to Appendix D.

To determine how stores tracked outgoing sales on a large scale, the team conducted 14 semi-structured interviews with retail stores of various sizes like Burlington, Valija, and Zafero. These interviews took place within each respective store, averaging 30 minutes each, and were audio recorded for note-taking purposes. For further details on interview questions, refer to Appendix F. To determine if barcodes and scanners were a good fit for a Project Salvage and Armario tracking system, The team conducted a comparative analysis of 10 barcode scanners and 10 printers.

3.2.3 Assessing Financial Viability of Project Salvage

Another main objective of the project was to determine if Project Salvage is a financially viable program for Id Shaliah. Within the 14 interviews conducted above, 12 of which were semi-structured interviews with small retail shops in Puerto Rico, such as Nifty Cure, Charme, and Nativa, to gain insight into how they track their sales, revenue, and expenses (see Appendix F). We also reviewed financial documents from the accountant of Id Shaliah to determine an average month in terms of profits created from Armario as well as regular monthly expenses of Id Shaliah.

The group also wanted to understand the financial impact of the outgoing Project Salvage donations. We conducted a financial analysis of the average value of a box of each type of outgoing donation and then determined how many of these boxes get donated in a typical shipment. This process involved sampling 20 boxes of each type (clothes, shoes, home goods), and getting an average value based on the estimated value of each box. This was done by looking at price tags that came with the articles, and if they did not come with tags comparing them to similar products to get an estimated price. We got an average value using these prices. The group then multiplied the average value of each type of box by the typical number donated in a month and added these values together to get an accurate financial estimate of the total value of the clothing donated annually.

3.2.4 Increasing Public Awareness of Armario

We generated strategies to increase and retain customers for Armario by interviewing similar boutique shops in Puerto Rico. We conducted semi-structured interviews with seven community centers and 21 boutique clothing shops to inquire about their existing strategies and initiatives for enhancing their visibility and promotion to members of the surrounding communities. For more information about these interviews, see Appendix G. The team reviewed Facebook pages of 100 nonprofits in Puerto Rico and documented the strategies they used to promote themselves. The team recorded the information provided and images used on the infographic, the information provided and images used on the infographic.

4.0 Findings

The following section of the report presents the team's findings to improve the sustainability of Project Salvage. This section begins with an explanation of the process for accepting and donating merchandise. We then present the challenges that Id Shaliah faced through Project Salvage that became prevalent through research, and our approach to address each challenge.

4.1 Assessing the Current Process of Project Salvage

The pallets of donations arrive at the Cubuy-Lomas community center in a large shipping container. Once the donations are received at Id Shaliah, the boxes are opened and inspected for damaged items before being unloaded. After being unloaded the boxes are separated into shoes, home goods, and clothing (see Figure 3). Home goods do not require additional sorting because they are received in presorted boxes. Shoes arrive unpaired and are processed in a separate location from clothing and home goods. They are first unpacked and matched depending on shoe design and shoe size. After being sorted the shoes are boxed and labelled using a marker. Finally, the longest process for the volunteers is sorting the clothing. After being unpacked the clothing must be inspected for quality, stains, and tears before it is sorted into categories, such as Shirt, Shorts, Pants, Dress, Male, Female, Child, Small, Medium, Large, XL. Once the clothing is sorted, it is folded and counted while being placed into a box. After the box is full it is labeled using a marker. Boxes are labeled by writing the quantity and short description of items within the box.

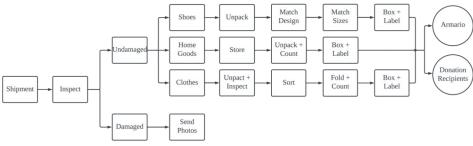


Figure 3: A flow chart of Project Salvage's donation process.

Sorted clothes, shoes, and home goods are then separated into two categories: items to be donated and items to be sold in Armario. Mrs. Maria Valedón oversees and determines which clothing is taken from the donations boxes to be sold at Armario. When making this decision, Mrs. Valedón considers the rarity of the item and how well it has sold.

The major retailer requires that Id Shaliah maintain a documentation accuracy rate within a 10% margin of error for the number of items donated compared to the actual amount provided. Id Shaliah meets this requirement by filling out a sheet listing how many items were donated and to which recipient they were donated. In addition to this paper form, recipients must photograph the clothes being given out. These images are used to prove to the large retail chain that the clothing is in fact being donated. Documentation is currently being done by Mr.Valedón filling out the paper form addressing the destination and quantity of donations. Mr.Valedón receives

WhatsApp messages containing photos of the donations being handed out. Proof of donation photos is necessary to ensure recipients are not selling the clothing. Id Shaliah must rotate which organizations receive donations; this results in Id Shaliah only being able to donate to one organization every two months. Mr. Valedón currently uses a network of organizations across Puerto Rico to allow donations to continue, which currently consists of 20 organizations. With only 20 organizations to donate items to Id Shaliah is forced to store a percentage of donations due to lack of recipients.

4.2 Improving the Work Environment and Efficiency of Project Salvage

Based upon the issues that the team identified, we determined that there are four areas Id Shaliah can improve within their receiving and processing incoming shipments, donating and tracking, financing for Id Shaliah, and promoting phases of Project Salvage and Armario. The following sections of the chapter are organized into these four categories: receiving, donating and tracking, financing, and promoting.

4.2.1 Receiving

Enhancing Volunteer Safety and Comfort

From our interviews with volunteers and observations made at the community center, we determined the volunteers faced common ergonomic challenges processing clothing donations, as shown in Table 1. These challenges included awkward body posture, insufficient safety equipment, and prolonged standing. During interviews with the volunteers, it was unanimously reported that they experienced back pain after a day of work.

Table 1: Notes taken while observing volunteers during Project Salvage's process.

Stages of Process	Description of Stage	Number of Volunteers	Challenges Faced by Volunteers	Equipment Used	Notes
Unloading Pallets of Clothing	Mr. Valedon and a volunteer determine if each box is clothing, shoes, or home goods before unloading the box.	1	High temperature inside shipping container	Pallet Jack, Marker	The temperature inside of the container gets extremely hot
Sorting and Counting the Donated Goods	Donations are sorted and counted before being boxed again.	6	Bad posture, prolonged standing, lack of table space.	Tables	Volunteers worked efficiently, however there was discomfort
Labeling the Boxes with Quantity and Gender	Boxes of clothing are labeled with the quantity, item description, and gender.	6	Inconsistent labeling practices between volunteers	Marker and Tape	Different volunteers marked different boxes with varying descriptions. The descriptions are also marked on varying sides of the box making it difficult to easily distinguish.

