

Updated operating costs for the current revised retail deposit collection model

Final report

September 1, 2023





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Retailers wanted to update the variable costs of in-store deposit management calculated in 2021







Prior information

- From now on, deposit collection will be expanded in **two phases**
- From **November 1, 2023**, **retailers** will be responsible for taking back the **current returnable containers, with the extended aluminium deposits** (ready-to-drink from 100 ml to 2 liters).
- **Convenience stores** will probably no longer be collecting returnable containers from November 2023, as the transitional measure applies to businesses over 375 m².
- **Retailers do not wish to invest in equipment and infrastructure** to recover deposits during this transitional phase.
- From **March 1, 2025**, the second phase will bring **extension to all ready-to-drink products** (glass, fiber, plastic and steel)
- Retailers therefore wish to **update the variable operating costs** associated with the deposit, calculated in 2021, as part of the transitional phase.

Update assumptions

- **Fixed costs** remain the same as for 2021, given the absence of investments during the transitional phase.
- Only **variable costs** are updated, depending on data availability.
- **Convenience stores no longer accept deposits**, which are redirected to other retailers in *proportion to* the number of stores of each type.

The analysis is cautious and intended to be as exhaustive as possible, but certain costs linked to EPR obligations could not be included.

Type of costs related to EPR obligations	Taken into account in the study	Comments
Installation and operational and financial management of return sites		These costs have been updated in relation to the 2021 study.
Modification of an existing business to allow for the installation of a place of return		Investment costs have been kept constant compared with the 2021 study.
Purchase or rental of equipment to be installed in a return location		These costs have been kept constant, given retailers' desire not to invest in new equipment. It should be noted that the cost of space per beaker was limited to each machine in 2021. In the absence of available data, this has been kept constant. Clearance space, however, must be taken into account.
Maintenance and replacement		These costs have not been updated in relation to the 2021 study, due to lack of data, although aging equipment could be replaced.
Training of personnel responsible for customer service and handling of containers and receptacles used to transport these containers for collection from a return location		Training costs were not included in the 2021 study or its update. Time constraints prevented us from quantifying and modeling their effect on the cost per container incurred by retailers.
		The document presents only the operationalization costs, whereas the transition

The updated costs per container and per store in the rest of this report are therefore conservative, and represent a minimum below which it may be difficult to go.

The methodology was used to collect the updated data and integrate them into the 2021 model.

As mentioned in the basic assumptions, only the variable costs have been updated with the volumes of deposits recovered.

