

An artistic illustration in shades of blue and orange. It depicts a person's profile on the right, holding a clear reusable cup. In the background, there are stacks of similar cups. The style is painterly and textured.

# Bringing Reusable Packaging Systems to Life

*Lessons Learned from Testing Reusable Cups*



# Table of Contents

## Introduction

- [Setting the Scene](#)
- [Reuse Model Insights](#)
- [How It Works](#)

---

## SECTION 1

### Experimentation in Action — Piloting Innovative Reusable Cup Systems

---

## SECTION 2

### The Journey of a Reusable Cup — A Multi-Stage Journey

- [Customer Awareness](#)
- [Sign-up](#)
- [Point-of-Sale](#)
- [Drink Preparation](#)
- [Point-of-Handoff](#)
- [Point-of-Return](#)
- [Washing & Sanitizing](#)
- [Pick-up & Delivery](#)
- [Inventory](#)

---

## SECTION 3

### Bringing Reusable Packaging Systems to Life – Critical Inputs & Considerations for Scale

- [Engage Diverse Stakeholders](#)
- [Make Sustainable Material Choices](#)
- [Select the Perfect Spot](#)
- [Choose the Right Payment Model](#)
- [Optimize Health & Safety Protocols](#)
- [Measure Impact and Success](#)

---

## SECTION 4

### Lessons Learned — Top Insights for Reuse Models

---

## SECTION 5

### What's Next? — Building the Future for Reuse Models

---

## SECTION 6

### Appendix

- [Terms to Know](#)
- [Citations](#)
- [Acknowledgements](#)

TABLE OF CONTENTS



Dear Reader,

If you visualize the current journey of most products and packaging in our economy, including the single-use cup, it looks like a straight line that starts with extracting finite raw materials and ends at the landfill.

After decades of relying on this seemingly convenient linear system, its long hidden costs in terms of economic and environmental consequences have become clear, bringing us to a tipping point that necessitates a better way forward – one that considers these materials as resources, not waste.

A circular journey for materials rethinks the flow of our systems – building in efficiencies that recognize and capture the long-term value of resources. The circular economy relies on a number of strategies, some traditional and some innovative, that extend the lifespan of products and eliminate waste through reusing, reducing, recycling, renting, remanufacturing and redesigning products and materials. This shift in thinking and operating impacts every part of the value chain and creates a framework for global corporations, startups, governments, cities and communities to build economies that reduce costs, increase efficiency and protect the environment.

Reuse models play an important role in this shift. Pressures from consumers and regulators, reacting to the consequences of plastic waste in our waterways and even our

food, are accelerating the growth of reuse models. Over the last few years, we've seen innovative companies explore and harness groundbreaking reusable packaging and refill models, such as Algramo piloting their “smart dispensing” reuse model with companies like Nestlé and Unilever, among others; or Loop expanding their reusable packaging model to the U.K., France and the U.S. with numerous large brands.

Closed Loop Partners launched the NextGen Consortium in 2018 in partnership with Founding Partners Starbucks and McDonald's, among other leading food and beverage companies, to address the world's single-use food packaging waste by advancing the design, commercialization and recovery of packaging alternatives. As part of this, the NextGen Consortium recently piloted several new reuse models designed to reimagine the to-go fiber cup, testing for efficiency, customer and operational alignment and scalability. This report shares what we learned from these pilots – assessing the impact we can have to solve the challenges of the single-use cup, while also recognizing the promise reuse models hold for all types of food packaging beyond the cup.

The key to success for reuse models is continually testing, honing and refining them. And assessing the environmental impact of reusable packaging is paramount during this phase of experimentation – we must ensure we don't introduce new unintended consequences when replacing one system with another. In this report, we share lessons learned to inform the growth of refillable and reusable packaging across formats and markets. We are excited to continue building on the momentum of NextGen's reusable cup pilots, exploring new and diverse solutions that show that a future where reusable models replace single-use is both possible and probable.



Kate Daly, Managing Director,  
Center for the Circular Economy  
Closed Loop Partners

# The NextGen Consortium is a global consortium that aims to address the world's single-use food packaging waste by advancing the design, commercialization and recovery of packaging alternatives.

The Consortium works across the value chain – with brands, municipalities, material recovery facilities and manufacturers – to ensure we provide viable market solutions that scale throughout the supply chain and bring value to recovery systems globally.

The NextGen Cup initiative is the first by the NextGen Consortium, and aims to advance recoverable solutions for the fiber, hot and cold, to-go cup. We believe this is a critical step to unlock wider innovations and overcome the global infrastructural challenges of single-use packaging. From new materials and recovery strategies for the single-use cup, to reusable cup systems that seek to keep items in use for as long as possible – the NextGen Consortium has built a multi-faceted, portfolio-based approach to innovation that sets the foundation for combating this global waste phenomenon.

The NextGen Consortium is managed by Closed Loop Partners' Center for the Circular Economy. Starbucks and McDonald's are the Founding Partners of the Consortium. The Coca-Cola Company, Yum! Brands, Nestlé, Jacobs Douwe Egberts and Wendy's are Supporting Partners. The World Wildlife Fund (WWF) is the Advisory Partner and IDEO is the Innovation Partner.



MANAGING PARTNER



FOUNDING PARTNERS

IDEO

INNOVATION PARTNER



ADVISORY PARTNER



SUPPORTING PARTNERS



## Innovate

Source, identify and nurture leading circular solutions



## Test

Accelerate performance, environmental & recovery testing and pilot solutions



## Scale

Link innovation to the global supply chain of our partners

The NextGen framework of Innovate-Test-Scale advances the development of new cup solutions and recovery methods through iterative loops of innovation and testing, enabling us to efficiently and effectively learn and refine as a Consortium before scaling solutions.

---

# Introduction

Setting the Scene



# Today, most of the single-use cups we get from our favorite coffee spot or drive-through end up in a landfill. It is estimated that nearly 250 billion of these single-use cups are distributed globally each year.<sup>1</sup>

Unfortunately, the design feature that makes these cups reliable and easy for us to use is also the problem. Most fiber cups, often known as paper cups, have a plastic liner to prevent leaks. This plastic liner also makes the cup more difficult to recycle as the fiber and plastic components that comprise the cup aren't easily separated in the recycling process, discouraging recyclers from recovering the materials. Ultimately, this means that a high percentage of these cups end up in landfills each year, contributing to inefficient resource and material usage, greenhouse gas emissions and wasted energy.<sup>2</sup>

One way to address this issue is by leveraging reusable packaging options, which are more durable and can be used multiple times. Reusable packaging systems are good for the planet – moving us away from a take-make-waste model of material usage toward a circular economy in which goods and materials are reused and repurposed. They are also good for business – converting 20% of global disposable plastic packaging into reusable packaging is a \$10 billion opportunity.<sup>3</sup>

Reuse models will impact multiple sectors and industries. For example, reselling clothing or renting tools and equipment are all part of a broader reuse ecosystem that extends the use and lifespan of valuable materials in our economy

and lays the pathway toward a circular future.

*“We are on the cusp of a reuse revolution and expect to see more big innovations related to other applications, such as shopping bags and food packaging. Reuse will be a growing part of the plastic solution portfolio used by brands and retailers. It’s certainly not going to solve the whole plastic waste challenge, but as more of these models come to market, we are excited to see new solutions that collectively build reuse back into our cultural and behavioral norms.”*

— Bridget Croke, Managing Director,  
Closed Loop Partners

In this report, we use reusable packaging as the starting point for exploring reuse models more broadly, and specifically, we explore tech-enabled reusable cup systems that could revolutionize the way we drink our morning cup of coffee or iced drink on-the-go. These reusable cup systems leverage the ubiquity of smartphones and work with businesses to design compatible hardware and collection systems for cup management, inventory and re-circulation. While not all utilize technology, the key to any reusable cup system is to ensure that both users and restaurants and/or cafes have a seamless experience.

Through the efforts of the NextGen Consortium, we are testing, funding and scaling these systems.

The report guides you through the learnings gathered thus far during this multi-year program, exploring the different facets of reuse models – and the systems within those models that produce, distribute, monitor, collect and sanitize cups to enable their use hundreds of times, by as many consumers, across a range of differing environments. By sharing the learnings in this report, we hope to provide you with guideposts, best practices, materials to consider and actions to take when thinking about partnering with or creating your own reuse system to advance the transition to the circular economy.

**\$10 billion**  
opportunity  
in converting to  
reusable packaging

# Reuse Model Insights

The overall impact of reuse models depends on our willingness to collaborate across all aspects of the system — forging innovative new partnerships, advancing sustainability initiatives and developing new products and ways of collectively operating.

While designing and implementing new reusable packaging systems is not always easy, we have tackled some of the complexity for you. Through experimentation and piloting across the value chain, we have uncovered a set of key insights that will guide our efforts to introduce and scale reuse models now, and into the future.



01

**Reuse models must be a net positive for the environment, offering a viable solution to addressing single-use packaging waste.**



02

**Reuse models must be safe and hygienic at every step of the process.**



03

**Reuse models must provide a seamless, convenient experience for companies and customers.**

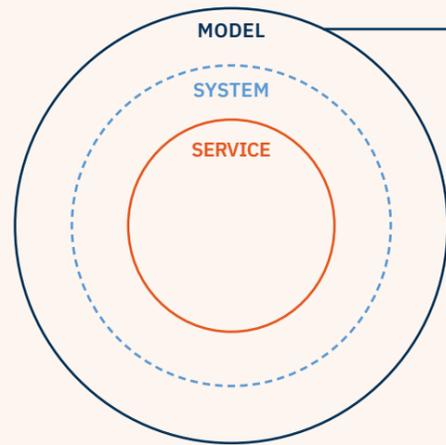


04

**Reuse models have a clear pathway to scale, and success is tied to collaboration.**

# How It Works

Reusable packaging models can take many forms, and here is one such model as tested and iterated upon by the NextGen Consortium.<sup>4</sup>



## REUSE MODELS

The overarching category of models that extend the use and lifespan of valuable materials in our economy. Organizations and stakeholders are actively working to establish how reuse models can and should work, from a regulatory, impact and infrastructure perspective, as well as what possibilities exist for various reuse models (e.g. refill on the go, refill at home, etc.).



