

Waste Management in Estonia

Survey on Behaviors, Perceptions & Motivations

September 14, 2021



*The project was funded by the European Union via the Structural Reform Support Programme (SRSP) and implemented by The World Bank in cooperation with the European Commission's Directorate General for Reform Support (DG REFORM). The views expressed herein can in no way be taken to reflect the official opinion of the European Union.



Agenda

1. Background
2. Scoping study
3. Online Survey
4. Results
5. Experiment
6. Conclusions



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a. Context

Estonia aims to improve its current recycling target from 25% to 55% by 2025, following commitments with the EU, and household behavior regarding waste management is a key factor for improving this rate.

The World Bank Urban team is a key adviser to Estonia's Ministry of Environment on how to improve its waste management system. As such, the WB team will provide analytical support and insights that can curb household behavior.



b. Objective

Estonian Forest
Source: Sven Zacek

Harness **behavioral insights** and identify innovative solutions to **improve solid waste management across municipalities of Estonia**, with a focus on habit formation around recycling.

To this end, a **diagnostics survey** was designed to **identify structural and behavioral bottlenecks to recycling and composting among households**, and supportive practices by local policymakers and other actors.



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C. Behavioral Approach

1. Problem definition and the context. We invest significant resources up front to **define and diagnose** development problems, through **qualitative and context recognition** methods.

2. Behavioral mapping. We break problems into smaller **decisions** taken by various actors and following a **user perspective approach**. This allows us to identify behavioral and structural **bottlenecks** and ideas on how to solve them.

3. Solutions, evidence, and iteration. We rigorously **test** these insights to investigate whether they or not they work and **iteratively adapt solutions**.

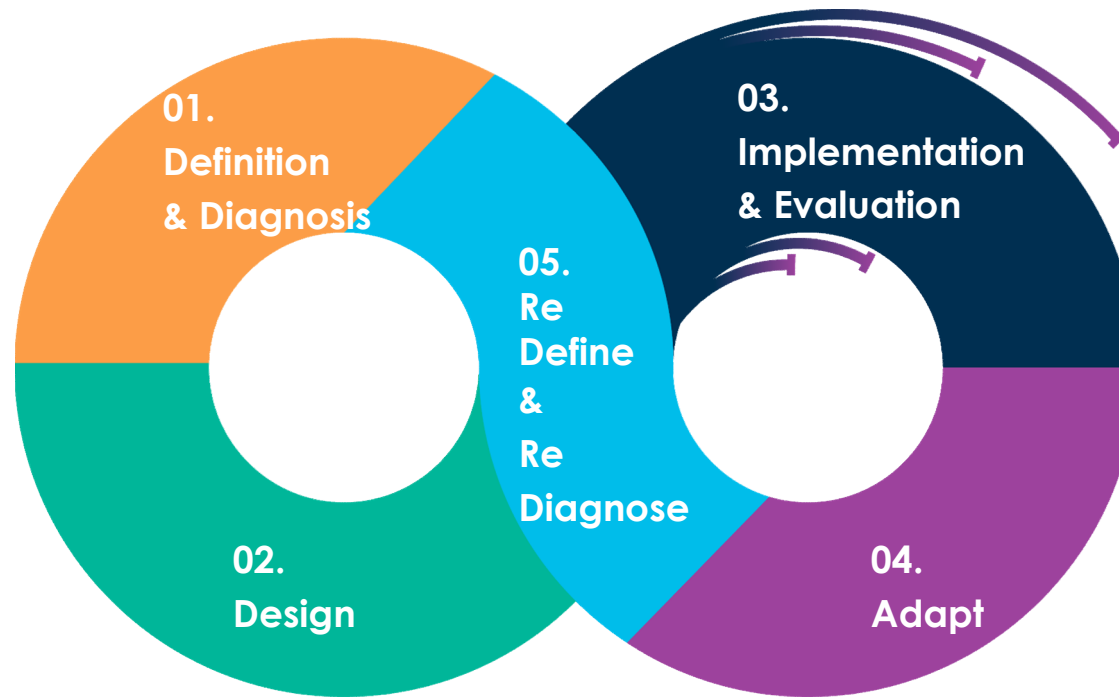
C. Behavioral Approach

01.

- Identify the problem
- Collect background information and available data
- Diagnostic sessions to develop behavioral map
- Fieldwork to finalize behavioral map

02.

- Develop list of potential interventions
- Narrow down to most feasible



03.

- Set up process for randomization
- Trial intervention
- Monitor treatment and control groups
- Analyze data at endline

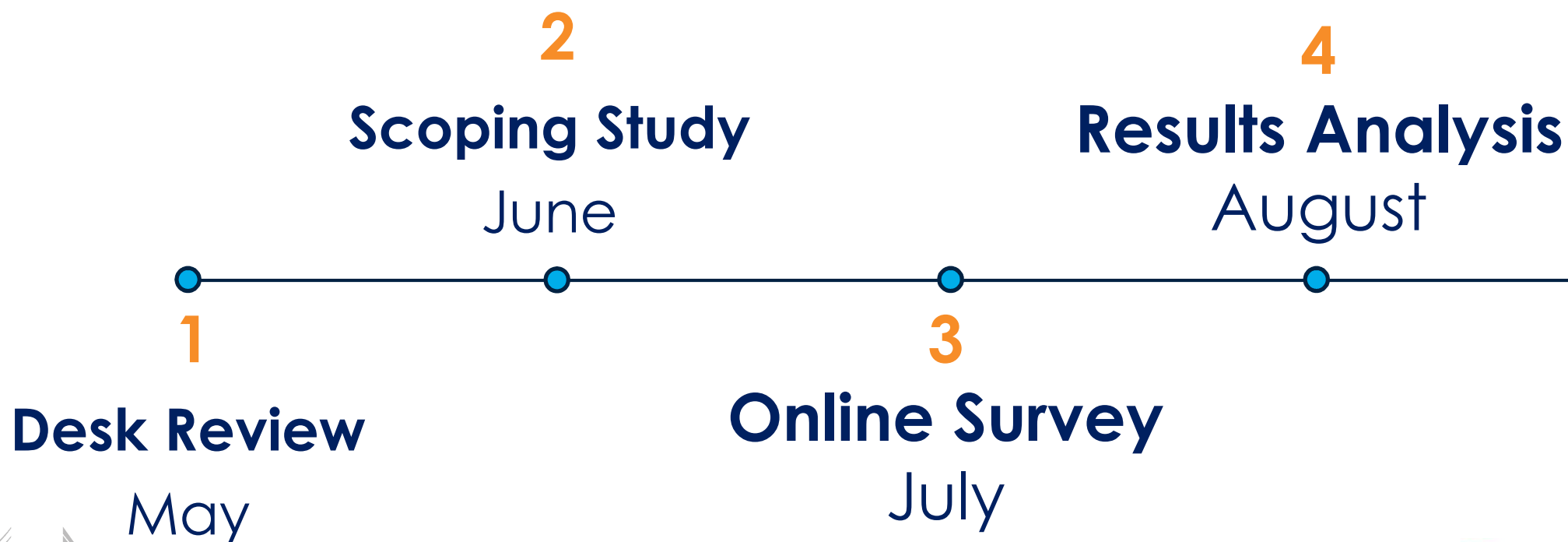
04.

- Identify key learnings
- Identify areas for further work

05.

- Investigate constraints to scaling work
- Identify further behavioral challenges

d. Timeline



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a. Desk review

Analysis of existing literature to understand the decision-making context for waste management.

- Report by WB urban team
- National Waste Study
- International Barometers

Behavioral Process Map for waste management

Citizen's perspective



a. Desk review

Questions to study

Map out questions for scoping study and survey (based on COM-B model)

COM-B model
Questions for diagnostics

BARRIER TYPE	COMPONENTS	QUESTIONS	Why people do not sort their waste?	SURVEY (no border)	INTERVIEW (solid border)	BOTH (dashed border)
1. Capabilities	a. PHYSICAL ABILITY	Do I have the physical ability to do it?	Do I know the physical ability to do it?	Do I know the physical ability to do it?	Do I know the physical ability to do it?	Do I know the physical ability to do it?
	b. AWARENESS	Am I aware of the options available to me?	Do I know the options available to me?	Do I know the options available to me?	Do I know the options available to me?	Do I know the options available to me?
	c. COGNITIVE SKILLS	Do I understand it?, do I know how to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	d. INTERPERSONAL SKILLS	Do I have the interpersonal skills to do it?	Do I know the interpersonal skills to do it?	Do I know the interpersonal skills to do it?	Do I know the interpersonal skills to do it?	Do I know the interpersonal skills to do it?
	e. MEMORY	Will I remember to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	f. ATTENTION SPAN	Will it capture and hold my attention?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	g. EVALUATING OPTIONS & MAKING DECISIONS	Will I be able to evaluate the different options available and make the right decision?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
2. Opportunity	a. OPPORTUNITIES IN THE ENVIRONMENT	Are there opportunities in the environment to do it? Does the environment make it difficult or impossible?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	b. PROMPTS IN THE ENVIRONMENT	Does the environment encourage or discourages me to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	c. RESOURCES & TIME	Do I have the resources and time needed to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	d. SOCIAL & CULTURAL NORMS	Is it the norm in my social group to do it?, Will I be perceived negatively if I do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	e. ROLE MODELS	What role models in my environment will encourage me to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
3. Motivation	a. BELIEF IN ABILITIES	Do I believe I can do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	b. BELIEFS ABOUT CONSEQUENCES	Will it lead to a positive or negative outcome?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	c. GOALS	Do I have a clear goal or target?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	d. IDENTITY	Is the behavior in line with how I see myself?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	e. EMOTIONS	How do I feel when I do it? How do I feel about doing it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	f. HABITS	Is the behavior a habit?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	g. ACCOUNTABILITY	Who will hold me accountable?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?
	h. AUTOMATIC RESPONSES	Do I do it without realising? Is it an automatic response that happens outside of my conscious awareness?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?	Do I know the steps to do it?

b. Interviews

Interviews with Estonians to understand motivations and barriers to waste management.

- 9 respondents (4 men, 5 women)
 - All with at least undergraduate degree
 - 4 from Võru, 3 from Tallinn, 2 from Tartu
 - 5 from a city, 5 living in a private house, and 5 with at least 2 people in household
- 1-hour semi-structured interviews in Estonian (or English, if respondent agreed)
- Non-representative recruitment through network of local contacts

b. Interviews: main takeaways

- **Separation is present, but not consistent.** 7 respondents reported separating organic waste and returnable bottles. Only 2 separate packages, and 2 do not do any separation.
- **Waste management is both an individual and shared responsibility.** 4 of the interviewees are responsible for managing the waste in their household; 2 reported that all members are responsible; 1 mentioned it is the husband; and 1 reported that the mother is responsible for managing the house waste.
- **Storage seems to be a challenge.** Garbage is stored in the hallway, garage, basement, kitchen, and in compost bins. Several interviewees mentioned they don't have enough space for waste separation.
- **Households are not aware of Producer Responsibility Organizations (PROs).** One person indicated that their packaging waste is collected from her home "by the municipality", while in fact it is the PRO.

b. Interviews: Motivations to separate

Packaging waste

- To save space.
- It is easy: packaging is collected from home and free of charge



Biowaste

- To save space
- To enrich the soil for gardening
- For lack of alternative of where to put it



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b. Interviews: Barriers to separate

Package waste

- Lack of knowledge of where to dispose the package waste
- Waste station is far away from home
- Excessive quantity of package waste
- Lack of trust that it is being sorted
- Unwilling to spend water and time to wash packages
- Lack of knowledge as to whether packages need to be washed

Biowaste

- Lack of knowledge as to where is the container
- Does not have a place to put the bio-container or to buy one
- In the winter it is difficult to take outside
- Container gets full and speed-organic-containers are expensive
- It stinks
- Lack of habit to separate

b. Interviews: Usefulness & Consequences

What happens to waste after it is collected?

- *The process is unclear.*
- *I hope that it is recycled.*
- *It's burned*
- *It all ends up together*
- *It's sorted once more again before it goes to the landfill*

Lack of trust in the system

"A few years ago, I naively believed that it is all recycled. Now, I feel sad and do not know what to do. Now I know that everything is burned, and I don't have the motivation to recycle."

Interviewee referring to recent waste scandal

b. Interviews: Suggestions

- **Information:** inform people of reasons to separate and signal that it is not pointless. Showcase items made from recycled waste. Do a social media campaign with videos showing benefits and negative consequences of recycling.
- **Transparency:** government must talk about the recent scandal, not be silent.
- **Access:** Waste station is too far away (5km), it is expensive and cumbersome to transport. Make it easier for us.
- **Incentives:** rewards/discounts for those that separate, punishment for those that do not.
- **Supply chain:** work with companies to restrict the use of plastic in products.

