

An aerial photograph of a winding asphalt road through a lush green valley. The sun is low on the horizon, creating a warm, golden glow and long shadows across the hills. The road curves through the center of the valley, with a metal guardrail on the right side. The landscape is covered in dense green vegetation and scattered rocks.

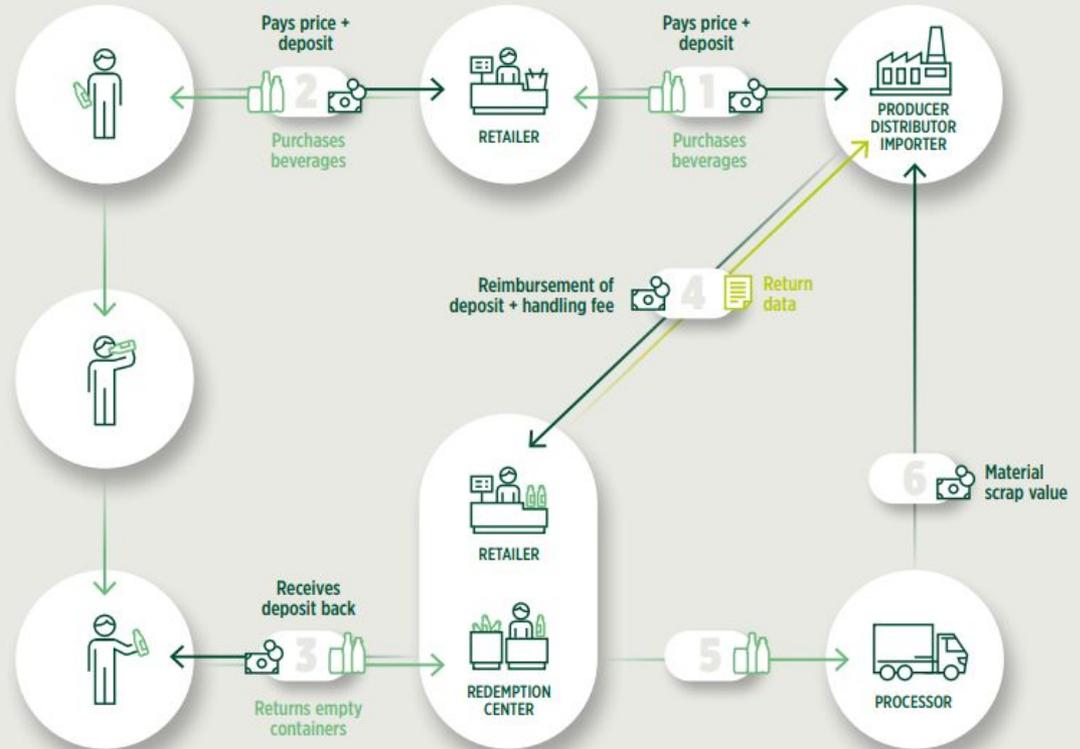
CLYNK

May 2022

Maine

- Most expansive US bottle bill
- High recycling rate (highest of \$.05 deposit states)
- “Distributors” pay **handling fees** and deposit reimbursements
- Distributors own the material
- MRFs/Haulers do not get paid