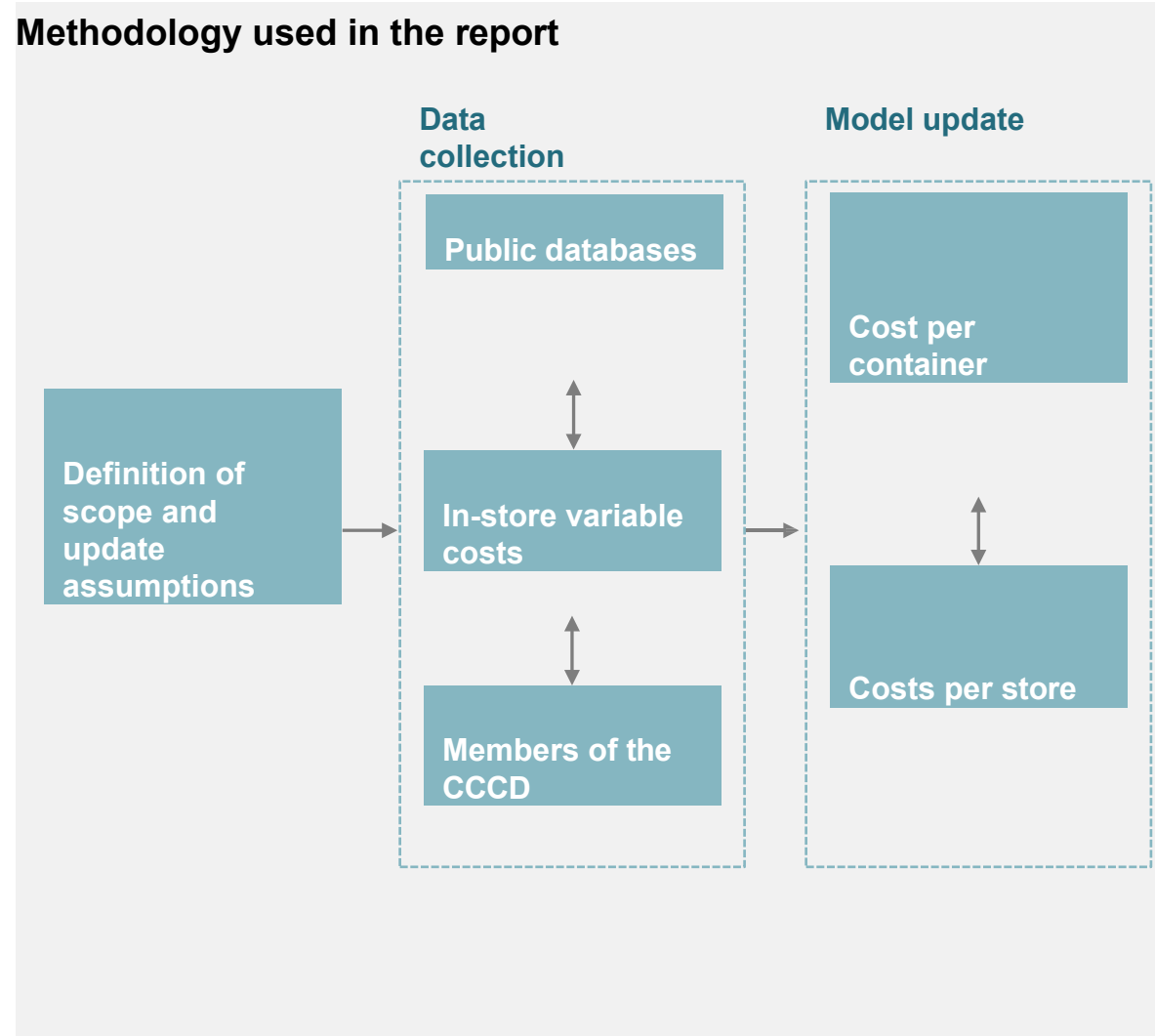
- Some of these data were obtained through secondary data research, while others come from RCC member retailers.
- Only variations from the 2021 study will be presented. Data from 2021 that have not been updated will not be presented. The aforementioned study will continue to serve as the reference on this subject.

Variable data subject to update

- 1 Volumes of deposits to be recovered
- 2 Number of consumers who return their containers
- 3 Number of stores in Quebec
- 4 Unit time for managing instructions per task
- 5 Employee hourly rate
- 6 Accounting management for deposits
- 7 Equipment operating costs

Sources: Analyses Aviseo Conseil, 2023.

Methodology used in the report





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Data collection has made it possible to refine basic assumptions by cost type (1 of 2)

Variable data	Detail	Assumptions
Volumes to be recovered	<p>Volumes</p> <ul style="list-style-type: none"> - Plastic CRU - CRU aluminum - CRU glass - CRM glass <p>Recovery</p> <ul style="list-style-type: none"> - Reception desk - Tumblers 	<ul style="list-style-type: none"> - Volumes by material are broken down according to Recyc-Québec's 2022 CRU recovery data. - Aluminum volumes are increased according to 2024 deposit expansion forecasts, used in the Aviseo report on the new deposit collection network. - CRM volumes are recorded by producers and are not publicly accessible.
Number of consumers who return their containers	<p>Recovery</p> <ul style="list-style-type: none"> - Reception desk - Tumblers 	<p>-Customers returning their containers to convenience stores are redirected on a pro rata basis to other types of stores, via the latter's reception counters.</p>
Number of stores at Quebec	<ul style="list-style-type: none"> - Non-trading traditional - Large grocery stores - Small grocery stores - Convenience stores 	<ul style="list-style-type: none"> - Convenience stores no longer collect deposits and are therefore removed from updates - Volumes are transferred to the other three store types, according to their distribution by number.
Unit time for managing instructions per task	<p>-By management process via tumblers and reception counter</p>	<p>-Identical to the 2021 study, since at the time it was calculated on the basis of unit management time per consumer or constant volume of deposits recovered.</p>