“More campaigns. Media should show positive things. What happens with waste after? We need more information. Also show scary things on media - what could happen if we don't recycle?”

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a. Content and instrument

1. Understand process, motivations and bottlenecks to recycle

- Typology of attitudes based on demographic and behavioral attributes
- Information gaps
- For different types of waste

2. Effective communication - messages (survey experiment)

- Do different framings affect intentions?
- What framing works better, and for who?

3. Making it easy to recycle, beyond communication

- In Estonian
- Implemented online
- 37 close-ended questions
- Self-administered
- 9 minutes to respond (estimated)

b. Approach

1

Recruit

Exposure to 2
social media
ads

2

Access

Click link to
survey

3

Consent

Agree to
participate &
start

4

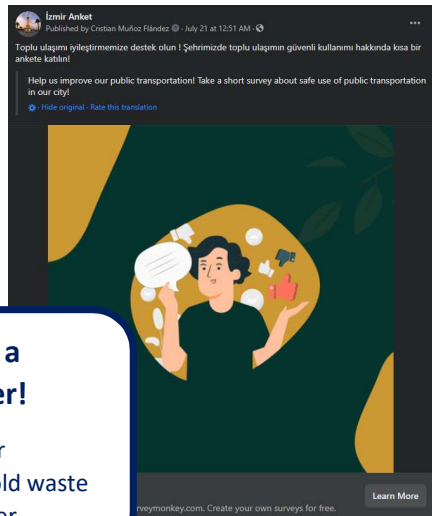
Respond

Complete
survey

facebook

**Share your opinion and get a
chance to win a €80 voucher!**

Complete a short survey about your
experience with managing household waste
and enter a lottery for a €80 voucher.



Palume Teil aidada parandada jäätmete sorteerimist ja taastöötlemist Eestis Teie ja kaasmaalaste hüvanguks.

Selle uuringu viivad läbi Maailmapank ja Keskkonnaministeerium eesmärgiga uurida Eesti elanike seisukohti ja arvamusi antud teemal.

Uuringus osalemine võtab aega 8 minutit. Teie vastused on anonüümsed ning neid ei jagata kolmandale osapoolale. Saadud vastused liidetakse ning neid kasutatakse ainult uurimuse eesmärgil. Kui uurimuses esineb küsimusi, millele te vastata ei soovi, siis võite need küsimused jätta vastamata. Teie isiklikke uurimisandmeid käsitletakse lähtudes rahvusvahelisest standardist.

Antud uurimuses osalemiseks pead olema vähemalt 18-aastane. Küsimuste ja murede korral palume pöörduda survey.estonia.2021@gmail.com.

Tänuühiks uuringus osalemise eest, lisame Teid peale küsitlusele vastamist automaatselt loosi, kus on võimalik võita 80-eurone Partner e-kinkekaart.

Kas nõustud osalema?

- ☐ Jah, soovin osaleda
☐ Ei soovi osaleda, tänan

C. Implementation

1	Reach	235,394
2	Link clicks	9,603*
3	Responses	5,185**
4	Complete (last question)	4,307***

* Can include profile overlapping

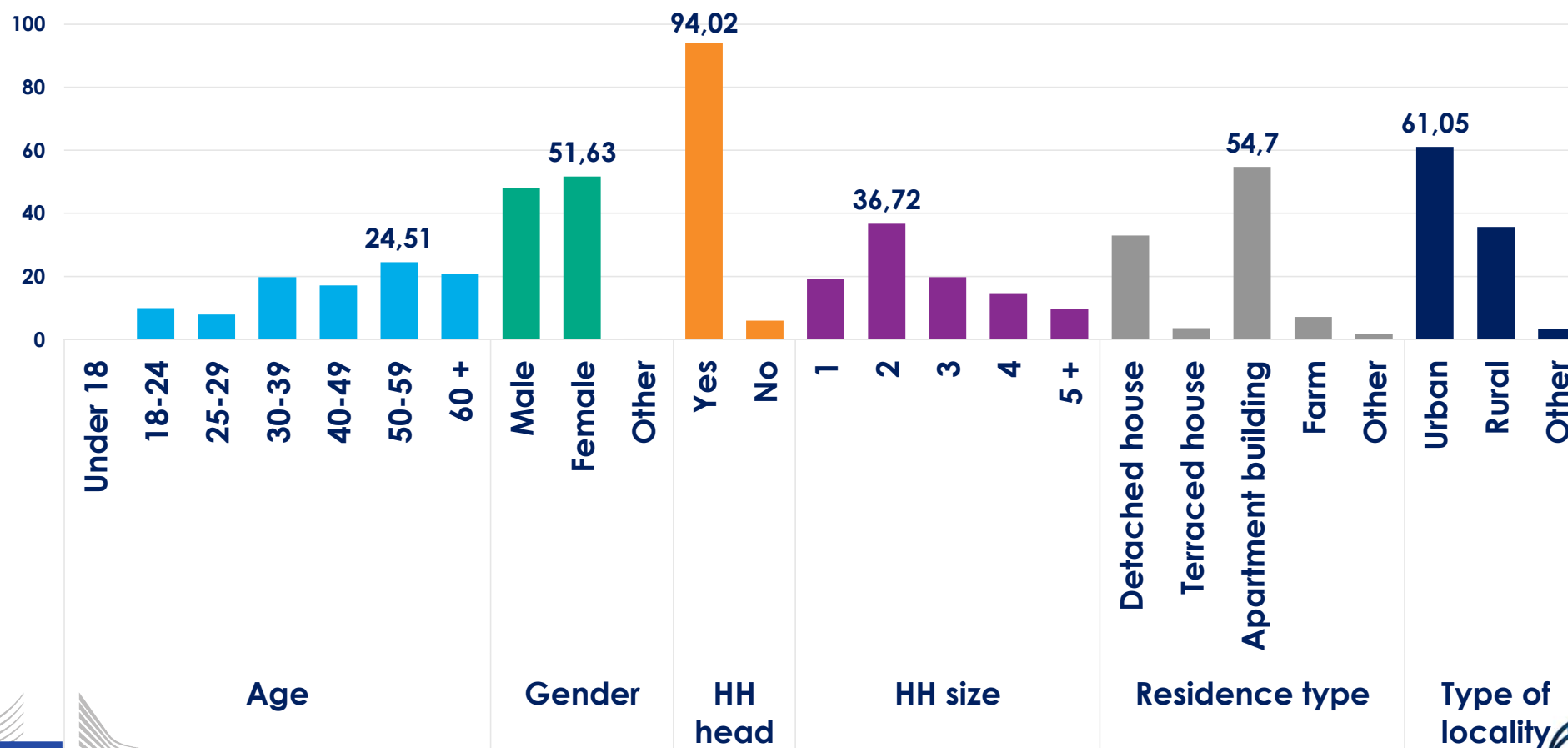
** Includes 117 cases recruited through snowball and shareable link.

*** Responses to last demographic question (Occupation)

- **Population:** 909,000 adult Facebook users in Estonia (>18 yo)
- **Stratification:** 120 strata based on age (4 groups), counties (15), and gender (2)
- **Sampling weights:** region, age, and gender from the population register (Statistics Estonia, 2021)
- **Dates:** June 30th to July 7th, 2021

**Over 5,100 responses
in 7 days**

d. Sample description (weighted)



**Results weighted following population distribution from Statistics Estonia (2021)*

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Overview of Results

- **Classifying Recyclers: Champions, Champions-to-be, Stuck**
- **Revealed Knowledge of Waste types**
- **Motivations and Bottlenecks to Recycling**
- **Information needs and knowledge by type of recycler**
- **Descriptive graphs: Cost of collection, Location, Frequency, Adequacy of Frequency**
- **Breakdown by County**
- **Survey Experiment**

a. Classifying recyclers in Estonia

How often do you separate your waste?

Self-reported based on all waste

All respondents
(N=4,743)

Always separate
waste (43.0%)

Sometimes
separate (46.3%)

Never separate
waste (10.7%)

About half of respondents reported that they sometimes separate waste, and around 10% never separates

-- Knowledge
-- Willingness to learn more

Stuck

-Rural
-Male
-Multi-family dwelling
-Less than univ. education

Champions

-Older
-Univ. education

Willingness/
motivation
to recycle

- Knowledge
- Willingness to learn more

Most of time
(34.5%)

Rarely (11.8%)

Transitioning

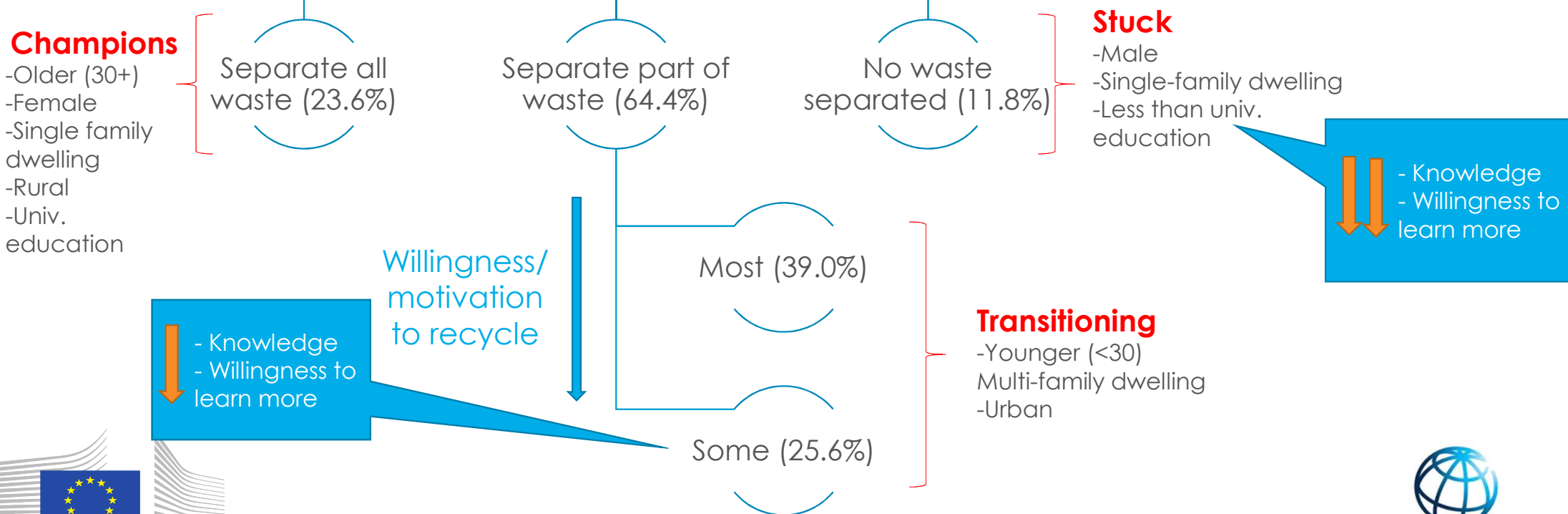
-Younger
-Multi-family dwelling
-Univ. education

a. Classifying recyclers in Estonia

What kind of waste do you separate?