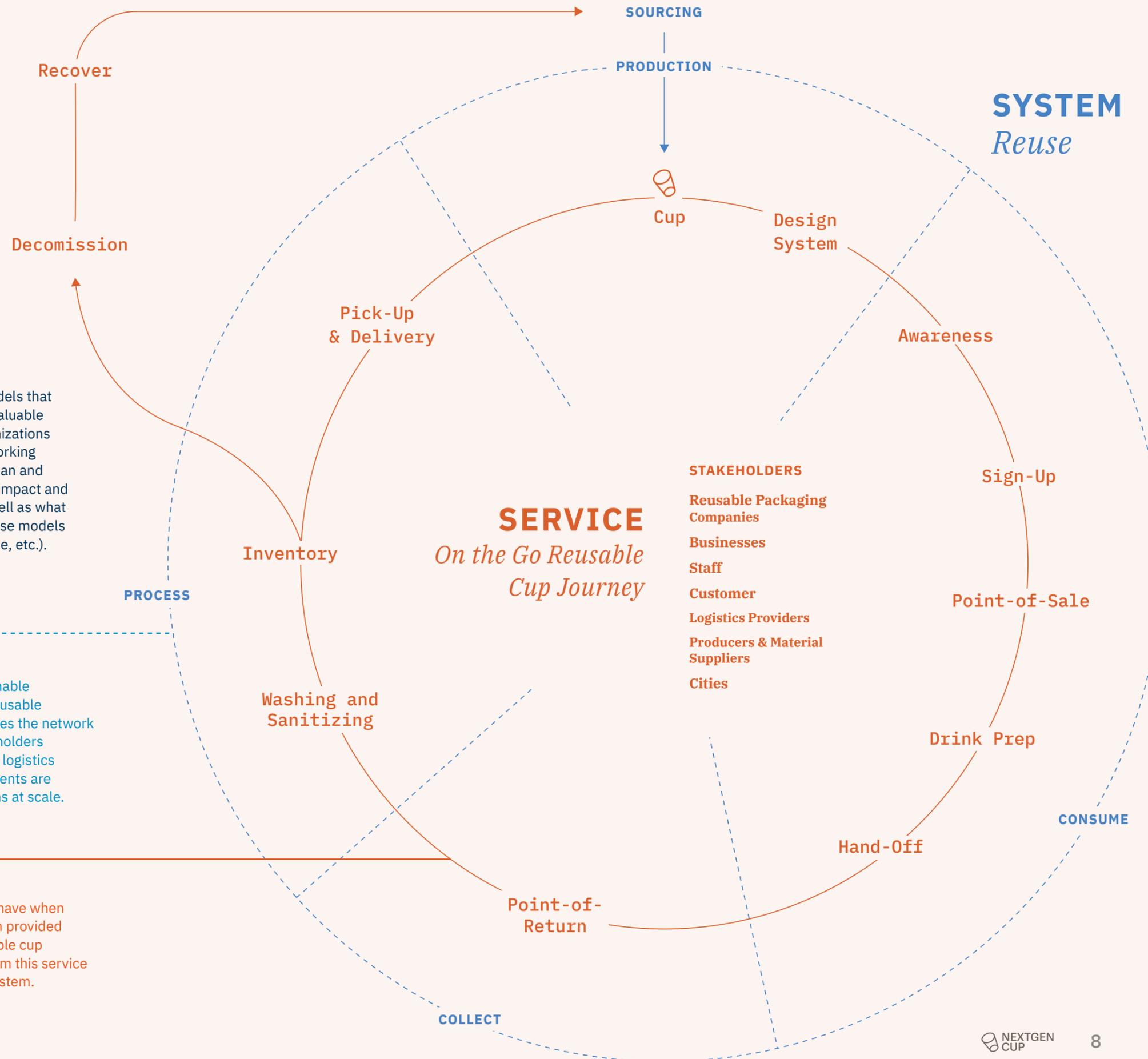
## REUSE SYSTEMS

The system that must exist to enable successful implementation of reusable packaging services — this includes the network and relationship between stakeholders involved and what technologies, logistics support or operational requirements are needed to support these systems at scale.



## REUSE SERVICE

The experience that customers have when engaging with a reusable system provided by the service provider or reusable cup company. Customers benefit from this service that exists within the broader system.



---

# Experimentation in Action

PILOTING INNOVATIVE  
REUSABLE CUP SYSTEMS





# The NextGen Consortium’s work with reusable cup systems began with the NextGen Cup Challenge – launched in 2018 – an open innovation design challenge addressing single-use foodservice packaging waste.

In total, more than 480 innovative cup solutions were submitted from over 52 countries. The NextGen Consortium and a panel of external judges narrowed the entries down to 12 winners, six of whom entered into a Circular Business Accelerator program. Three of the winners that entered the [Circular Business Accelerator](#) – CupClub, ReCup and Muuse – were reusable cup systems.

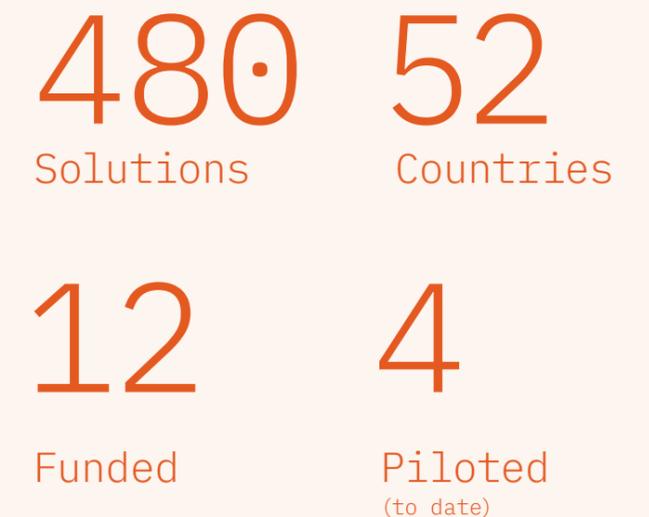
In 2019 and 2020, the NextGen Consortium launched a series of reusable cup pilots throughout the San Francisco Bay Area, working with the three winning reusable cup companies to advance and hone their cup solutions in live markets. Tests and pilots occurred across different environments: closed (technology company campuses), semi-open (university campus and train stations) and open (cities and local neighborhoods).

Historically, the Bay Area – home to Silicon Valley – has a cultural willingness to test out new products. In addition to this experimental mindset, local governments are adopting ambitious sustainability goals and partnering with innovative waste management providers. This cultural and policy context is an ideal setting for testing new systems.

*“To make these systems real, we need to pilot. It’s important to let the community see the system in action, and it helps us have a better conversation with our stakeholders. From there, we are able to work together to figure out how it becomes policy – ensuring that the framing supports the must-haves from the city, but also meets business and community requirements.”*

– Chuck Muir, Manager Environmental Control Programs (Zero Waste), City of Palo Alto

The pilots were made possible by the efforts of many – participating Northern California cafes, local city governments (San Francisco and Palo Alto), Stanford University and environmental advocacy groups – all of whom worked with the NextGen Consortium to make this vision a reality.



*“One of the first things that the public stopped using (as COVID-19 began) was reusables and bring-your-own. But scientific consensus agrees that the risks of surface transmission are low, so long as proper washing procedures are followed. We are starting to level out, when we rollout reuse systems after COVID, health and safety must be fully figured out at scale, and serve as the cornerstone of the system.”*

— Erin Simon, Director Sustainability R&D, WWF

In February and March of 2020, Muuse and CupClub piloted their respective reusable cup systems in open environments across clusters of local cafes in San Francisco and Palo Alto.<sup>5</sup> Live piloting offered these cup companies the opportunity to further test, learn and innovate. The pilots helped us understand the unique material, technical and operational changes necessary to facilitate a seamless and convenient transition to reusable cups for customers and cafes.

We evaluated cups and cup systems across four primary categories: technical feasibility, business viability, user desirability and systemic circularity. Throughout the pilots, obtaining and interpreting the right data served as a central part of our process to measure success, identify areas in need of improvement and determine next steps. The pilots were structured to capture learnings on each system’s overall effectiveness, and also align with the needs of each stakeholder involved. Making data-driven, collaborative decisions will strengthen the potential for integration and long-term viability across reuse systems. While the market is still in its early days of understanding what needs to be true for a future where reuse systems proliferate, our pilots have demonstrated that reuse systems present a viable and exciting opportunity to enhance customer experience, benefit businesses and lessen our impact upon the environment.

The reusable cup teams who piloted in market include:



CupClub, based in the United Kingdom, operates a returnable cup ecosystem, providing a service for drinks. Think bike sharing, but for cups.

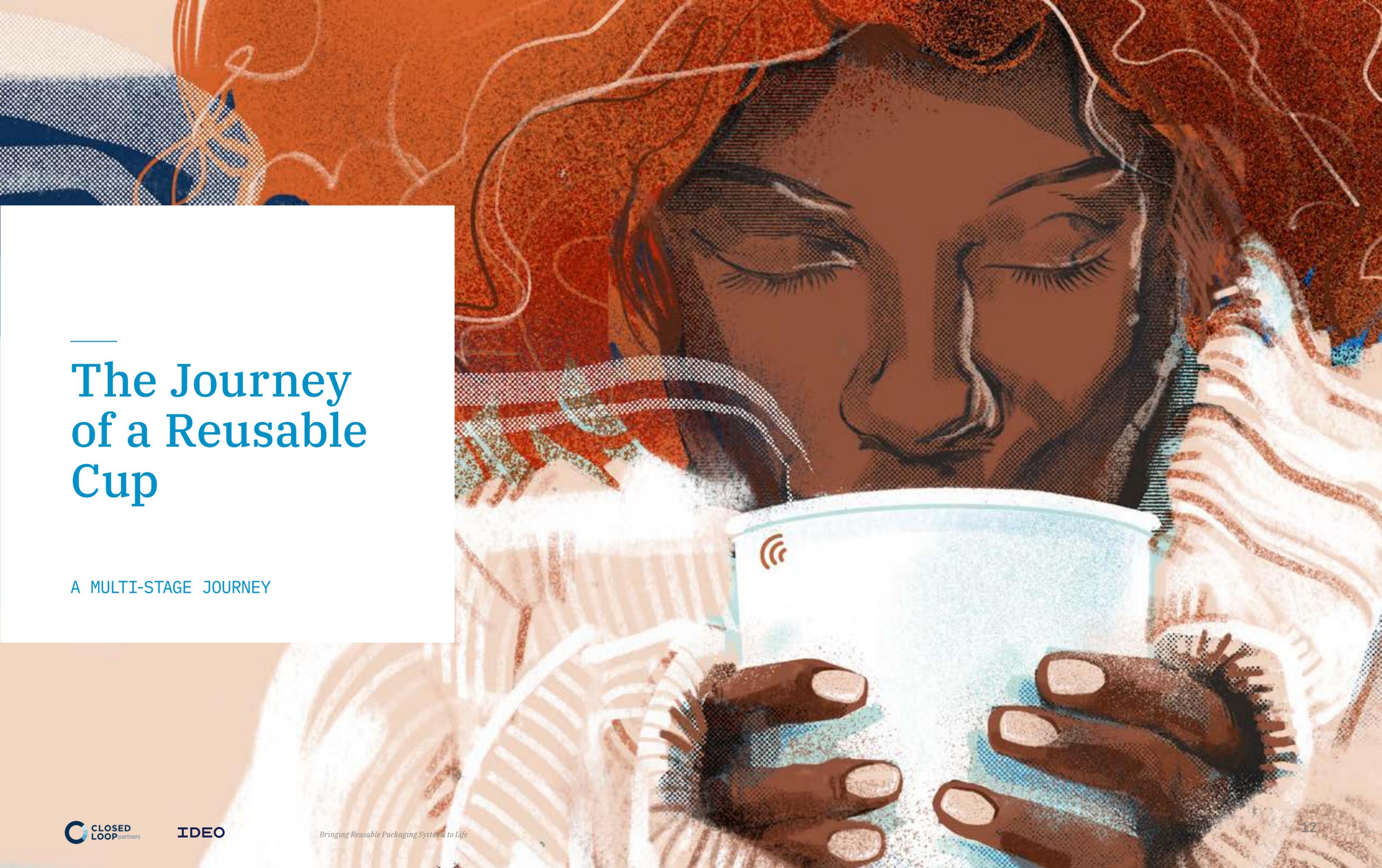


This Indonesian cup company operates a deposit-based platform for smart, reusable beverage packaging, connecting their cups — and third party products — to Internet of Things technologies.



RECUP is a Germany-wide deposit system for reusable take away containers with currently more than 5,000 participating shops throughout the country that hand out and take back RECUP’s reusable products.



An artistic illustration of a woman with dark skin and long, wavy hair, wearing a patterned headscarf. She is holding a white reusable cup with a brown logo on the rim. The background is a warm, textured orange-brown color with white and blue patterns. The overall style is a detailed, textured illustration.

# The Journey of a Reusable Cup

A MULTI-STAGE JOURNEY

# A Reusable Cup System

There are multiple steps to follow when designing or implementing a reusable cup system. Each step in the journey is integral to the total success of the system. Many variables within these systems are elastic, and should adapt to the specific needs of restaurants, cafes and customers. However, certain processes, designs and procedures must also be consistent to ensure reliable and trustworthy experiences for customers. At each step of the journey, we have identified key insights to guide the development and implementation of reusable cup (and packaging) systems.

## REUSABLE PACKAGING DESIGN CONSIDERATIONS

### Material and Cost Impact

The design of any reusable packaging should, at a minimum, consider environmental impact, cost of materials and the longevity of the package.

### Convenience

The model must be easy for the customer, employees and companies implementing the service.