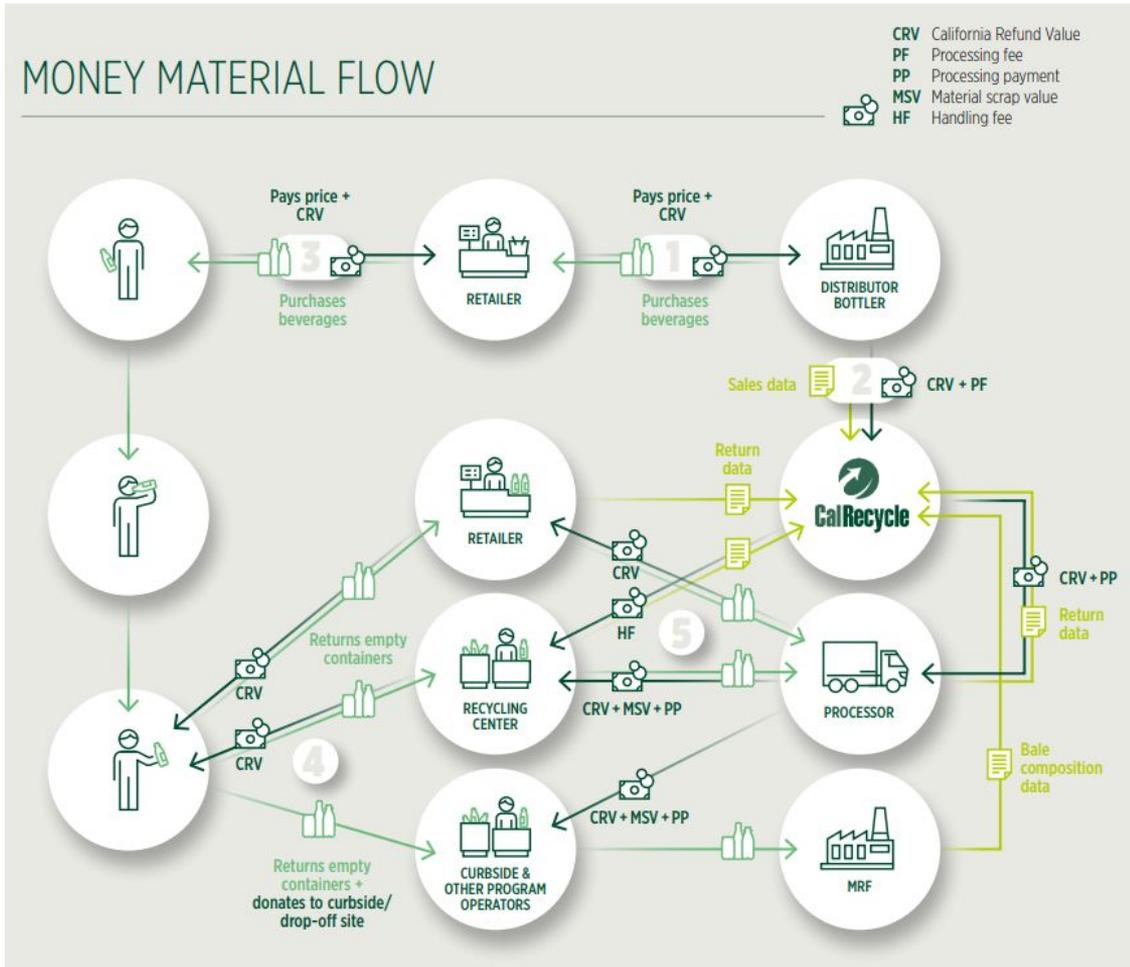
MONEY MATERIAL FLOW



Source: 2020 Global Deposit Book, ReloopPlatform.org

California

- Complicated money flows
 - Variable reimbursement for recycling centers
 - Convenience deserts
 - Lower recycling rate
- CalRecycle plays a large role
- “Distributors” do not own the material
- MRFs/Haulers get paid
- Less expansive/fewer containers types, e.g. wine and spirits



Source: 2020 Global Deposit Book, ReloopPlatform.org

How are bottle bill containers redeemed so they can be recycled back into beverage containers?

There are **three main recycling modalities** for redeeming beverage containers



Hand Count

Hand count recycling involves human beings manually collecting recyclable material and paying customers. In some jurisdictions hand count is the primary modality at recycling centers.



RVM

Reverse Vending Machines allow consumers to feed beverage containers into an unmanned machine equipped with technology to identify redeemable containers.

The RVMs typically pay the customer either by issuing a voucher that can be cashed out at a cash register. Some RVMs support online payments.



Bag Drop

Bag Drop is the newest modality for beverage container recycling. Consumers create recycling accounts and then drop off whole bags of beverage containers. Like RVMs, Bag Drop locations are unmanned. The containers are brought to processing locations for high speed container identification. The consumers' recycling accounts are credited the value of their redeemables within days and funds are accessed via voucher or digital transfer.

Which is best? Each modality has strengths and weaknesses.



