

## Foldy

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
Member 1: Novella Spielman	Senior	Entrepreneurship
Member 2: Marcia Aguirre Castro	Graduate	Mechanical Engineering
Member 3: Lawrence Benitez	Graduate	Computer Science
Member 4: Victor Martin-Caro Sanchez-Bayuela	Senior	Mechanical Engineering

**Advisor(s):** Jeffrey Thies

**Topic Title:** Reusable shipping packaging for subscription e-commerce

**Audience:** HelloFresh Board of Directors

### Sustainable Development Goal

SDG # 12: Responsible Consumption and Production: Ensure sustainable consumption and production patterns.

### Executive Summary

HelloFresh is a sustainable brand, producing 25% fewer carbon emissions and reducing food waste by 21% compared to traditional grocery stores. However, there is an ethical issue related to the large amounts of packaging waste, which is one of the major reasons for customer churn. Although 90% of packaging is curbside recyclable, the actual rate is only 54%, and it is not sustainable as packaging fibers continue to deteriorate over time. Additionally, with 114.63 million orders shipped in FY2024, the current one-and-done model is creating massive and unsustainable waste streams.

As a company committed to driving sustainable progress, HelloFresh can shift from a Decentralized Disposal Model and embrace a new approach of Proactive Stewardship. To achieve this, we suggest replacing cardboard boxes with Foldy, a reusable container that will be used for shipping products. Foldy is made of Polyhydroxyalkanoates (PHA) biopolymer, which is FDA-approved for food contact and has a much lower carbon footprint than traditional plastic materials. Each Foldy is engineered to survive approximately 75 distribution cycles, each unit features integrated QR codes to monitor its lifecycle, cleaning, and location.

Financially and legally, this solution is highly viable. While the initial injection-molded box costs around \$16.78, the 75-cycle lifespan reduces the operational cost to roughly \$0.83 per order. This is a substantial saving compared to the estimated \$5.25 spent on current single-use materials per shipment. Furthermore, Foldy ensures compliance with emerging Extended Producer Responsibility laws, such as California Senate Bill 54. By transitioning packaging from a disposable cost to a tracked asset, HelloFresh can dramatically reduce their environmental impact while improving customer loyalty.