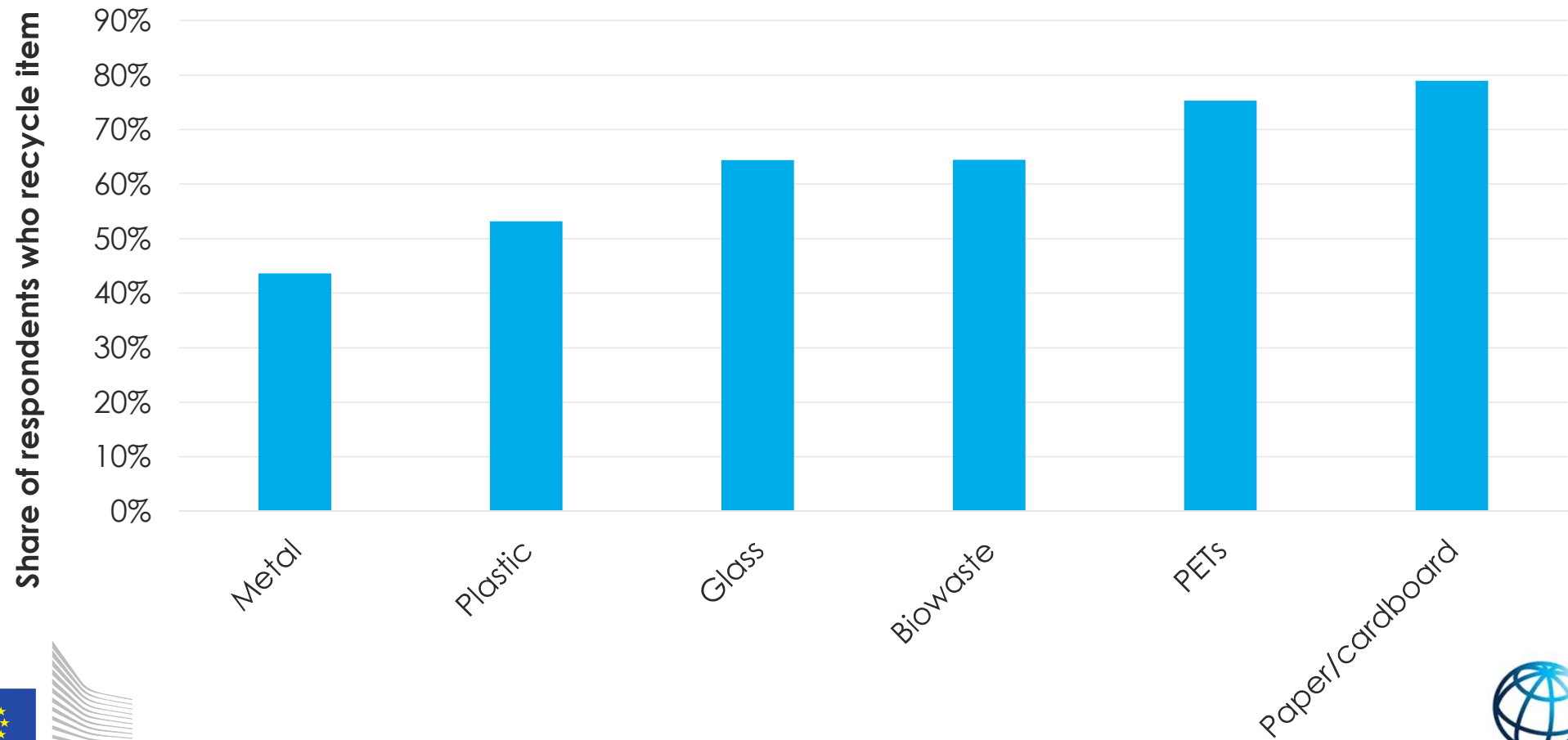
Self-reported based on waste type

Almost two thirds of respondents reported that they separate some types of waste, and around 10% does not separate any of their waste

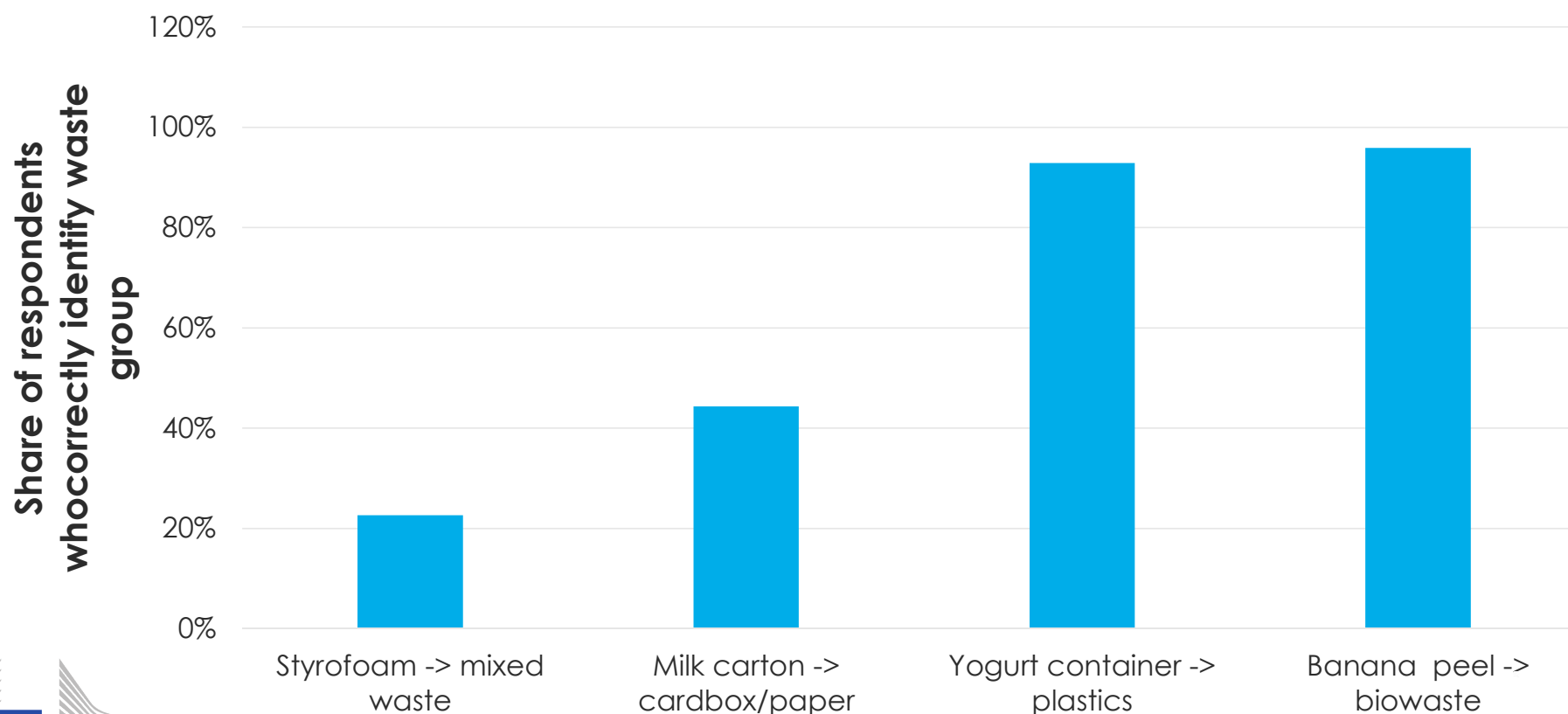


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b. What is being recycled?

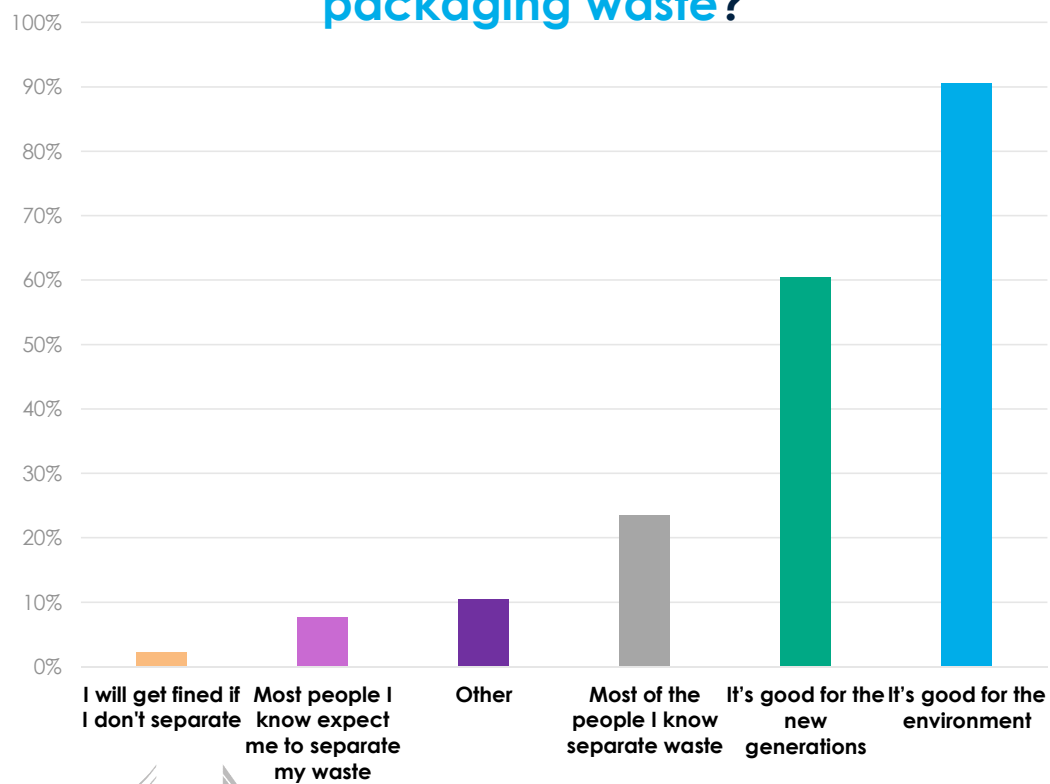


C. Are items being separated properly?

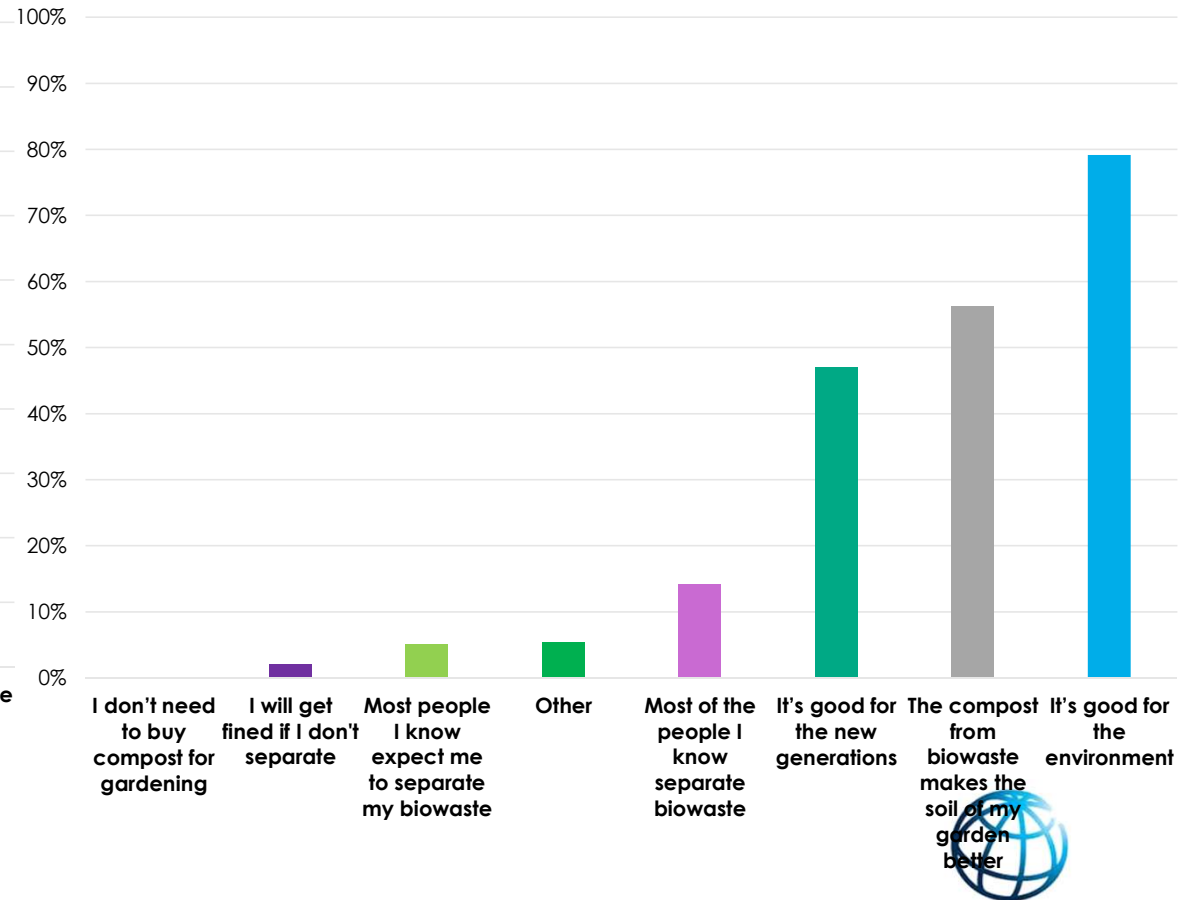


d. Main motivation for recyclers is the environment

Why do you separate your
packaging waste?



Why do you separate your **biowaste**?

