

HABITS OF ROMANIAN POPULATION REGARDING SMALL E-WASTE



2022

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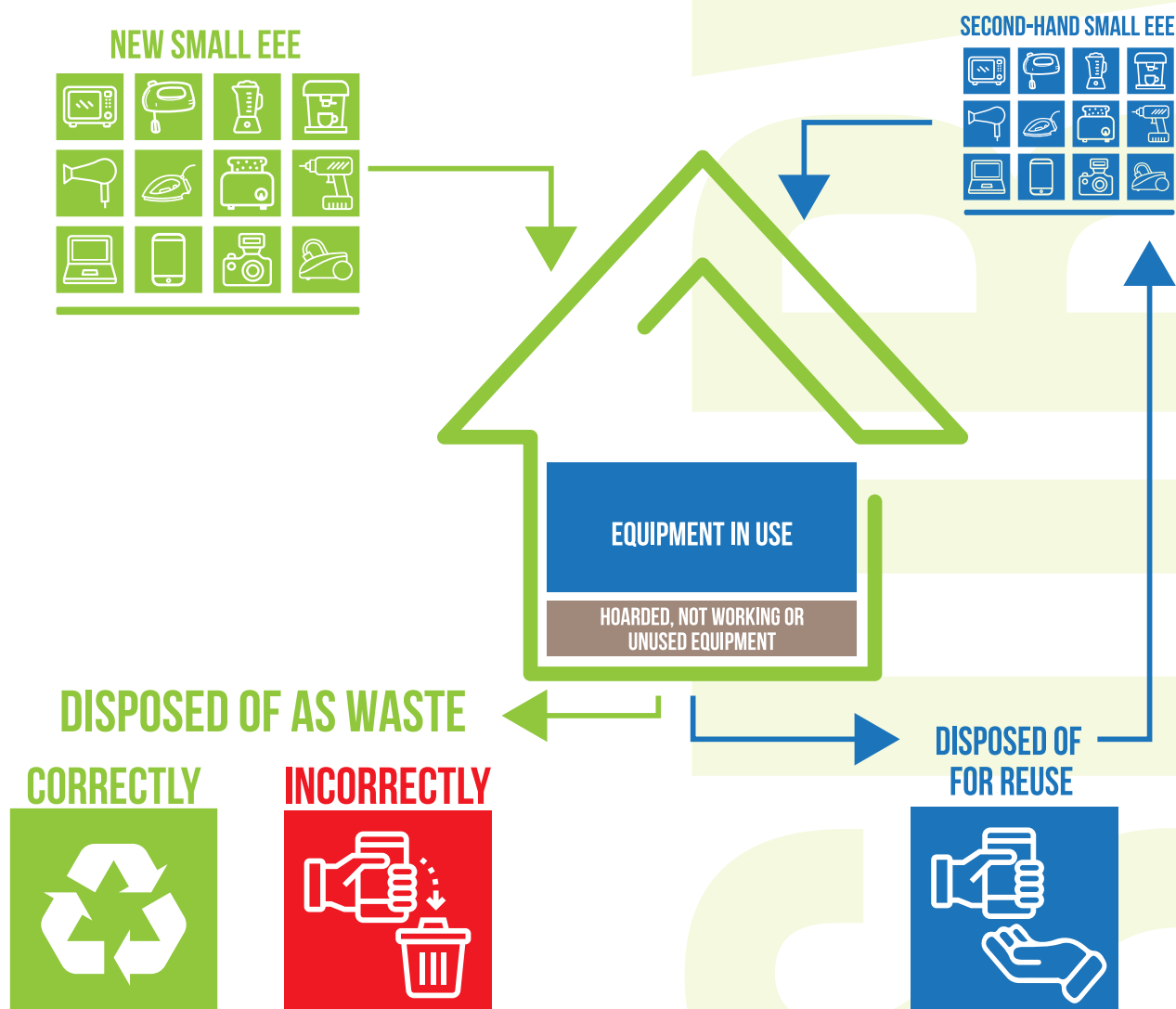
1. ABOUT THE MARKET SURVEY

In order to understand the current situation of small electric and electronic equipment (EEE) in the market (acquisitions, household endowment, age), as well as the consumer behaviour (disposal patterns, age of e-waste, etc.), upon the request of ECOTIC Association, a survey was conducted taking into consideration a representative sample for the entire country population. The survey had two main objectives:

- **Exposing the current endowment** with small equipment in every household: types of products in each household, types of acquisition (new or second-hand product), presence of not working or unused equipment.
- **Identifying the main disposal behaviours and channels** used, including **age of e-waste**.

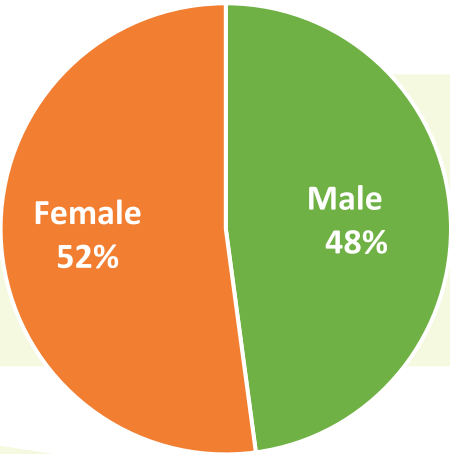
Phone interviews were conducted on a probability sample of **1500 individuals** randomly selected using **Random Digit Dialling** (random generation of phone numbers). The degree of mobile services use in Romania is over 95%, therefore this data sampling and collection method is the most appropriate to ensure a representative sample. The margin of error for the total sample is **+/-2.53 %** with a **95%** confidence level. **12.7%** response rate of the total number of individuals called (11,800 persons).

The survey focussed on the products owned within the household, the respondent being its representative, and included not only the primary residence, but also the secondary residences. Within the sample, the average number of inhabitants per household is 3.04 persons.