### Integration

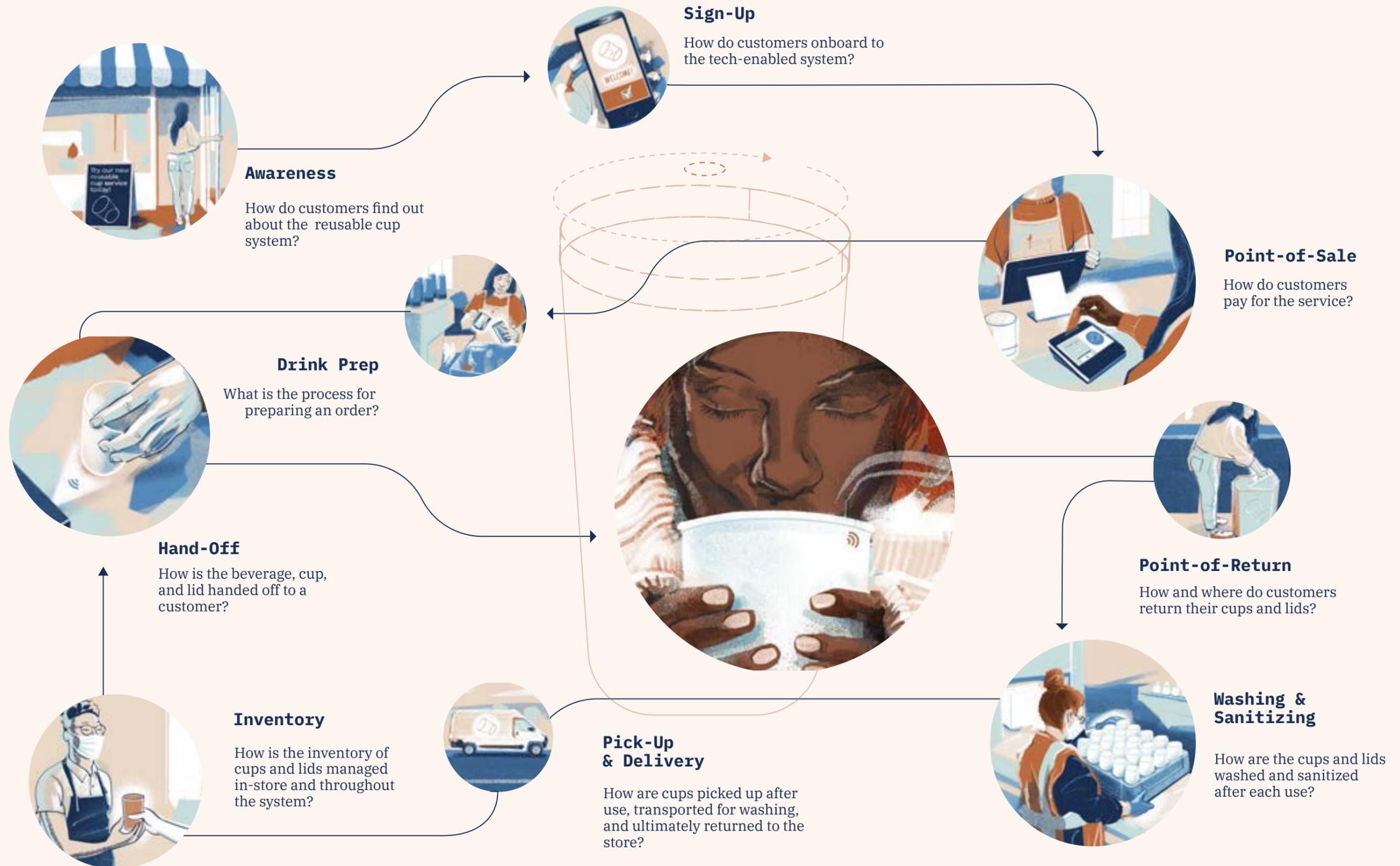
Observing, understanding and working within existing processes is important to consider, especially to prevent early-stage failures and ensure new systems align with the needs of users.

*“In order to inspire the lasting behavior change from single-use to reusables – which is something Starbucks and many of our partners and customers are advocating for – we need to create a reusable system that is easy to engage with and seamless to use.”*

— Michael Kobori, Chief Sustainability Officer, Starbucks

CONVENIENCE FOR THE CUSTOMER

# A Multi-Step Journey



## Customer Awareness

**Building awareness prior to launch can help generate interest, streamline customer onboarding and catalyze momentum. It's important to communicate rigorous cleanliness standards early on.**

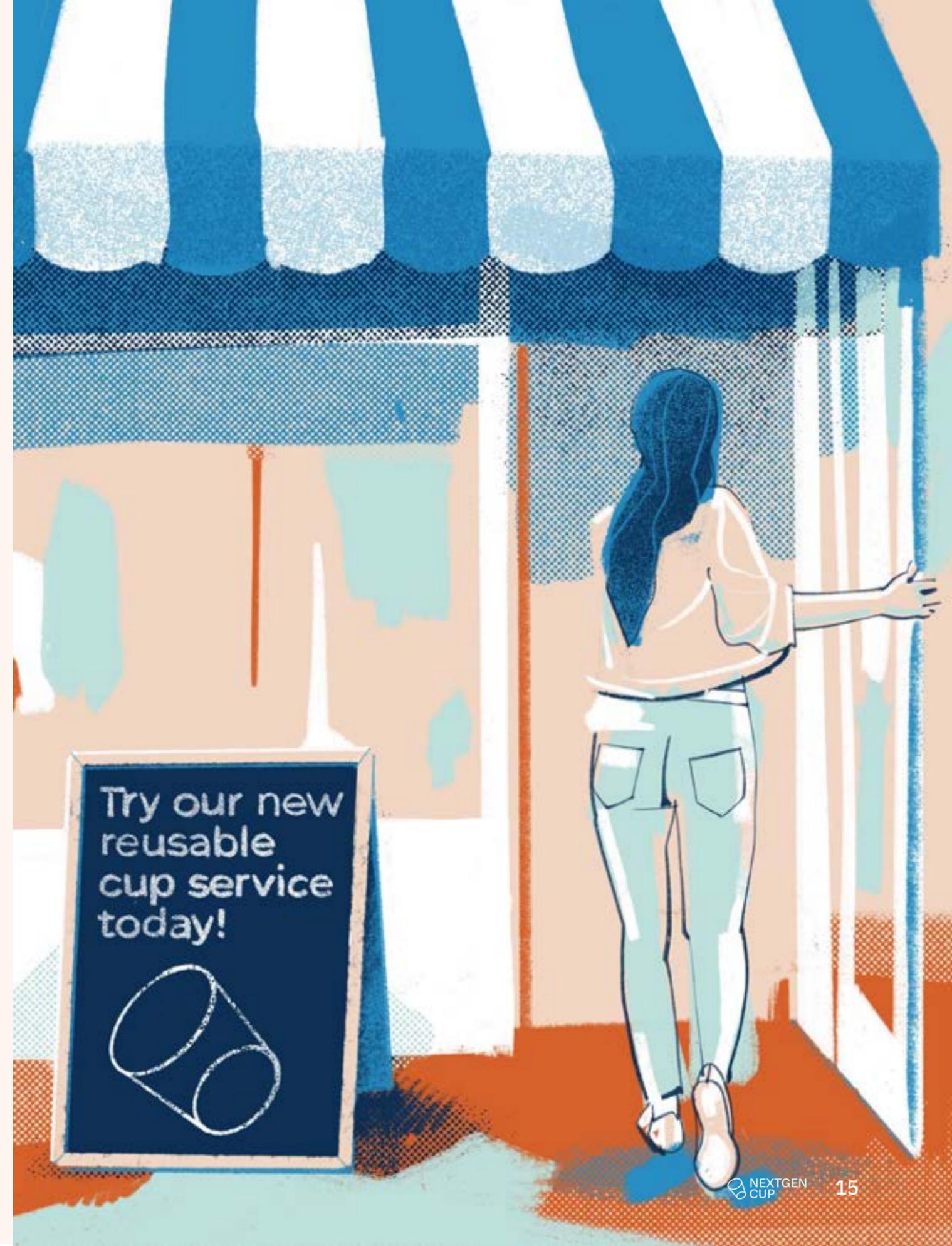
The early success of a reusable cup system depends on building customer awareness. Working with restaurants and cafes to preemptively target audiences on outlets such as social channels is an essential part of the process, and gives users a chance to familiarize themselves with the system before they get to the physical store. Customers reached in this way can also act as ambassadors for the new system, telling their friends and colleagues.

*“The story is important! Reusables are a statement and a lifestyle; people want to express themselves and their values by using the system and sharing it with friends.”*

— Alexandra Gerstmeier, Head of Business Development, RECUP



Within participating retail stores, promotional signage should be placed in high visibility areas such as the front entry, where lines form, or at the check-out counter. As users become aware of the service, abundant signage may not be a permanent need.



## Sign-up

**Simplifying the customer sign-up process to as few steps as possible is essential to build trust and convert new customers.**

To understand who has checked out and returned their cups, users must be associated with a packaging item – this means requiring customers to sign-up for the service. To make the user experience as convenient as possible, companies and retailers with reuse models are encouraged to explore opportunities for digital integration – such as embedding reusable packaging options into a restaurant or cafe’s existing mobile app (including sign-up), or integration with a third-party point-of-sale system to allow for one-stop checkout of items. In the absence of full integration, an intermediary step is needed to enable customers to sign-up and pay for the service. This often takes the form of a mobile app provided by the company leveraging a reuse model. Customers can be weary of adding complexity to already crowded mobile interfaces, so the design of the app and the sign-up process requires a delicate balance of educating the customer to build trust, while also keeping the experience easy and efficient.

*“We thought the experience was seamless. I came with a friend who had already tried the service – they brought a few of us and showed us where everything was and how to check out the cups. We love the idea and hope it’s here to stay!”*

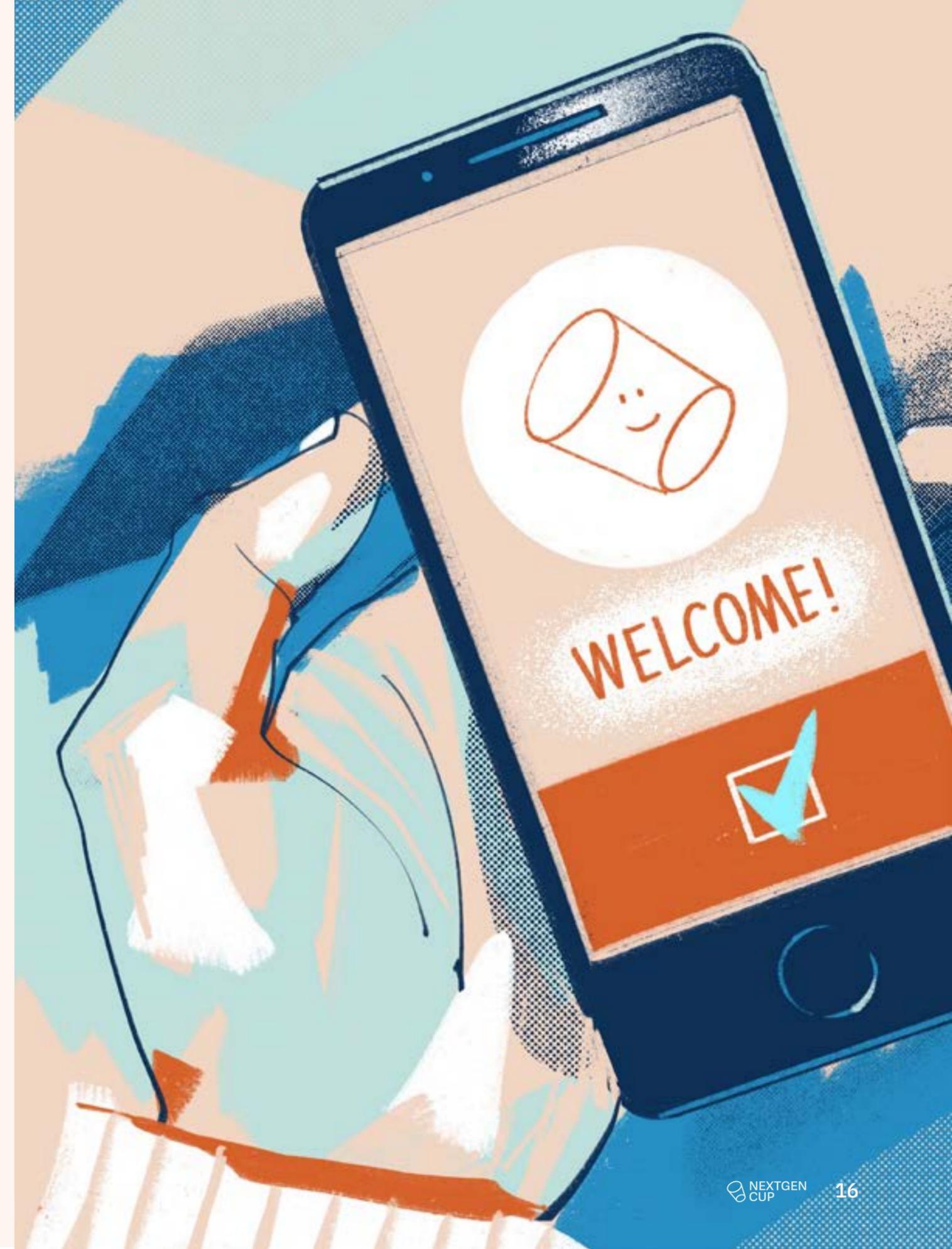
— NextGen Pilot Reusable Cup Customer



*“What is most important is reducing friction across the system and making everything approachable and convenient; we must be asking less and less of people if we want them to become regular reusable customers.”*

— Brian Reilly, CEO, Muuse

To attract and convert new customers, minimize the number of steps required for sign-up and be clear about how and why customers may be charged. Explore insights on [payment systems](#) and [incentive programs in this report](#).