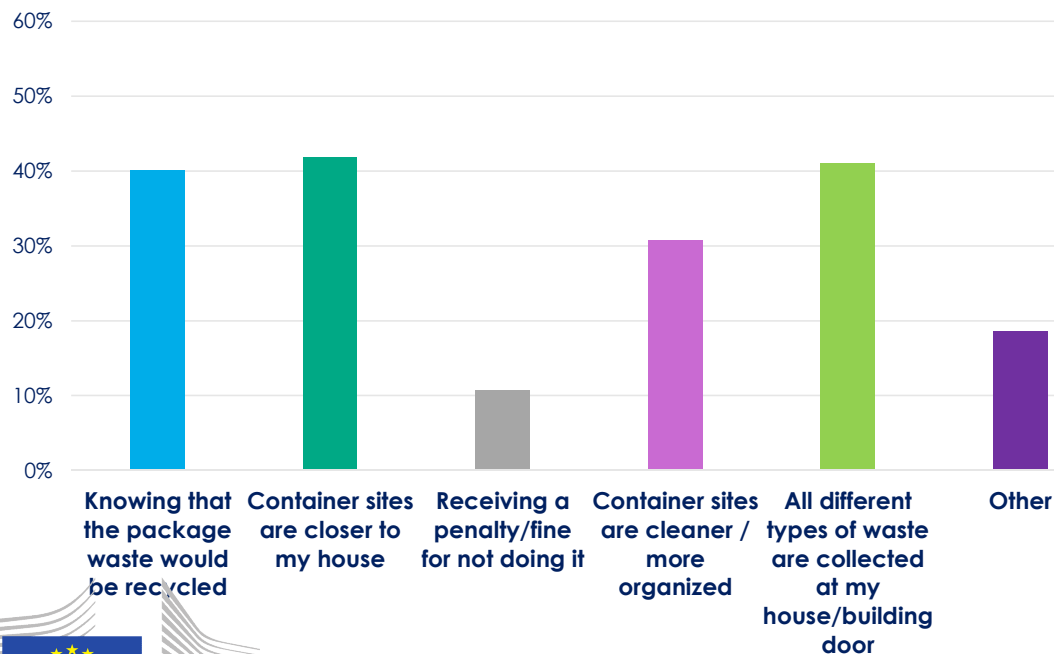


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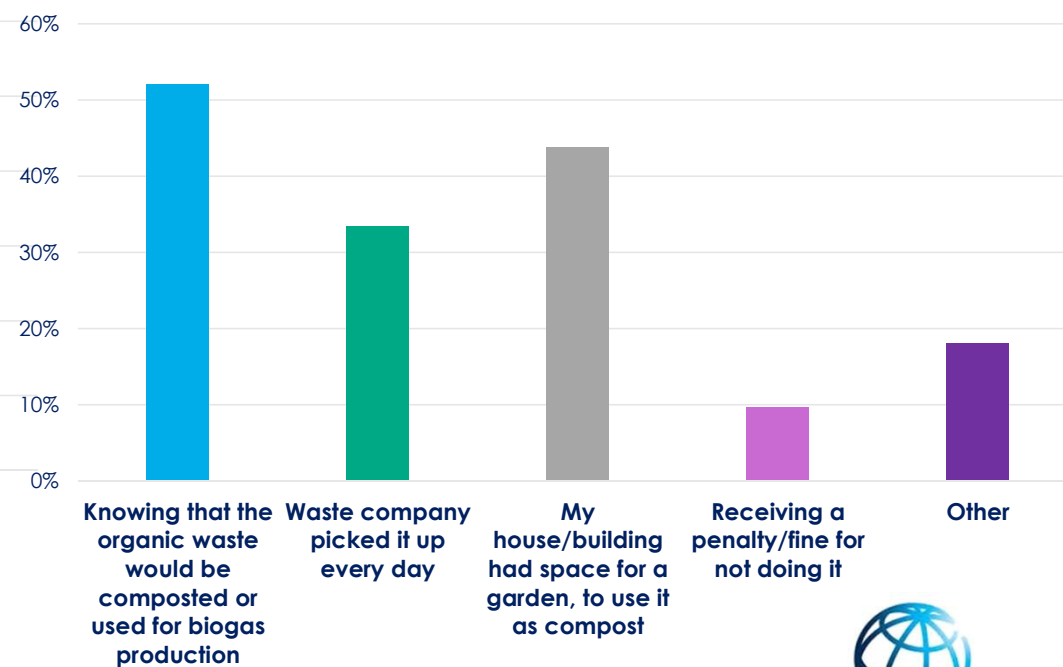


e. Easier disposal & trust in the recycling as main motivators for non-recyclers

What would motivate you to start separating your **packaging waste**?

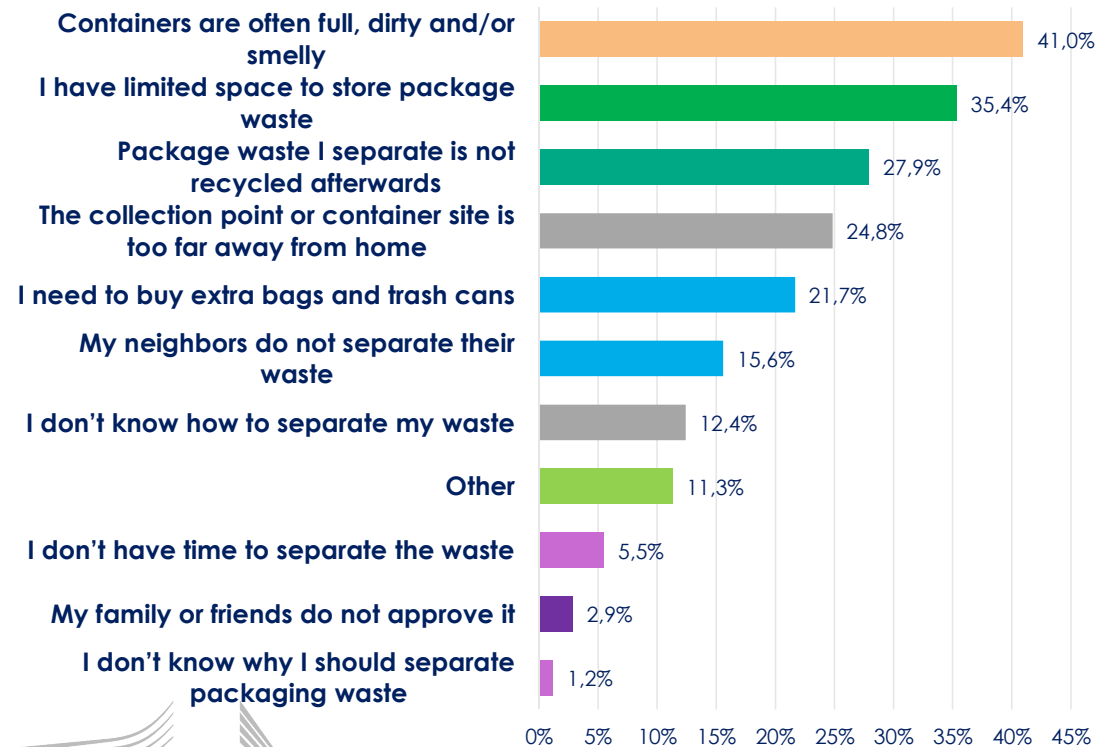


What would motivate you for start separating your **biowaste**?

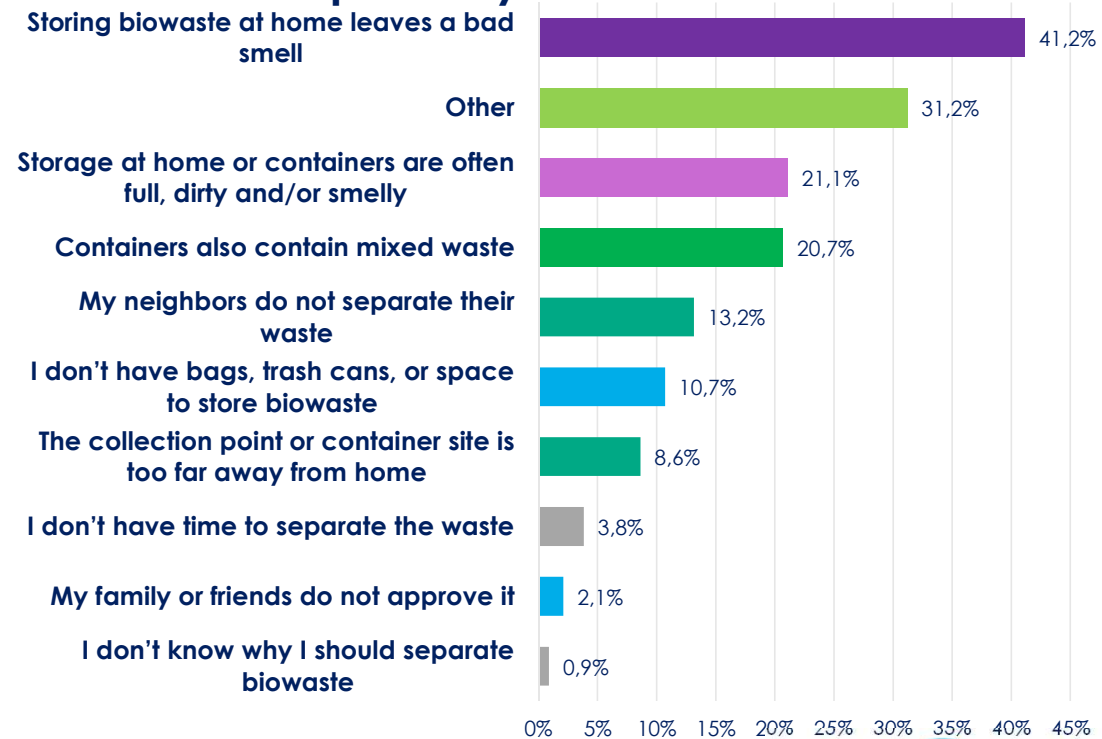


f. Main bottlenecks to waste separation for those who sometimes separate

What makes it difficult for you to separate your packaging waste?



What makes it difficult for you to separate your biowaste?

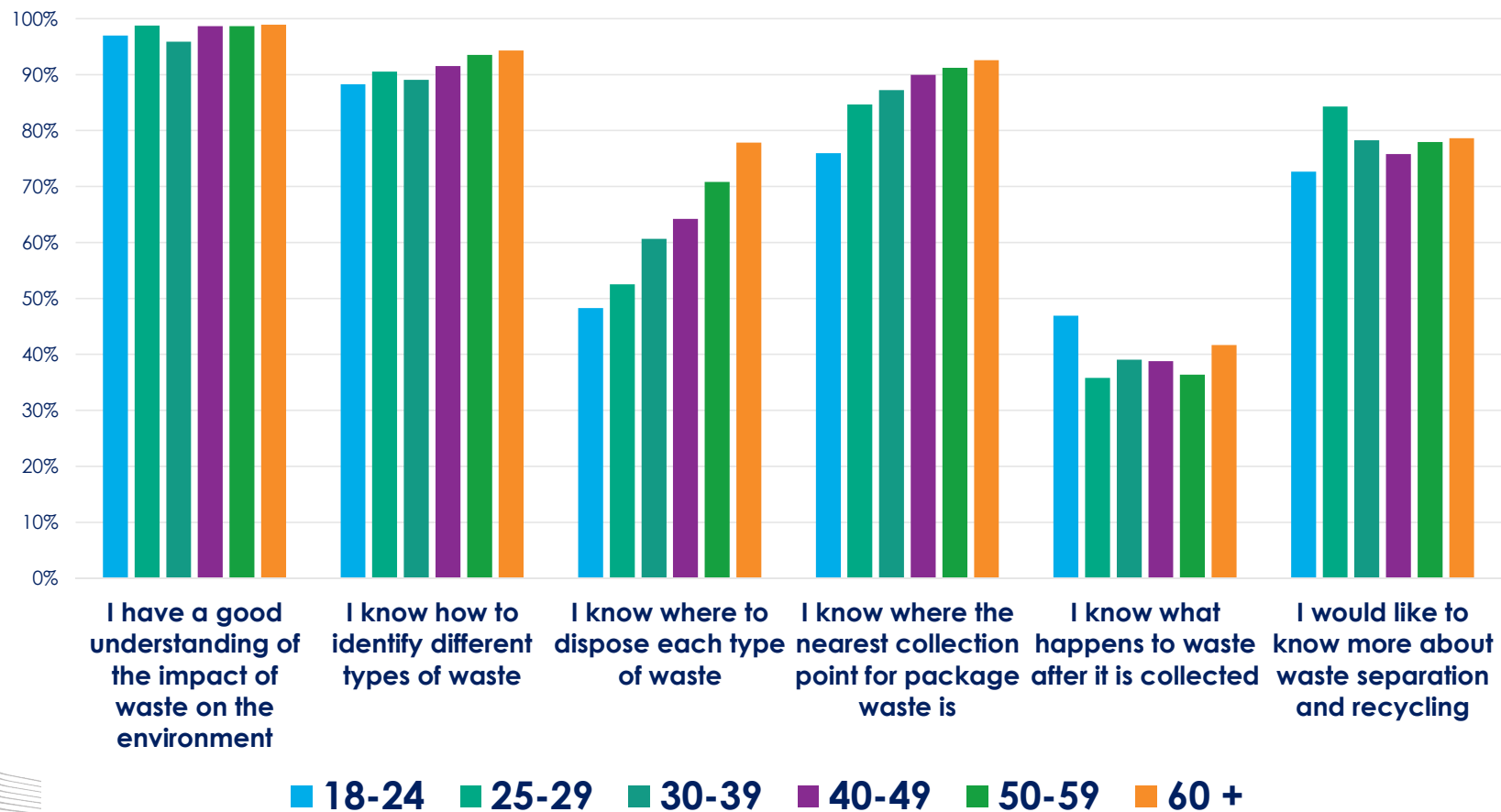


g. **Never recyclers: lack of space, distance to container site, lack of trust in the recycling system**