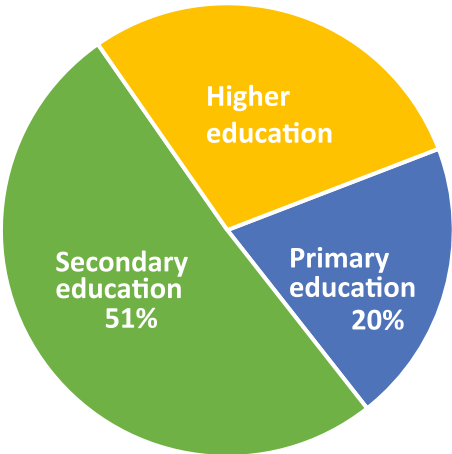


2. RESPONDENT PROFILE

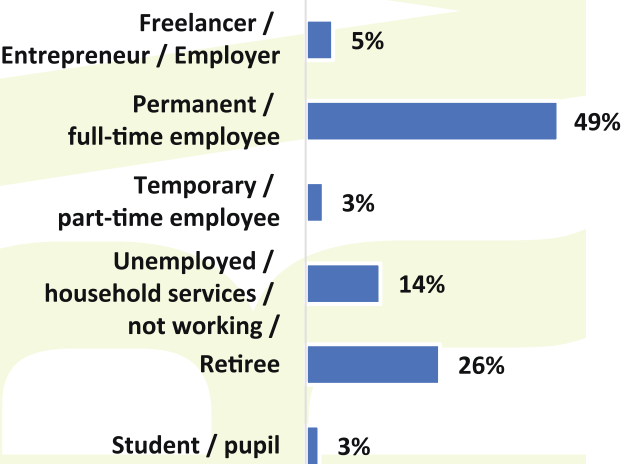
Gender



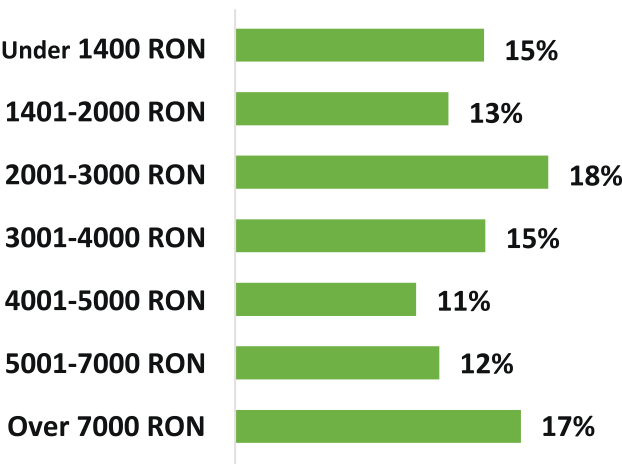
Education



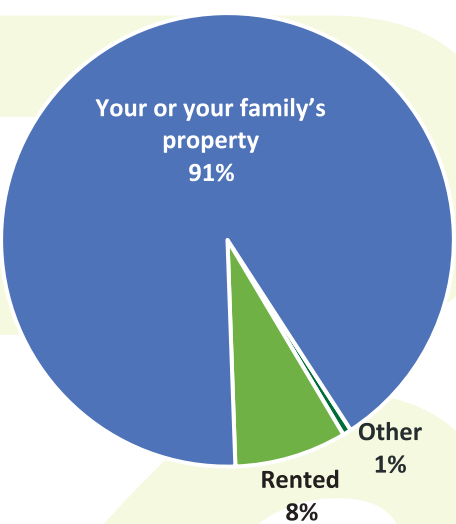
Occupation



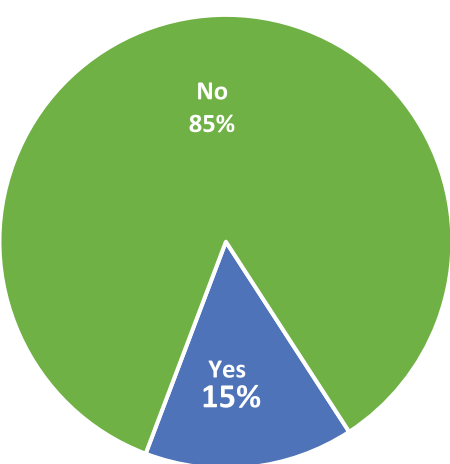
Total monthly income per household



Home ownership

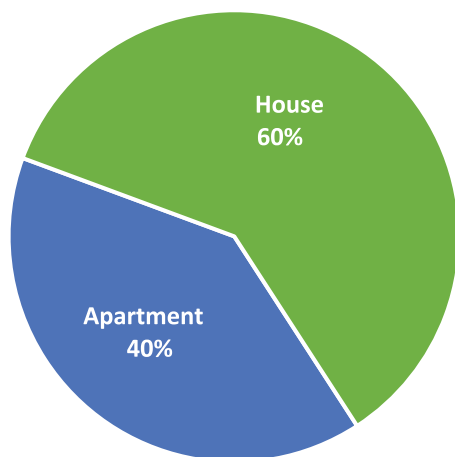


If they have secondary residences

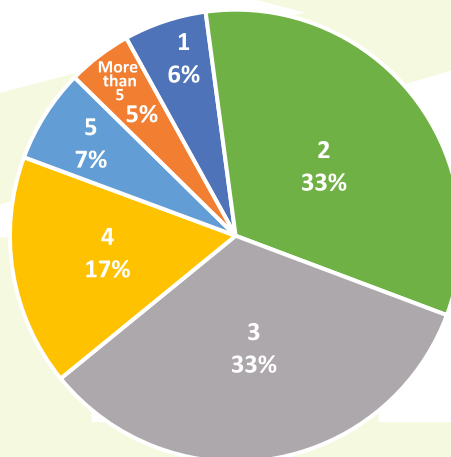


**Note: all percentages and averages in this presentation are in reference to the number of valid responses for each question*

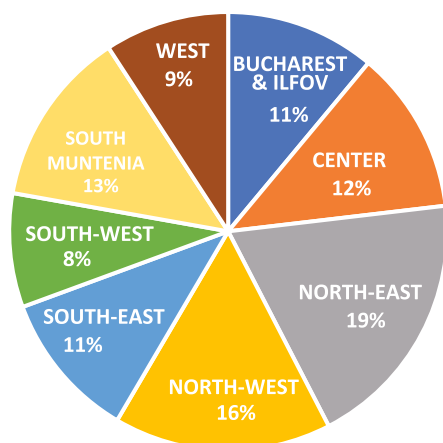
Type of dwelling



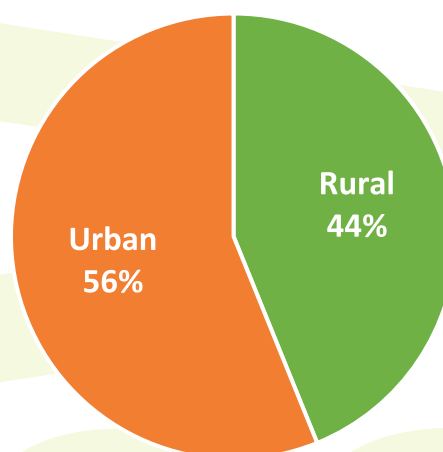
Number of rooms



Regiune de dezvoltare









Environment








3. PRODUCTS IN THE SAMPLE

The survey was based on a sample made of **11 small electronics** and, for part of them, the data may be compared to the electronics featured in the 2019¹ survey. For the entire sample of products, all the questions related to endowment and disposal were addressed to the respondents.

PRODUCTS FEATURED IN THE SAMPLE

-  Microwave oven
-  Toaster
-  Coffee maker / espresso machine
-  Mixer, blender, food processor, slicer
-  Vacuum cleaner
-  Iron

-  Hair dryer
-  Drill, electric screwdriver
-  Laptop
-  Mobile phone / smartphone
-  Photo-video digital camera


¹<https://www.ecotic.ro/wp-content/uploads/2019/10/Studiu-Cuantificarea-deseurilor-DEEE-in-Romania-2019.pdf>


4. SMALL EQUIPMENT IN HOUSEHOLDS


In order to determine the presence of equipment in households, all respondents were asked how many appliances they own of the 11 products mentioned and what is their usage status.

PENETRATION RATE

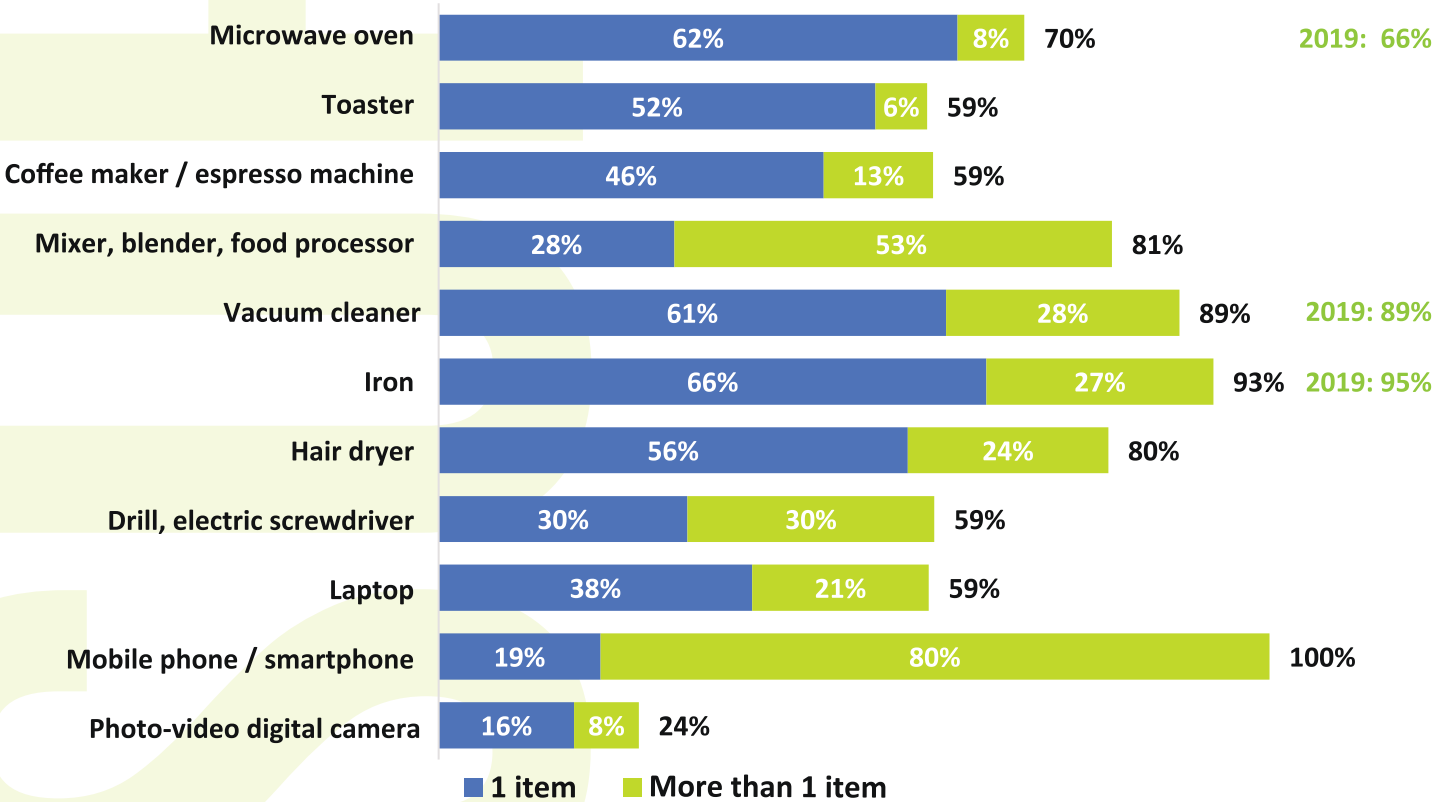
- 100%  FOUND IN ALL HOMES
- 93%  THE SECOND MOST FPRESENT SMALL EEE IN THE HOUSEHOLD
- 24%  THE LOWEST STOCK RATE
- 70%  SLIGHT RISE FROM 66% IN 2019

 OVER ½ OF HOUSEHOLDS HAVE AT LEAST **2** ITEMS
OF SMALL KITCHEN APPLIANCES

 **5** ITEMS OR MORE
IN OVER 27% OF HOUSEHOLDS

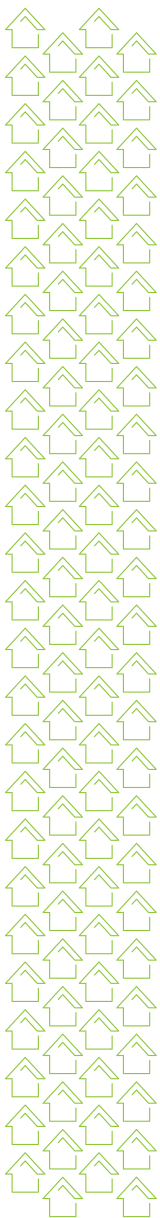
 1/3 OF HOUSEHOLDS
HAVE AT LEAST
2 VACUUM CLEANERS

DESCRIPTION OF EEE STOCK AND PENETRATION RATE PER TYPE OF PRODUCT (2022 VS 2019)



IN AVERAGE, EACH HOUSEHOLD HAS APPROXIMATELY **33,7** KG OF ITEMS FOUND IN THE LIST OF 11 PRODUCTS.

100 HOUSEHOLDS



80 pcs		, out of which 6 second-hand – 5.2 years old
65 pcs		, out of which 4 second-hand
76 pcs		, out of which 6 second-hand
175 pcs		, out of which 5 second-hand
127 pcs		, out of which 99 second-hand – 4.9 years old
130 pcs		, out of which 7 second-hand – 5.6 years old
110 pcs		, out of which 7 second-hand
113 pcs		, out of which 11 second-hand
90 pcs		, out of which 15 second-hand – 5.1 years old
321 pcs		, out of which 32 second-hand – 4 years old
36 pcs		, out of which 5 second-hand

SECOND-HAND OR USED PRODUCTS ACCOUNT FOR ONLY 3-17% OF PRODUCTS ACQUIRED.

