Refilling hope with Zero-Waste Grocery

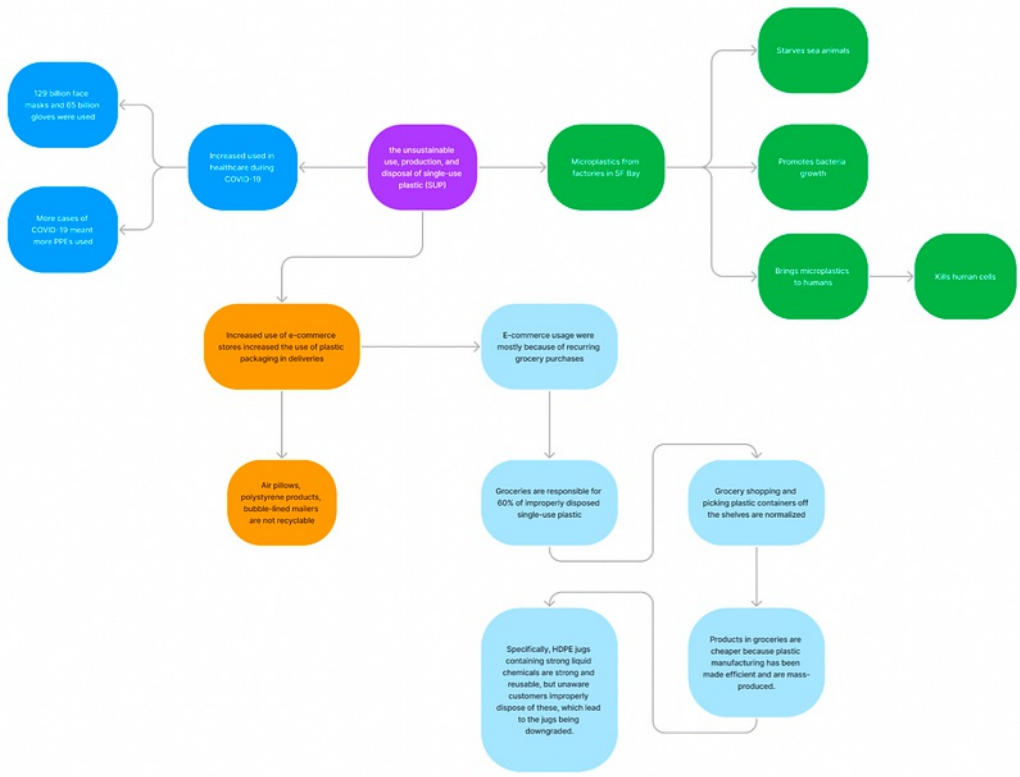
Reducing single-use plastic—one HDPE jug at a time.

The premise of plastic's popularity as a cheap and durable material used in a vast array of applications also serves as a promise by the aforementioned material to bring the planet and humanity to its gloom and doom. Most plastics come from gas, crude oil, or coal (American Chemistry Council, 2021), with forty percent discarded after a single use (Parker, 2021). Production depletes Earth's finite resources and can raise health issues in manufacturing areas due to heavy chemical use. What is sorrowful about this is that it takes up to 1,000 years before it disintegrates (Harussani et al., 2020). More oversized items, like plastic bags and straws, can choke and starve marine life and become homes to bacteria (Zachos, 2021). At the same time, animals can ingest microplastics and make their way to the gastrointestinal tracts of humans (Smith, 2018), which can cause the death of human cells (Parker, 2022; Gautam et al., 2022). While paper is an available alternative, it is not yet as durable and as useful as plastics. (Clear on Plastics, n.d.)1

In San Francisco, numerous problems have arisen due to the unsustainable use, production, and disposal of single-use plastic (SUP). Improperly disposed SUPs will break down but not degrade; this creates microplastic. One area heavily affected by microplastics is San Francisco Bay. Sutton and his team discovered seven trillion microplastic coming from factories inside San Francisco Bay. Its narrow opening at the Golden Gate limits tidal action and natural flushing to the ocean (Sutton et al., 2019). In healthcare, two salient variables interact to increase plastic use. The relationship is between COVID-19 patients and the number of PPEs used. The more cases in a hospital, the more PPEs used. Researchers discovered that the COVID-19 pandemic caused a monthly estimated use of 129 billion face masks and 65 billion gloves globally (Prata et al., 2020).2 However, frontliners should not be blamed as the lockdowned majority turned to online shopping for their purchasing needs, increasing plastic packaging use. The U.S. has observed a $219 billion boost in the e-commerce industry (Berthene, 2022). Unfortunately, other large figures were noticed as well. Amazon, an e-commerce giant, is reported to have produced 599 million pounds of plastic packaging waste in 2020 (Oceana, 2021). Amazon's packages contain air pillows, polystyrene peanuts, and bubble-lined mailers

destined not for recycling but for the landfill, the incinerator, or the environment. In fact, Neela-Stock discovers that only seven out of 20 of Amazon's packaging are recyclable (2022).