## Point-of-Sale

**Placing an order for a beverage in a reusable cup should be easy. Integrating the process with existing point-of-sale systems will maximize convenience.**

Purchasing a drink should be as convenient as it's always been for customers, and the process of fulfilling the order as seamless as possible for employees. A successful point-of-sale interaction requires few decisions from users. The new layer of action here is selecting an order in a reusable cup, as opposed to a single-use. To streamline decision making, reusable cups should come in the appropriate sizes and shapes to align with the menu items offered by a host business. Integrating this order and selection process into a restaurant or cafe's existing point-of-sale software will improve the experience for everyone involved.



To support reusable cup adoption, menus and ordering systems should clearly provide the reusable cup as an order option. We foresee a future where the reusable cup becomes the default option, and customers must specifically request single-use, if that's their preference.

*“People are much more open to reusable take-out container programs now than when we started our first pilot years ago; people are starting to get more comfortable with it.”*

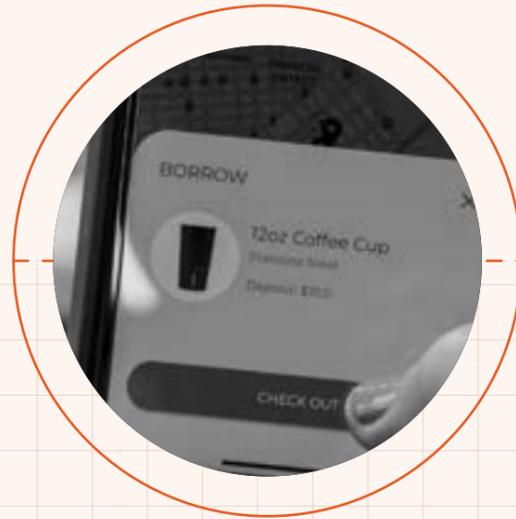
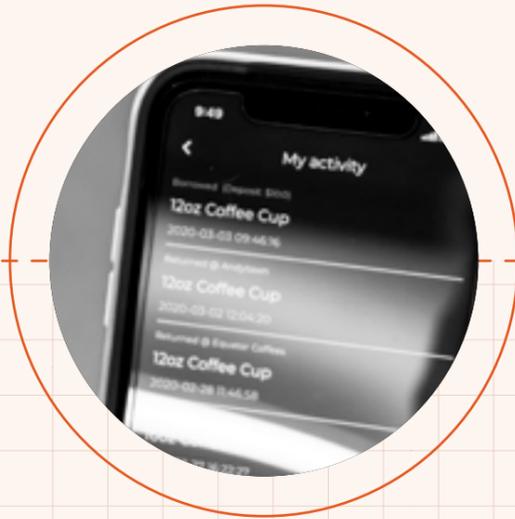
*The pilots are proving that these reuse systems are doable.*

*For system efficiency, I think we need opt-out programs rather than an opt-in ones, to maximize participation and build economies of scale.”*

— Wendy Hediger, Environmental Specialist,  
City of Palo Alto



## At a minimum, the point-of-sale process involves the following steps:



01

The customer places their order at the register or in a mobile app, and selects the reuse option.

02

The customer pays for their order, along with any associated reuse fees.

03

Staff starts a ticket that follows the drink order.

04

The user receives their order in a reusable cup\*.

05

The customer selects a lid and sleeve – selection should be contactless and hygienic.

*\*Scanning systems such as QR (quick response) codes and RFID (radio-frequency identification) chips allow for rapid checkout – the scanning process can occur between the Point-of-Sale or Point-of-Handoff – depending on the design of the system and needs of a café.*

## Drink Preparation

**Choosing the right cup design that can seamlessly integrate into existing processes provides a better drink preparation experience for staff.**

The drink preparation process must remain relatively unchanged for employees. Efficiency at this point of the journey is paramount to successful operations of any cafe, independent of a reuse system. An efficient preparation system does not burden baristas, and is frictionless. Establishing clear procedures and onboarding employees to the system is necessary to create a low-friction process.

Because they are made from more durable materials than single-use cups, reusable cups are more pleasant to handle and perform better under extreme temperatures – meaning they stay cool to the touch when beverages are very hot, and do not produce excessive condensation when housing an iced beverage – a benefit to both employees and customers.

*Read more about material choices.*



*“There is a lot you can learn from sitting in a store and observing how things work. Thinking about all who are involved when developing a system — architects, owners, employees — is key to the long-term success of a program.*

— Tim Brown, Chair, IDEO



## Point-of-Handoff

**Receiving an order in a reusable cup should be a consistently delightful experience for users, and a customizable one for restaurants and cafes, without burdening either.**

Before handing over a beverage to the customer, the staff must scan the reusable cup – associating the customer to that cup. This is a moment that can make or break the experience for customers and cafes. Whether the scanning process utilizes a smart system, such as RFID or QR codes, or another non-tech-enabled approach, the process must be foolproof. This means that everything from the design and reliability of the scanning hardware, and even the hand motion required by staff to scan the item, should be developed to harmonize with the flow of restaurant or cafe operations. Any instances of process disruption or tech troubleshooting should be minimized and designed out of the system.

At this point in the journey, a methodology should be in place for the hygienic, contactless selection of lids and sleeves (if required – many reusable cups will not necessitate a sleeve). To notify the customer of their completed order, and to avoid cup confusion, retailers can use a variety of options: printed order stickers, on-cup markings or placing the receipt under the cup.



There is not a one-size-fits-all solution. A reusable cup company should note that while customization of process is a common need from cafes and businesses, customers also need a consistent, premium experience – one that does not present them with entirely new processes at every cafe they order from. Reusable cups, and reusable packaging more broadly, must account for this balance of personalization and consistency in their system design.



## Point-of-Return

Designing the point-of-return (POR) for accessibility, brand alignment and hygiene helps build long-term success.

When a user is finished with their reusable cup, they need a place to return it, so that the system can close the loop. The moment of cup return represents the transition from the customer's journey with the cup, to the cup's journey through the remainder of the reuse system. As such, the Point of Return (POR) process and supporting hardware requires careful design so that they are easy to identify and locate, align with brand aesthetics (or at least do not detract from carefully designed cafe interiors) and provide both security and hygiene to cups and handlers.

PORs must be convenient in both design and availability. As we will explore in greater detail further on in the report, PORs should be designed to form “clusters.” Many customers are willing to make a slight detour to return their cup, but not too much. By optimizing a network of participating retail locations, and other external drop-off points, cup return can be as easy as discarding a single-use option. This moment of the journey also provides an excellent opportunity for local government collaboration, in order to utilize public spaces for more convenient return locations.



Systems that utilize technology, like RFIDs, work well to seamlessly scan cups as they are returned, and customers should receive quick confirmation that the cup has been successfully returned to reassure them they are no longer responsible for that cup.

*“The customer experience between point-of-handoff and return is going to impact the overall success of the system. This can inform whether or not a customer will actually return the item, and whether or not a customer comes back again to use the service. This is a make-or-break moment for the full system.”*

— Eva Holman, Policy Director, UPSTREAM



## Critical Considerations for Point-of-Return

### Location

The Point-of-Return should be placed along convenient routes and in locations frequented by customers. PORs can also be identified by utilizing the reuse system's mobile app (if applicable) to guide customers directly to the POR.

### Aesthetics

The POR should work with the brand of the cafe or business — and strike a balance between easy-to-locate and recognize as part of a reuse system — without detracting from established interior design.

### Hygiene

PORs must design for contactless transfer of used cups into a receptacle, and ensure this consideration is extended to the logistics staff who will ultimately collect the POR and transport it to a washing center. Additionally, the design must account for residual liquids in a splash- and spill-proof manner, while permitting hygienic disposal of these liquids at an appropriate time.

### Security

PORs should be designed for security to ensure that cups, and the POR itself, are not at risk of being tampered with or stolen.

### Confidence

Users should have a way to know that their cup has been successfully returned and they are no longer responsible for that cup.

### Ergonomics

Options need to be designed for accessibility, and to accommodate typical behavior without forcing unnatural actions. During our pilots, this was most apparent in two main areas:

**Height:** Bending down to drop a cup into a return bin at knee-height is awkward. PORs should be either stacked or designed to stand at normal waste-bin height (while remaining accessible to all).

**Cup Deposit Orientation:** Turning cups upside down to return them is uncomfortable for people because of the residual liquid often housed within that cup. Not only is it an odd behavior that goes against a lifetime of habit, the action causes splashing. Bins should have a separate place to pour excess liquids in order to minimize the risk of spillage.



## Washing & Sanitizing

**Upholding the highest standards of washing, sanitation and cleanliness is an essential component of the reuse system. Both the actual cleanliness, as well as the perception of it, are equally important to customers.**

Cleanliness and sanitation are essential to the success of the entire system. Cleanliness pertains to the cups and lids, PORs, displays and all associated reuse-enabling hardware.

This starts with effective washing methods. Washing and sanitation should be conducted according to ISO standards, and systems may also leverage industrial washing facilities to ensure reliable and hygienic approaches.<sup>6</sup>

*“Loop’s state-of-the-art cleaning systems have been scientifically developed to sanitize each item, meeting the stringent quality assurance controls of our brand partners, the same as they have for single-use packaging. With COVID, we’ve been able to reinforce that safety to consumers—we are able to test microbial and allergen levels—and I think they see that this is a professional system and they understand it’s safe.”*

— Anthony Rossi, EVP, Business Development,  
TerraCycle & Loop



The appearance of cleanliness is almost as important as cleanliness itself. Methods for washing must ensure water stains do not appear, as this can convey a lack of hygiene, and the way that cups are displayed in-store must also convey a rigorous approach to hygiene. The design of the cup and lid will also contribute to hygiene – complex forms such as sliding lid closures, or certain materials may be more difficult to sanitize – simple smooth surfaces are always easiest to clean (this applies to PORs, as well).

Selecting the right logistics partners to support in washing and hygiene can strengthen the entire system, and care should be taken to enroll the right partners within each region of reuse operations.

*[Learn more in Optimize Health & Safety Protocols.](#)*



## Pick-up & Delivery

**Designing pick-up and delivery routes, in collaboration with logistics partners, and leveraging existing operations maximizes efficiencies and minimizes environmental impact.**

Pick-up of used cups and delivery of clean cups and lids should be centered on ensuring retailers have a consistent supply with minimal business disruption. These decisions are best made in tandem with cafes and logistics partners, to create consistency in the system. Because food service providers are held to high standards of sanitation, all materials must be cleaned at the end of the day. As such, the pick-up of dirty items must occur daily, unless the business has selected to wash reusable packaging items on-site.