Through observation, the team identified the volunteers suffered from back pain, cuts on their hands when handling the boxes, and prolonged standing. The team determined that a main cause of the back pain was due to the height of the tables when observing the volunteers. The

tables were too short for the volunteers when sorting incoming donations, which required them to work in awkward positions. Furthermore, our team noticed that there was not enough table space to store boxes, which resulted in the elderly volunteers having to bend over when picking up or putting down boxes, as shown in Figure 4. These challenges had the potential to injure the volunteers or limit their efficiency. When asked what tools would increase the volunteers' comfort, our team was told higher tables, and back support belts.



Figure 4: Volunteers sorting incoming donations.

Another challenge faced by volunteers was a lack of safety equipment, such as safety gloves and chairs. When our team interviewed volunteers at Id Shaliah, a volunteer stated they had received cuts on their hands from handling the boxes and requested gloves to prevent these injuries. Our team found that the volunteers had difficulty standing for long hours. When processing shipments the volunteers would work from 9:00-12:00 and 12:30-2:00, which required them to stand upright for up to three hours at a time. When researching literature online, our team discovered workers often develop health issues due to prolonged standing. These health issues include but are not limited to sore feet, lower back pain, general fatigue, and stiffness in the neck and shoulders (Government of Canada, 2024). A study conducted by Gregory & Callaghan (2007) found that 13 out of 16 individuals developed lower back discomfort when standing for two hours. Allowing the volunteers to sit will offer immediate relief of lower back discomfort. A study conducted by Gregory & Callaghan (2007) found that 13 out of 16 individuals developed lower back discomfort when standing for two hours.

The final challenge our team discovered was that the volunteers experienced extreme temperatures during the unloading process. Through conversations with Mr. Valedón and the

volunteers it was revealed the temperature inside the shipping container was unbearable when unloading pallets. The container can reach up to 120 degrees Fahrenheit when exposed to direct sunlight for four to five hours (*Heat at Work - Guidance for Workplaces*, 2023). Prolonged heat exposure can lead to heat-related illnesses such as stress, stroke, exhaustion, syncope, and cramps (*Heat at Work - Guidance for Workplaces*, 2023). The volunteers should spend less than two hours in the container at a time, as vigorous physical activity will result in fainting, dizziness, and light-headedness (*Heat at Work - Guidance for Workplaces*, 2023). When researching the best practices to limit the damaging effect of heat, the employer should provide the workers with fans and cooling systems, which will improve air circulation. Our team researched the effectiveness of wearable neck fans for cooling off workers. When conducting research, it was determined to enhance safety for workers, employers should supply fans, improve air circulation, and restrict exposure to high temperatures, as prolonged heat exposure can lead to heat-related illnesses such as stress, stroke, exhaustion, syncope, and cramps.

To determine if these solutions are viable, our team conducted interviews with large retail stores. The team learned that back pain is a common problem throughout the industry. Although one of the interviewed stores required workers to bring personal back support tools, all other retail stores we interviewed provided the tools to workers. When the team questioned the stores about cuts from boxes, it was revealed unanimously that the stores regularly supply employees with safety gloves. Our team faced challenges in gaining information when interviewing retail stores to learn about safety and ergonomics. Most stores we visited were not willing to disclose information regarding training, safety tools, and ergonomic practices. To overcome this challenge, we began researching online to find best practices for improving work environments. Through the Canadian Centre for Occupational Health and Safety (CCOHS), we were informed workers required the ability to move around and alter working positions. The CCOHS further recommended the addition of seats for workers to allow them to rest and relieve their muscles. This finding was supported by Aoki et al. (2012) who stated a solution to alleviate the lower back pain experienced by elderly volunteers processing donations was by providing the volunteers with a place to sit. Allowing the volunteers to sit will offer immediate relief of lower back discomfort. Our findings regarding higher tables are supported by the Occupational Safety and Health Administration (OSHA), when researching solutions to control hazards in the workplace OSHA recommended repositioning tables to eliminate long or excessive reach (OSHA, n.d).

The team researched various tables, back support belts, safety gloves, chairs, and neck fans for the volunteers. Through observation, the team noted that the volunteers do not use the surgical gloves supplied by Mr. Valedón, as they do not provide much protection. The team determined that safety gloves would be more suitable for the volunteers when handling the boxes. The back support belts we chose are industry standard and are considerably more affordable than their competitors. When researching chairs, the team considered a request for folding chairs from the volunteers. These qualifications allowed our team to decide which equipment would be most efficient and supportive of the volunteers. More information on the final items can be found in Table 2.

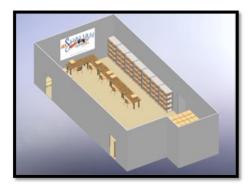
Table 2: Information for ergonomic purchases, ten of each product were analyzed.

Problem	Solution	Criteria	Product	Quantity	Reasoning
Low tables and limited workspace	Higher Tables with More Surface Area	Surface Area, Height, Ratings	Lakehow 8-foot Folding Tables	2	2064.15 cubic inch surface area, height of 29.13", 4.5/5 Star Reviews
Back pain due to low tables	Back Support Equipment	Durability, Cost, Ratings	Ergodyne Back Support Belt	4	Industry Standard, \$11 per belt, 4.5/5 Star Reviews
Cuts when handling boxes	Safety gloves	Durability, Cost, Ratings	MaxiFlex Gloves	12	EN338 Level 1 Cut Rating, S50 for 12 pairs, 4.8/5 Star Reviews
Back pain due to standing for long periods of time	Chairs	Durability, Cost, Size	Maxcheif Folding Chairs	4	Offered Cushioning, \$100 for 4 chairs, height of 38.75"
High heat in container during unloading process	Cooling Device	Fan levels, Noise, Batter life,Weight	Penkou Neck Fan	2	3 offered fan levels, <20 dB, 3-24 hour battery life, 8.8oz

After determining the most effective and supportive tools, our team presented our findings to Mr. Valedón and recommended purchasing the quantities seen in Table 2. Furthermore, our team recommends Id Shaliah continues to invest in volunteer safety and comfort. Since the ten elderly volunteers and three Id Shalah workers are the backbone of Project Salvage, their safety and comfort should remain a priority. This will allow Project Salvage to continue supporting Puerto Rico. This can be accomplished with the purchase of more chairs with lumbar support to assist in the growing volunteer numbers, more tables to allow volunteers more workspace, and more safety equipment for the volunteers, such as a wider variety of gloves and back support belts.