Hand Count

Pros

- Hand count provides local jobs to people often in areas where jobs are needed.
- Immediate payment
- Accepts all container types

Cons

- Inconvenient locations for most consumers
- Time consuming (lines) for consumers
- Expensive to operate especially in the context of labor shortages
- Economics sometimes cause limited hours of operation
- Less of a data trail. Outdated paper processes and cash transactions beg questions about fraud
- Not tech-enabled



RVM

Pros

- Immediate payment
- Unmanned
- Densification of containers for transport
- Widely used

Cons

- Time consuming transaction for the consumer - feed one container at a time
- Unrecognized containers get rejected, leaving the consumer to go inside of store or discard in trash, forfeiting deposit
- Can't accept all container types
- Distribution of technology makes performance monitoring difficult
- Application specific infrastructure is not versatile and potentially expensive to upgrade



Bag Drop

Pros

- Most convenient: Transaction takes 15 seconds for hundreds of containers
- Accepts all container types
- Accounts allow container data updates to be paid retroactively
- Account-based approach offers opportunities for consumer engagement
- Forward compatible - can accept other EPR material
- Easily upgradeable

Cons

- No immediate payment
- Account setup required
- Non-densified containers
- Requires specific bags to support operational efficiency and safety

Where bag drop is available, it becomes *The People's Choice*



Modern

Fast

Convenient



Bag Drop Overview

Convenience drives recycling!

CLYNK **Bag Drop** transforms a hassle-fraught, time consuming chore into a pleasant **15 second** process.