Data collection has made it possible to refine basic assumptions by cost type (2 of 2)

Variable data	Detail	Assumptions
Employee hourly rate	<ul style="list-style-type: none"> - Cashier - Clerk - Packer <p style="margin-left: 150px;">- Receptionist</p>	-Salaries include benefits.
Accounting management for instructions	-Management of accounts payable, receivable and others deposit-related accounting activities	-Identical to 2021 study, as independent of volumes recovered.
Equipment operating costs	<ul style="list-style-type: none"> - Tumbler bags - Electricity for tumblers - Plastic palletizing films - Cleaning product 	-Inflation has been applied to these data.

The deposit volumes to date have been broken down by material and type of business, and are mainly listed by beaker.

CRU volumes are those updated by Recyc-Québec for the year 2022. Aluminum volumes have been increased to reflect the extension of the deposit starting in November 2023.

- CRM volumes are not available (N.D.), which underestimates the volumes to be taken over and therefore the costs.

What's more, many deposit-refund pilot projects have seen an increase in aluminum containers, more often processed by tumblers, being rejected by the machines and then redirected to the reception counters.

-The management of rejects by staff could lead to increases in time and effort, and ultimately in costs. The latter could not be taken into account here, although counter returns are taken into account.

Volumes of refundable containers recovered

2022; by store type; in number of containers

2023 study	CRU plastic	CRU aluminum	CRU glass	CRM glass
Non-trading traditional	10 832 452	121 574 689	6 932 652	N.D.
Large grocery stores	91 085 781	1 022 273 188	58 293 909	N.D.
Small grocery stores	40 883 771	458 846 405	26 165 169	N.D.
Convenience store chains	0	0	0	N.D.
Total	142 802 005	1 602 694 282*	91 391 729	N.D.

Breakdown of returnable container volumes recovered

2022; by store type and by collection process; as a % of sales

2023 study	Back to tumblers	Counter returns home	Total
Non-trading traditional	90,2 %	9,8 %	100 %
Large grocery stores	97,4 %	2,6 %	100 %
Small grocery stores	97,4 %	2,6 %	100 %
Convenience store chains	0 %	0 %	0 %
Total	96,8 %	3,2 %	100 %

Consumers who returned their deposits in convenience stores were distributed among the three other types of stores

Allocation to other store types is prorated according to their number in Quebec. The cost of training deposit staff to accompany these consumers has not been taken into account here, and will therefore have to be added to the costs presented.

The figures for 2023 are based on a reallocation of the 2021 number of convenience store customers to other stores.

Some retailers report up to 5 customers a day in small grocery stores, or more than 1,800 a year.

Others also mention more than 50 consumers a day in large grocery stores, or more than 18,000 annually.

- The assumptions used here still reflect the conservatism of this update. In addition, an exhaustive compilation of current consumer traffic by store was beyond the scope of this mandate.

Annual number of customers reporting deposits (CRU)

2021; by store type and by collection process; in number of people

Study of 2021	Non-traditional retailers	Large grocery stores	Small grocery stores	Chain convenience stores
At the reception desk	5 982	1 986	81	2 530
To the tumblers	14 000	18 676	767	0

Annual number of customers reporting deposits (CRU)

2023; by store type and collection process; in number of people

Study of 2023	Non-traditional retailers	Large grocery stores	Small grocery stores	Chain convenience stores
At the reception desk	7 863	2 610	106	0
To the tumblers	14 000	18 676	767	0

The number of stores of each type has been updated, in relation to 2021.

The number of grocery stores and non-traditional businesses collecting deposits has increased slightly since 2021

- The number of convenience stores is set to zero, in order to respect the assumption that they will no longer be obliged to participate in the deposit system from November 2023.
- The number of small grocery stores has been kept unchanged at 2021, in the absence of more up-to-date data.

Number of businesses collecting deposits

2021 and 2023; by store type; in number of stores

Store type	2021	2023
Non-traditional retailers	92	93
Large grocery stores	761	782
Small grocery stores	351	351
Convenience store chains	1 484	0



Salary data have been updated with retailers' internal data and the sectoral growth rate.