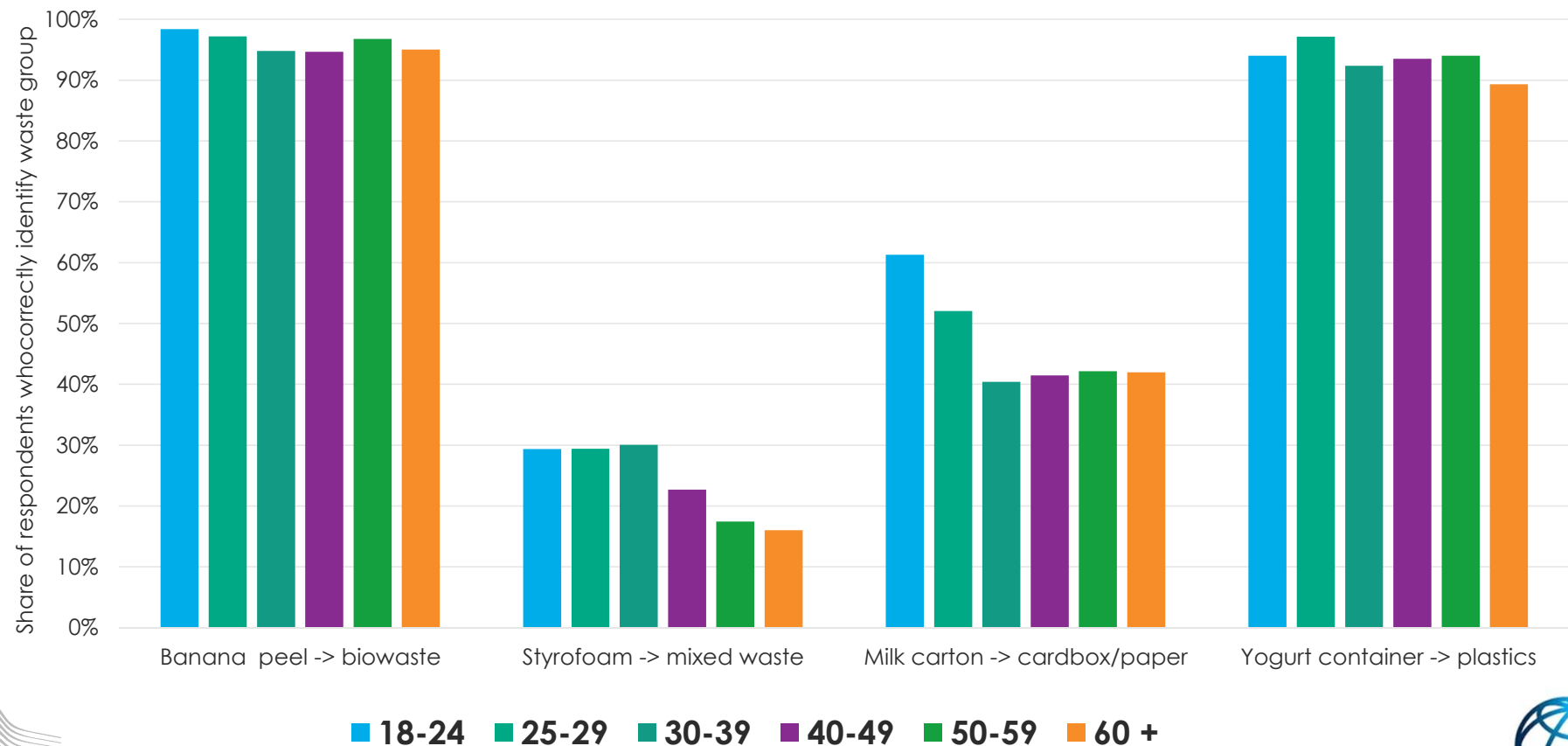
Why don't you separate your waste?



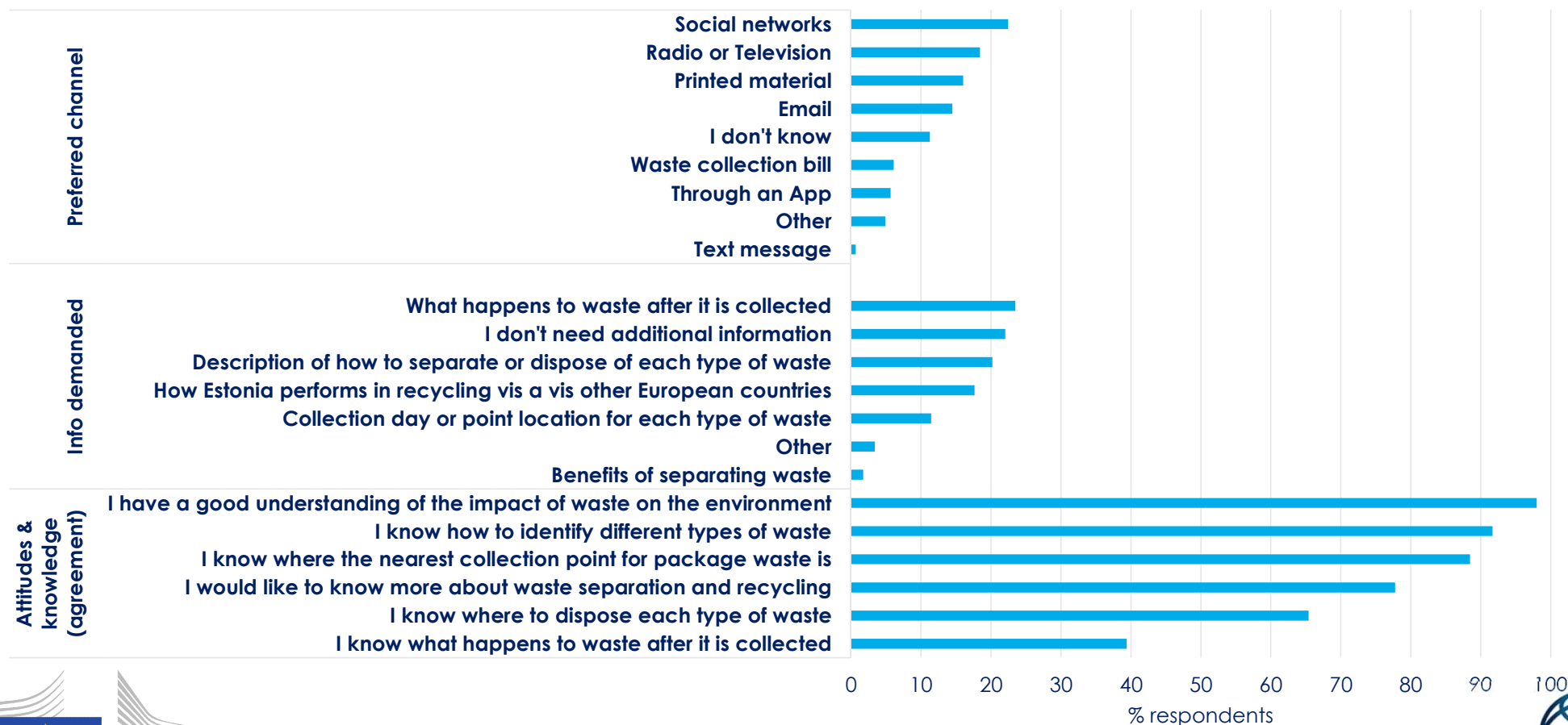
h. Stated knowledge is higher for older respondents



i. However, revealed knowledge is the opposite

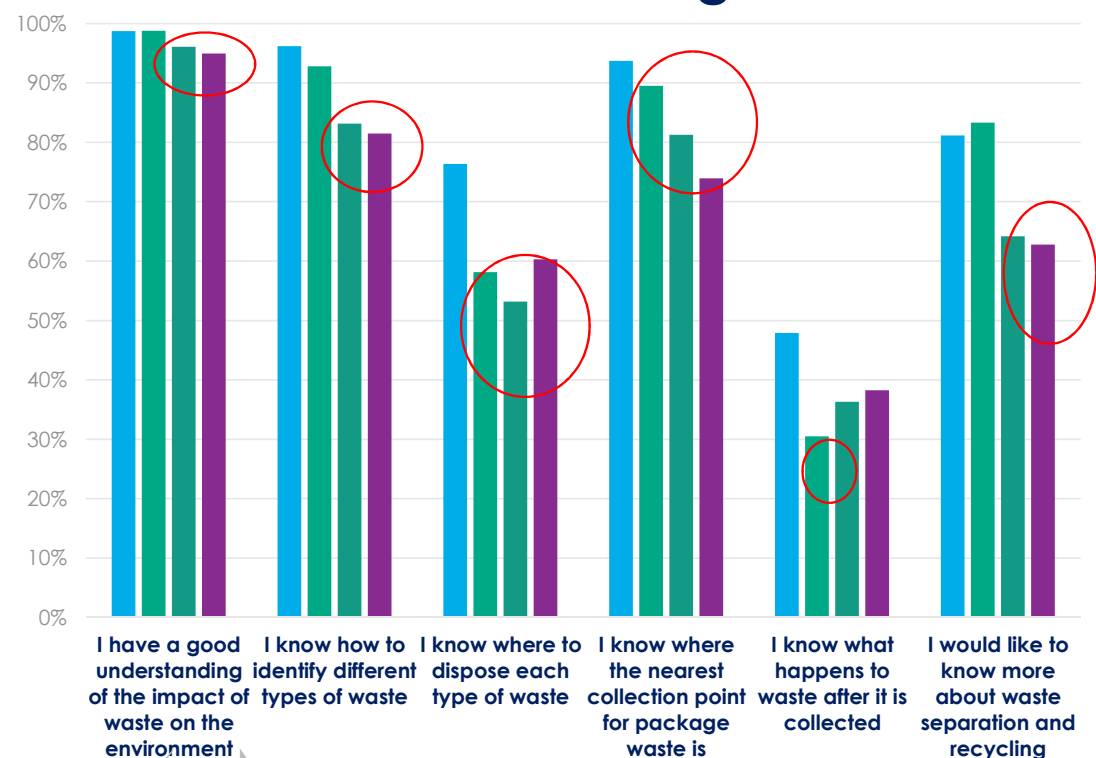


j. Preferred communication channels: social networks and Radio/TV



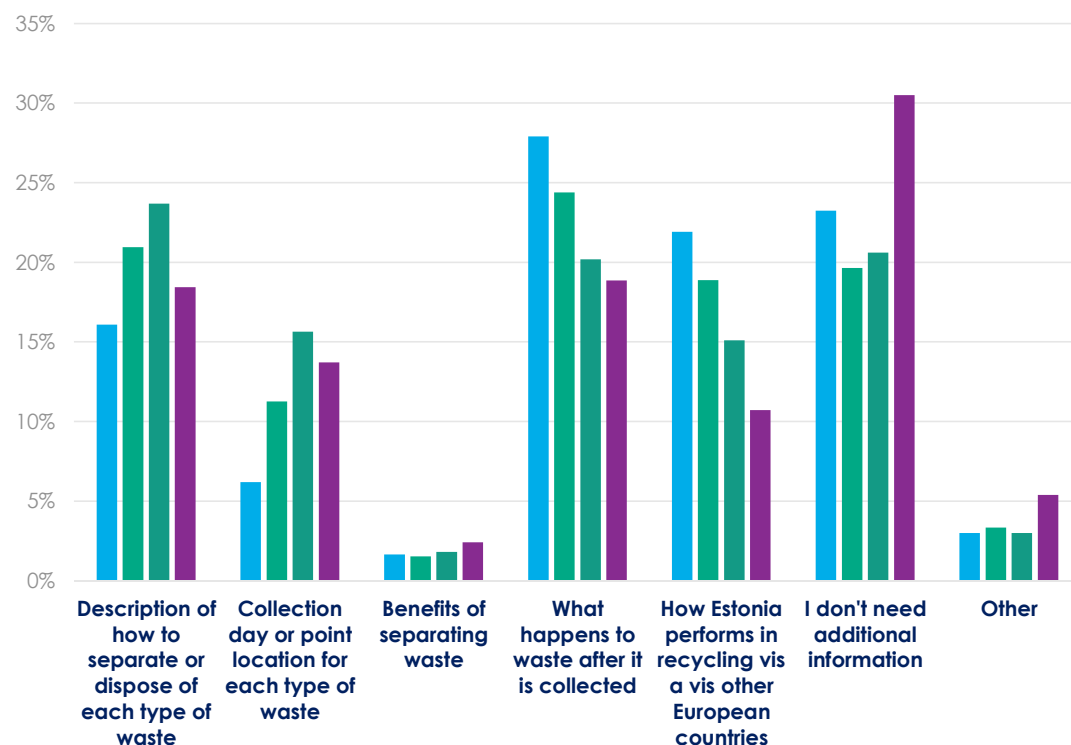
k. Reported Knowledge and Information needs by waste separation status