It's as **easy** as

1



Bag It

2



Tag It

3



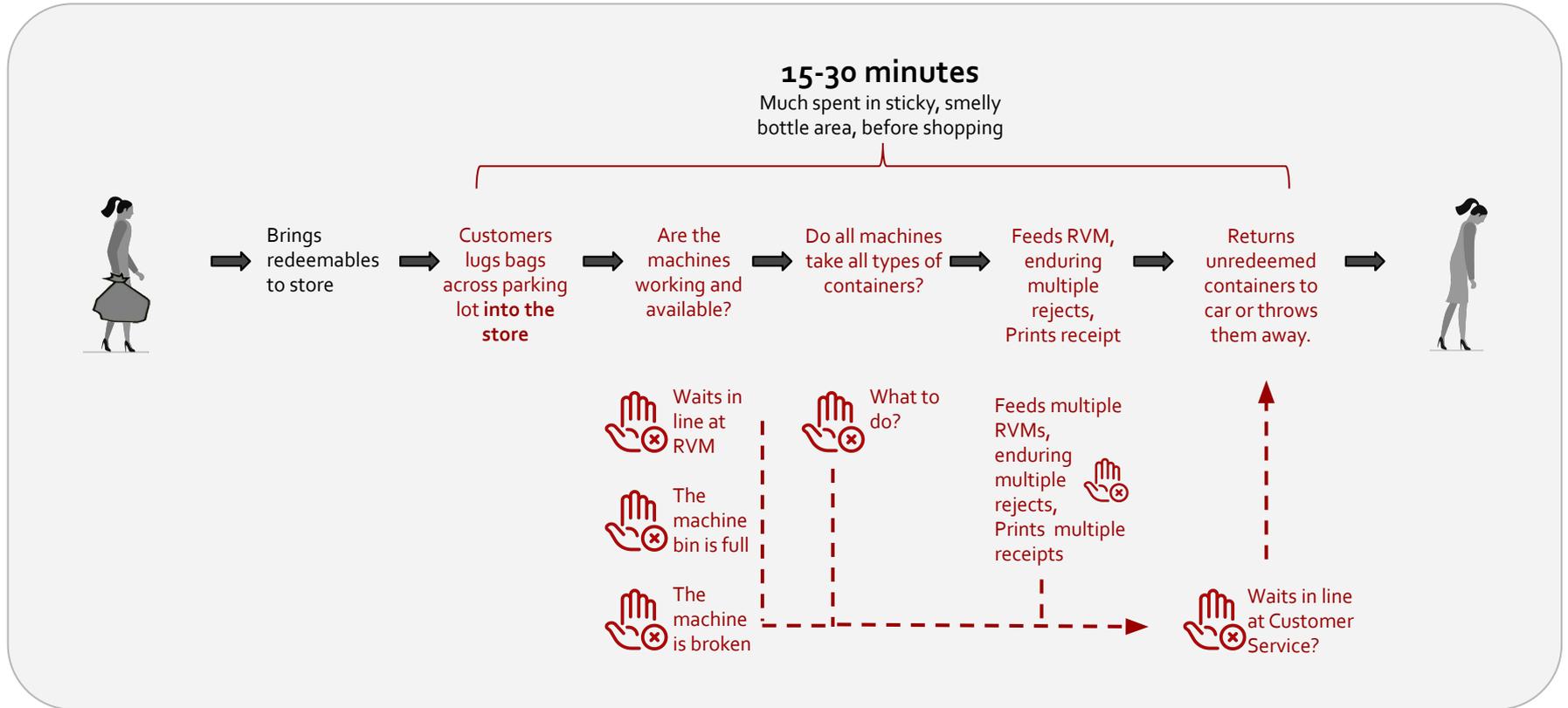
Drop It

Mixed redeemables can
all go in the same bag.

Family-friendly drop off locations
are self service and secure.

Refunds are automatically
applied to an online account.

RVM Redemption Customer Experience can be **unpleasant and time consuming**



Bag Drop a win for customers





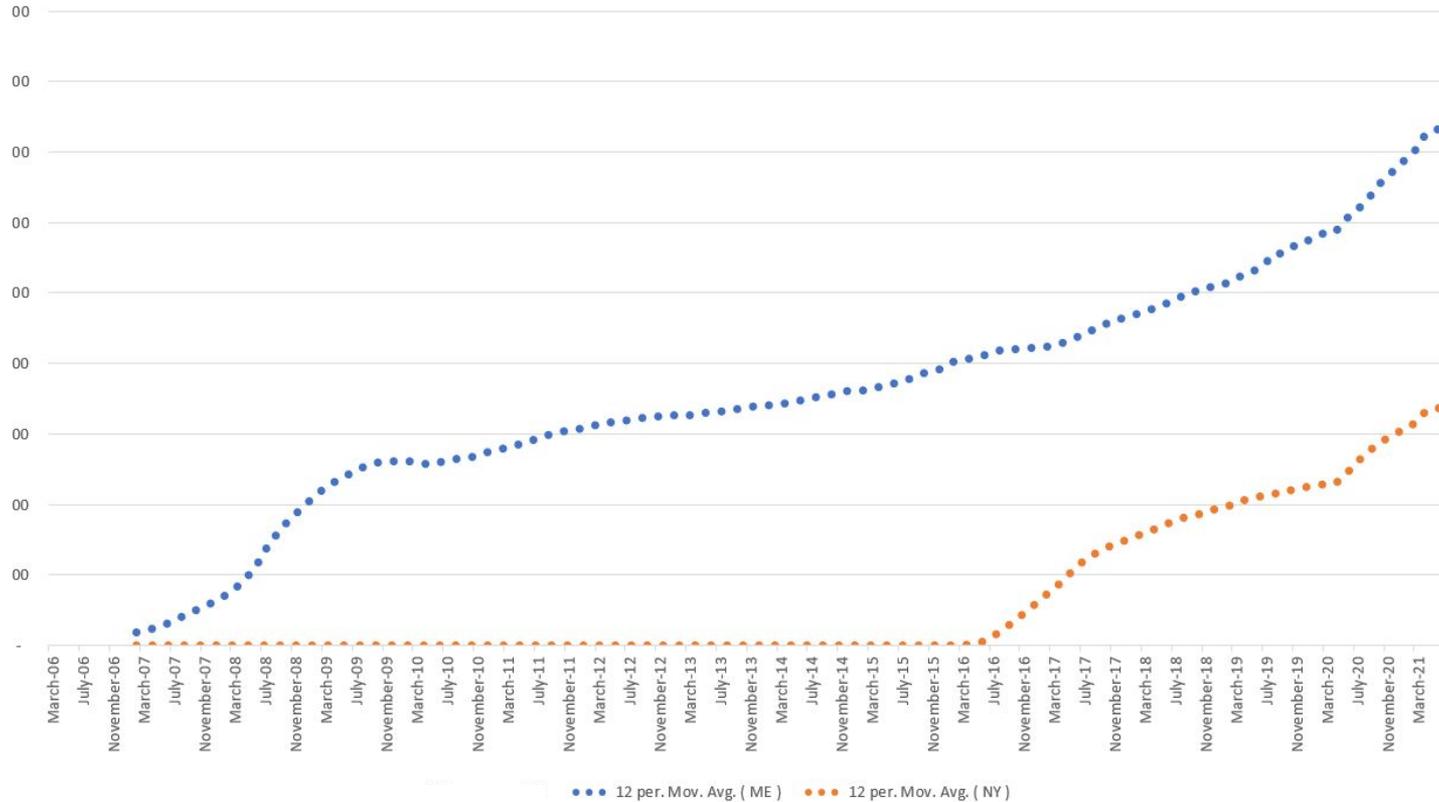
https://www.youtube.com/watch?time_continue=3&v=7AhBMcsDfxI&feature=emb_logo