Future Plans

Id Shaliah plans to move the processing of Project Salvage to another area of the community center and required assistance designing the layout for the future location. The reason for this move was to have a more streamlined system for processing donations. The new location offers easier movement for storing boxes and less transport when moving boxes to sorting locations. Mr. Valedón expressed that having a detailed layout via 3D modeling would assist him in ensuring the floor space is utilized correctly. Mr. Valedón explained to the team his plan to install a ramp to allow volunteers to directly unload a pallet as opposed to unloading boxes. To provide Mr. Valedón with a plan for this change, the team gathered the necessary dimensions and created a 3D model using SolidWorks (Figure 5). When gathering the necessary dimensions, the team measured the new sorting room, intended area for an unloading ramp, average size of boxes, and pallet size. We used these dimensions to make the SolidWorks model as accurate as possible. The model was created based on Mr. Valedón's initial vision and observations made on the current sorting process. The room model presented a layout for the new processing setup with ergonomic and organizational changes implemented. Replica boxes and pallets were used to create an assembly that would resemble the area with a shipment in process. Shelves were used in this design to provide maximum use of floor space and organization. We recommend that Id Shaliah follows this model when investing and building the new location as it is built with ergonomics, floor space organization, and cost in mind. Investing and building the new location as it is built with ergonomics, floor space organization, and cost in mind.



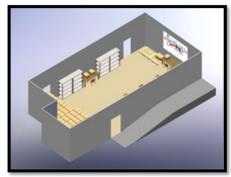


Figure 5: Photos of the CAD Model for the future processing location of Project Salvage.

4.2.2 Donating and Tracking

Development of Outgoing Donation Network

One requirement that the major retailer has for Id Shaliah is that they can only donate to the same organization once every other month. The current network of outgoing donation recipients for Id Shaliah consists of twenty community centers. This presents a challenge to Id Shaliah, because they risk potentially running out of community centers that they can donate to. In order to mitigate this risk, the group determined that an additional twenty recipients are needed due to the large quantity of clothing they receive monthly. We found that the average shipment contains 624 boxes, and the average community center receives approximately 30 boxes each time they visit. This means that 20 donation partners per month are needed, so 40 partners are needed in total.

As a result of the survey sent out by the team to potential partners, over 5,200 pieces of clothing have been given out to various organizations such as Cam Las Carolinas and Acción Social de Puerto Rico Inc (see Figure 6). This survey also resulted in a list of 102 additional nonprofits across Puerto Rico for Id Shaliah to reach out to in the future. This list of organizations included rescued school projects, churches, rehab centers, churches, animal shelters, and other similar organizations.



Figure 6: Accion Social de Puerto Rico Inc picking up donations for Id Shaliah.

In order to obtain the necessary number of donation recipients for Project Salvage, the group recommends the continued use of the survey to identify interested parties. Id Shaliah can also refer to the map that we provided to visually see where interested organizations are located (see Figure 7). Once interest is gauged, Id Shaliah should interview these centers to determine if they would be a good fit for Project Salvage. Once Id Shaliah reaches the threshold of 40 donation recipients, they should evaluate if this is enough partners to keep up with the donations that they receive. If not, they should continue the described process.



Figure 7: Map of potential donation recipients.

During interviews with interested nonprofits, we learned that some did not have transportation to pick up the donations. For these organizations to have access to the program, the

team created a Google map and a spreadsheet containing Id Shaliah's network. These documents contained information such as their location and contact information. If Id Shaliah identifies an organization that wants clothing but does not have transportation to the center, they have access to other surrounding organizations that have transportation. This allows select centers without vehicles to partner with other centers that do and could pick up the clothing for them.

Development of Outgoing Donation Tracking System

Prior to this project, all donation tracking for quantities was done by hand and images were sent through WhatsApp, making it hard to store and manage data regarding donation information. In order to develop an automated tracking system for Id Shaliah to document where donations end up, the group utilized barcode technology to record quantity of clothing donated to each community center and a Google Form for donation partners to send images back to Id Shaliah. Based on 14 semi-structured interviews conducted with retail stores, the group determined that the most common practice in tracking outgoing sales is through a barcode system. Out of the 14 respondents, all but one small clothing store utilized a barcode system to track their outgoing merchandise. While barcode systems were used to track an item with a monetary value, it is still an applicable system for a donation program. The retail stores need to track which specific items of clothing were being sold at a given time; while Id Shaliah's Project Salvage, needs to track which items of clothing are donated to each nonprofit organization.

It is important to consider that each of the stores that use a barcode system for tracking outgoing sales did it through a third-party software that was developed for them. The software providers required, on average, a monthly subscription of \$100. This is currently too expensive for Id Shaliah to fit into the budget at the time of the project, due to a lack of a consistent customer base in Armario to generate revenue. Therefore, the group developed a similar tracking and barcode system through Google Suite that Id Shaliah could use for free until they can afford to utilize this barcode technology. The group created a Google Sheet template for each month with a page for each community center receiving donations. In this sheet, Id Shaliah workers would generate a barcode for every box of sorted items that is ready to be donated, which would be printed and placed on the box (see Figure 8). When a nonprofit picks up these boxes, the worker would scan the barcode, which automatically updates the page for that organization with the type and quantity of each article of clothing they would receive, as well as the total number of articles donated. The group also created a Google Form to be sent to each center where they could upload images for documentation purposes, which automatically went to a Google Drive. At the end of each month, Id Shaliah will send this Google Sheet and Google Drive back to the retail company.

Туре	Gender	-	Qty	Barcode
Calzado	Hombre	-	40	C A L Z A D O H O M B R E - 4 0
Calzado	Damas	-	50	C A L Z A D O D A M A S - 5 0
Ropa	Caballeros	-	100	
Ropa	Damas	-	75	
Ropa	Damas		80	
Ropa	Damas	-	90	

Figure 8: Example Barcode Generation for Donation Tracking

The team determined barcode printers and scanners would be most suitable to manage sales and inventory for Armario and track outgoing donations for Project Salvage. The selection process for barcode printers and scanners involved evaluating over 50 options. The team selected 10 scanners from the pool of 50 for further consideration, the initial exclusion criteria were cost, ratings, and the different functions – such as the transmission of 2-in-1 or 3-in-1, transmission distance, and the compatibility to PC, laptop, smartphones, and tablets. We compared criteria on the 10 scanners by taking the cost, Amazon customer ratings, functionalities, transmission distance, 2-in-1 or 3-in-1 capabilities, 1D or 2D scanning, and additional features into consideration, as detailed in Table 3. The top two scanners, ScanAvenger and NADAMOO, were presented to Mr. Valedón for consideration. ScanAvenger was chosen to manage sales and inventory for Armario, while NADAMOO was selected to track outgoing donations for Project Salvage. This decision was informed by ScanAvenger's 3-in-1 functionality, including wireless. Bluetooth, and USB connectivity options, along with its impressive transmission distance of 493 feet. NADAMOO was selected for Project Salvage due to its feature of lasting up to 30 days on a single charge, providing extended operational capability without the need for frequent recharging.

Table 3: Comparative Analysis for Barcode Scanners.