Cup pick-up and drop-off provides the opportune moment to scan and track inventory movement. RFID scanning or other similar methods enable efficient monitoring of many cups throughout a system.

Reusable packaging companies may also consider how best to design pick-up and delivery routes to be as efficient as possible, in an effort to limit GHG emissions and other impacts associated with transport. Think about choosing logistics partners that share similar environmental goals as your company (for example, [those transitioning to electric vehicle fleets](#)).



## Inventory

**Considering how cups stack and how they will be placed in-store and back-of-house is important, while larger volumes of inventory may need to be managed off-site.**

There are a number of considerations when it comes to the retail space the cup takes up in-store, and how it interacts with the larger pick-up and delivery system. Retail locations and reusable cup service providers should aim to stock at least two times the number of cups that are expected to be used that day. Stakeholders responsible for inventory, pick-up and delivery must work in tandem with one another to clearly identify consistent cup numbers and availability in the system.

The amount of space the cups require is a product of cup design, and will impact how much back-of-house storage and counter display can be dedicated to cups. Some of the cafes that participated in NextGen Pilots suggested that off-site storage may be the best long-term option to enable their use of the system.





## Aspects of Inventory Placement In-store to Consider:

### Stackability

Are the cups stackable and designed to take up as little counter/shelf space as possible?

### Accessibility

Are the cups easily accessible by the stakeholder responsible for selecting a cup? *(This might be the customer or cafe staff, depending on the system design.)*

### Adaptability

Are the methods for in-store cup placement adaptable to varying layouts of cafes?

### Display

Are the cups (or a selection of) prominently displayed in the cafe to promote awareness?

### Storage

Have appropriate measures been taken to ensure there is enough inventory available in-store, as well as off-site (to accommodate particularly busy periods/locations with highly limited storage)?

### Decommissioning

How will cups be removed from the system when they are no longer usable?

At some point, the reusable cup will reach the end of its useful life – whether it is physically damaged and can no longer perform, or it is simply too worn for a customer to be comfortable using the cup. The moment at which inventory transitions from POR to washing provides an excellent opportunity to inspect and decommission cups, and direct them to the appropriate recycling stream.

*“A successful reusable packaging system must align with our goals around circularity and meet the needs of our customers. Anything we add that creates complexity will ultimately impact the customer experience.*”

*Therefore, we must consider all operational aspects that could add time, including how we stock products, how the crew prepares the product, the space required, etc.*

*Examining every aspect of operations in excruciating detail will be critical to set these new systems up for success. We are committed to continuously learning and deepening our knowledge of reusable packaging to continue to meet our customers’ needs and expectations.”*

— Sue Fangmann, U.S. Supply Chain Services Director, McDonald’s



# Bringing Reusable Packaging Systems to Life

CRITICAL INPUTS & CONSIDERATIONS  
FOR SCALE



## Engage Diverse Stakeholders — *Collaboration is the key to success*

We cannot overemphasize the importance of collaboration across the entire landscape. Creating a successful reusable packaging system requires collaboration amongst diverse stakeholders — customers, businesses, staff, logistics providers and the cities they live in. This determines a model’s success. The pathways to collaboration look different for each stakeholder, and each stakeholder has a different role to play in the larger implementation of a reuse system.

*“Partnership is key to our success in solving global waste issues. Together, with the NextGen Consortium, we’re collaborating across the entire cup value chain, engaging designers, recyclers and composters among others — to find the best way forward.”*

— Michael Kobori, Chief Sustainability Officer, Starbucks

*“In order for reusable packaging systems to be a viable solution, they need to address the systemic infrastructure challenges. The value of this system’s model lies in its networked approach, which is one of the reasons we joined the NextGen Consortium. Collaborating to innovate and test solutions is essential to achieving our ambition of increasing circularity for McDonald’s packaging and at industry-wide scale.”*

— Marion Gross, Chief Supply Chain Officer, North America, McDonald’s

# Insights

01

Every market is different. The specific ways in which a local cafe and a delivery partner work together, for example, may vary based upon cultural variables or the specific capabilities those partners possess.

02

Engage with local policymakers early and often to contribute to realistic, long-term policy implementation. For example, ongoing collaboration with local governments may help to inform and create reuse policies that are rooted in the operational realities of a given system.

03

Know the key stakeholders. It is vital to map and understand all of the stakeholders – customers, employees and actors – across the existing system prior to introducing a reuse model at scale.

04

Consider the environmental impacts of the entire reuse network. Variables such as the use of water, energy and emissions are important to weigh when identifying the right system partners and location.





## Reusable Packaging Companies

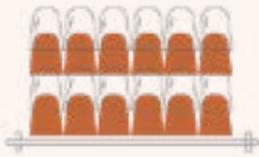
**A new generation of eco-friendly companies will help to define the possibilities of reuse.**

It has been a few decades since a milkman would deliver your milk to your door and then pick up your old glass bottles for cleaning and recirculation – at least in many Western economies. This was a trusted service that provided a convenient experience to local homes and restaurants. The premise is the same for a new generation of reusable packaging companies. Today’s entrepreneurs are out to make reuse models more accessible and more viable than ever before. Developing and supporting reuse systems that apply across a wide range of geographies, retail environments and customer types will create reliable and predictable experiences for users. Innovators and entrepreneurs know this, and are creating companies that provide the opportunity to implement reuse services to large and small businesses alike.

The marketplace of reusable cup companies continues to grow. This marketplace is populated with passionate founders, teams and companies seeking to provide a convenient solution to beverage providers across the globe that eliminates the cycle of disposable, non-recoverable packaging going to landfill after just one use.

**INSIGHT**  
**Innovative reusable packaging companies must seek to balance adaptability and predictability. Systems should be adaptable to the inevitably unique needs of individual retail and cafe locations, while also providing reliable and consistent experiences, in order to build trust with consumers. Above all, the system must also be better for the environment than the process it seeks to disrupt.**





## Businesses

**Reusable cup systems are a viable option for businesses of all shapes and sizes, and provide new ways of engaging with customers.**

There are a number of businesses that can be included in the reuse ecosystem – local cafes, event or catering companies, or a chain of multinational quick service restaurants, to name a few. Every company – from small to large – has different needs. They have different existing systems and different value chains. Reusable cup systems must be optimized to work with this variability, while also ensuring a consistent experience for customers. By honing the process, reusable cup systems can and do work across a multi-party platform that involves different and diverse retailers.

### Businesses Types

- Local coffee shops
- Multinational QSRs (quick service restaurant)
- Office/building managers
- College campuses
- Event organizers
- Catering services
- Transportation providers
- and more...

Many businesses have ambitious sustainability goals to achieve within the next five to 10 years, and reuse models provide ample opportunities to support those goals.

Preparing a business for new systems and prioritizing experimentation and innovation are big decisions, particularly in the current climate. That being said, good candidates for hosting reusable cup systems have a few things in common. They have enough space inside or outside the cafe to support pick-up and point-of-return stations. They also have enough foot traffic to ensure economic viability, and ideally have a strong base of habitual customers that are familiar with and regularly enjoy that brand, thus providing a strong base of initial customers to try and continue using the service.

**INSIGHT**  
**More restaurant operators – of all sizes – are starting to prioritize a shift to circular systems, considering where new reuse models fit into their broader business. While a full circular paradigm shift will take investment and time, momentum is clearly growing, among even some of the world’s largest corporations, in favor of providing reuse options to customers.**





## Customers

### The people have been waiting.

The choices consumers make often drive the development of new innovative products or services. Reusable packaging presents the opportunity for businesses to provide an experience where many customers feel inspired by making an environmentally conscious choice, and want to share that experience with friends, colleagues and loved ones.

During the NextGen Pilots, we observed many instances of customers trying the service for the first time, and then returning with their friends and colleagues, creating a positive network effect. Once a customer understands the functional shift from a single-use cup to reusable cup system, they often love the experience. It is important to identify early adopters or ambassadors for the program to promote the service via social media or traditional word-of-mouth brand-building. However, drawing in a broader base of customers is all about offering a more convenient consumption experience – whether through improved cup design, loyalty programs or delightful interactions.

*“I love the service! I’m definitely going to recommend it to friends, especially these days, when everyone I know is wanting to be more environmentally friendly and making choices to ensure the way they live is better for the environment.”*

— NextGen Pilot Reusable Cup Customer

**INSIGHT**  
Adoption and building awareness take time. Designing the system to align with the motivations and desires of customers will improve satisfaction and drive repeat use.





## Employees

Baristas and staff are key stakeholders in any reusable packaging system.

Employees must be able to effortlessly adopt and work with the reuse systems without added burden, and remain safe and healthy while doing so. These partners are also helpful in ensuring success with customers – promoting and educating customers on the service, answering questions and making operational suggestions to allow for a smooth preparation and sales process.

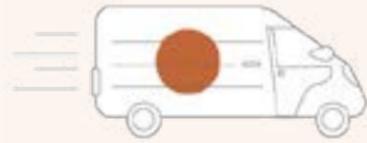
Successful reuse models will benefit from employees who are enthusiastic, knowledgeable and invested – becoming advocates for the program. This especially helps with customer uptick during the crucial, early phases of rollout. Those implementing these systems should encourage staff to approach the problem with an experimentation mindset, and iterate on the system in a way that harmonizes with their operations and ways of working. As such, it's essential to enroll baristas and other restaurant staff as design partners in reuse systems, creating a sense of co-ownership in the system and its success.

*“Employees are critical champions of reuse models, playing an important role in educating and inspiring potential customers to try something different in their routines.”*

— Bridget Croke, Managing Director,  
Closed Loop Partners

**INSIGHT**  
Reuse systems must build in feedback loops to learn from employees to avoid workflow disruption or adding more hours to staff's time. Employees can also serve as key co-designers of the system, as they most intimately know what will and won't work as it pertains to the in-store process.





## Logistics Partners

**An opportunity to partner at every step.**

Logistics partners offer a way to support systems operations for reusable cup companies and host businesses.<sup>6</sup> A reliable logistics partner will leverage their expertise to streamline a reuse system – whether that be through washing and sanitizing, warehousing, monitoring or reverse logistics. The partner ensures consistency as the reuse system expands, reducing risks and costs. Businesses launching reusable cup services may choose to handle some of these tasks in-house, or may even use a combination of both – depending on the most effective cost and management approach for that company, region or specific location.

### Logistic Partner Types

- Procurement
- Production
- Washing
- Recovery

### Reverse Logistics Types

- Pick-up and Return
- Inventory Management
- Smart-monitoring (RFID)
- Refurbishing
- Decommissioning

*“The strategy has changed dramatically over the last year to respond to city legislation and speed up the transition to zero waste. How do we design for reuse whilst providing the highest standards of quality and convenience? Our partnerships ensure we are building a network of stakeholders that can help us scale operations, whilst maintaining the highest standards required.”*

– Safia Qureshi, Founder/CEO, CupClub

Whether a company uses different providers or is full-stack, roles need to be explicitly covered to ensure that steps are not overlooked. For example, both inventory management and washing offer an opportunity to evaluate cups that should be decommissioned. In addition, it is important that standards are employed across all logistics patterns. In terms of washing, it means implementing the highest degree of ISO and antimicrobial standards, while packing or delivery may include updating safety and handling protocol with COVID-19 in mind.<sup>6,8</sup> Delivery is often complex. The delivery portion requires finding the most efficient way to transport items back to retail points, and third party partners specializing in pick-up, transport and return may be the path forward in many cases.



### INSIGHT

Reuse models require unique and complex logistics to keep packaging circulating for multiple uses. Identifying the right logistics partners that adhere to strict health and safety protocols, have meticulous quality control and align to the core values of the model will help to ensure long-term success.