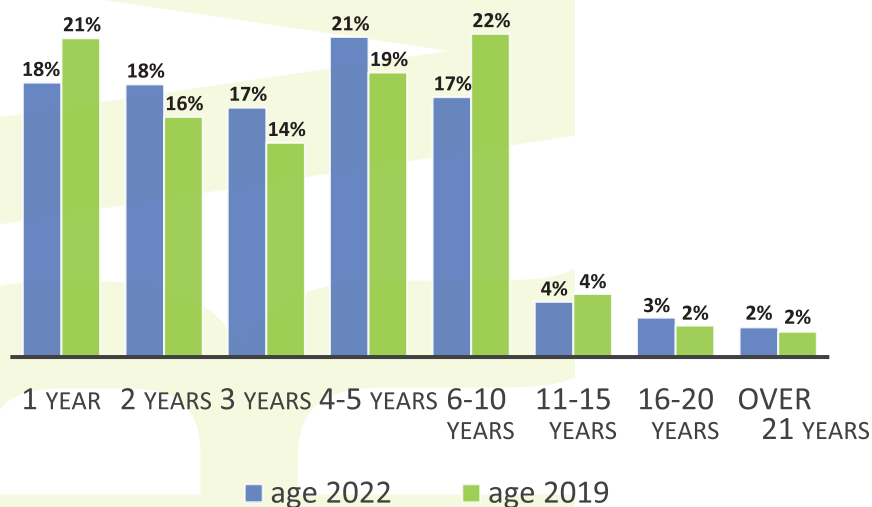
The most often acquired/received second-hand products are laptops 17% and photo and video cameras 14%, but if we also take into consideration the endowment with these products in the entire sample, then the percentage of those having acquired a second-hand photo and video camera is only 3%.

As compared to 2019, the trends are similar, except for laptops, for which the proportion of second-hand products increased from 13% in 2019 to 17% in 2022.

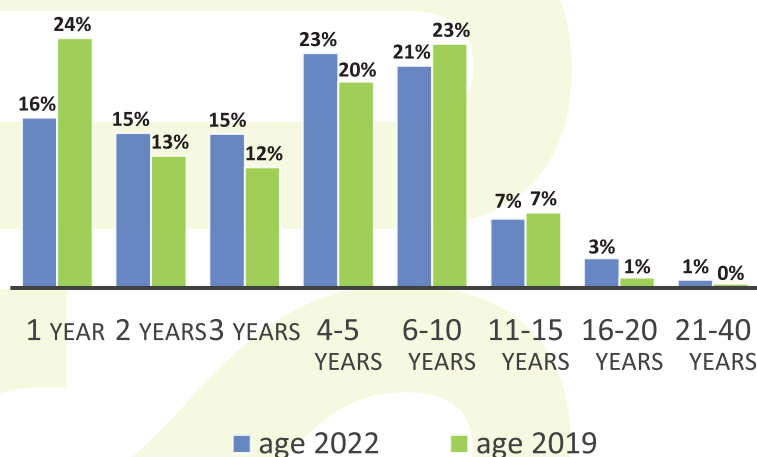
4.1 PRODUCT AGE

Given that in Romania we have an expanding market, the relatively new products account for a clear majority: in average 70% of the products surveyed in Romanian households are less than 5 years old (per category), as shown in the figures below. About 20% are between 6 and 10 years old and only 10% are more than 10 years old. Comparing the age of stock in the 2022 data to the 2019 data, we note that in 2022 the proportion of new products, less than 1 year old, is lower than 3 years ago.

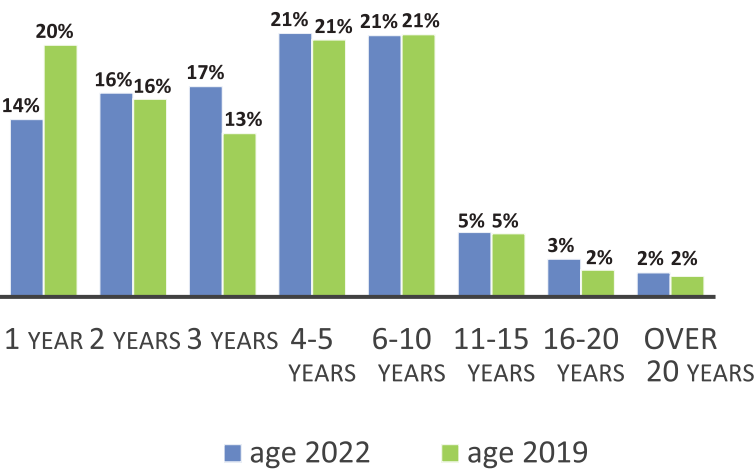
VACUUM CLEANER



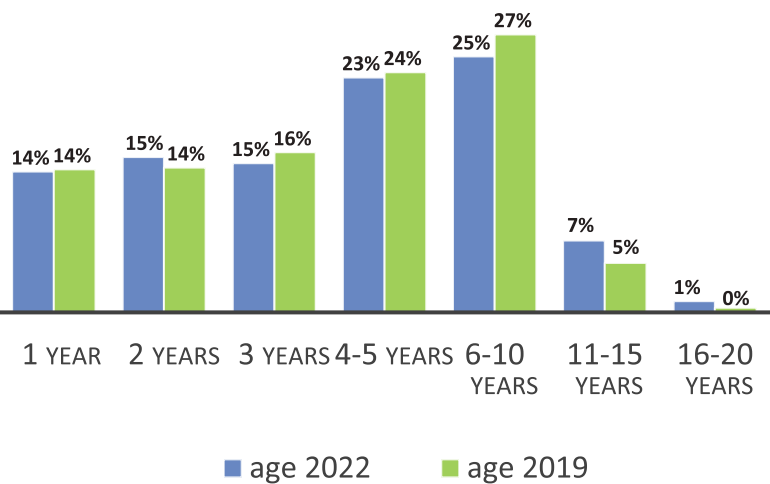
MICROWAVE OVEN



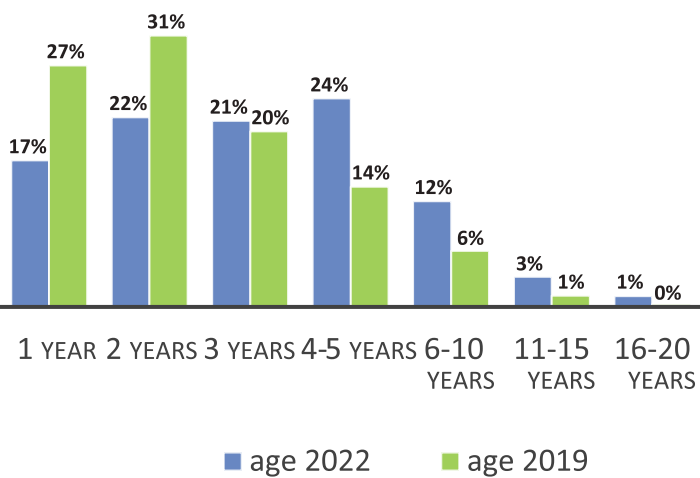
IRON



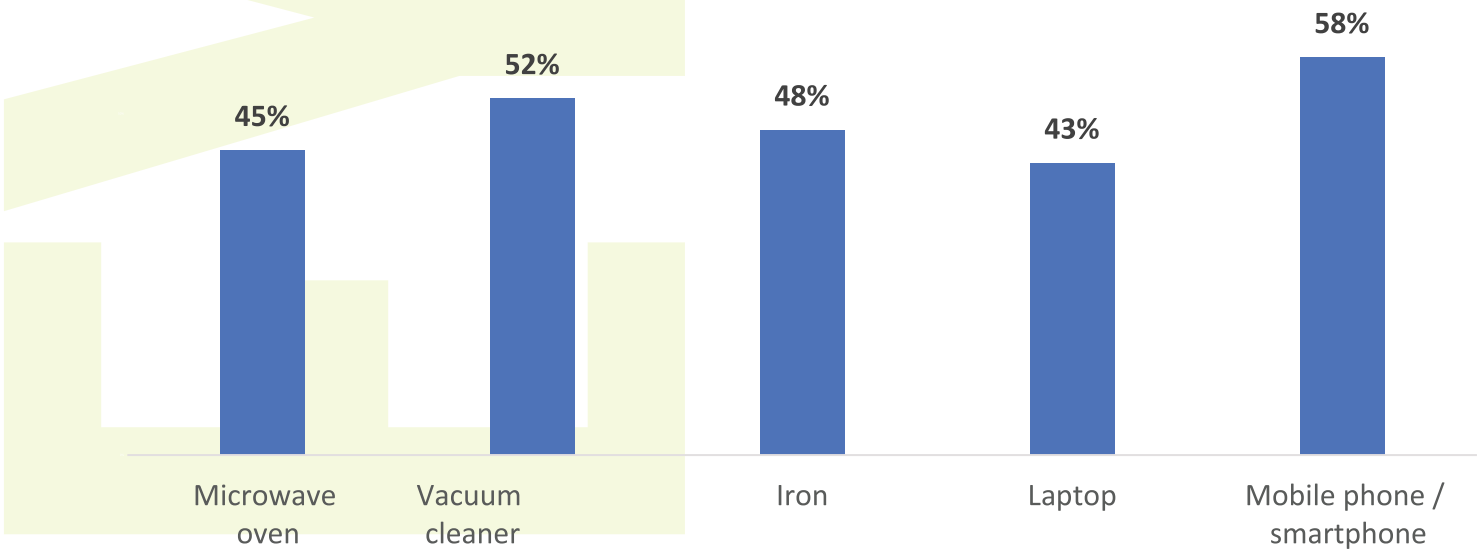
LAPTOP



MOBILE PHONE



PERCENTAGE OF PRODUCTS ACQUIRED IN THE LAST 3 YEARS



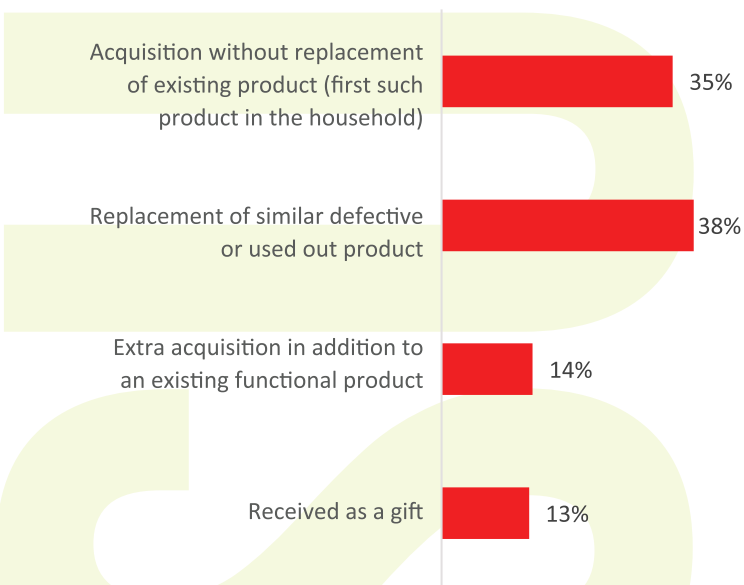
Almost half of the products in the survey have been acquired in the last 3 years, except for mobile phones, where the percentage is 58%.