Product	Cost	Ratings	Functions	Distance	2-in-1: USB Wired + Wireless 3-in-1: USB + Wireless + Bluetooth	1D or 2D
Tera Barcode Scanner	\$34	4.4/5	2-in-1	328ft	2-in-1	1D
NETUM	\$66	4.3/5	3-in-1	33 feet	3-in-1	Both
NETUM Upgraded	\$125	4.3/5	2-in-1	32 feet	2-in-1	Both
Eyoyo 2D QR	\$70	4.1/5	3-in-1	_	3-in-1	Both
NetumScan	\$14	4.4/5	2-in-1	_	Both	1D
SeanAvenger	\$55	4.4/5	3-in-1	98 feet	Wireless	1D
Esky	\$30	4.3/5	2-in-1	_	Wire	1D
NADAMOO	\$33	4.4/5	2-in-1	328 feet	Wireless	1D
Inateck	\$100	4.1/5	3-in-1	_	Wireless	Both
WoneNice	\$30	4.4/5	2-in-1	99ft	Wireless	1D

For barcode printers, the team identified LabelRange as the most suitable option. From the pool of 50 label printers, 12 were evaluated and inputted into a comparison table. The table assessed factors including cost, Amazon customer ratings, connectivity options via phone or

computer, thermal printing capability, provided templates, and other functionalities as seen in Table 4. Following a discussion with Mr. Valedón, the team concluded that LabelRange stood out as the most suitable label printer. Notably, it offered versatile connectivity options, which allowed connection to both phones and computers via USB or Bluetooth — an advantage not found in many other printers.

Product	Cost	Rating	Phone and Computer	Thermal	Template Provided
Rollo Wireless	\$300	4.3/5	Phone and Computer	✓	✓
JADENS Label Maker	\$49	4.8/5	Phone	✓	✓
NIIMBOT B1	\$46	4.6/5	Phone	✓	✓
NIIMNOT B21	\$66	4.5/5	Phone	✓	✓
Phomemo M110	\$60	4,3/5	Phone and Computer	✓	X
Phomemo M220	\$80	4.5/5	Phone and Computer	✓	X
MARKLIFE	\$36	4.1/5	Phone	✓	X
ZEBRA ZD410	\$219	4.1/5	Computer	✓	X
JADENS Bluetooth	\$136	4.1/5	Phone and Computer	✓	✓
vretti	\$76	4.2/5	Computer	✓	✓
LabelRange	\$90	4.4/5	Computer	✓	✓
iDPRT	\$56	4 2/5	Computer	1	/

Table 4: Comparative Analysis for Label Printers.

4.2.3 Financing

Assessing the Financial Viability of Project Salvage

Through a semi-structured interview with the accountant of Id Shaliah, the group determined that developing financial analysis tools would be a necessary first step to assess the financial status of through Project Salvage. The accountant mentioned that an automated monthly budget with profits and expenses as well as a way of tracking revenue and inventory for Armario would be beneficial to Id Shaliah. This is because Armario operates separately from the donation process, as it deals with the 20% of clothing that Id Shaliah is allowed to sell to cover shipping costs.

Based on 12 semi-structured interviews conducted with small retail shops, we found that 92% of respondents used Shopify to track all revenue and expenses, making it the most commonly used plan amongst respondents. According to respondents, the most beneficial aspects of Shopify were a barcode system for tracking revenue for each sale which automatically updates an inventory spreadsheet, as well as an automated spreadsheet to track profit and loss. We determined that Id Shaliah could pay for Shopify, or we could develop a spreadsheet with these features. The group determined the second option was best for Id Shaliah currently due to the high cost of Shopify, with the most utilized plan costing \$150 per month. The group developed this automated spreadsheet through two Google Sheets, one for tracking revenue and inventory of Armario and one profit and loss statement for Id Shaliah. We created these templates with a page for each month of the year so that they can track both monthly costs and revenue. The group presented a forecast of what a typical month would look like in terms of profit, utilizing the tools that we developed. Based upon one month of finances provided by the accountant at Id Shaliah, the group determined an average monthly profit of \$1,954.47. This includes \$5,005.91 spent on shipping, hardware, gas, and other miscellaneous expenses and \$6,960.38 in revenue from donations and sales in Armario. Of the \$6,960.38 in revenue, the group found through Armario

sales tracking data that about \$4,500 of this comes from sales in the store. The spreadsheet can be updated ongoingly and get more accurate as Id Shaliah gets a larger sample of their monthly costs and streams of revenue. However, the amount of revenue from Armario alone makes Project Salvage a viable program for Id Shaliah to fund the remainder of their programs and other expenses like power as they arise.

The right Shopify plan would be a complete financial solution for all aspects of Project Salvage and the operation of the community center overall. Dependent upon the plan, a Shopify subscription will allow Id Shaliah access to an automated sales and inventory tracking system with annual reports on revenue, a Point of Sale (POS) software for in-person purchases, a separate page for tracking outgoing donations, and an online store. We recommend that Id Shaliah begins to consider purchasing a Shopify plan once they have a full-time employee that can run both the in-person store as well as an online store, and they are making consistent revenue that will be able to cover the costs of both this employee and the subscription. Through online research, we determined that approximately 15% of Id Shaliah's profit from Armario should go toward Shopify, so the store should be making more than \$1,000 per month consistently in order to cover the monthly subscription comfortably. Once both of these criteria are met, Id Shaliah should begin with the cheapest plan for \$30 per month, which offers a website builder and inventory and revenue tracking tools. After using this plan for a month, Id Shaliah should re-evaluate to determine if this plan is worth it or if they need to upgrade.

Assessing Annual Impact of Project Salvage

In order to ensure that the relationship between Id Shaliah and their retail company partner is sustainable long-term, we determined that an annual report of benefits of Project Salvage should be sent to the retail company. This would improve the working relationship between Project Salvage and the retailer as it will ensure the retailer that the clothing they are donating is being put toward a good cause. The group developed a template for Id Shaliah to make an annual report documenting a yearly analysis of the impact Project Salvage had on both the Cubuy-Lomas Community Center and those that received the donations through the program. This document included metrics such as profit, total estimated value of donated clothing, and a map of where clothing has been donated across Puerto Rico. While the program is still new and it is difficult to forecast a year for Project Salvage, the group was able to determine what Id Shaliah could expect out of a typical month financially. Based on the month of January, Id Shaliah had a gross profit of \$4,500 in Armario. Through a financial analysis of 20 of each type of box, the group determined that an average box of clothing donations has an estimated value of \$1,000, a box of shoes has an estimated value of \$1,200, and home goods have an average value of \$900. Based on these averages from the shipments received in February, Id Shaliah will be able to multiply the total number of boxes of each type donated through an entire year by these values in order to determine a rough estimate of the yearly total value of donated clothing. For more information on this annual report, see Appendix H.

4.2.4 Promotion

Increasing Public Awareness of Armario

As Armario suffered from inconsistent sales, lacked a formal promotional plan and with Armario's products arriving in the form of monthly and seasonal shipments, the group saw a need to devise a more comprehensive promotional strategy. As a result, the group a series of promotional materials and recommendations highlighted in the table below.