Bag Drop convenience drives recycling

The growth and impacts of bag drop

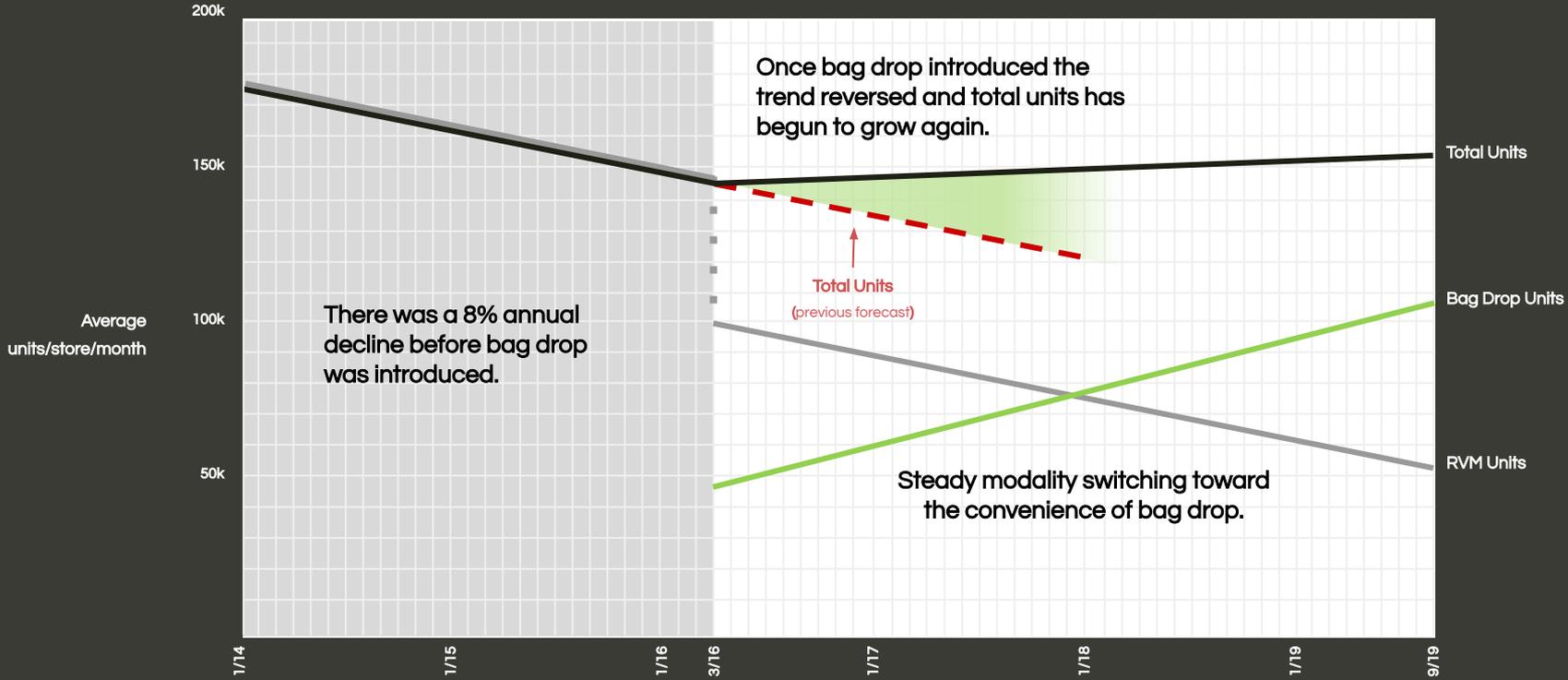
Growth in Maine & NY demonstrates the value of bag drop convenience

Bag Drop volumes have grown steadily since introduction



In NY, bag drop turned declining recycling rates around

Convenience drives increased recycling!