4.2 ACQUISITIONS OVER THE PAST YEAR

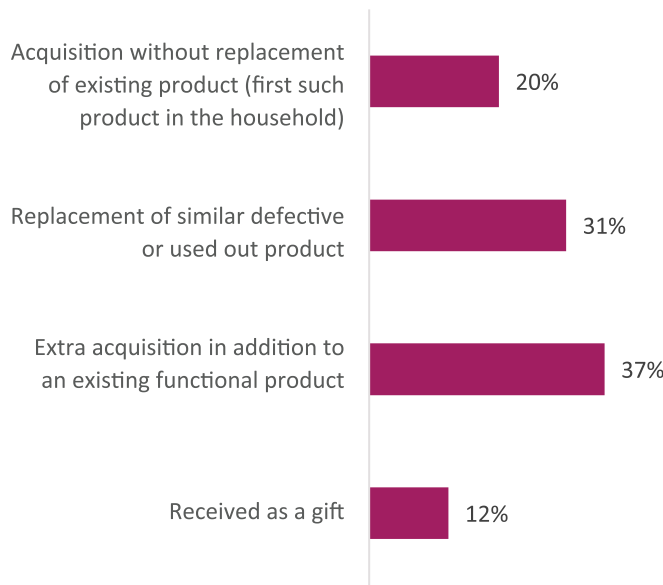
Considering the most recent acquisitions to the stock, the past year acquisitions in terms of the reason for purchase it can be observed that in 36-43% of cases we are dealing with an extra purchase, i.e. an acquisition in addition to a functional product already existing in the household, 19-35% first product acquisitions and 26-38% replacements. In the case of microwaves 35% are first acquisitions or replacements of a defective product and 38% are replacements.