Knowledge



■ Separate all waste
■ Separate some of waste

Information needs



■ Separate most of waste
■ No waste separated



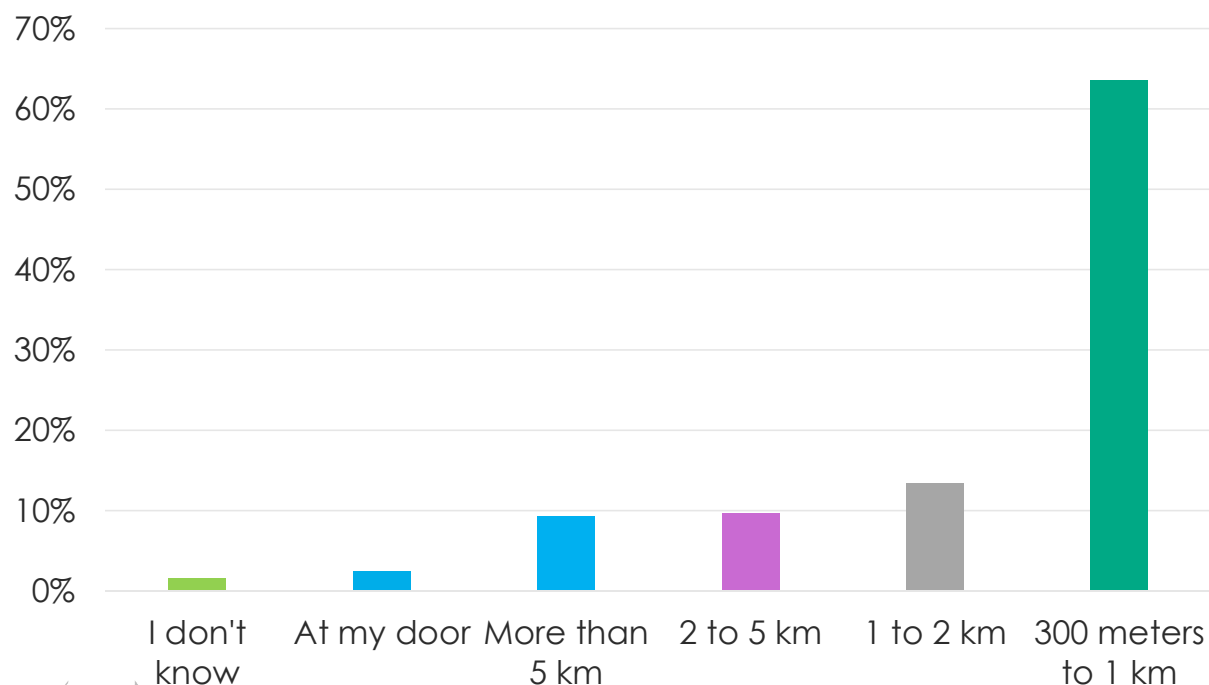
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I. For 62% of respondents, the collection point of package waste is between 300m-1km away

Distance from packaging waste collection place

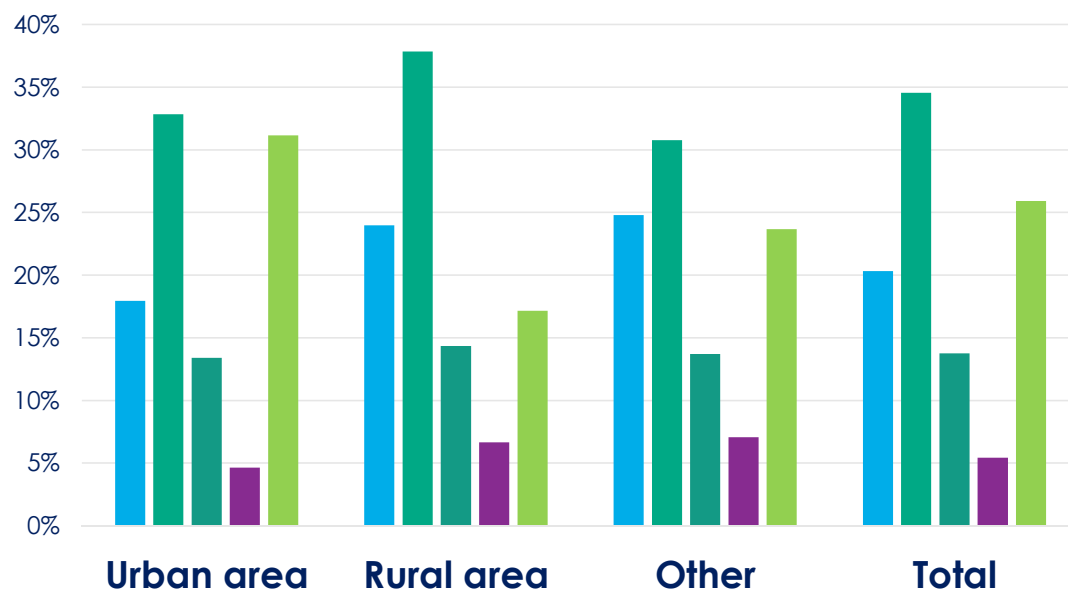


For 34%, it is more than 1km away and only 2% have it collected at their door

Nearly two thirds of respondents dispose of packaged waste between 300 meters to 1 km

a. Cost of Mixed Waste collection

Approximately how much do you pay for waste collection, per month?



55% pay up to 6 euros a month

26% do not know

b. Mixed Waste Collection Location

Where is your mixed waste collected?

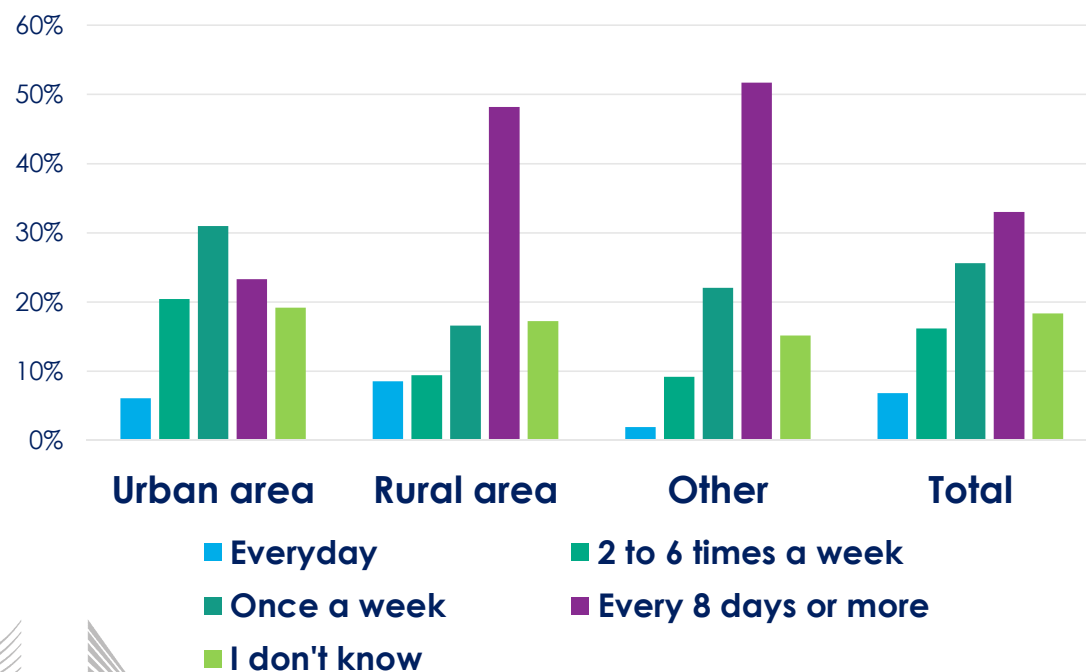


Mixed Waste is mostly collected at one's door.

In rural areas, 10 % is collected on container sites, away from home.

C. Mixed Waste Collection Frequency

How often is the mixed municipal waste collected?

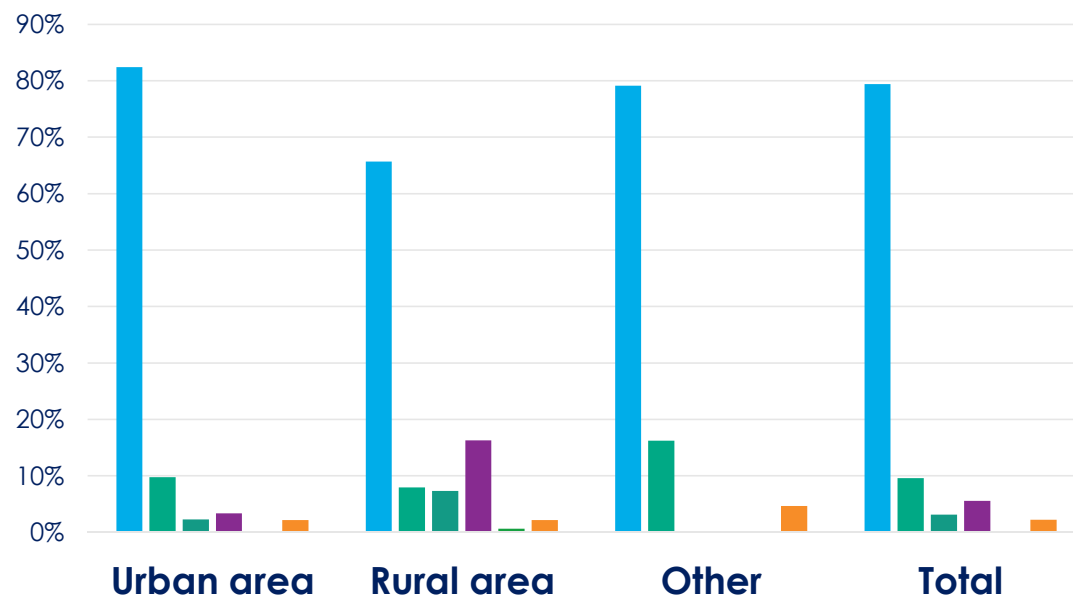


In urban areas, collection of mixed waste once per week is most common.

In rural areas, every 8 days or more is the most common frequency. Nearly 20 % of respondents do not know the frequency of collection.

d. Biowaste Collection Location

Where is your biowaste collected?