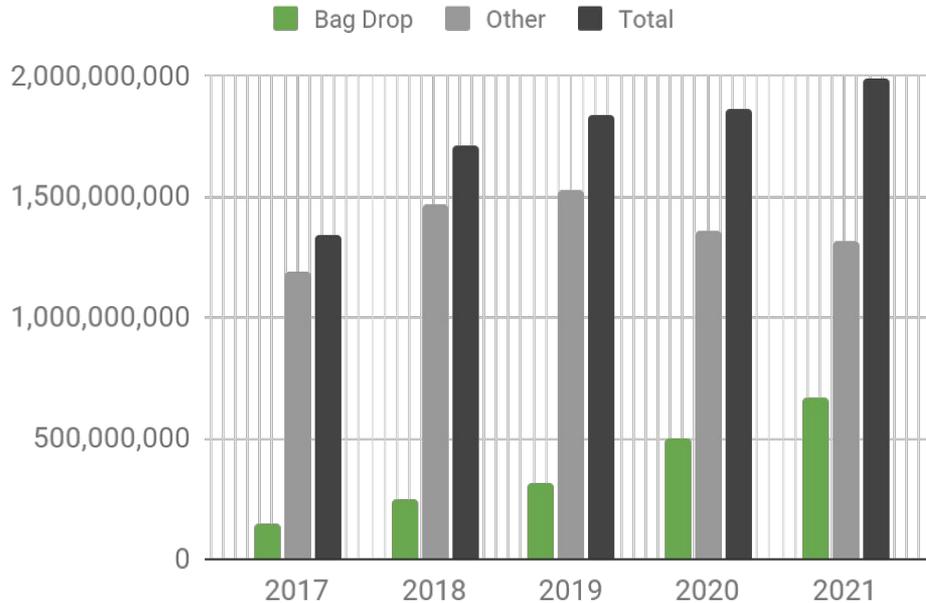
Source: CLYNK data in New York state.



Bag Drop in Oregon shows the same: Absolute and market share growth

Bag Drop was roughly 34% of volume in 2021

OBRC Annual Report Data: Bag Drop Growth

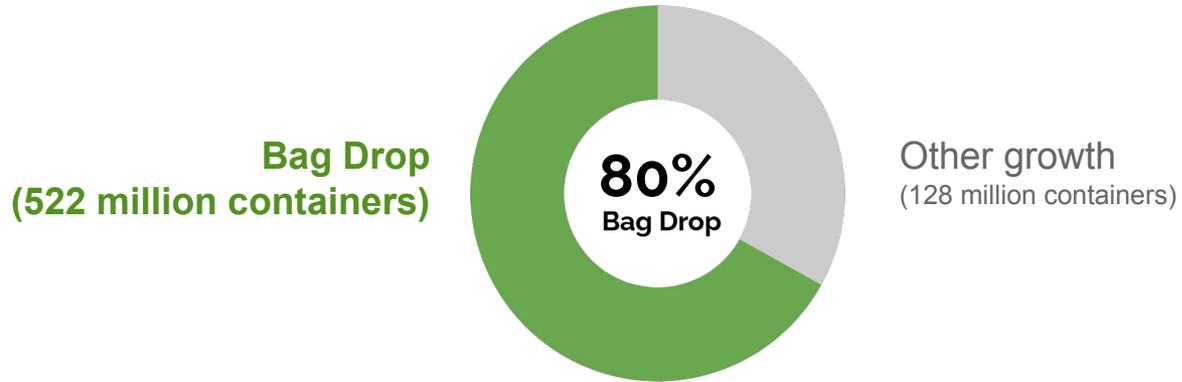


	Total Containers	Bags	Bag Drop Containers	Bag Drop %
2017	1.34B	2.5M	150M	11%
2018	1.71B	4.1M	246M	14%
2019	1.84B	5.2M	312M	17%
2020	1.86B	8.3M	498M	27%
2021	1.99B	11.2M	672M	34%
Approx 60 containers/bag				