MICROWAVE OVEN

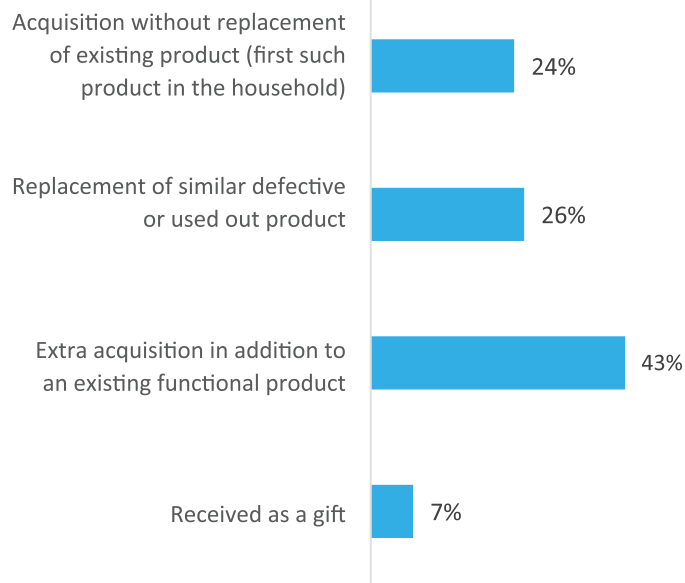


IRON

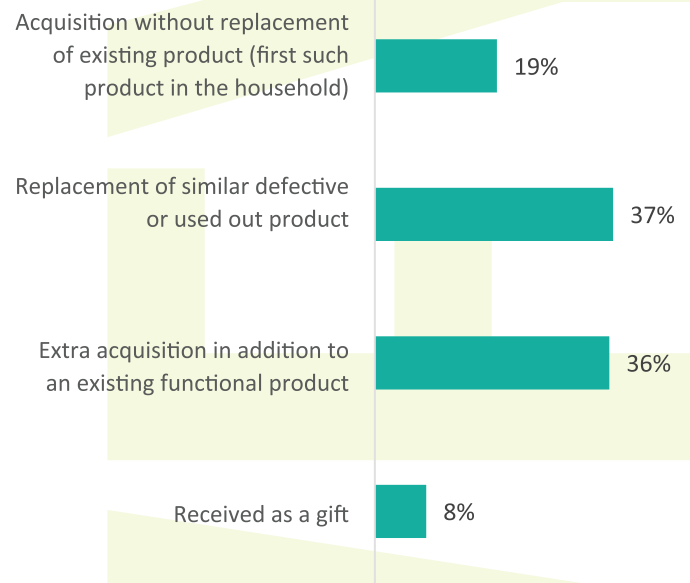




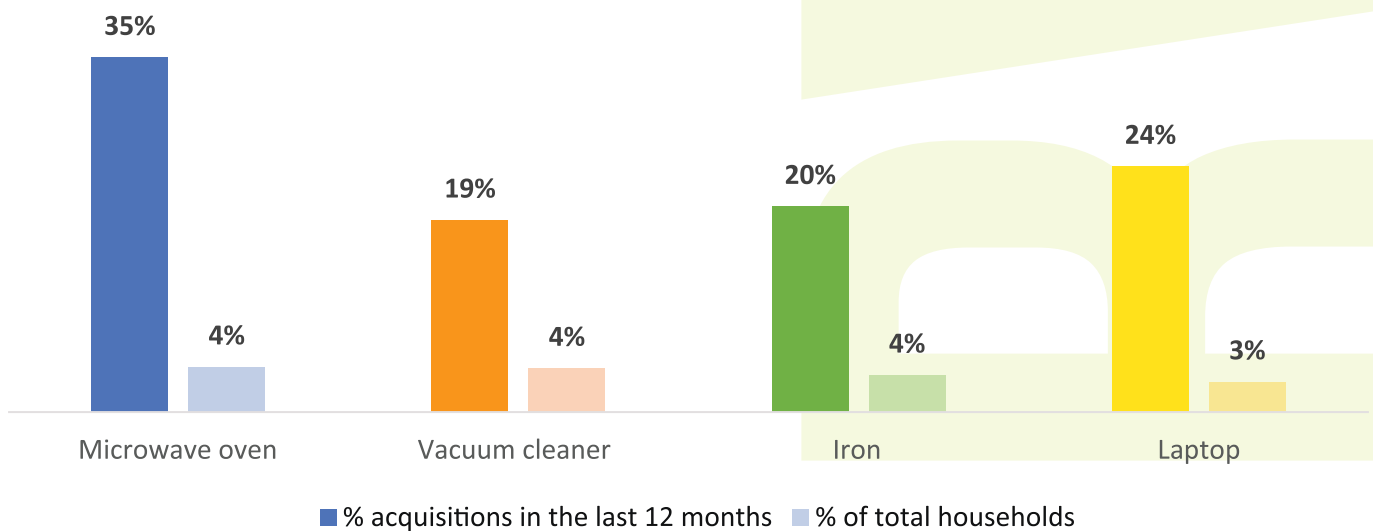
LAPTOP



VACUUM CLEANER



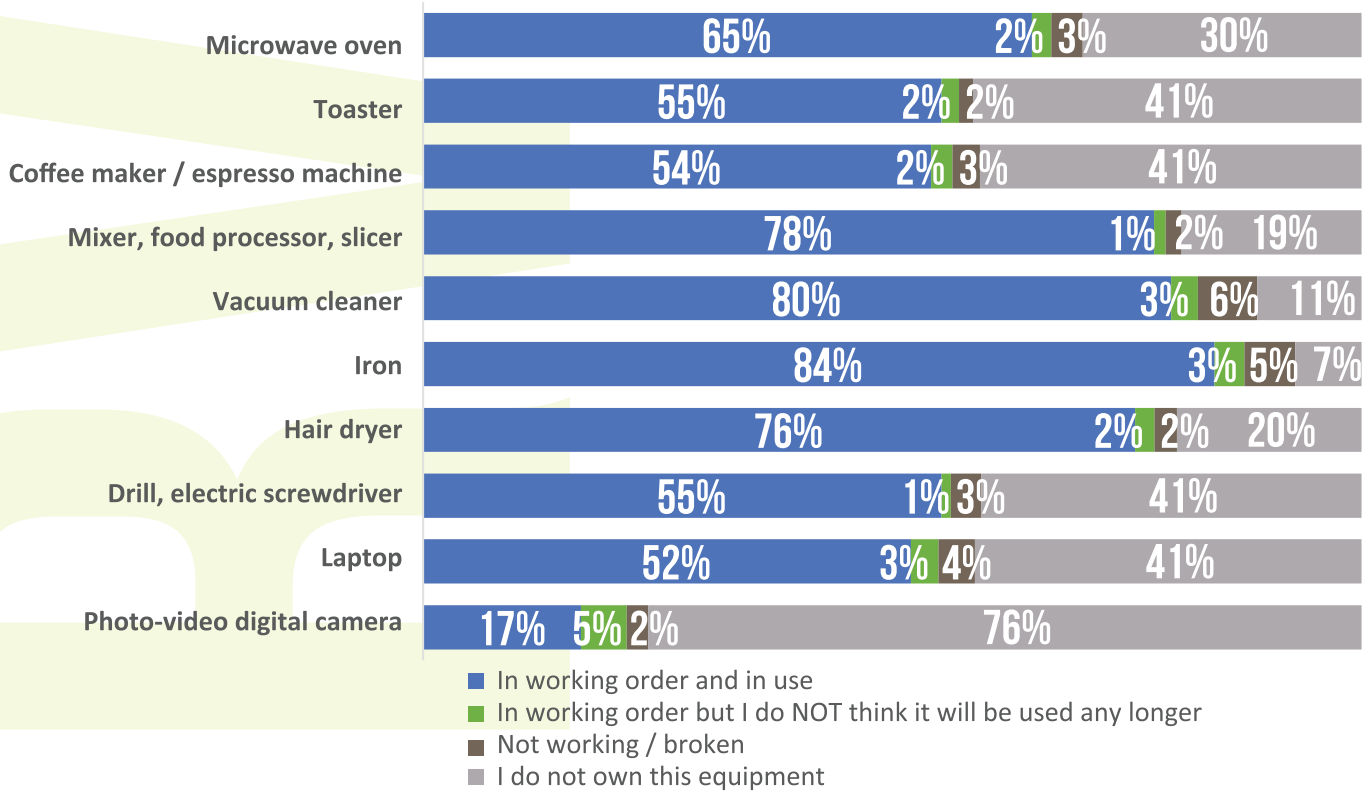
WEIGHT OF FIRST ACQUISITIONS IN THE HOUSEHOLD PER TYPE OF EQUIPMENT



4.3 FUNCTIONAL AND IN USE VS NOT WORKING AND UNUSED EQUIPMENT

Similar to the 2019 survey, the **hoarding** effect has been studied: it is mainly related to the consumer habit of **keeping products in the home**, despite the products **not being used or not working anymore**.

The figure below shows the results: hoarding is more visible for **digital cameras**, about **5% of the population store such products in the household without using them**. Between **1% and 3%** of the population hoard other equipment subject to the survey.



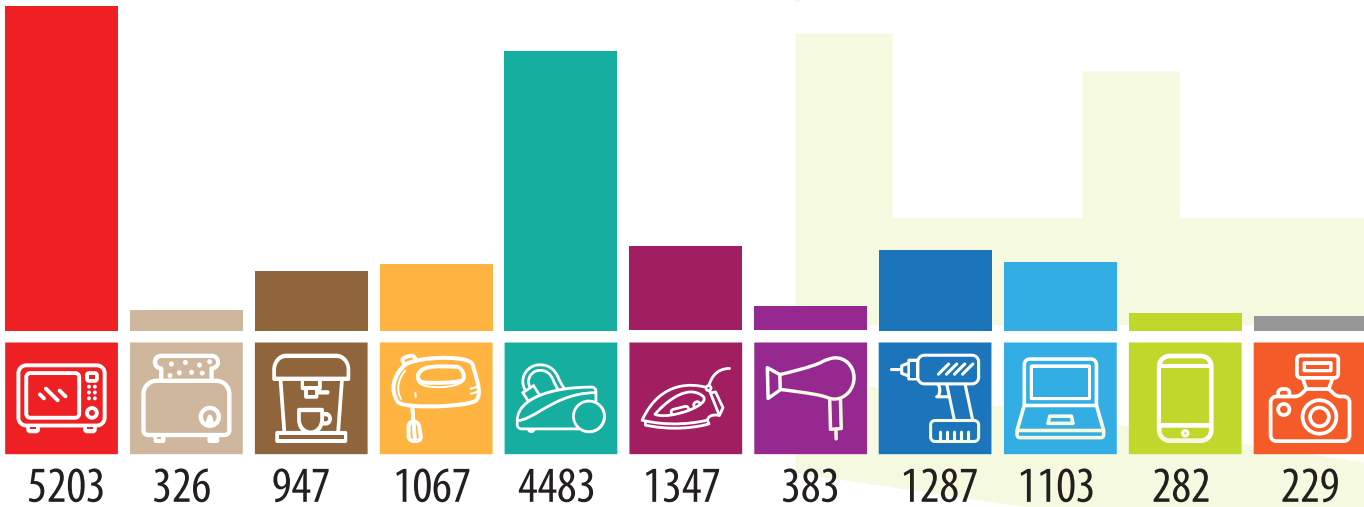
OVER HALF (54%) OF THE RESPONDENTS KEEP IN THEIR HOUSEHOLD BROKEN OR UNUSED MOBILE PHONES.

“DO YOU KEEP IN THE HOUSE MOBILE PHONES YOU DO NOT USE ANYLONGER?”



When we refer only to the stock of each product in households, 35% of the mobile phones stock and 30% of the photo and video cameras stock in households are still stored in the household although unused or even defective (hoarded).

HOARDED SMALL ELECTRONICS ON NATIONAL LEVEL (TONS)



10.5% OF TOTAL STOCK OF PRODUCTS IN THE SURVEY ARE BEING HOARDED. THE SOUTH-WEST (MUNTENIA) REGION ACCOUNTS FOR THE HIGHEST PERCENTAGE, 13%, WHILE WEST ACCOUNTS FOR THE LOWEST, 8.7%.

Several countries in Europe conducted similar surveys with the purpose of highlighting the hoarding effect. A benchmark shows:

Product	Romania	Portugal	Slovenia	UK	Netherlands	Italy
Microwave oven	8%	3%	8%	11%		18%
Iron	9%	7%	12%	14%	23%	28%
Mixer, food processor, slicer	5%	7%	7%	15%	12%	27%
Toaster + Coffee maker	9%	8%	14%	13%	11%	29%
Vacuum cleaner	10%	4%	9%		8%	26%
Hair dryer	6%	6%	9%	13%		27%
Laptop	12%	9%	13%	15%	22%	30%
Mobile phone / smartphone	35%	16%	21%		30%	44%
Photo-video digital camera	30%	24%	27%			47%
Drill, electric screwdriver	7%	4%	10%	14%	12%	23%
Average	10.5%	8.0%	12.0%	14.0%	17.0%	29.0%

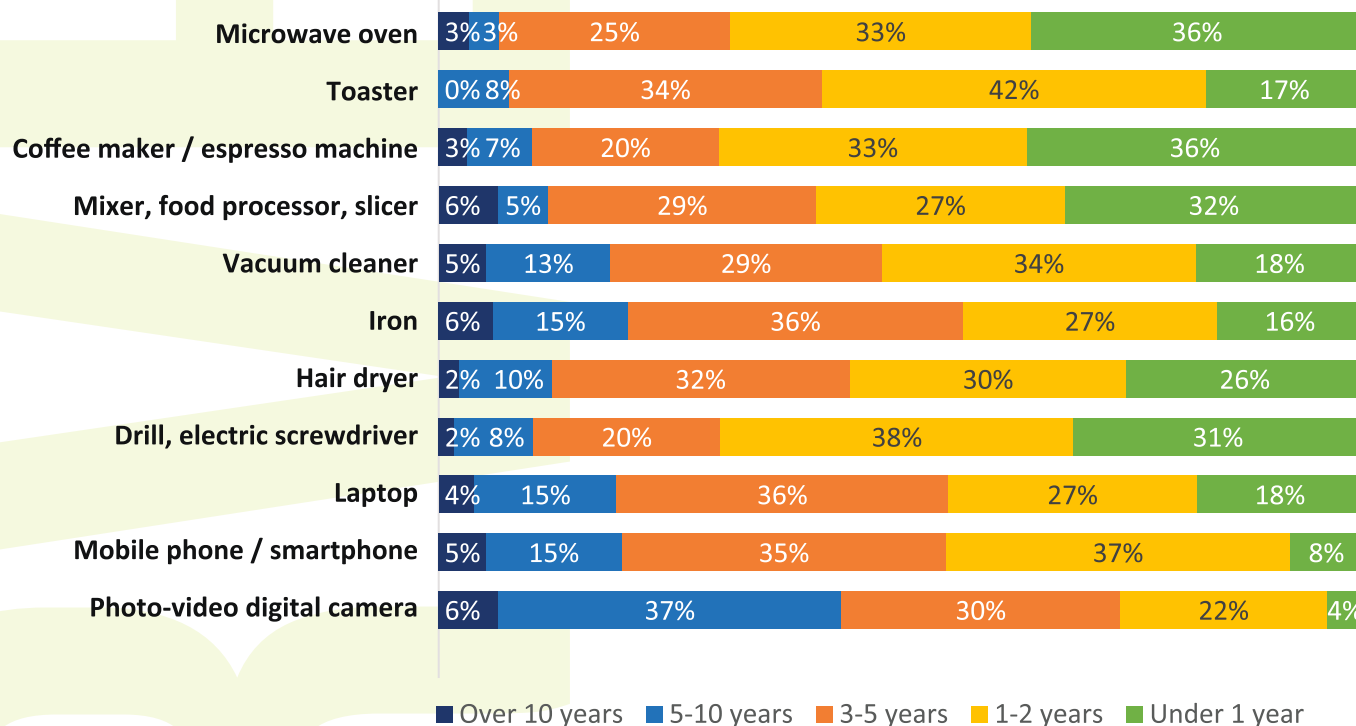
Source: WEEE Forum

It appears that in Romania there is a relatively low hoarding level compared to other countries. Slovenia seems to have similar figures, while Portugal has even smaller figures.