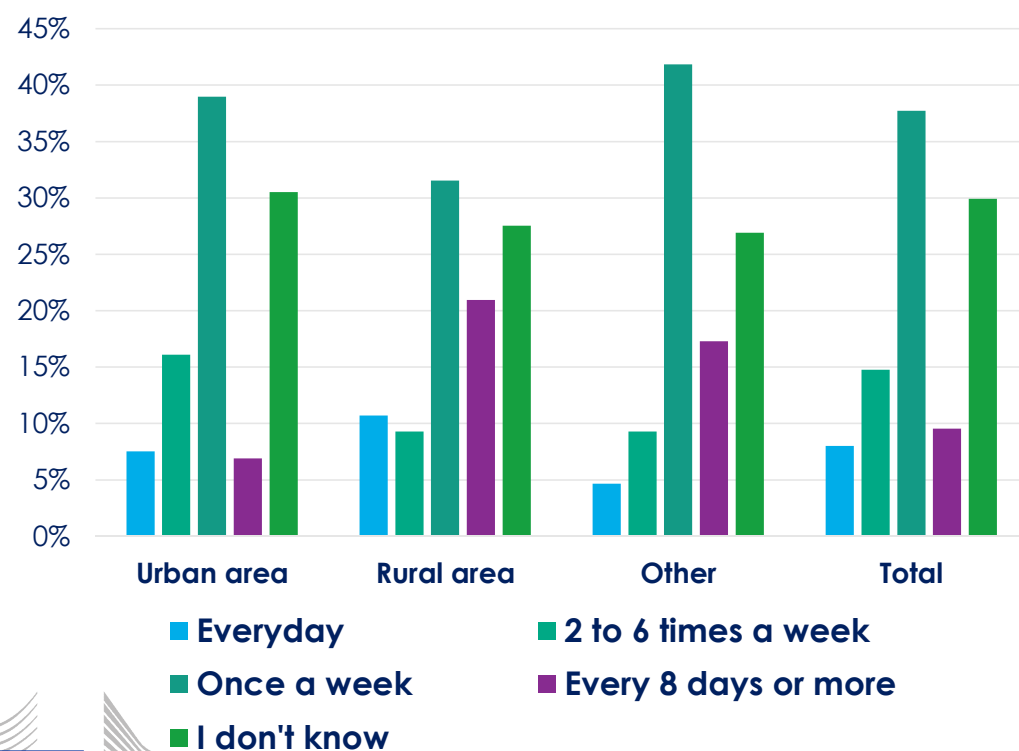
- In front of my house
- At my building's receptacle
- At my neighborhood's receptacle
- At containers sites, away from my home
- I don't know

Biowaste is also mostly collected at one's door.

In rural areas, 16 % is collected on container sites, away from home.

e. Biowaste Collection Frequency

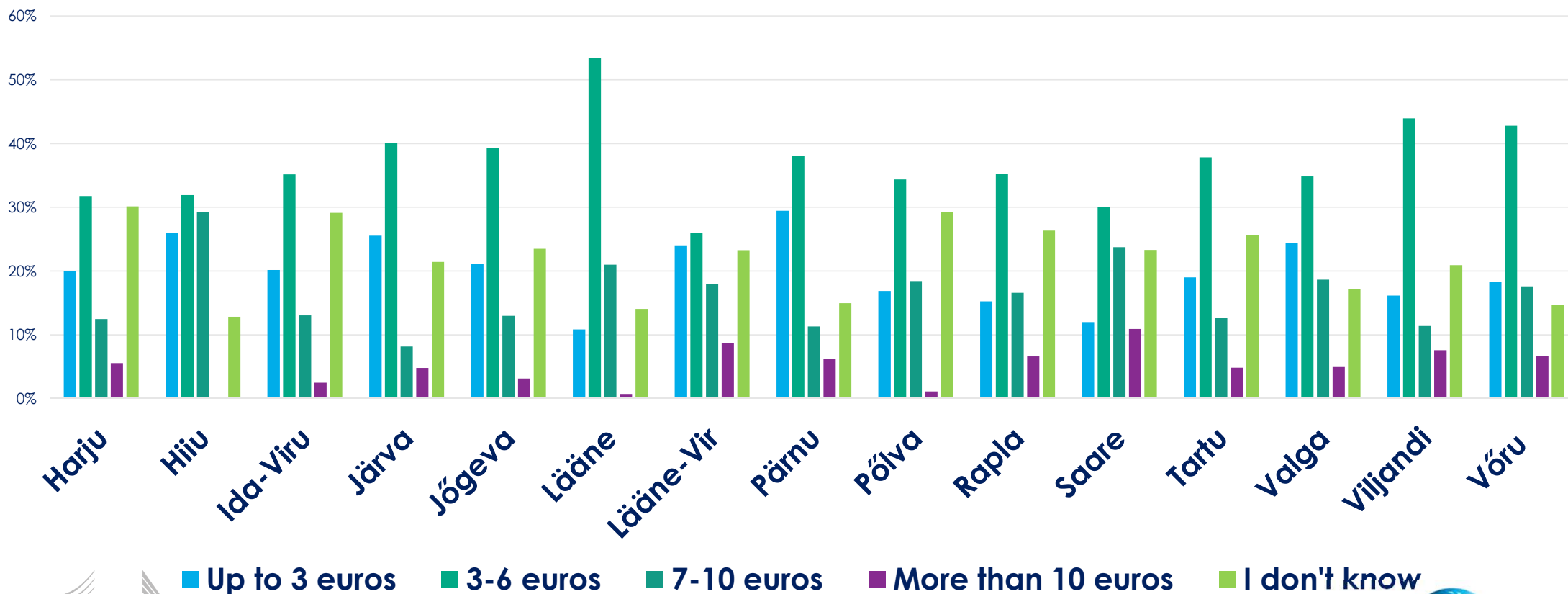
How often is biowaste collected?



For biowaste, collection once per week is the most common overall.

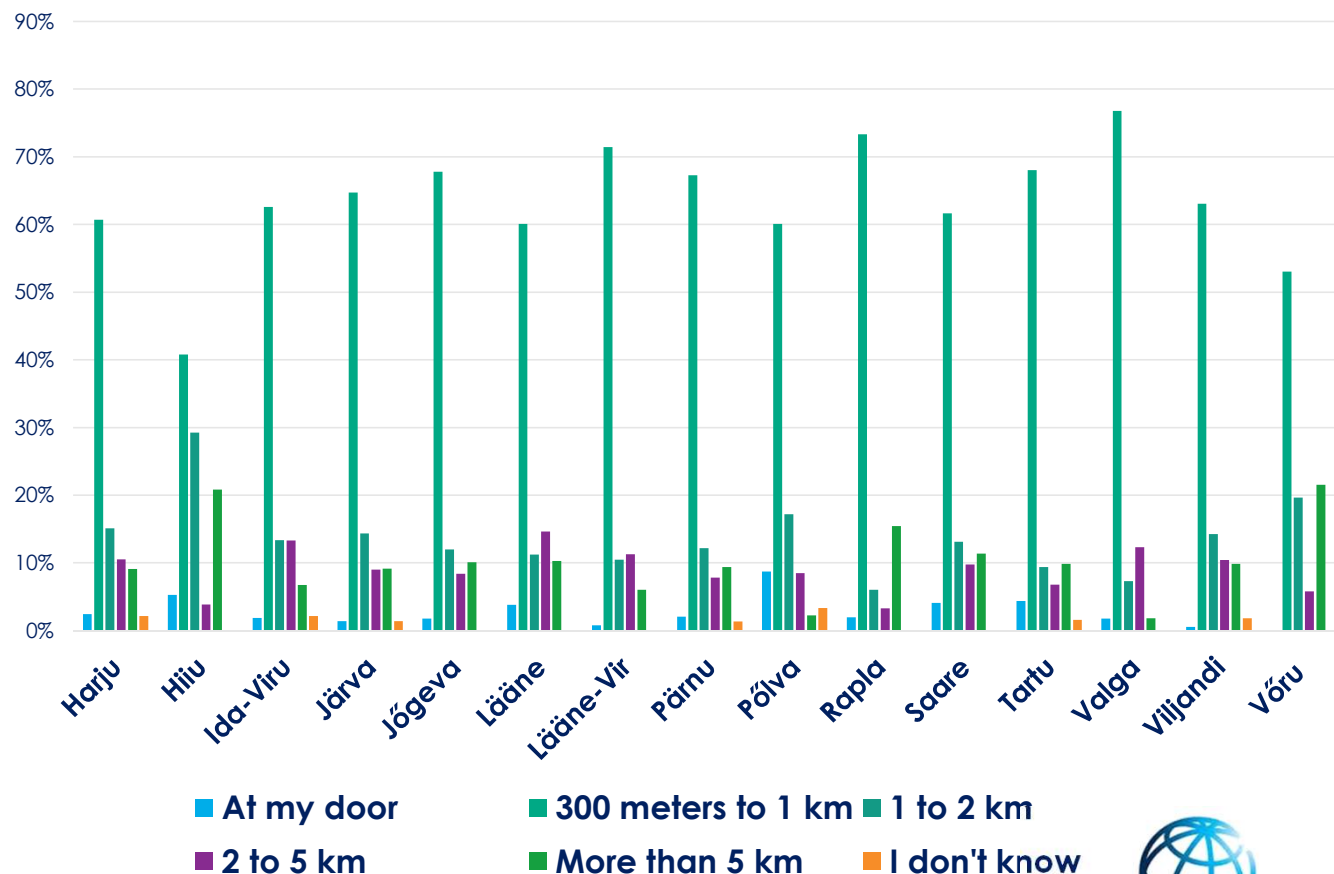
Nearly 30 % of respondents do not know the frequency of collection.

a. Cost of Mixed Waste collection



b. Collection Location

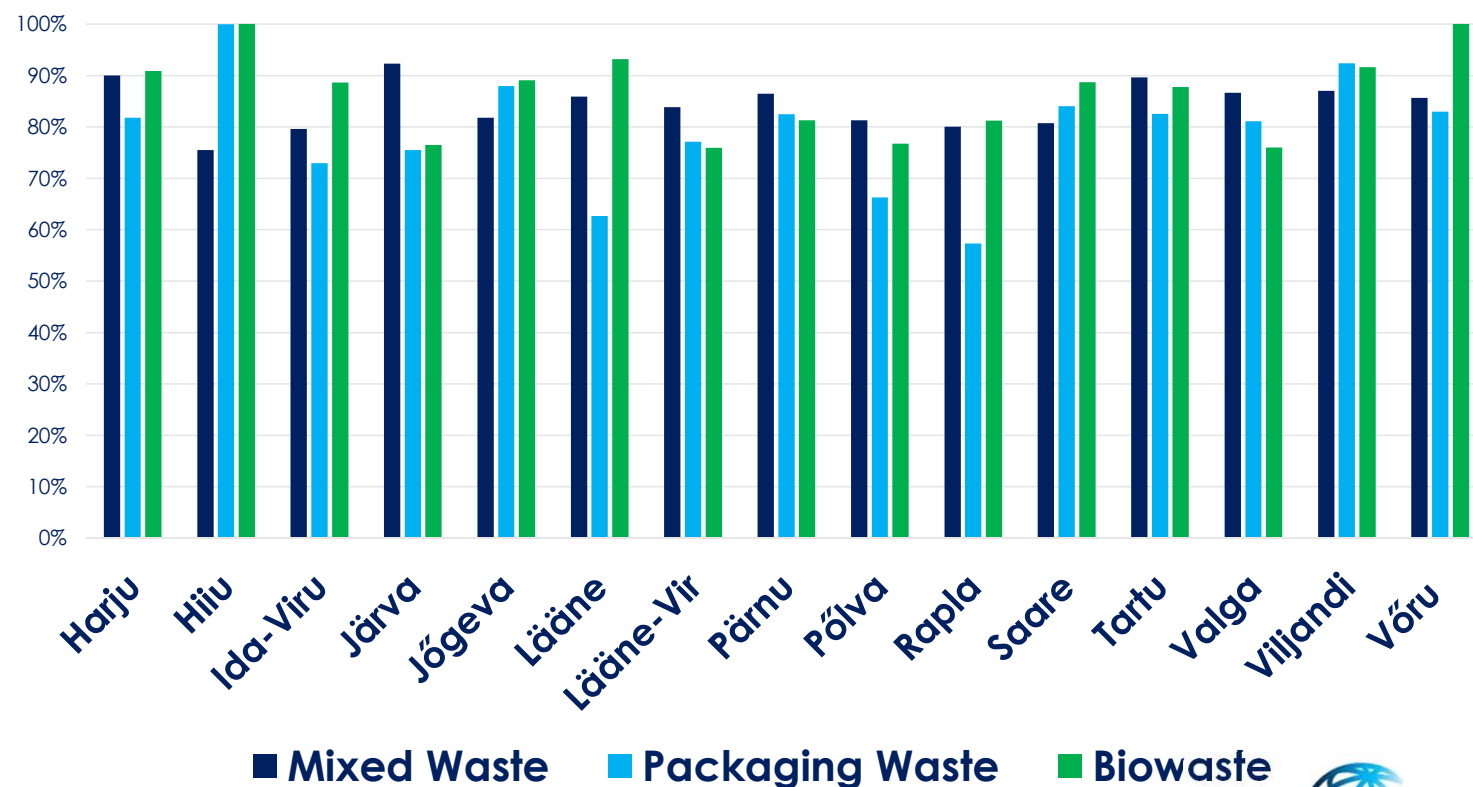
Counties of Põlva, Tartu, Lääne and Saare have more door-to-door collection than the others, albeit also in small proportions. In Võru, Hiiu and Rapla 18%-20% of respondents reported that collection points are more than 5 km away.



c. Collection frequency

Satisfaction with frequency is lower in Rapla and Laane counties.