## Cities & Government

### Partnerships with local government can help close the loop.

Establishing partnerships with local government agencies and understanding the dynamic environmental regulatory landscape is key to long-term model success. Support from city governments is crucial, and can lead to incentives for customers to opt into using reusable cups. Local governments can break down barriers through a variety of ways, including setting policies that promote reuse models, offering public sites for points-of-return, establishing health and operating standards and sharing essential information regarding upcoming ordinances and policies. Increasingly, municipalities have their own sustainability goals and are seeking different pathways to attain these goals. Reuse systems can play a key role in shaping these key decisions. In the city of Palo Alto, policymakers consider the transition to reuse models to be a multi-step process that starts with opt-ins and ends with more informed policy for citizens:

*“Participating in pilots such as this one helps us develop a better long term policy.”*

— Chuck Muir, Manager Environmental Control Programs (Zero Waste), City of Palo Alto

Partnering with city governments requires understanding local ordinances, identifying waste infrastructure stakeholders and ensuring adherence to local health and safety codes.

*“An important next step is to align policy with our efforts to further incentivize the growth of reuse models. We are seeing a lot of support from the industry around policy, and success will come from alignment and agreements across the value chain, – large corporates, consumers and advocacy groups, among others. Policy represents the difference between 10% and 80% adoption. It’s a missing component.”*

— Brian Reilly, CEO, Muuse

#### INSIGHT

Collaboration with local governments and cities can create a tailwind for reuse systems and inform future policy. These partnerships may encourage friendly policies that are rooted in market realities of the new systems, and foster more widespread adoption.





## Make Sustainable Material Choices — *Built to last and to be recovered*

For a reusable cup system to have a positive lifetime impact, cup materials should be chosen to ensure the possibility of many uses and the ability to be recovered at the end of its functional life. The materials selected must provide a reliable and enjoyable drinking experience for customers and fit seamlessly within brand aesthetic and operations.

When selecting which materials to utilize in the development of a reusable cup, it is important to weigh the needs of different stakeholders — the customer, the employee and the planet — and how those needs might be met by an appropriate material choice. Diverse materials are being implemented for reusable packaging around the world, beyond the cup.

NextGen reusable cup companies tested the following materials, each of which carries varying benefits and impacts: plastic (polypropylene), stainless steel and glass (borosilicate), among others.

*“Designers must understand that no material comes without impact — none of them — metals are mined, glass comes from shorelines, plastic from oil, paper from trees. None of these are infinitely available, and we’re doing a great job of stripping the planet.*

*But we can and must take steps to source responsibly. There are a lot of tools and surveys out there to help companies purchasing materials have conversations with their suppliers. This is the first step to determine if your materials are being sourced ethically and responsibly. If your supplier values these approaches, they may be the right partner.”*

— Erin Simon, Director Sustainability R&D, WWF

### INSIGHT

The number of times reusable packaging is used ties directly to its environmental impact, as does its eventual end-of-life pathway. Even the most innovative companies leveraging reuse models will require decommissioning after many uses, so designing for recyclability is critical. Important considerations around end-of-life recovery pathways, how energy intensive the material is to extract, cost and customer happiness need to be weighed before scaled production begins.



## Plastic

Reusable cups, such as those made of polypropylene, work well, are lightweight and recoverable in many markets.<sup>9</sup> The malleability of the material means the cup can be designed to look great, function well and be enjoyable to touch and hold. Some reusable plastic cups may require a sleeve for very hot beverages, such as teas. The composition and color of the plastic should be selected to eliminate the possibility of residual staining from a previously consumed colorful beverage, such as a turmeric tea, for example.

Plastic does come with messaging challenges, however. It can be confusing to “eliminate single-use plastics” with another plastic cup. Introduction of a plastic reusable cup at scale will require clear messaging about the product life cycle of the material, including the expected number of uses and end-of-life recoverability.

### Key Recommendation

Reusable cups made from plastic should be designed to last, manage heat transference and include key messaging around the life cycle benefits and recoverability of the material.



## Stainless Steel

Stainless steel cups are incredibly durable, look and feel great and provide what many customers describe as an “improved” or “premium” coffee or cold beverage drinking experience. There are many stainless steel options on the market that are gaining popularity, particularly outdoor brands that cross over to daily use. These cups keep beverages hot, without being hot to the touch (meaning no sleeve is required), and do not produce condensation when housing cold beverages. Experientially, stainless steel cups score well overall amongst customers and baristas alike. Stainless steel, however, does come with sourcing and cost challenges. It can be intensive to source and produce sustainably due to GHG emissions associated with the material’s resource extraction and production. Utilizing recycled material is recommended, when permitted. Additionally, stainless steel packaging products aren’t typically accepted in residential recycling programs and there may be the additional need for a scrap metal recycler, which adds another logistics partner. Cost of materials is also often higher than plastic.<sup>10</sup> Some customers said the cup felt “too nice to rent,” leading to concerns of cups being taken from displays or not being returned due to a customer wanting to keep the cup; although no direct evidence of this was observed during the NextGen Pilots.

### Key Recommendation

Leverage the benefits of this robust and desirable cup material, while balancing the tradeoffs associated with sourcing and cost.



## Glass (borosilicate)

Glass, while very well liked by customers and aesthetically pleasing, presents some drawbacks. Glass is resource-intensive to produce, and heavy to transport. Additionally, glass is no longer being accepted in many local recycling streams, as it is not currently economically viable to recycle this material.<sup>11</sup> While not always accurate, there may be concerns about items breaking during customer use and transport.

### Key Recommendation

Find materials that have similar aesthetics to glass but are more durable and recoverable.



## Ceramic

Ceramic, while evoking the experience of in-store dining, presents concerns around breakage – and in the case of this material, those concerns are often correct. Ceramic cups seem to be more sensitive to easy breaks and thus staff or inventory management partners often have to throw them out, diminishing the environmental rewards otherwise possible with reusable packaging.

### Key Recommendation

Perform further operational tests to find breakpoints for this material in order to determine which, if any, environments reusable ceramics are suitable for.





## Select the Perfect Spot – *There are fundamentals to selecting a retail location and where the cup lives in-store*

Proximity, convenience and connectivity are essential factors when choosing retail locations that will lend themselves to a program's success. The most advantageous reusable cup system necessitates a network of retail locations to create the easiest pathway for the consumer to check-out and return their cup. When seeking prospective retail locations or cup drop points, important factors to consider are location clusters, visibility and accessibility of check-out and drop points and convenient distances between service points.

### INSIGHT

Consider how retail locations provide convenience to the customer, while also informing and connecting to the broader reuse system. Maximizing accessibility could mean considering proximity to transport hubs and retail density, among others.





### CLUSTER

Developing accessible reusable cup systems becomes possible when networks, or “clusters” of stores and points-of-return, create enough presence within a community to become not only highly visible to, but convenient for customers. Creating clusters is key when seeking to drive a “network effect” of regular and growing use amongst customers.

### THE 5-MINUTE WALK

Also, known as the “pedestrian shed”, this is considered to be the distance people are willing to walk before opting to drive.<sup>12</sup> Based on the average walking speed, a five-minute walk is represented by a radius measuring  $\frac{1}{4}$  of a mile or about 400 meters. This rule of thumb is used to calculate public transport catchment areas or to determine access to destinations within neighborhoods, and should be applied likewise to the design and implementation of a reuse system – both in the proximity of available check-out locations and the ubiquity of conveniently located points-of-return. The “5-minute walk” is the range by which a reuse system should design its interaction points.

While the principles of network availability and convenience hold true for rural or otherwise spread out areas (such as highway corridors), the specific distances relevant to support a model in these areas diverge from the “5-minute walk.” Though we have not yet tested the drive-through application of the reuse system, we have considered that this service is used heavily in today’s market. We are interested in pursuing the impact of different location strategies further. The geographic footprint must follow the natural movement patterns and habits of customers, including all modes of transportation – even drive-throughs (a popular service in North America).

### IN-STORE LAYOUT

The in-store experience for customers should be pleasant, easy to interpret and accessible. For example, cafes must take into account spatial constraints within stores to determine the appropriate volume cup inventory stored on any given day. Cafes must also allocate space for points-of-return in visible spots to encourage cafe customers and individuals who purchased products at that, or other locations to return their items. Perhaps most importantly, the placement of cups, lids and supporting hardware must be thoughtfully placed to promote hygienic, contactless interactions amongst customers and staff alike.



## Choose the Right Payment Model — *Incentives, no hidden costs, or pay-as-you go*

The goal of reuse models is to maximize the customer experience and the life of the packaging for as long as is realistic and possible. To support this goal, these models must be economically viable and sustainable for the long-term. Revenue will come from two primary sources – transactions with customers and fees incurred by businesses utilizing the service.

The customer payment process is an area where systems integration is essential. Tailoring this process to integrate with often-used point-of-sale softwares will allow for system compatibility across a wide range of cafes and businesses. Aligning incentives with in-house rewards programs will lower the barrier for new customers and improve retention.

There are many opportunities to leverage existing financial levers and models from across the value chain to apply to, and incentivize, reuse models. Many cities around the world have already begun to introduce fees associated with single-use items, such as bags and cups – and reuse systems can begin to tailor their fees to align with these ordinances, thereby creating a net-zero impact per-use for cafes or customers.<sup>13</sup>

This is to say that if a local city is administering a \$0.25 fee per single-use cup, for example, and that fee is either being absorbed by a cafe, or in most cases, passed on to the customer, then a reuse service charging that amount or even less per use, comes to either a net-zero or net-positive transaction when compared to the single-use option.<sup>14</sup> This is an effective motivator, and the savings add up over time.

### INSIGHT

**In order to enable and encourage regular use of reusable packaging services, designing the right financial incentives, payment models and lost cup fee and accounting methods are paramount to success.**

### SOME ORDINANCES IN EFFECT

Berkeley, CA “Disposable-free dining,” ordinance, January 2020. Requires patrons who don’t use a reusable cup to pay the \$0.25 fee for a single-use cup.<sup>15</sup>

Santa Cruz County, CA, July 2020. Charges customers \$0.25 for single-use disposable cups.<sup>16</sup>

In Vancouver, Canada, there is a city-wide strategy banning single-use packaging including foam cups, takeout containers, and “effective Jan 1, 2022, businesses must charge a minimum fee of \$0.25 for every disposable cup and display the cost of disposable cups wherever customers place orders for drinks (such as menus, menu boards, and online ordering platforms)”.<sup>17</sup>

The City of Palo Alto has adopted the Disposable Foodware Items and Other Disposable Products Ordinance focusing on plastic straws, produce bags with a single-use cup tax planned for 2021.<sup>18</sup>

## Accounting for Lost Cups

At some point, a customer will misplace or fail to return a cup. While systems-design considerations can help to combat this potential issue (such as ubiquity of drop points and reminder notifications sent to users), methods must be employed to account for the value of a lost cup.

During the course of the NextGen Pilots, we observed cup return rates above the 90th percentile, with some of the companies seeing rates well above 97%.

Most customers grasp the reuse concept pretty quickly, and understand that in the case of a lost cup, a penalty will be incurred. There are two primary options to collect payment if and when a cup is lost – deposit or penalty.

### Deposit

Paid at the point of checkout is a financial hold placed on a customer’s account that is released once a checked-out cup is returned. If the cup is not returned, the deposit is not released. The deposit amount will correlate to the value of the cup.

### Penalty

Incurred only after a cup is not returned within a given time period, no upfront hold is placed.

During the NextGen Pilots, we observed that users want at least seven days before having to return the cup, to account for those who may visit a location only once per week. Many users have also expressed a desire for a small “penalty per day” (such as \$0.50) until the value is reclaimed or the cup returned, rather than a full charge, as this ensures enough time to return without becoming too expensive.