The increase in the hourly rate of employees involved in in-store deposit management has been estimated at 8.5%*.

- This increase corresponds to the rate of growth in the average hourly wage of hourly-paid employees in the grocery and convenience store sector, between January and May 2021 and the same period in 2023.

Hourly rate (including benefits) for employees involved in in-store deposit management

2021 and 2023; by type of position and store; in \$ per hour

	Hourly rate 2021 (with benefits)				Hourly rate 2023 (with benefits)			
	Non-traditional retailers	Large grocery stores	Small grocery stores	Convenience stores	Non-traditional retailers	Large grocery stores	Small grocery stores	Convenience stores
Cashier	/	20,48 \$	20,48 \$	15,72 \$	/	22,22 \$	22,22 \$	/
Clerk	28,30 \$	19,94 \$	19,94 \$	/	39,90 \$	21,64 \$	21,64 \$	/
Packer	/	18,53 \$	18,53 \$	/	/	20,11 \$	20,11 \$	/
Receptionist	/	26,61 \$	26,61 \$	/	/	28,88 \$	28,88 \$	/
Manager	/	/	/	22,50 \$	/	/	/	/

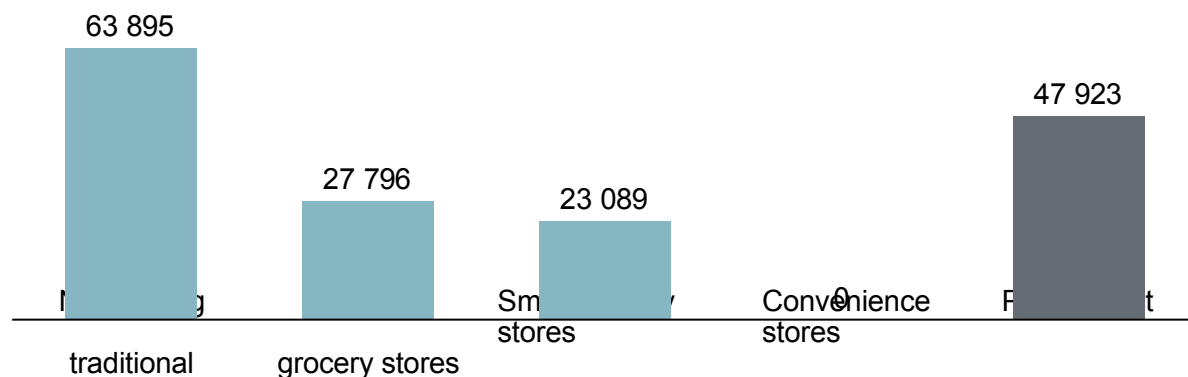
Prudent, realistic salary estimates, including inflation-adjusted operating costs

Annual variable labour costs are calculated by multiplying the hourly rates shown on the previous page by the unit time required to manage each task in the in-store deposit management process.

- By way of comparison, one of the deposit-refund pilot projects required 1.2 FTEs to manage the containers received, or nearly \$48,000 per year.
- Salaries calculated annually in the model are around this figure result.

Variable annual payroll costs

2023; per store; in



Annual variable equipment operating costs have been adjusted to reflect price increases since 2021.

- For the costs of cleaning products, bags and packaging film, the average inflation rate - excluding food and energy - between January and June 2021 and the same period in 2023 has been applied. This represents an increase of 9.3%.
- The cost of electricity has been adjusted according to the annual increases applied by Hydro-Québec for its business customers between 2021 and 2023. This represents a total increase of 9.3%.

Variable annual equipment operating costs

2023; per store; in



A cost still higher than the current \$0.02

It appears that the volume of deposits to be recovered is increasing faster than the costs incurred to recover them. This may indicate that investments will be needed to be able to take back the volumes expected as early as 2023. This scenario is therefore **more than optimistic**, assuming that we will be able to recover a greater number of containers with the same equipment.