Respondents are less satisfied with the frequency of collection of package waste



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Survey experiment on engagement strategies

After a generic statement on waste separation, respondents were randomly assigned to see different vignettes on the screen.

1. The generic statement (presented to all respondents) read:

Your plastic, paper, glass, and metal packages can be recycled, and your organic waste can be transformed into compost or electricity from biogas.

2. This was followed by unique statements that a random draw of approximately 25% of respondents saw on their screen:

- “The recycling rate in our country is 31%. Our goal is to reach 50% in 4 years.” [*National pride*]
- “Separating and recycling our waste reduces the use of our land for waste disposal and of incinerators that pollute our air.” [*Future consequences-resources*]
- “Our children and grandchildren will enjoy a clean and safe environment if we separate and recycle our waste today.” [*Future consequences-affections*]
- “According to a recent survey, almost 2 out of 3 Estonians report that they separate most of their waste for recycling.” [*Descriptive norm*]

After these primes, respondents were asked about intentions to separate waste and how positively they received the message.



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Intentions to separate are high for all vignettes, but more info needed

Commitment to separate waste is high for all vignettes, but so is the demand for additional information to carry out this behavior

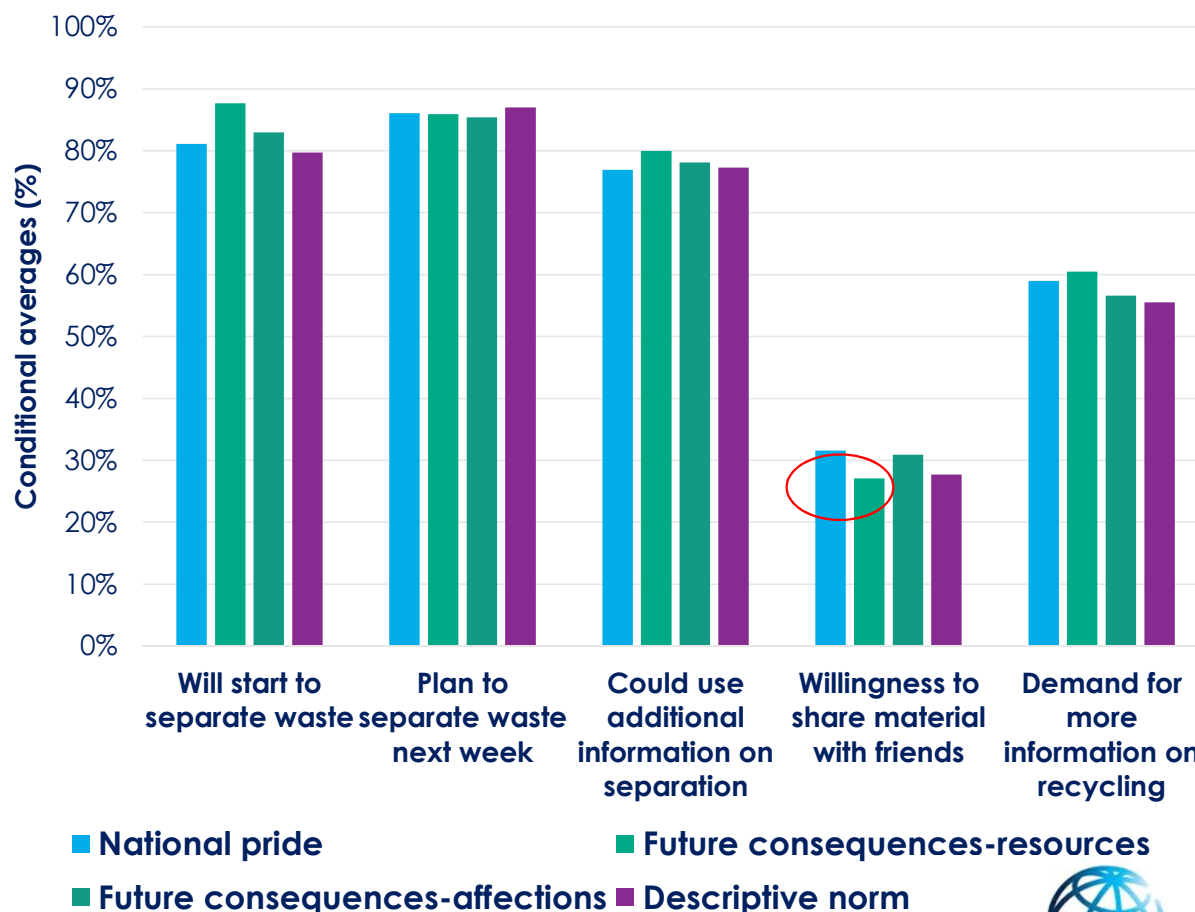
Among those not currently separating, over 80% say they will begin to do so; among all respondents, over 85% plan to separate their waste next week.

However, 3 of 4 respondents would accept more information on waste separation.

Some vignettes work better than others to induce willingness to share materials with network

Compared to the national pride vignette (the reference group), those exposed to the vignette on future consequences in terms of natural resources are significantly less likely to want to share with their networks, potentially highlighting saturation of messages around environmental sustainability in Estonia.

Finding on social networks important because some selection bias on respondents, presumably would share with "less open" networks (w.r.t. waste issues).



The impact of the vignettes depends on the audience

At the margin, we see differential impacts of certain vignettes when conditioned on age and gender

Older respondents (relative to younger) report a lower intention to *begin* separating when exposed to future consequences-resources

Male respondents (relative to female or other) report a higher demand for additional information about recycling when exposed to future consequences-resources and the descriptive norm

Net impact of vignette relative to national pride message		
Outcome	Male (relative to female)	Old (relative to young)
Intend to start separating		↓ Future consequences-resources
Intend to separate next week		↓ Future consequences-resources
Would like to receive more info about recycling	↑ Future consequences-resources ↑ Descriptive norm	

Key take-aways

- Almost two thirds of respondents report that they separate some types of waste, while 12% do not separate any type of waste.
- Through communication and easier logistics/door-to-door collection, this contingent of “champions-to-be” could potentially become “champions” i.e. join the group that separates all waste (24%).
- This transitioning group tend to be younger and urban.
- Champions recycle mainly because of the environment. What others do matter too. Health benefits of a better soil is an important factor for those that recycle biowaste.
- For those that do not separate waste, access issues are the main challenges (space to store, distance to package waste container, cleanliness of containers). For this group, easier disposal and increased trust in the system would motivate them to start recycling.

Summary

- **Capabilities:** Limited storage space at home and distance to containers sites (for package waste) are often mentioned bottlenecks
- **Opportunities.** Estonians want to know more about recycling. They want practical information (where to dispose of each type of waste?) and information about the Estonian system (what happens to the waste I sort? Is it being recycled? What type of product results from recycling? What are the benefits of recycling, and consequences of not recycling?). Existing services (door-to-door) can be more widely advertised.
- **Motivations:** Estonians care about the environment, what others do, and about Estonia's targets and commitments (national pride framing)

Agenda

1. Background
2. Scoping study
3. Online Survey
4. Results
5. Experiment
6. Conclusions



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What Estonia can do now to improve waste separation

Communication

- **Content:** Survey respondents would like to know more about where and how each type of waste is collected; about what happens to waste once it's been sorted; the benefits of recycling and the negative consequences of not doing it.
- **Communication channels:**
 - Leverage social media to inform people in a user-friendly manner, such as clips, animations, infographics, or short informative videos. This channel is especially relevant for young Estonians, who know less about waste sorting than older Estonians
 - Social media can also be used to A/B test specific messages/information to specific groups e.g. youth or regions.
 - Prepare a virtual flyer with the relevant information to be added to any utility bill or related e-mail (considering mailed bills are no longer widely used in Estonia).
 - Develop an app that compiles and delivers timely information to households about waste collection, for example types of waste, location sites (by city), frequency of collection. The Junker app in Italy is an example. Additionally, it could be combined with other useful insights from behavioral sciences to address some of the common bottlenecks faced by citizens: timely reminders of the collection date (in case of lack of attention or memory), games (to increase saliency) and in in-app competitions (to appeal to social motivations)

What Estonia can do now to improve waste separation

Communication

- **Motivation frames:** Promoting recycling informational content subtly alluding to different motivations can affect the intention of citizens or increase the likelihood that these messages are shared across close networks. For example, in our survey experiment, it was found that sharing information about recycling among close networks is more likely when this information alludes to sentiments of national pride when compared to discussing future consequences on national resources (an increase from 27% to 32% of respondents willing to share)
- **Messenger and sender:** Consider the messenger that will deliver information, as it can indirectly appeal to some of the motivations mentioned above that affect the intent to act and final behavior. For example, well-known role models or social media influencers in Estonia can be used to deliver the messages (e.g., Gethel Burlaka, Liisa Aavik, Marii Karell)



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What Estonia can do now to improve waste separation

Make it Easier – Improve Access

- For package waste, incentivize door- to- door collection by all PROs (currently offered by one PRO).
- Widely advertise existing door –to- door service (by TVO, one of the 3 PROs): <https://tvo.ee/services/for-private-houses>

Invest in Transparency to build Trust (Medium/Long term)

- Increase transparency and accountability in the waste management system by improving data management and reporting. This will generate information to users on what happens to the waste they separate, what are the main recycling companies and products produced in the country and abroad, recycling rates.
- Inform users about main stakeholders and service providers in Estonia, including the role of PROs and municipalities in waste collection.

What Estonia can do now to improve waste separation

Engage with main producers / PROs (Short and long-term)

- To include simple guidelines on recycling in the package (what material it is made of and how you should dispose of it), following the case of other European countries (see examples in the next slide).
- To restrict the use of plastic in their packaging, also following the example of other European countries.
- To assess their own bottlenecks to improve package waste collection. Ultimately this assessment can lead to a discussion about the most efficient waste management system for Estonia: i) one unified PRO as opposed to 3; ii) PROs transfer the function (and resources) for package waste collection to existing municipal waste companies that do it door-to-door; etc.
- To form partnerships that make recycling products visible (see example of playground made of recycled material)

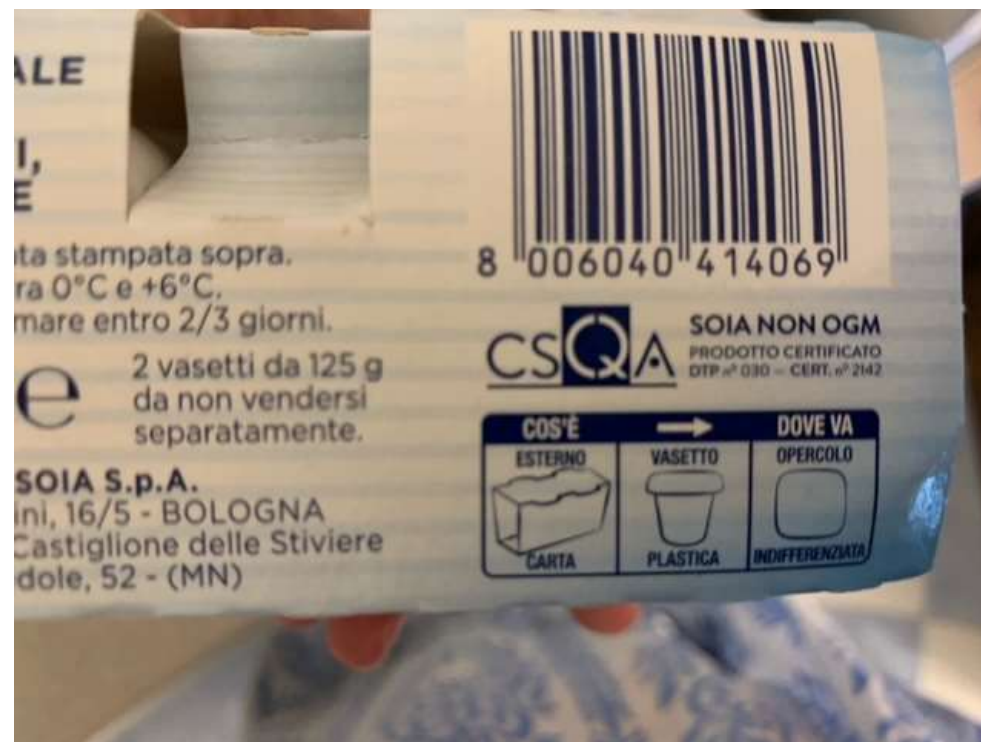


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Examples of waste disposal guidelines in packages



Making recycled products salient



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