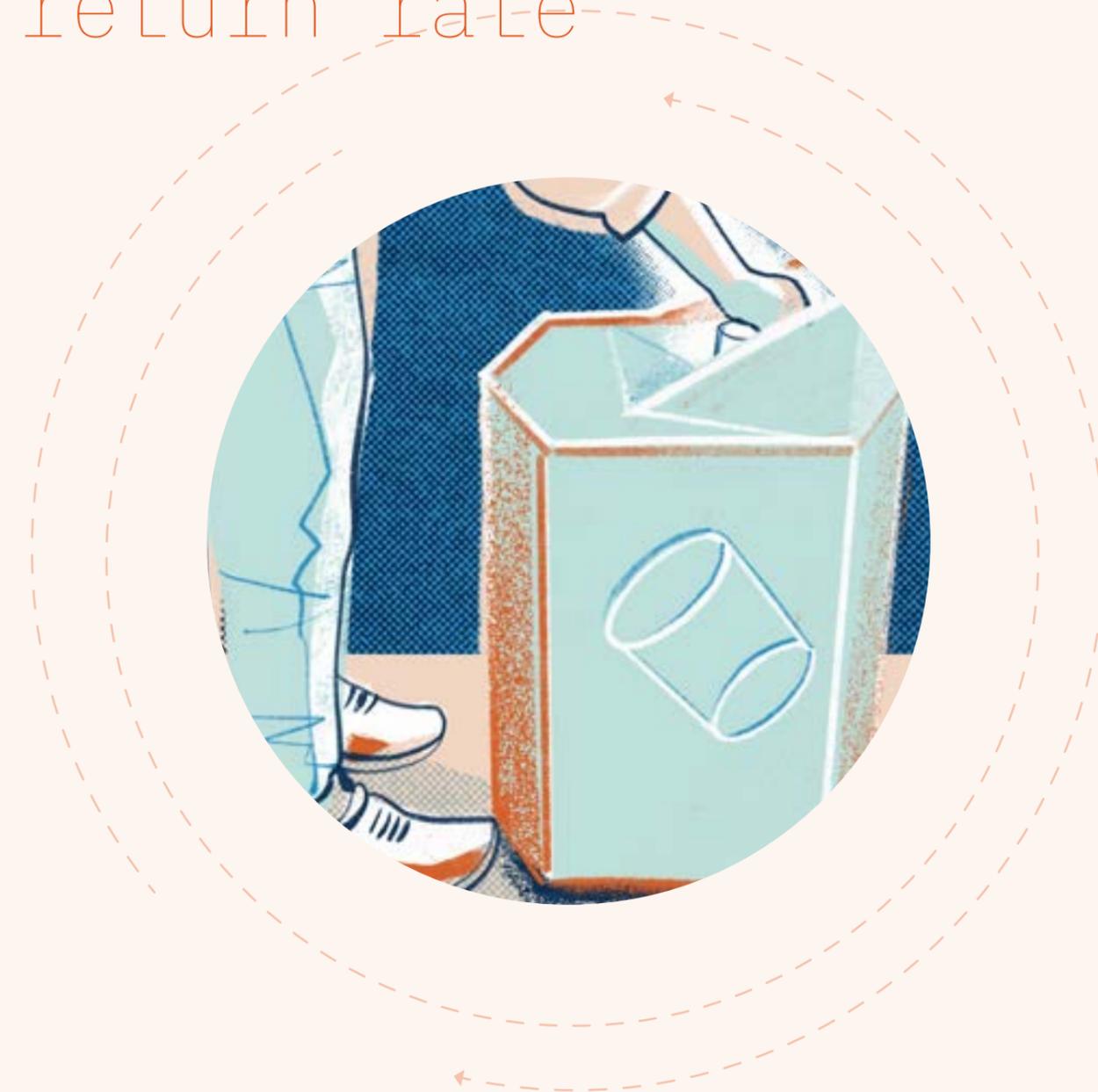
*“I like the concept of sustainability and reusability, and I am happy to pay for the service. Some form of rental or similar type of forgiving pay structure to return the cup would be favorable. Maybe \$0.50 a day, rather than a flat fee.”*

— NextGen Pilot Reusable Cup Customer

The higher quality a cup is, the more comfortable a user is with paying higher penalty fee. It is important to note that the materials selected by reusable cup companies will impact the total value of the cup, and thus the penalty fee passed on to users – if this amount is too high, it may turn off potential adopters. Perhaps counterintuitively, the fee can neither be too low, or the cost will not justify the effort of returning the cup. Learnings suggest a one-time or rolling penalty works best, rather than an upfront deposit.

90%+

return rate



# Fee for Services

## CUSTOMERS

**Reusable cup services are primarily exploring one of two methods of generating revenue through use: pay-per-use or subscriptions.**

### Pay-per-use

In surveys conducted over the course of NextGen, findings show that two thirds of people express a preference for a pay-per-use model. This model allows customers maximum flexibility without the risk of paying more for a service they may or may not use. A \$0.25 fee paid to a cup company, paired with an already-offered \$0.25 discount from cafes for reusable packaging, creates a “net-zero” transaction for users.

### Subscription

Frequent coffee drinkers, those who would expect to use the service multiple times a week, tend to prefer a subscription model. These customers say that for them to feel confident in their ability to use the service however, enough cafes would have to participate, and across different neighborhoods within a city, or even across multiple cities. If a system is scaled, our learnings suggest offering a subscription service would be a viable option for frequent users, providing an opportunity for savings over many uses, as opposed to paying each time.

## CAFES

Most reusable cup systems include a service fee incurred by cafes or restaurants in their business models. When calculating the service fee that is to be incurred by cafes, it is important for reuse systems to recognize how their fees relate to current costs of the single-use cup – charging rates that far exceed these costs might be a demotivating factor for cafes that are considering adopting a reuse model.

The fee structures implemented by reuse systems must also account for accessibility of as many users as possible, and therefore not develop overly burdensome or expensive models. Regionally specific pricing should be considered when implementing systems in differing parts of the globe. In some areas of the world, customers are used to a reuse fee, especially in those regions where policy is driving reuse system adoption.<sup>19</sup>



34%  
of people  
prefer a  
subscription  
model\*

*\*Based on NextGen Pilot research data*



# Optimize Health & Safety Protocols — *COVID-19 and beyond*

Washing and sanitization is a critical part of the reusable cup system process, and customers are even more acutely aware as a result of COVID-19. With the reality of the rapidly changing landscape of the food and beverage industry, both assurance and perception of sanitation are key. Different regions have their own set of requirements for food safety and hygiene standards, and it's important to ensure standards are not only met, but exceeded for dishware and other food-related reusable packaging.

Washing methods range from automated to industrial, and while human inspection is commonly used, leveraging an artificial intelligence system to evaluate cleanliness is an increasingly valid possibility.<sup>18</sup>

We have observed two primary methods of washing:



## 01

### WASHING IN-STORE

This method may hold up at a small local level (fewer than 20 cups per store); however, in order to effectively scale as more customers adopt the system, and to ensure quality control and hygiene standards are being upheld to the highest degree, other methods may need to be explored.



## 02

### OFFSITE INDUSTRIAL WASHING

This is the safest and best method to not only allow for a high volume of cups to be washed, but also to ensure that they are being cleaned, inspected and sanitized at the highest threshold of diligence. Reuse companies will benefit from identifying offsite, industrial grade washing partners early in their process of rolling out to a new location—establishing these relationships early will prepare both parties for scaling up as the market grows.

Systems may consider taking advantage of off-cycle catering and other industrial washing facilities that already exist in a given region.

### Washing within Points-of-Return

Some reusable cup companies are exploring what it might look like to have washing capabilities built into the point-of-return station. While this does present an interesting opportunity to minimize the need to transport cups to and from warehouses or other offsite facilities, there is still a long way to go to ensure that these tech-heavy interventions functionally work, as well as effectively clean the items.

The washing process also presents opportunities to manage inventory, as this is a key moment to inspect cups and other system accessories for wear and damage, and decommission any that have past their usable lifespan. These cups should then be disposed of in the appropriate recovery streams, assuming the material selected is recyclable or otherwise recoverable.

#### INSIGHT

Washing and sanitizing cups, lids, points-of-return and any other components of the reuse system are of extreme importance. Care should be taken across all stakeholders to ensure hygiene is maintained at the highest standards.





## Measure Impact and Success — *Developing replicable standards and processes to measure impact and success*

To champion reuse models, it's critical to show their net positive impact. And for this, hard data is a prerequisite. By constantly measuring variables, energy inputs, users and packaging uses, we can build a more complete picture of the system. This can help make the case for the transition from single-use packaging to reusable packaging through supporting numbers.

As companies leveraging reuse models scale, so too must their data systems and architecture in order to enable clear and accurate tracking. This is important both from a validation perspective, but also informs investability, product market fit and environmental impact. If additional partners, such as cafes, play a key role in this tracking, systems must be established and agreed upon to ensure data and metrics are recorded. This is likely to be a new activity for many small business stakeholders.

Developing an industry-standard approach and agreed upon set of metrics to measure the success of reusable systems will assist with scalability and establish a replicable model that drives meaningful impact.

Standardized measurement will also help to mitigate risks associated with introducing new, untested reuse models into a market.

As more and more companies leveraging reuse enter the market, it is essential that they build upon learnings already gathered, and adhere to a set of best practices. Otherwise, there is a risk of introducing an unsuccessful or undesirable solution, and turning would-be customers and advocates away due to this dissatisfactory initial experience.

*We are focused specifically on impact, so we think about the top 10 most polluting items in a metro city (our verticals are in that). It's the best way to collectively transform the industry as fast as possible. Our mission is to convert 20% minimum of every vertical we touch by 2025. Cups, food boxes, bottles and more."*

— Safia Qureshi, Founder/CEO, CupClub

*"The bottom line is that reuse helps reduce the environmental impacts of delivering food and products, saves businesses money, and creates new opportunities for entrepreneurs and investors. It's a win-win."*

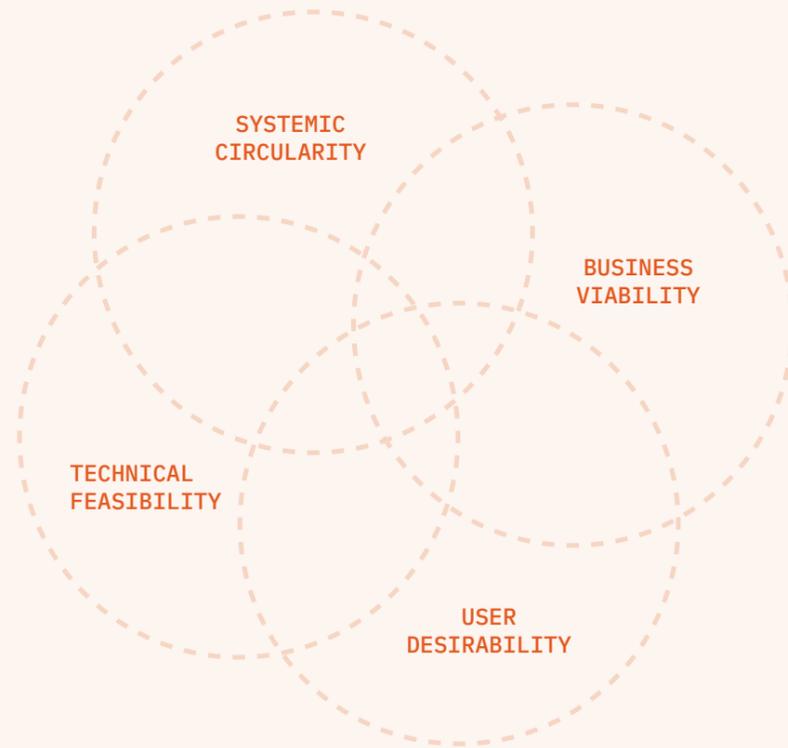
— Matt Prindiville, Lead Solutioneer & CEO, UPSTREAM

### INSIGHT

As reuse models scale, building out a standardized measuring framework can help align the industry as a whole around important metrics, moving us forward collectively. After aligning on a standard set of metrics, benchmarking and baselining will help evaluate future progress and set attainable performance goals and targets.