Table 5: Our recommendations and actions table detailing promotional findings.

Promotional Service	Uses	Cost	Recommendations and Actions Takem
Facebook and Instagram	Promotion and visibility of the store to current and future clients.	Free	The team recommended that Id Shaliah continue to be active through their social media to be transparent with community members. In addition, a separate page for Armario should be made to remind customers of new monthly shipments and to retain visibility. Hashtags referring to local and surrounding communities should also be used spordaically to ensure outreach is being directed to potential customers especially if paid boost is being used (See box below)
Facebook and Instagram Boost/Outreach	Boost reach of Instagram and Facebook posts to more users	\$10 for basic promotion, more expensive for more targeted demographics	For monthly promotions, the team recommends that Id Shaliah should consider paying for boosts at Mr. Valedon's discretion
Google Maps Account	Allow customers to be able to locate the community centers. Contains contact information and hours of operation	Free	The team developed a Google Maps business account with the location of Id Shaliah, images of the community center, hours of operation, and contact information.
Text Messaging System	Remind customers of monthly shipments, retain visibility.	Free through manual copy paste (messages). Text magic \$5 a month for 100 messages. \$0.049 per message	We recommend that Mr. Valedon use a text message system. He will be able to send messages through the system to recurring customers at Amario.
Monthly Flyer System	Monthly flyer system to notify people in the surrounding community of new stock for Armario.	\$40 for 500 flyers (quickprintr Canovanas)	We recommend Id Shaliah send out monthly flyers for Armario. Once more shops open at Id Shaliah the flyer can be transitioned to a monthly newsletter.
Seasonal Flyer	Infographic to be sent out seasonally to promote Armaric	Free (for Facebook and Instagram) Possibility to get these in physical form through quickprintr	We developed a set of seasonal flyers for Armario as well as templates and a manual so they can continue to create new flyers once the team has left.

Social Media:

Through semi-structured interviews with 21 boutique clothing stores,-the group found unanimous use of Facebook and Instagram to promote their businesses. Several stores also employed Facebook campaigns and Instagram outreach boosts sporadically to promote seasonally as well as to drive the sales of certain products. Many stores emphasized the importance of social media as a way of creating a cohesive brand image. Valija, a clothing store in old San Juan, suggested the use of hashtags pertaining to local and surrounding communities through Facebook and Instagram to better target potential customers. We found that two stores used brand ambassadors as a means of promoting their stores. In exchange for several pieces of clothing, influencers identified with high engagement on Facebook and Instagram created content to promote new items for clothing stores in the San Juan area.

Text Message System:

Charme, a boutique in Condado, employs a text message system to maintain contact and continued store visibility with clientele. Clients voluntarily opted into a mass messaging system tied to an unlimited plan sent by a business phone that would alert them once a month to once every two months about new clothes or promotions. This system was done through messages which made it free given that the business had a phone number and an existing paid phone bill. Cam Caguas, a nonprofit in Caguas was also found to use a similar messaging system through Action Network to notify members of the community of monthly events. Their plan was broken down into a monthly recurring fee of \$10 and an estimated \$50 extra for roughly 200 messages a month. The group recommended a no-reply text message system as a means of updating existing

customers on new and updated clothing at Armario. This system would be used monthly or bimonthly to remind existing customers of new shipments and other activities happening at Id Shaliah at no extra charge to the business.

Bazaars and Google Maps:

A retail store that served a predominantly elderly female demographic was found to use bazaars to sell their merchandise, which are similar to pop up shops. One bazaar at the Hilton charged \$300 for a weekend booth. Another bazaar in Dorado was mentioned as one of the best in Puerto Rico for small boutique-style business promotion. The central church in Canovanas was also noted as being a hub for businesses to promote as part of a farmers' market on certain weekends. Through this same interview, it came to the group's attention that neither Id Shaliah nor Armario were located on Google maps, which made it difficult to give directions to a prospective customer. As a result, the group created a page for Id Shaliah listing hours of operation, contact information, a link to the website and various photos of the community center.

Newsletters:

The group found that several community centers in Puerto Rico had some sort of monthly newsletter to let people in the surrounding communities know of events happening in the coming month. Eighty percent of community centers were found to distribute physical flyers on a monthly to bimonthly basis. Impact such as quantified success of certain programs, program results, and community member testimonials was also featured in newsletters to be transparent, which community centers stated was important to gain and maintain volunteers. The team determined through reviewing existing newsletters promotion strategies at other community centers and conversations with Mr. Valedón that a newsletter of 1000 flyers would be sufficient once Armario is officially opened, and more businesses have moved into the classrooms at Id Shaliah. These flyers should include detailed events and programs for the month as well as a promotion of Armario.

Seasonal Flyers:

The team looked at the Facebook pages of non-profits in Puerto Rico to identify various strategies used in promoting their center that could be adapted for Armario. For instance, Asociación de Residentes Camino Pagán and Taller Comunidad La Goyco post monthly activity calendars. While Asesores Financieros Comunitarios, Taller Salud, Ponce Neighborhood Housing Services, Inc., Acción Social de PR Inc, and Taller Comunidad La Goyco utilized infographics to announce upcoming events, including a brief description of the event, dates, location, contact information, and other centers associated with the event. Similarly, four community centers with clothing stores resembling Armario (CAM Las Carolinas, Fundacion Bucarabon, Hogar Abrazo de Amor, Friends of Puerto Rico) posted images of their stores to announce new arrivals or promotions, accompanied by opening hours, a picture of the store, or promotion durations. The insight guided the team on creating infographics to be posted on Armario's Facebook page. The team also created a flyer for Id Shaliah's Grand Opening, which the community center can replicate for their monthly flyer for Armario. The infographic should contain a brief description of the event, date, time, location, promotion details, and Mr. Valedón's contact information, similar to Figure 9.



Figure 9: Sample flyers for Id Shaliah's Grand Opening.

Infographics should be sent out when the community center is holding holiday events and mention if meals will be provided or when stores are having a sales promotion. The flyer should be posted on Armario's Facebook page to let the community know when Id Shaliah receives a new shipment.

5.0 Conclusion

Project Salvage exemplifies a circular economy by repurposing unsold clothing into a resource for Id Shaliah and the broader community. Through the sale of clothing at Armario and donations to community centers across Puerto Rico the program is able to minimize waste and establish a framework to support marginalized communities. Through the research and findings of the group, we developed a collection of short- and long-term recommendations and deliverables to facilitate the development of Project Salvage (Table 6). The short-term recommendations focus on addressing immediate needs and challenges faced by Id Shaliah. Once Armario gains a more profitable revenue and the new sorting is established, the team recommends Id Shaliah to transition to the long-term solutions. These long-term solutions aim at ensuring the continued success and growth of Id Shaliah in the future. We believe that utilizing these systems as described above will allow Project Salvage to have a sustained impact throughout Puerto Rico for years to come.