Customers turn to Amazon in the first place for their services, like *Everyday Essentials,* a category containing cleaning supplies and other consumables. Our fear of COVID has led to a 34% increase in the purchases of cleaning, safety, and wellness products (NCSolutions, 2022). E-commerce solutions are taking advantage of this by automatically reordering the same cleaning product contained in High-Density Polyethylene (HDPE) plastic jugs every month (Amazon, n.d.; Best Buy, n.d.). 60% of SPUs come from groceries (Greenpeace 2020). Since HPDE plastic packaging is irreplaceable in household and industrial cleaning products due to its property to resist chemicals (SKS Bottle and Packaging, 2015), groceries in the city of San Francisco should impose *refill buying* to reduce single-use, non-food HDPE plastic sales, and usage by 20% and 40% respectively.



A flowchart showing the problem (purple) broken down into multiple subproblems with light blue being the #rightproblem. Click here or on the image to expand.

Surprisingly, bulk solutions within San Francisco are limited to dry foods, with only one store, Rainbow Grocery, offering personal care and **not** cleaning products. Expanding the search to the Bay Area, outside San Francisco city, a store was located in Berkeley. FillGood is a refill store for cleaning and personal care products that saved 168,000 single-

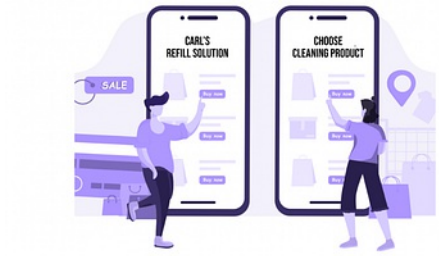
use plastics from the waste stream in 2021 (FillGood, 2022). I decided to interview Stephanie Regni, who founded FillGood seven years ago, on-site to get a full grasp of the refill grocery situation in San Francisco. Customers must bring in their gallons for FillGood to weigh the empty container, refill it, and price it accordingly with a point-of-sale (POS) weighing scale and pre-determined prices. Employees do this labor-heavy routine themselves to avoid spillages and to give accurate pricing. The same process follows for their deliveries. To compensate for their carbon footprint deliveries, they pay money that goes to green research and efforts called a verified carbon offset. Stephanie emphasized that she founded FillGood because plastics sent to recycling centers are downgraded and become less valuable. She reached out to Dr. Bronner's so that FillGood may directly return the jugs bought to replenish the store's dispensers to be cleaned and filled up again. Stephanie pursued Dr. Bronner's products as she identified the ingredients as sustainable with verification from the EWG Environmental working group.7 She believes this will be an uphill battle because companies today have learned how to produce large quantities efficiently and at a lower cost. Constraints to further implementation of refill buying in San Francisco are little nearby zero-waste groceries. Additionally, bringing containers to use requires extra effort on top of hard-to-shift human habits like the convenience of simply picking up on-shelf

I visited FillGood in Oakland and interviewed the owner/founder in order to refine my gap analysis. Listen to the entire conversation running 55 minutes here.

A potential solution involves looking at the water delivery system of the Philippines. Tap water is not drinkable in the Philippines; therefore, Filipinos must purchase water. This problem gave rise to a refilling system by water-supplying businesses because carrying weeks' worth of water is heavy and inconvenient. Once the gallons are empty, homeowners place them and money outside the houses, and a delivery service asynchronously switches the empty gallons with filled ones bi-weekly. Adapting a modified version of this system will satisfy the aforementioned constraints.

With that said, an on-demand delivery refill service (DRS) in the form of a vehicle with portable dispensers will bring the idea of refill stores to the doorsteps of locals. DRS will also encourage customers to refill their products in their original containers. First-time buyers receive the containers used by the DRS team to fill the dispensers if no other containers are available.

The ideal case would be to partner with cleaning product producers to lessen the cost because zero packaging is used. This will translate to lower prices, which will also serve as an incentive for customers to refill. To avail of the service, customers will select their desired product through an app. Using an app is now feasible because the pandemic has taught citizens to shop online. Deliveries are made in one go the day after. Before the delivery, customers leave containers outside their homes, and the FillGood process of “weigh, refill, charge” will be followed with the addition of a digital receipt. A few limitations would be the carbon footprint, which we can offset with the verified carbon offset payment. However, it is also essential to consider that deliveries reduce grocery trips. Unless partnered with suppliers, the sales of HDPE jugs will not decrease. Other products, such as powder and cooking oil, can potentially be implemented in future iterations. Additionally, traveling and delivering will boost awareness of zero-waste groceries, hopefully influencing other groceries to do the same.



Customers load in-app digital wallet and order with mobile app

Customers leave refillable jugs labelled with desired product outside of home

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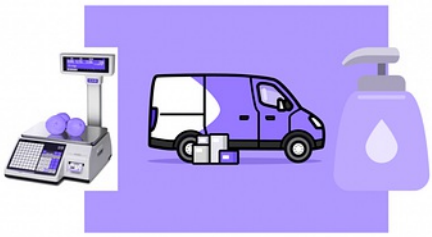
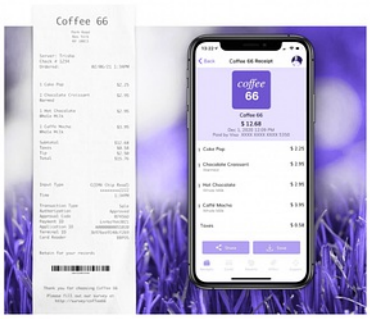


Delivery person weighs empty jugs, refills jugs, then charges customer

Point of Sale (POS) weighing scale determines how much product was used and prices accordingly

2



Digital Receipt is sent to the customer

Breakdown of prices and number of plastics saved is displayed

3

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