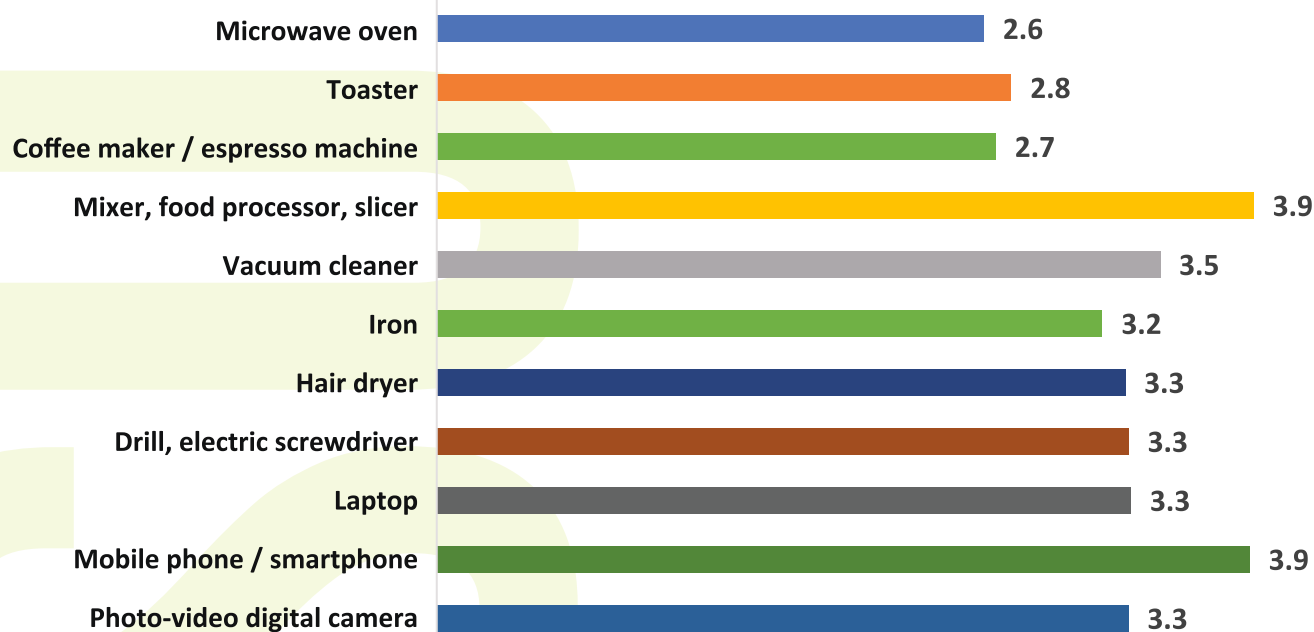
4.4 IDLE AND HOARDING PERIOD

We are tempted to believe that people hoard broken or unused products for many years before discarding them. Despite this plausibility, hoarding for more than **5 years only refers to 7% - 19%** of products depending on category: **photo and video cameras are hoarded to a higher degree than other categories (43%)**, while microwave ovens and toasters less.

PRODUCT IDLE PERIOD



AVERAGE IDLE PERIOD IN YEARS



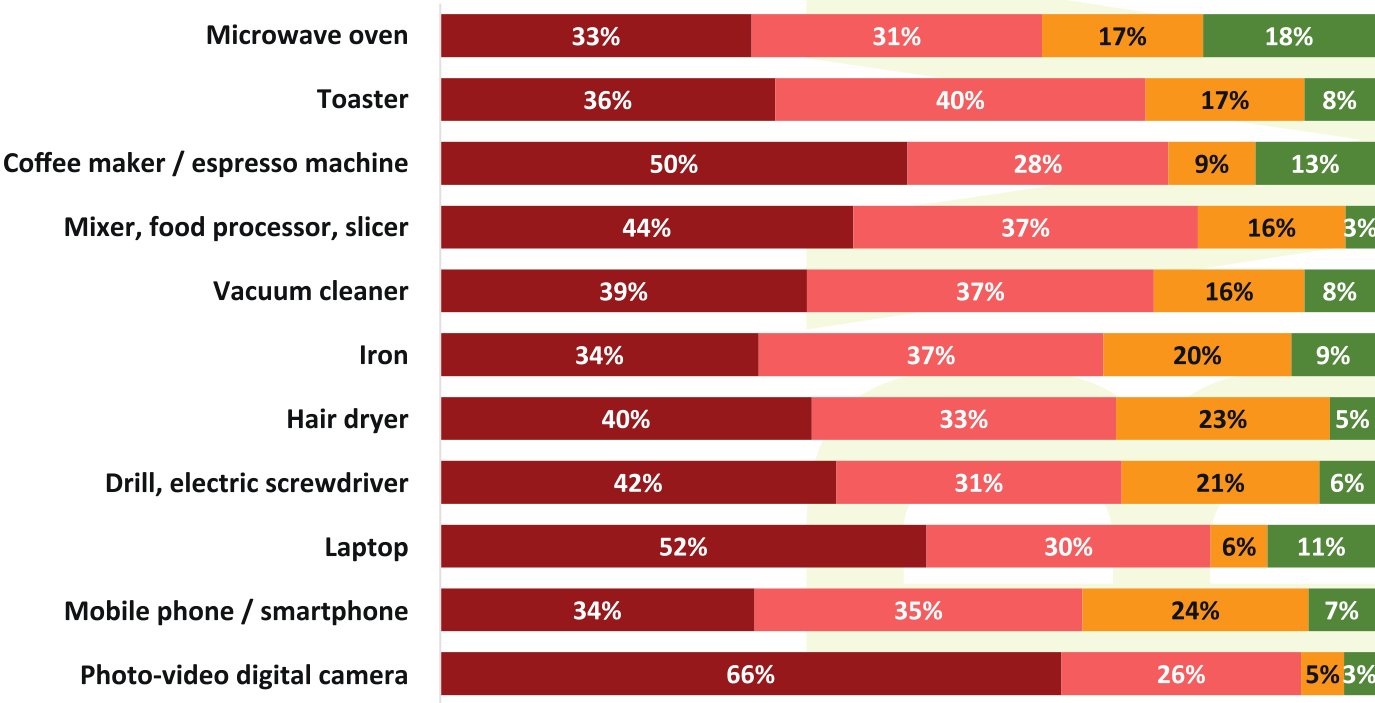
THE REASON BEHIND HOARDING

The main reasons for storing these items in the household are: the wish to keep them as back-up (photo camera, mixer, toaster), to reuse component parts (especially coffee machines or power drills) or sentimental value (photo cameras and laptops), as well as the lack of awareness as to what needs to be done with such products (people’s failure to get informed).

The 8 reasons identified for hoarding these items in the household were categorized in 4 groups for analysis purposes.

We can notice in the table below, broken down by surveyed products, the reasons for which people fail to dispose of them. The hoarding behaviour takes precedence to a large degree for all equipment, especially for photo and video digital cameras, laptops and espresso machines.

MAIN REASONS FOR HOARDING



■ I will definitely keep it ■ I don't know where/how ■ I did not have the time / I have enough storing space ■ Thoughts of future disposal

On average, for 42% of the hoarded products, the owners have an emotional connection or keep them as back-up, for spare parts, therefore in definately keeping. However, this figure is lower than the European average (in countries where similar surveys were conducted) of 68%.

In Romania we have a very high percentage of those declaring that they „do not know what to do with them” or „do not know where to hand them over”, accounting for 32% of the hoarded products. The European average is only 7% and we can infer that in other countries the figure is below 5%.

19% of those hoarding products declare that they lacked the time to dispose of them or they have enough space to store them. At European level their percentage is only 3%.

The survey shows that for 8% of hoarded products the owners have thoughts for their future disposal. The European average is 16%.

5. CONSUMER BEHAVIOUR REGARDING DISPOSAL

5.1 DISCARDED PRODUCTS WITHIN THE LAST 12 MONTHS

1000 HOUSEHOLDS

AVERAGE AGE
AT DISPOSAL

	64		31 in functioning order 33 not functioning	6.5 YEARS
	32		17 in functioning order 15 not functioning	4.4 YEARS
	54		39 in functioning order 15 not functioning	4.3 YEARS
	59		26 in functioning order 33 not functioning	5.7 YEARS
	113		59 in functioning order 54 not functioning	6.4 YEARS
	71		38 in working order 33 not functioning	5.2 YEARS
	50		22 in functioning order 28 not functioning	5.2 YEARS
	50		24 in functioning order 26 not functioning	3.3 YEARS
	47		34 in functioning order 13 not functioning	6.9 YEARS
	269		194 in functioning order 75 not functioning	4.4 YEARS
	11		9 in functioning order 2 not functioning	6 YEARS

The same 11 products analyzed in reference to stock were also included in the analysis of means of disposal. Overall, 33% of households have disposed of items during the past 12 months (approximately 1,233 products).

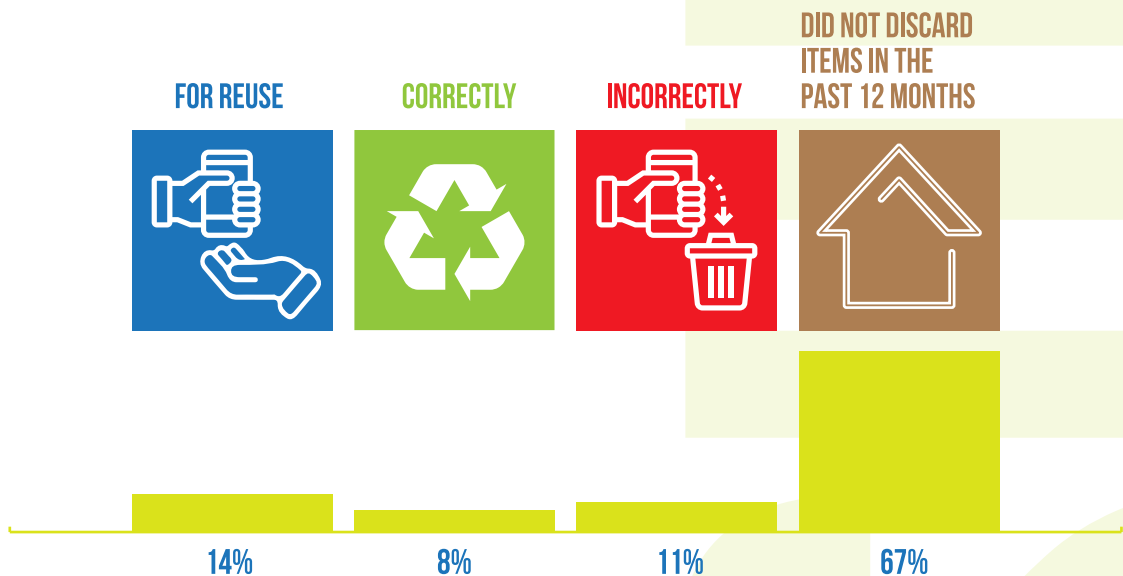
 Mobile phones are by far the most disposed of product in most households, being frequently replaced by consumers (60% of mobile phones were purchased less than 3 years prior).  Vacuum cleaners come second, followed by  irons.