Table 6: Short-Term and Long-Term Solutions of Project Salvage and Armario's Current Problems.

Problem	Short-Term Solution	Long-Term Solution
Volunteer Safety and Comfort	We recommend Id Shaliah invest in safety and comfort equipment like tables, gloves, and back support belts.	We recommend Id Shaliah utilize the 3D model created by the team when investing and building the new processing location for Project Salvage.
Donation and Tracking	We recommend Id Shaliah continue to use the barcode and tracking system created by the team when receiving shipments and donating items to community centers.	We recommend Id Shaliah purchase a Shopify plan once Armario becomes profitable enough to cover the monthly subscription.
Profits Created by Project Salvage	We recommend Id Shaliah continue to track revenue and inventory for Amario through the Amario spreadsheet and track overall profit in the Profit & Loss statement.	We recommend Id Shaliah continue to utilize the survey created by the team and review potential partnerships as they come in.
Increase Public Awareness of Amario	We recommend Id Shaliah to continue promoting the community center and Amario through Facebook and flyers.	We recommend Id Shaliah promote events through flyers, Facebook, and a no-reply text message system.

The goal of the project was to develop the long-term sustainability of Project Salvage to support the Cubuy-Lomas community center. To achieve this goal the group developed various systems and put forth a myriad of recommendations to address current challenges faced by the community center such as tracking donations, developing partnerships, and improving working conditions for volunteers. By taking into account the goals of the parties involved in our process such as the retail company, Id Shaliah and the broader community the team was able to develop a final product that satisfied all those who were involved in its creation. Ultimately, we hope this project can serve as a model for other nonprofits, showing the importance of inclusive planning in creating an effective and sustainable project that helps facilitate a circular economy to reduce waste and generate positive outcomes for the communities it serves.

References

- Ada, N., Altin, H. O., & Pirnar, İ. (2022). Utilization of Strategic Marketing in Nonprofit Sector Evidence from Turkish Nonprofit Organizations. Ege Akademik Bakis (Ege Academic Review). https://doi.org/10.21121/eab.1009488
- Aldrich, S. (2020, May 14). What Does it Mean to Go Thrifting? | Thrift Stores. Goodwill of Central and Northern Arizona. https://www.goodwillaz.org/what-does-it-mean-to-go-thrifting-2/
- Alegoz, M., Acar, M., & Salman, F. S. (2024). Value of sorting and recovery in post-disaster relief aid distribution. *Omega*, 122, 102946. https://doi.org/10.1016/j.omega.2023.102946
- Aoki, Y., Sugiura, S., Nakagawa, K., Nakajima, A., Takahashi, H., Ohtori, S., Takahashi, K., & Nishikawa, S. (2012). Evaluation of Nonspecific Low Back Pain Using a New Detailed Visual Analogue Scale for Patients in Motion, Standing, and Sitting: Characterizing Nonspecific Low Back Pain in Elderly Patients. Pain Research and Treatment, 2012, e680496. https://doi.org/10.1155/2012/680496
- Bianchi, C., & Birtwistle, G. (2010). Sell, give away, or donate: an exploratory study of fashion clothing disposal behaviour in two countries. *The International Review of Retail, Distribution and Consumer Research*, 20(3), 353–368. https://doi.org/10.1080/09593969.2010.491213
- Bocquet, R., Cotterlaz-Rannard, G., & Ferrary, M. (2020). How Do NPOs Get Funding? A Business Model Perspective Based on the Conversion of Symbolic Capital. *Nonprofit and Voluntary Sector Quarterly*, 49(6), 1233–1258. https://doi.org/10.1177/0899764020925912
- Brydges, T. (2021). Closing the loop on take, make, waste: Investigating circular economy practices in the Swedish fashion industry. *Journal of Cleaner Production*, 293, 126245. https://doi.org/10.1016/j.jclepro.2021.126245
- Budiman, I. 1, Sembiring, A. C. 1, Tampubolon, J. 1, Wahyuni 2, D., Dharmala, A. 1 1 I. E. D., & Computer Sciences, U. P. I. 2 I. E. D. (2019). Improving effectiveness and efficiency of assembly line with a stopwatch time study and balancing activity elements. https://doi.org/10.1088/1742-6596/1230/1/012041
- Careers: USA Eastern Territory About. (n.d.). Retrieved January 10, 2024, from https://careers.salvationarmy.org/easternusa/about-Salvation-Army-jobs-and-careers
- Conca, J. (2015, December 5). Making Climate Change Fashionable The Garment Industry Takes On Global Warming. Forbes.

 https://www.forbes.com/sites/jamesconca/2015/12/03/making-climate-change-fashionable-the-garment-industry-takes-on-global-warming/

- Das, I. (2022, February 4). Textile Waste 101: A starting guide. Notes from CAIF. https://circularapparel.co/blog/2022/02/04/textile-waste-101-a-starting-guide/
- Dodson, A. (2017, September 25). Working at the Appropriate Work Surface Height. Fit For Work. https://www.wellworkforce.com/working-at-the-appropriate-work-surface-height/
- Editorial Team, T. (2023, August 31). *Deducting Charitable Donations of Clothing and Household Items*. TaxSlayer. January 30, 2024, https://www.taxslayer.com/blog/special-rules-tax-deduction-donating-clothing-household-items-cars-boats/
- Garcia-Ortega, B., Galan-Cubillo, J., Llorens-Montes, F. J., & de-Miguel-Molina, B. (2023). Sufficient consumption as a missing link toward sustainability: The case of fast fashion. *Journal of Cleaner Production*, 399, 136678. https://doi.org/10.1016/j.jclepro.2023.136678
- Gazley, B., & Abner, G. (2014). Evaluating a Product Donation Program: Challenges for Charitable Capacity. *Nonprofit Management and Leadership*, 24(3), 337–355. https://doi.org/10.1002/nml.21094
- Gázquez-Abad, J. C., & Martínez-López, F. J. (2016). Understanding the impact of store flyers on purchase behaviour: An empirical analysis in the context of Spanish households. *Journal of Retailing and Consumer Services*, 28, 263–273. https://doi.org/10.1016/j.jretconser.2015.08.006
- Giving Back: Consumers Care More About How Companies Donate Than How Much. (2022, April 7). HBS Working Knowledge. http://hbswk.hbs.edu/item/consumers-care-more-about-how-companies-donate-than-how-much
- Government of Canada, C. C. for O. H. and S. (2024, February 10). *CCOHS: Working in a Standing Position Basic Information*. https://www.ccohs.ca/oshanswers/ergonomics/standing/standing/basic.html
- Gregory, D. E., & Callaghan, J. P. (2008). Prolonged standing as a precursor for the development of low back discomfort: an investigation of possible mechanisms. *Gait & Posture*, 28(1), 86–92. https://doi.org/10.1016/j.gaitpost.2007.10.005
- Ha-Brookshire, J. E., & Hodges, N. N. (2009). Socially Responsible Consumer Behavior?: Exploring Used Clothing Donation Behavior. *Clothing and Textiles Research Journal*, 27(3), 179–196. https://doi.org/10.1177/0887302X08327199
- Heat at work guidance for workplaces. (2023, January 6). OSH Wiki. https://oshwiki.osha.europa.eu/en/themes/heat-work-guidance-workplaces
- Kasavan, S., Yusoff, S., Guan, N. C., Zaman, N. S. K., & Fakri, M. F. R. (2021). Global trends of textile waste research from 2005 to 2020 using bibliometric analysis. *Environmental Science and Pollution Research*, 28(33), 44780–44794. https://doi.org/10.1007/s11356-021-15303-5
- IACOB MIHAELA 1.pdf. (n.d.).