# Reusable Cup System— Metrics and Evaluation

To support industry-wide learnings and inform consistent service design, there are a number of metrics within each of the four key criteria to consider. Learnings must be gathered across every moment in the cup journey, and for every stakeholder group. Critically, measurements are to be taken across the following key areas:



Systemic Circularity	System	Cup
How circular is the system, and does it drive toward a net positive environmental impact?	Environmental Impact of Overall System Impact of Supporting Hardware Return Rates Material Sourcing Water Usage	Durability – Uses Per Cup Recoverability Sourcing Cup Data Generation Cup Loss Rates

Technical Feasibility	System	Cup
How achievable is the solution technically?	Cup Tracking Effectiveness Data Architecture Capabilities Tech Functionality Logistics Management & Communications Tech Integration and System Alignment	Form Factor of Cup Thermal Transfer Score Lid & Lid Fit Spillage Potential Nesting Capabilities Cup Size Alignment Material Performance Storage Methodology

User Desirability	Reusable Customers	Retail/Cafe
How desirable is the service for customers and stakeholders?	Overall Experience Sign-up Process Incentives & Rewards Payment Process Cup Experience Point-of-Return Mobile Experience Net Promoter Score	Order Fulfillment Experience Behind-the-Counter Operations Customer Interactions System Adaptability Social Media Engagement

Business Feasibility	Retail	Reusable Cup Company
How sustainable is the service from a business perspective?	Revenue Potential for Cafes In-Store Operations Change in Operations Required Cost of Operations Incentive/Fee Alignment Order Fulfillment Time New Customer Potential Barista Training Effectiveness Media Attention Generated	Operating Costs Breakeven Point Revenue Potential Organization/Team Growth & Scale Opportunity

---

# Lessons Learned

TOP INSIGHTS FOR REUSE MODELS



# Reuse Model Insights



01

**Reuse models must be a net-positive for the environment, offering a viable solution to addressing single-use packaging waste.**

The opportunity to close the loop on valuable materials is within our reach. There are more tools than ever to create products and systems that use materials more efficiently, make sound ethical sourcing decisions and test long-term impacts of new systems. We have the technology, the knowledge and the networks to make a measurable positive impact moving forward. The size of this impact comes down to a willingness to collaborate across sectors, finding value alignment, key partners and driving towards innovations that benefit our environment.



02

**Reuse models must be safe and hygienic at every step of the process.**

More than ever, safety of employees and customers are to be prioritized. Reuse models must establish values that place safety and hygiene at the core of their operations. Time and time again, findings have demonstrated that safety and hygiene cannot be compromised for any reason. With the reality of COVID-19 changing the landscape of the food and beverage industry, assurance and perception of sanitation are critical. In addition, new delivery methods beyond brick-and-mortar operations may warrant further exploration.



03

**Reuse models must provide a seamless, convenient experience for companies and customers.**

We need to aim higher and build seamless and accessible ways of getting goods to the people who desire them. The onus cannot fall on the consumer, nor can the system make the process more burdensome, especially when competing against the convenience of single-use alternatives. To deliver the most convenient experience, testing and streamlining the process will be necessary. Identify integration opportunities – consider which components within current operating systems (especially POS and mobile apps/payments) are capable of, and ready for, integration.



04

**Reuse models have a clear pathway to scale, and success is tied to collaboration.**

Reuse models work, and are ready for testing at an increased scale. To enable this, partnerships should be prioritized across the ecosystem. Consider who might need to be involved to make the system successful. How will you identify and partner with these individuals and organizations? Start collaborating now and see how progress unfolds when numerous stakeholders work to solve the same problem. Customers continue to note a high-saturation of their favorite cafes offering the service as a primary motivator for whether or not they would try a reusable product or container, and cross-brand partnerships are the key to unlocking this potential.

*“Just a few years ago, the idea of scaling reuse habits among the public would have felt like an unlikely reality. But today, large consumer goods companies and retailers realize that contemporary reuse models can and must be part of solutions for addressing plastic waste and consumption. Because of this, and the growing demand from consumers, we are seeing a wave of innovation in reuse business models.”*

*Critically, as we bring these new models to scale, we need to make sure we’re reaching beyond the high-income, sustainability-oriented consumer. Cost competitiveness must be top of mind in order for us to have the largest reach and, ultimately, the biggest impact.”*

— Bridget Croke, Managing Director at Closed Loop Partners



# What's Next? — *Building the future for reuse models*

The world is ready for reusable cups. Billions of beverages are being served right now across the world in local cafes, family restaurants and across multinational brands.

The customer's mind is increasingly focused on safety and our planet, which more than ever is creating an opportunity for us to renew and double down on our efforts to transition to a circular economy. The overall impact and potential of reuse models depends on our willingness to collaborate across all aspects of the system by harnessing innovative partnerships, smart products, materials innovation and new sustainability initiatives. The key insights we have learned through testing, customer feedback and years of development will guide us to a more sustainable and circular future.

*“McDonald’s cups are an iconic part of the customer experience and can serve as a key gateway to increasing circular systems for our restaurants. We remain committed to meaningful collaboration and solutions that will reduce waste and impact change at scale.”*

— Marion Gross, Chief Supply Chain Officer, North America, McDonald’s

*“Right now, we’re working to test, learn and further explore the possibilities of reusable packaging and reusable systems. Thanks to industry-wide partnerships like the NextGen Consortium, technological developments, consumer demand, the business case for resource efficiency and the urgent need to protect our environment, we’re looking at the perfect moment to accelerate the shift from single-use to more sustainable options.”*

— Michael Kobori, Chief Sustainability Officer, Starbucks



*“We are excited to continue building on the momentum of NextGen’s reusable cup pilots, sharing insights and supporting the further development of innovative reuse models, in partnership with Starbucks, McDonald’s and other partners. This is just the beginning of our journey toward eliminating waste and we will continue to refine, test and hone circular solutions that can help us realize a more circular future together.”*

— Kate Daly, Managing Director, Center for the Circular Economy, Closed Loop Partners

---

# Appendix

# Terms to Know

## Barista/Employee/Staff

A person whose job involves preparing and serving different types of coffee. In this case, while the product and process are different, it can be assumed that “barista” also includes a person serving other types of drinks, including soda, smoothies, teas, etc.

## Cluster

A localized grouping of cafes, food and beverage locations and PORs within a region. This grouping provides the geographic conditions needed for a reuse system to function.

## Consortium Partner “Partner”

A Partner of the NextGen Consortium.

## Cup Company/Team

A company or startup team that is developing and offering a reuse service to customers and cafes.

## Decommission

To remove a damaged or otherwise no longer usable cup or packaging item from circulation within a reusable packaging system.

## Host Cafes/Cafes

Cafes or other food and beverage locations that are participating in and offering reusable packaging services to their customers.

## Life Cycle Assessment “LCA”

Life Cycle Assessment is a methodology for analyzing environmental impacts associated with all the stages of the life cycle of a commercial product, process or service.

## Pilot

A test of a product, service or system in conditions that reflect that product, service or system’s true market and operating conditions. In this case, cafes in the SF Bay Area, with real, paying customers.

## Point-of-Return “POR”

A place where a customer can drop off a used reusable cup, thereby returning the cup back to the system. These can take many forms, and can be located in coffee shops, local businesses or in a publicly accessible location.

## Point-of-Sale “POS”

The place where a customer pays for and receives their order, such as a store counter.

## QR Code “QR”

A machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information that can be read by the camera on a smartphone.

## Reusable Cup System

A circular system that enables the reuse of packaging, in this case cups, by providing a service in which a customer is able to order a beverage in a cup, consume the beverage (either in-store or on-the-go), and drop the cup off at either the location at which it was purchased, or another “point-of-return” in a different location than the original point-of-sale.

## RFID

Radio-frequency identification uses electromagnetic fields to automatically identify tags attached to objects. In this case, these objects are reusable cups and lids.

# Citations

1. Vignieri, S. (2020, April 24). Legacy of the disposable cup. Science. <https://science.sciencemag.org/content/368/6489/382.6.full>.
2. The New Plastics Economy: Rethinking the future of plastics & catalysing action. The Ellen MacArthur Foundation. <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics-catalysing-action>. 13 December 2017.
3. Written by Zara Ingilizian, H. of S. the F. of C. M. of the E. C. (2019). Reusable packaging: 6 benefits beyond sustainability. World Economic Forum. <https://www.weforum.org/agenda/2019/07/reusable-plastic-packaging/>.
4. The New Plastics Economy: Rethinking the future of plastics. World Economic Forum and the Ellen MacArthur Foundation, <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics>. 2016.
5. Chasen, E. (2020, February 18). Don't Toss That Cup: McDonald's and Starbucks Are Developing Reusables. <https://www.bloomberg.com/news/articles/2020-02-18/reusable-coffee-cups-being-tested-for-mcdonald-s-and-starbucks>
6. ISO 22000 - Food safety management. (2020, March 17). Retrieved December 03, 2020, from <https://www.iso.org/iso-22000-food-safety-management.html>
7. McDonald's Corporation (2020, September 9). McDonald's Announces Industry-First Partnership with Zero-Waste Platform Loop to Pilot Reusable Packaging. McDonald's. <https://corporate.mcdonalds.com/corpmcd/en-us/our-stories/article/ourstories.Zero-Waste-Loop.html>.
8. World Health Organization (2013, September 19). Surveillance standards for antimicrobial resistance. World Health Organization. [https://www.who.int/drugresistance/publications/WHO\\_CDS\\_CSR\\_DRS\\_2001\\_5/en/](https://www.who.int/drugresistance/publications/WHO_CDS_CSR_DRS_2001_5/en/).
9. Closed Loop Partners. (2020, November 6). Advancing Circular Systems for Plastics. Closed Loop Partners. <https://www.closedlooppartners.com/research/advancing-circular-systems-for-plastics/>.
10. Tullo, A. (2020, July 29). The cost of plastic packaging. <https://cen.acs.org/articles/94/i41/cost-plastic-packaging.html>
11. Jacoby, M. (2019, February 13). Why glass recycling in the US is broken. Chemical & Engineering News. <https://cen.acs.org/materials/inorganic-chemistry/glass-recycling-US-broken/97/i6>.
12. Law Insider definition "Pedestrian Shed". (2020). Retrieved December 03, 2020, from <https://www.lawinsider.com/dictionary/pedestrian-shed>
13. A new Way Home: Assessing the design opportunities to replace today's single-use retail bag. Closed Loop Partners. <https://www.closedlooppartners.com/beyond-the-bag/a-new-way-home/>. 2020.
14. Staff, W. T. H. R. (2020, January 2). California city imposes fee for single-use cups. wthr.com. <https://www.wthr.com/article/news/nation-world/california-city-imposes-fee-single-use-cups/531-cfde39cc-af67-44d5-a973-dc043cc56a07>.
15. Associated Press. Berkeley approves 25-cent fee on disposable cups at restaurants. <https://www.latimes.com/local/lanow/la-me-ln-berkeley-plastic-cup-ban-20190123-story.html>. (2019, January 24).
16. McAllister, T. Surcharge On Single-Use Plastic Cups Enacted In Santa Cruz County. Santa Cruz, CA Patch. <https://patch.com/california/santacruz/surcharge-single-use-plastic-cups-enacted-santa-cruz-county>. (2019, November 19).
17. City of Vancouver, Single-Use Item Reduction Strategy. City of Vancouver. <https://vancouver.ca/green-vancouver/single-use-items.aspx>. (2020).
18. Palo Alto, CA. City of Palo Alto, CA - Disposable Foodware Ordinance. <https://www.cityofpaloalto.org/gov/depts/pwd/zerowaste/projects/foodware.asp>. (2020).
19. Shieber, J. (2020, May 28). Dishcraft Robotics is using robots to save reopening restaurants from creating more waste. TechCrunch. <https://techcrunch.com/2020/05/27/dishcraft-robotics-is-using-robots-to-save-reopening-restaurants-from-creating-more-waste/>.

All inquiries can be directed to  
[admin@closedlooppartners.com](mailto:admin@closedlooppartners.com)



# Acknowledgments

Conducting these live pilots required the support and participation of many additional stakeholders from city government to NGOs. Here are some of the stakeholders who played a role in the pilots and in developing this report.

## CONSORTIUM PARTNERS



MANAGING PARTNER



FOUNDING PARTNERS



INNOVATION PARTNER



ADVISORY PARTNER



SUPPORTING PARTNERS

## KNOWLEDGE PARTNERS



## REUSABLE COMPANIES