Data in yellow from OBRC annual reports. Based on this data, we estimate that **bag drop accounts for 34% of the OBRC's container volume.**

Bag Drop was 80% of program growth in Oregon over the past 5 years

5 year growth = (650 million containers)

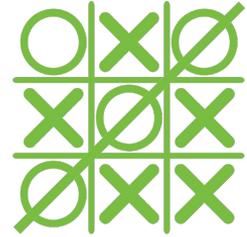


	Total Containers	YOY Growth	Bag Drop Containers	Bag Drop Growth
2017	1.34B		150M	
2018	1.71B	28%	246M	64%
2019	1.84B	8%	312M	27%
2020	1.86B	1%	498M	60%
2021	1.99B	7%	672M	35%
Total Growth	650M	49%	522M	348%

Smart grocers can flip the script

Bag Drop is a win for grocers that embrace it. Customers want brands that support sustainability.

Bag Drop: A win for forward-looking grocers



Drives incremental customers, loyalty and revenue.



Takes redemption out of the store.



Delights customers with a game-changing recycling experience.



Redemption money is accessed in the store.



Forward compatible with other recycling.



Provides new ways to engage customers and highlight sustainability efforts.

**Questions to ask about unmanned
recycling modalities**

How much time does it cost citizens to redeem?

Convenience is about more than drive times.

What do consumers need to do in order to recycle once they are at a recycling location?

How long does it take for a consumers to recycle 50 or 100 containers?



RVM

Actual speeds differ from speeds in the lab. Each container can require multiple insertions. It has been observed that the full redemption of 100 containers takes between 8-15 minutes in actuality.



Bag Drop

Bag Drop systems allow for the drop off multiple bags in 15 seconds. The drop locations are simple and reliable and there are no lines.

What is the forward compatibility of the recycling infrastructure?

It makes sense to build a recycling infrastructure that is forward compatible with new requirements and new technologies, e.g. AI, material types, etc.



RVM

Scanning technology is in hundreds of distributed locations.

Collection capabilities are specialized.

Not modular: Old models typically replaced with entirely new machines.



Bag Drop

Centralized processing is compatible with cost-effective upgrades as processing technology continues to improve.

Collection capabilities are congruent with many kinds of recycling.

How do you ensure that the redemption tech is performant - not only “in the lab” but on an ongoing basis in the field?



RVM

Distributed implementation of technology makes the performance difficult to assess. Robust, accessible systems for problem reporting and transparency are needed to ensure that the unmanned redemption points are functioning as intended.

Direct customer support is generally not provided.



Bag Drop

Centralized processing technology makes performance monitoring easier. The technology can be audited.

Direct customer support is provided.

Can the modality take a wide variety of redeemable container types?



RVM

No

Most RVMs cannot process many redeemable containers that are either too large, too small, or of the wrong material composition.



Bag Drop

Yes

Bag Drop systems allow the consumer to place all of their redeemable containers in the bag. Sortation systems in the processing plant allow for proper processing of unique material types and form factors and can be adjusted relatively easily to support new container types.

What about new products? How is data maintained?

Unmanned redemption technologies rely on data to determine whether products are redeemable. This data is constantly changing as beverage manufacturers introduce hundreds of new products (millions of containers) each year. **How can you ensure the technology is paying consumers for these containers?**



RVM

Each deployed machine needs to access new data.

If the data is not up to date at the time of redemption, the container is rejected and there may be no recourse for the consumer to be paid for those containers.



Bag Drop

The processing technology is centralized and data update logs are easily accessed.

Customer accounts allow payments to customers once the redeemability of returned containers is determined.

High throughput and customer support enable early detection of unregistered containers.

Questions about Bag Drop

Why does bag drop typically require specific plastic bags?

The short answer is that plastic bags are the best method to support bag drop discovered to date. Reusable transport methods (bins, canvas bags, etc) have been tried throughout the world. CLYNK launched using washable canvas totes, but there are problems related to washing, returning the bags to consumers, and quality control that have not been overcome. No better system has been found.