- Laitala, K., & Ingun Grimstad Klepp. (2023). What Affects Garment Lifespans? International Clothing Practices Based on a Wardrobe Survey in China, Germany, Japan, the UK, and the USA. https://oda.oslomet.no/oda-xmlui/bitstream/handle/10642/10016/what%2Beffects%2Bgarment%2Blife_sustainability-12-09151-v2.pdf?sequence=1&isAllowed=y
- Mandal, S. (2022). Perspectives of Textile Waste Management in the U.S. A Review. *Journal of Textile Science & Fashion Technology*, 9(4). https://doi.org/10.33552/JTSFT.2022.09.000716
- Master, N. (2021, January 13). *12 key metrics to monitor the financial health of your nonprofit*. Sage Advice US. https://www.sage.com/en-us/blog/12-key-metrics-to-monitor-the-financial-health-of-your-nonprofit
- Mohammed. (2023, July 30). *The State of Thrift Store Industry Statistics (Latest Data)*. https://www.onlinedasher.com/thrift-store-industry-statistics/
- Peter John, E., & Mishra, U. (2023). A sustainable three-layer circular economic model with controllable waste, emission, and wastewater from the textile and fashion industry. *Journal of Cleaner Production*, 388, 135642. https://doi.org/10.1016/j.jclepro.2022.135642
- Pope, J. A., Isely, E. S., & Asamoa-Tutu, F. (2009). Developing a Marketing Strategy for Nonprofit Organizations: An Exploratory Study. *Journal of Nonprofit & Public Sector Marketing*, 21(2), 184–201. https://doi.org/10.1080/10495140802529532
- RecycleNation. (n.d.). Wear. Donate. Recycle. RecycleNation. Retrieved November 19, 2023, from https://recyclenation.com/2018/10/wear-donate-recycle/
- Shearer, R., & Carpentier, K. (2015). Determining the Optimal Donation Acceptance Policy for Nonprofit Stores. *Nonprofit Management and Leadership*, 26(1). https://doi.org/10.1002/nml.21144
- Sonnenberg, N. C., Stols, M. J., Taljaard-Swart, H., & Marx-Pienaar, N. J. M. M. (2022). Apparel disposal in the South African emerging market context: Exploring female consumers' motivation and intent to donate post-consumer textile waste. *Resources, Conservation and Recycling*, 182, 106311. https://doi.org/10.1016/j.resconrec.2022.106311
- Solutions to Control Hazards. (n.d.). Occupational Safety and Health Administration. Retrieved February 26, 2024, from https://www.osha.gov/ergonomics/control-hazards
- Stötzer, S., Andeßner, R. C., & Scheichl, S. (2020). Charity flea markets an amalgamation of product philanthropy and volunteering. *International Review on Public and Nonprofit Marketing*, 17(2), 203–224. https://doi.org/10.1007/s12208-019-00242-2
- Team, V. (2023, November 1). *Volgistics Blog*. Volgistics Blog. https://blog.volgistics.com/nonprofit-corporate-partnerships/

- The Salvation Army USA. (n.d.). Retrieved January 23, 2024, from https://www.salvationarmyusa.org/usn/walmart-angel-tree/
- Todeschini, B. V., Cortimiglia, M. N., Callegaro-de-Menezes, D., & Ghezzi, A. (2017). Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges. *Business Horizons*, 60(6), 759–770. https://doi.org/10.1016/j.bushor.2017.07.003
- US Census Bureau. (2021). Explore Census Data.

 https://data.census.gov/profile/Lomas_barrio, Can%C3%B3vanas_Municipio, Puerto_Rico?g=060XX00US7202946669
- US EPA, O. (2023, April 19). Fashion Forward: Fabric Recycling and Reuse this Spring [Speeches, Testimony and Transcripts]. https://www.epa.gov/perspectives/fashion-forward-fabric-recycling-and-reuse-spring
- Zanjirani Farahani, R., Asgari, N., & Van Wassenhove, L. N. (2022). Fast Fashion, Charities, and the Circular Economy: Challenges for Operations Management. *Production and Operations Management*, 31(3), 1089–1114. https://doi.org/10.1111/poms.13596

Appendix A: Interviews with Id Shaliah Volunteers for Sorting and Organization

Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's organization model within the clothing program, by implementing methods to make processing the donations easier. We would like to interview you to develop an understanding of current challenges in the process. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 14 questions, which should take about 30 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes, if this is acceptable for you. We will provide a report with quotes from the interview to Javier in order to make decisions to improve the challenges in this process, but your identity will remain confidential. Your participation is greatly appreciated.

Ouestions:

- 1. What is your name?
- 2. How long have you been working for Id Shaliah?
- 3. Can you tell us about what you do here?
- 4. Can you describe the current system in place for processing donations?
- 5. What do you like about this system?
- 6. What do you dislike about this system?
- 7. How are clothing donations currently tracked?
- 8. What are some advantages to this method?
- 9. Are there any disadvantages to this method?
- 10. Have any changes been implemented in the past?
- 11. What have you noticed as outcomes from these changes?
- 12. Are there any changes you would like to see made?
- 13. Is there anything that can be done to make the process easier for you?
- 14. Do you have any more comments, suggestions, or concerns about the system?

Appendix B: Interview Questions for Id Shaliah Accountant

Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's financial tracking system. We would like to interview you to get a sense of the current system in place as well as any improvements that can be made. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 16 questions, which should take about 30 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes, if this is acceptable for you. Your participation is greatly appreciated.