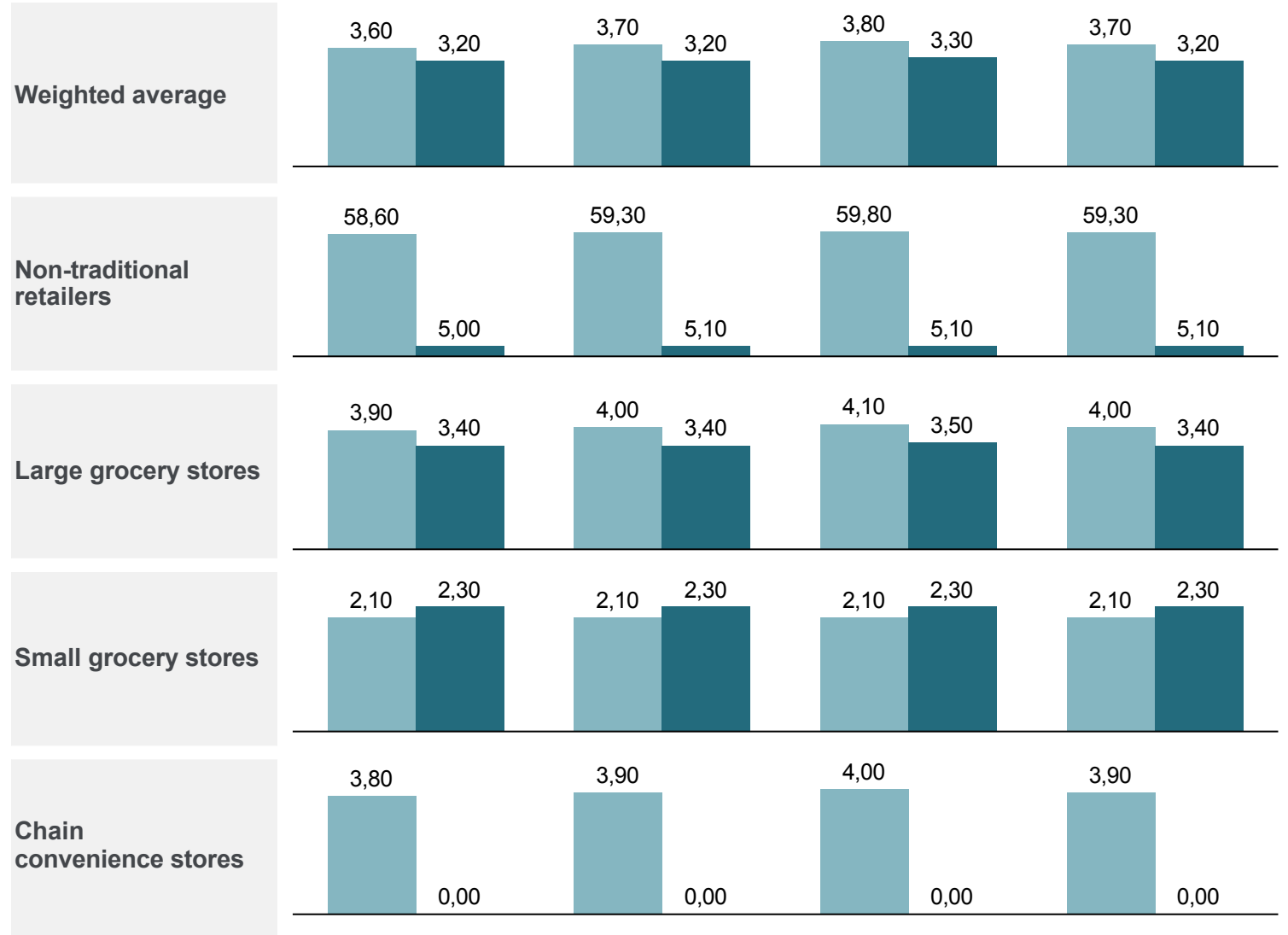
Aviso is of the opinion that the average cost per container of \$0.032 is a **strict minimum**, given the prudence of this upgrade day. What's more, the cost per container varies greatly across store types, calling into question the use of a single premium for all retailers.