The truth is that most people choose to use plastic bags to transport their beverage containers to recycling locations regardless of the recycling modality. Plastic is light, strong and it contains liquids.

From an environmental perspective, the proven best practice is to use bags manufactured with recycled content, including post-industrial plant scrap and post-consumer material. The standardization of bag material allows in a program improves the recyclability of the bags.

Standardization of the bags also supports standardized processes for handling the bags in transport and processing. This operational efficiency reduces system costs. The semi-transparency of bags allows workers to see inside and avoid the risk of injury from broken containers or non-recyclable waste, and the standardized color serves as a valuable tool to raise awareness of the bag drop programs within a geography.

What about immediate payment and Social Inclusion?

Shouldn't every redemption option be required to pay people immediately because some people *NEED* the money immediately?

There are strengths and weaknesses to each recycling modality. Claims that an immediate payment requirement yields greater equity or social inclusion have not been substantiated. It can be argued that the significant time savings of bag drop is especially important to those at or below the poverty line and those who must work multiple jobs to earn a living wage. When it comes to equity and inclusion there is a premium on recycling modalities that accept all eligible container types at high accuracy and uptime with timely customer support options.

Do you have to have a cell phone, internet access and a bank account to participate in a bag drop program?

The short answer is “no”.

Bag drop programs can include access points called “Kiosks” that provide people the ability to sign up, see their balances, access their money.

The location and quantity of kiosks in a bag drop program is a programmatic choice that can be determined by operator according to the goals, rules and regulations of the DRS's controlling authority.

Questions about RVMs

What is the Total Cost of Ownership?

RVMs are complex machines that require physical and digital upkeep (data updates).

What labor is required to keep the machines operational?

What are the recurring fees?

Maintenance?

Data and billing?

How long do machines last? Is the CapEx ever paid off? How long do you continue paying lease and CapEx? **What if there are functional improvements?**

How accurate are the machines? How accurate do they need to be?

RVMs are complex machines that require physical and digital upkeep (data updates).

What are the performance requirements for RVMs (in terms of uptime and accuracy) to be certified as acceptable RVMs?

For example what is an acceptable “failure rate”

e.g. for every 100 containers received, the machine must effectively process the container (credit/pay the refund) 97% of the time.

Are there requirements for crediting customers when there are failures? What recourse do citizens have?

How can you ensure that deployed machines working properly?

RVMs are complex machines that require physical and digital upkeep (data updates), they also require people onsite to ensure that bins do not become full.

What are the performance requirements for RVM providers in terms of uptime in the field?

How do you ensure that the RVM performance thresholds (accuracy and uptime) are achieved in the field and not just the lab?

- RVMs are not “set and forget”. They need to be monitored for uptime. This is difficult because machines are geographically distributed.

What types of containers can RVMs handle?

What range of containers does the RVM need to be able to take effectively?

What recourse does a consumer have if they wish to return other redeemable containers?

What about customer service and transparency to issues?

What are requirements for customer support for RVMs? Can a customer easily “make a claim” when a container that should get a refund does not get the refund?

Is there a plan to provide consumers an easy way to report non-functioning machines, e.g. “Scan this QR code to Report a Problem”, **and to analyze the data and to ensure high performance?**

What about equity and Social Inclusion?

Shouldn't everyone have access to a fast and easy way to claim deposits?

RVMs are slow and cumbersome for users. This time requirement is especially important to those at or below the poverty line. Time is money. The redemption process should be safe and easy.

What provisions are in place to provide refunds on eligible containers that RVMs do not take?

When it comes to equity and inclusion there is a premium on recycling modalities that accept all eligible container types at high accuracy and uptime with timely customer support options. If a machine does not provide credit for a container, it should not take the container. It should return that container to the citizen so that he/she/they can attempt to return that container somewhere else.

What provisions are in place to make sure machines are accurate?

Is there a “standard of performance” for RVM machine accuracy? Beyond the challenges of container recognition, are systems in place to ensure that the data on the RVMs is accurate and up to date?

What provisions are in place to make sure machines are functional?

A machine that is full, broken or lacking up-to-date container data cannot return a refund to the citizen entitled to it. Are systems in place to ensure that machines are functioning out in the field?

What about refillables?

RVMs are generally not compatible with refillables because they destroy containers.