- 1. What is your name?
- 2. How long have you been working for Id Shaliah?
- 3. Can you tell us about what you do here?
- 4. Can you describe the current system in place for tracking the finances of Id Shaliah?
- 5. What do you find useful about this system?
- 6. Are there any deficiencies within this system?
- 7. Would you like to see any changes made to the current system?
- 8. What are some streams of revenue that Id Shaliah currently has?
- 9. Do you envision any additional revenue sources in the future?
- 10. What are some costs and expenses that Id Shaliah currently has?
- 11. Do you know of any costs or expenses coming up in the future?
- 12. What is the current system in place for tracking inventory and sales within Armario?
- 13. What do you find useful about this system?
- 14. Are there any deficiencies within this system?
- 15. Would you like to see any changes made to the current system?
- 16. Do you have any additional comments or concerns?

Appendix C: Non-Profit Survey to Gauge Donation Partnership Interest

Preamble:

Hello! We are students working with Javier Valedón from Id Shaliah, a community center in Cubuy-Lomas that offers various services to the residents of this community. Id Shaliah recently partnered with a donor to receive regular shipments of new clothes that they are looking to donate in Puerto Rico. If your organization is interested, please check the infographic for more information and complete the attached form.

- 1. Email
- 2. Name and Surname
- 3. Which organization are you part of?
- 4. Where is your organization located? (San Juan, Yauco, San German, Ponce, Mayaguez, Guayama, Rincon)
- 5. What is the postal address of your organization?
- 6. Would you be interested in partnering with Id Shaliah to receive free clothes? (Yes, No)
- 7. If Interested: What would be a good cell phone number to communicate with you?
- 8. If Not Interested: Why would you not be interested in partnering? Is there anything we can do to help you? (Not required)

Appendix D: Interested Non-Profit Interview Questions Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's organization model within the clothing program, especially by creating a system for community centers within Id Shaliah's network to track where their donated clothing ends up. We would like to interview you to determine a potential partnership between your community center to receive clothing donations from Id Shaliah. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 13 questions, which should take about 30 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes, if this is acceptable for you. Your participation is greatly appreciated.

Ouestions:

- 1. What is your name?
- 2. Can you tell us more about your program?
- 3. Can you tell us about your role in this program?
- 4. What kind of people does your community center service?
- 5. Could members of your community benefit from occasional shipments of free clothing? How much clothing would be helpful for you?
- 6. Would your community center be interested in receiving clothing donations from Id Shaliah?
- 7. The clothing has to be picked up at Id Shaliah. Would someone be able to commute to Cubuy-Lomas to receive the clothing with a truck/van?
- 8. For this program to continue for Id Shaliah, they must track where clothing donations end up and send data back to the company they are partnered with. Are you able to provide photo evidence to Id Shaliah through a Google Form on where the clothing will be donated?
- Do you anticipate any issues with a potential partnership with Id Shaliah? This could include problems reaching the community, tracking donations, or anything else that may come to mind.

- 10. Would you be interested in partnering up with local community centers who may not have a vehicle to carpool donated goods from Id Shaliah
- 11. We are looking to promote this program to people within the community to spread awareness. How does your center go about advertising and increasing public awareness?
- 12. Do you have any other questions about potentially partnering with IS?
- 13. Who would be the best person in your organization for Javier to contact to explore this possibility?
- 14. Would you like Javier's contact information to explore this partnership further? And can we share yours with him so he can contact you to answer any questions?

Appendix E: Retail Store Interview Questions for Employee Safety and Clothing Processing

Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's organization model within the clothing program, especially by maximizing the efficiency of sorting and organizing clothing. We would like to interview you to help Id Shaliah with their logistics of unloading shipments and keeping volunteers safe. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 12 questions, which should take about 30 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes if this is acceptable for you. Your participation is greatly appreciated.

- 1. What is the process of clothing after it arrives to the store from unloading to being sold?
- 2. What is your current method for sorting clothing before it is placed on racks?
- 3. (Assuming there is a thought-out layout for processing) Why is the layout the way that it is?
- 4. Have there been alternative layouts in the past?
- 5. Why were they changed?
- 6. How do you unload items from trucks?
- 7. Why is this how you unload them?
- 8. What steps does the company take to increase its ergonomics?
- 9. Are there any steps taken to specifically increase worker safety and comfort?
- 10. Have these changes led to an increase in productivity?
- 11. How do you prep the clothing before sending it to the warehouse for Id Shaliah?
- 12. How long does it take workers to prep the clothing/shoes/homegoods that are being shipped to the warehouse for Id Shaliah?

Appendix F: Retail Store Interview Questions for Tracking Outgoing Sales

Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's organization model within the clothing program, especially by maximizing the efficiency of sorting and organizing clothing, as well as developing a method of tracking inventory on sales in a thrift store. We would like to interview you to help Id Shaliah with their logistics of processing shipments as well as tracking sales. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 23 questions, which should take about 45 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes if this is acceptable for you. Your participation is greatly appreciated.

- 1. How many merchandise items do you process on a daily/monthly basis?
- 2. What method do you use for tracking the daily/monthly number of sales and revenue?
- 3. (Assuming they use barcodes/QR codes/RFIDs to scan merchandise) Why did you choose this method over others like QR codes/bar codes/RFIDs?
- 4. How does this help you track quantity of sales?
- 5. How does this help you track revenue?
- 6. How do you include this financial data into overall organization financial tracking?
- 7. Does this integrate with a spreadsheet somewhere to visualize data?
- 8. What scanner do you use to scan these codes? Why is this a better option over other scanners?
- 9. What do you use to print/make these codes? Why is this a better option over other printers?
- 10. Do you have any advice that we can apply to a smaller scale operation? (24 pallets of clothing monthly)

Appendix G: Retail Store Interview Questions for Promotion

Preamble:

Hello, we are students from Worcester Polytechnic Institute in Massachusetts working with Id Shaliah. The purpose of our study is to improve Id Shaliah's marketing efforts, specifically by increasing traffic to Armario, the boutique-style store within Id Shaliah. We would like to interview you to help Id Shaliah with their promotion of the store. Your participation in this interview is completely voluntary and you may withdraw at any time. The interview consists of 10 questions, which should take about 25 minutes to complete. If interested, a copy of our results can be provided through an internet link at the conclusion of the study. We plan on recording this interview simply for note-taking purposes if this is acceptable for you. Your participation is greatly appreciated.

Questions:

- 1. How long have you been in business for?
- 2. What is your store's main forms of promotion?
- 3. Does your store use social media? (Facebook, Instagram)
- 4. Do you pay for ads? If so, how often?
- 5. Is there anything your store does to maintain visibility with existing clients?
- 6. Is your store one location or part of a chain?
- 7. Do you have a set budget for promotion or marketing?
- 8. What's the primary demographic of shoppers at your store?
- 9. Does your store primarily service local customers or tourists?
- 10. Is there anything you use to target the local community?

Commented [MD1]: @Benchikhi, Youssef Translate to Spanish and put below when you have a chance

Appendix H: Project Salvage Annual Report Template