It should be noted that the cost to non-traditional retailers has fallen sharply because, as the volume is distributed pro rata to the stores, they take back a much greater volume than in the 2021 model, which was very

Handling costs per container

2021 and 2023; in ¢

2021 2023



Rural

Semi-
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Absolute cost per store rises

In terms of absolute costs per store, there has been a clear increase with the takeover of volumes previously also recovered by convenience stores.

This will take us from nearly \$20,000 per store per year in 2021 to more than 48,000 per store in 2023, to manage new deposit volumes.

Although the cost per container is falling, the future transitional phase of deposit management will increase costs for retailers.

Annual handling costs

2021 and 2023; for the entire Quebec deposit system and per store; in \$.

	2021	2023
	With convenience stores	Without convenience stores
Total annual system costs	52,3 M\$	59,2 M\$
Number of stores	2 688	1 226
Average cost per store	19 468 \$	48 260 \$

Several factors explain why these estimates are considered a floor

The conservative assumptions of the built scenario lead to optimistic results regarding the capacity of the current network

- The actual costs of the transition phase for retailers are likely to be higher, given that certain costs have not been taken into account, notably those related to EPR.
- It should be remembered that the costs per container obtained reflect the parameters of the transition phase, which will run from November 2023 to March 2025, and not those of the extended deposit system.

1. Underestimation of volumes to be recovered	2. Underestimation of wage costs	3. Underestimation of equipment costs	4. Wide variation in costs across store types	5. Transition costs not taken into account
<ul style="list-style-type: none"> – CRM volumes not included in analysis due to data unavailability – These volumes will lead to an increase in the time required to manage deposits (collection at the reception counter), and therefore in costs. 	<ul style="list-style-type: none"> – Expanding the deposit for aluminum containers could lead to an increase in the number of containers rejected in beakers, which would then be redirected to the reception counter, – Combined with CRM recovery, reject management is likely to involve additional effort and labor costs. 	<ul style="list-style-type: none"> – The increase in volumes to be recovered is likely to lead to higher equipment maintenance costs, due to increased wear and tear. – Some retailers may need to refurbish or allocate more reception and storage space and/or renew certain equipment. 	<ul style="list-style-type: none"> – Although the average cost per container is \$0.032, some store types (e.g. non-traditional stores) face significantly higher costs. – An average premium applied to all retailers would penalize them. 	<ul style="list-style-type: none"> – The document only presents the costs of operationalization, whereas the transition phase is likely to entail additional costs (e.g. communication and signage costs for customers). – These non-recurring costs could be invoiced to producers on an ad hoc basis, as part of the EPR program.

Beyond the figures, challenges for retailers

A deliberately optimistic scenario for network capacity

The costs per container updated in this analysis have, paradoxically, fallen compared with the 2021 analyses. As mentioned, this is due to the fact that the volumes recovered are increasing faster than the costs incurred to recover them. Fixed investment costs have therefore not increased compared to 2021. This means that these volumes are recovered with a network whose equipment and infrastructure remain as they are, which is very optimistic.

The average cost of \$0.032 per container therefore seems to be a minimum. below which it will be difficult to descend

- The calculation of average absolute costs per store shows a significant increase compared to the 2021 analyses.

An ever-present scarcity of manpower

It should be noted that this analysis calculates the costs associated with deposit management with current retailer resources

- Labour scarcity always affects retailers, who may find their staffing levels too low to handle returnable containers, thus negatively influencing store operations as a whole.

Physical limitations to consider

The spaces allocated to deposit management, particularly for storage, have been left as they are in this update. This seems realistic, given that retailers will not be undertaking work to manage lockers on a transitional basis, and some may simply not have the space to do so.

- Existing spaces, mainly used to store products sold in-store, may not be sufficient to accommodate all the deposits. This could lead to soiled containers being brought close to foodstuffs, which could pose health and safety problems.
- Clearance areas around the cups must also be taken into account to ensure an optimal customer experience.

A cautious update

Although the updated costs may appear significant, Aviseo believes that the parameters and assumptions used are conservative.

- The costs reflect the scale of the returnable material flow that retailers will have to cope with, and reflect the difficulty this will entail.
- Similarly, as CRM volumes were not known, they were omitted, thus underestimating the expected volumes of deposits and therefore the costs allocated to their management.



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