The age of products upon disposal is significantly different between products. Most of the equipment is disposed of after 4 to 10 years. Laptops, microwave ovens and digital cameras have the longest life (average age at disposal of 6 to 6.9 years). Drilling machines have the shortest life profile and are mostly disposed of after 3 years (average age at disposal 3.3 years). Toasters, coffee machines and mobile phones seem to have a similar life profile, being disposed of after 4 years (average age at disposal 4.3- 4.4 years).

A large proportion of discarded laptops, coffee machines, photo and video cameras and mobile phones were still functional upon disposal. 70% of discarded mobile phones are functional devices.

5.2 DISPOSAL HABITS

HOUSEHOLDS THAT DISCARDED ITEMS IN THE PAST 12 MONTHS CAN BE CLASSIFIED AS FOLLOWS:



20.5% of households disposed of 8300 tons of small EEE (of those surveyed) during the past 12 months, out of which 4550 tons through incorrect channels. Only 8.4% of households correctly disposed of 1600 tons in stores, 1200 tons through municipalities, 950 at other collection points.

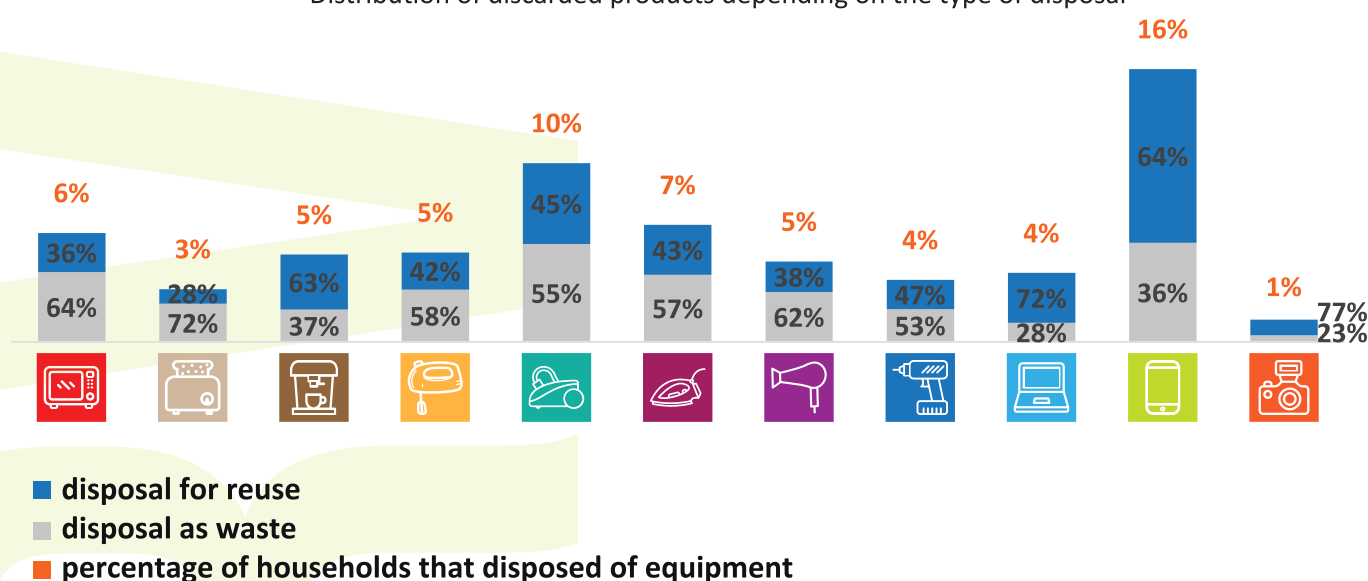
5.2.1 DISPOSAL FOR REUSE, EXTENSION OF LIFETIME

On average, a ratio of **50% of the small equipment is given away to be used by relatives, friends, people of limited means or sold**. This percentage is also correlated to the fact that on average **58% of the small equipment that people give up is functional**.

The information gathered through this market survey indicates that the main disposal modality of this type of products is the **attempt to extend their lifetime by donating or selling them to other persons**. **Coffee machines, laptops, mobile phones and photo and video cameras** are more likely to be **donated or sold to other people** (extension of lifetime - 63-77%), while the other types of equipment average a ratio of 41% for this type of disposal.

Compared to **2019 we note** that in relation to the product **iron**, the **disposal for reuse behaviour increased from 29% in 2019 to 43% in 2022**; the same situation applies to vacuum cleaners, from **36% in 2019 to 45% in 2022** and to **mobile phones**, from **51% in 2019 to 64% in 2022**. As for **microwave ovens**, a lower percentage of persons currently **dispose of them for reuse, 36%, as compared to 2019, 48%**.

Distribution of discarded products depending on the type of disposal



5.2.2 DISPOSAL AS WASTE

Regarding the consumers' modality of disposal (50% of households that disposed of equipment), 11 options were identified, afterwards grouped in 4 analysis categories.

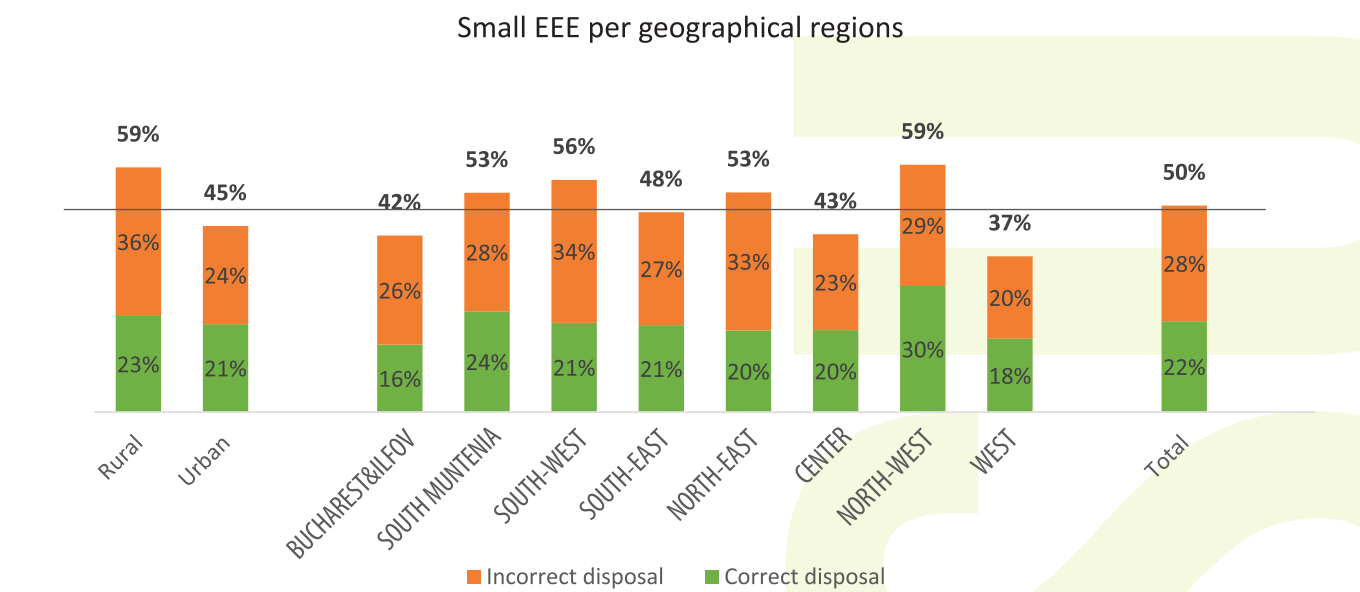
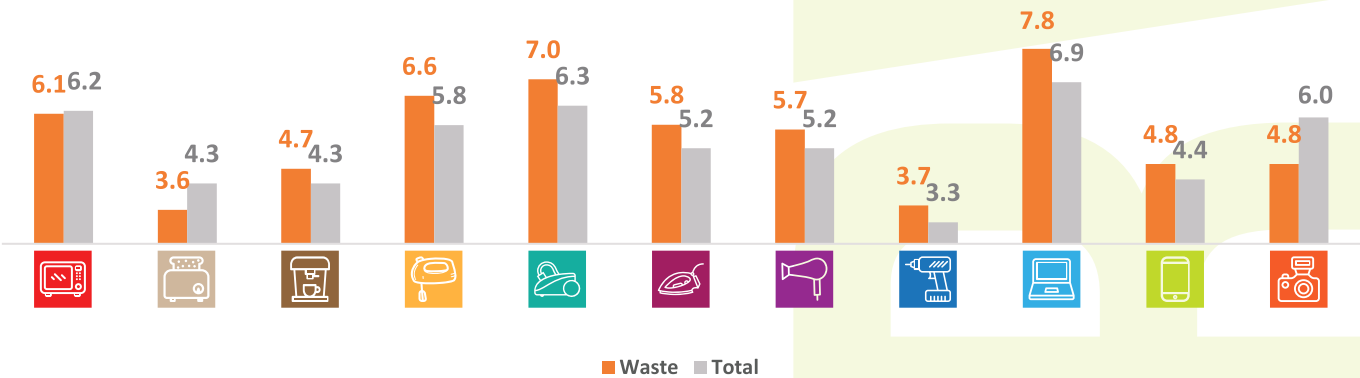
Modalities of disposal and analysis groups

CORRECT DISPOSAL	INCORRECT DISPOSAL
 <ul style="list-style-type: none"> Taken to the store The store picked up from home Taken to the municipal collection point The municipality collected from home Other WEEE collection points Warranty replacement 	 <ul style="list-style-type: none"> Left on public property Thrown to the waste bin / dumpster Discarded with plastic / other recyclable waste Given to informal scrap metal collectors Taken to scrap metal yards

Incorrect means of disposal, including discard at the waste bin/dumpster and with other type of recyclable waste account for a large share, especially in case of toasters, hair dryers and drills, electric screwdrivers (74-75%). The ratio is lower in case coffee machines, laptops and phones, between 25 and 44%.

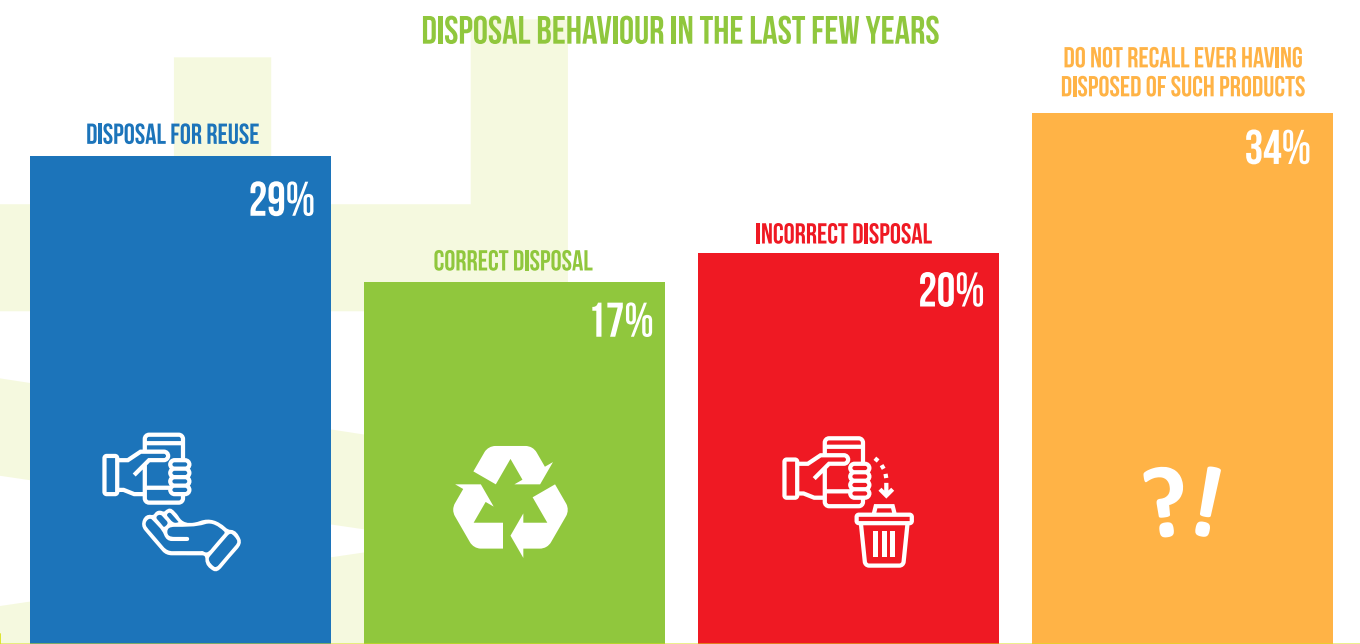


The average age of devices discarded as waste is in most cases higher than in the case of disposals for reuse.



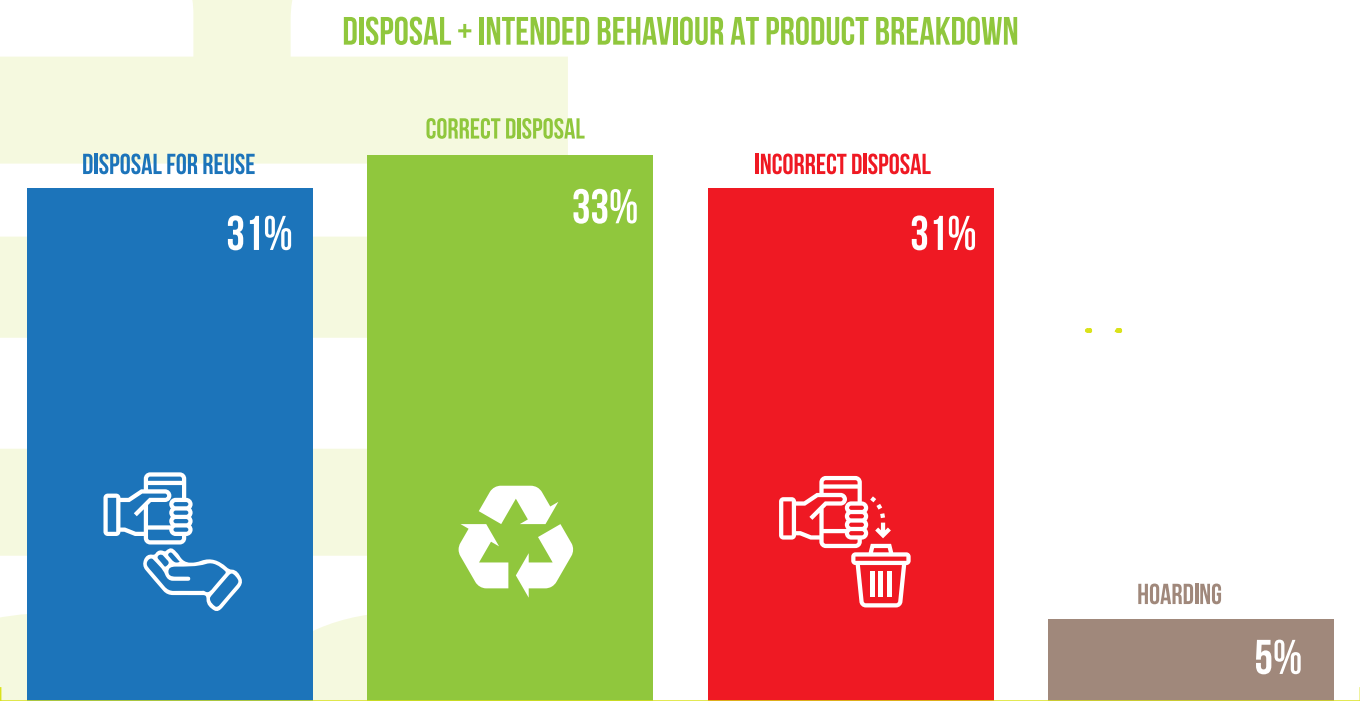
5.3 DISPOSAL BEHAVIOUR

Those who responded that they did not dispose of any of the surveyed items during the past 12 months were asked to state what their actions were when they did dispose of such a product in the past.



Those who responded that they did not dispose of any of the surveyed items during the past 12 months or at any other time were asked what they would do if hypothetically an equipment broke down and 55% of respondents declare that they intend to correctly dispose of it, while 19% would resort to an incorrect practice.

Correlating the answers with those from the disposal section, the following results:

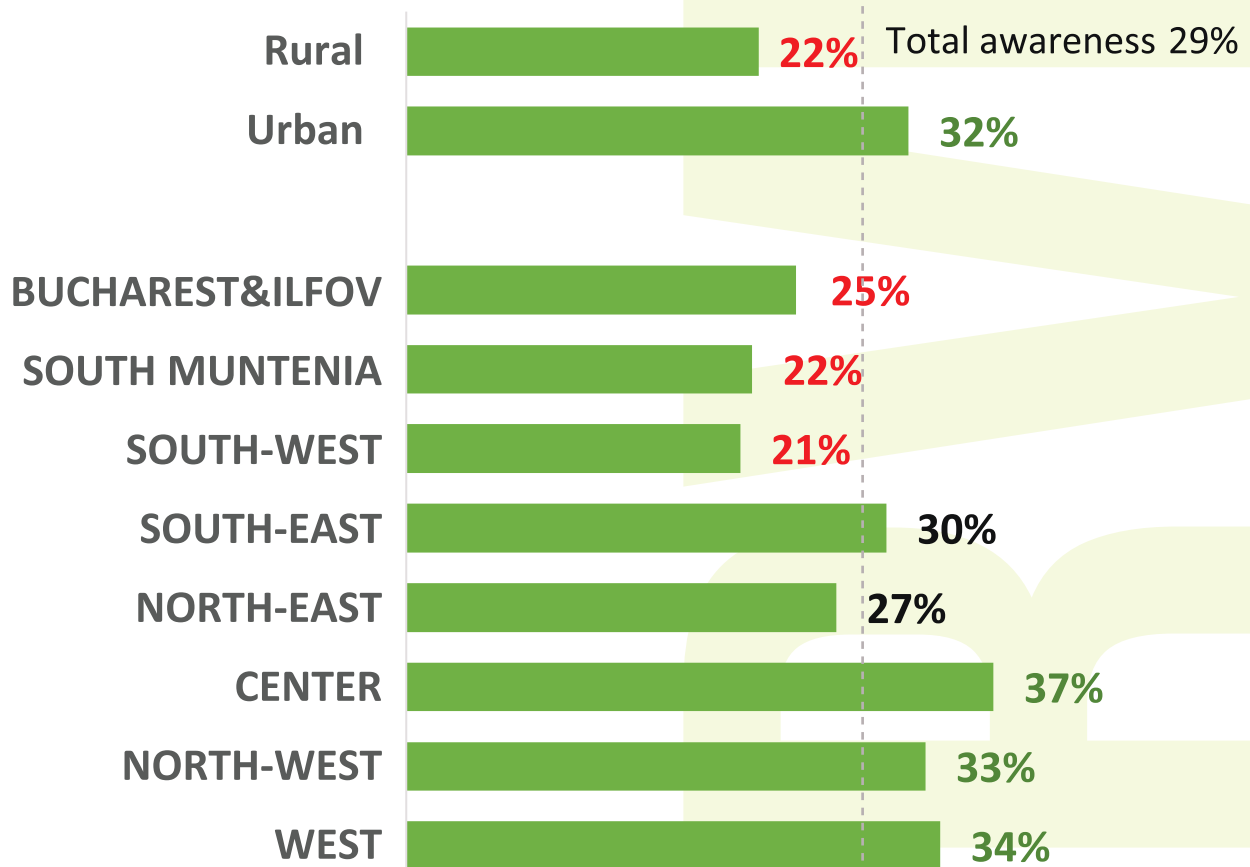


AWARENESS REGARDING A COLLECTION POINT

More than three quarters of the population does not know nearby collection points for old electronic equipment/ e-waste. The awareness regarding collection points is similar to that of 2019.



AWARENESS OF E-WASTE COLLECTION POINTS



CONCLUSIONS

10.5% of the surveyed small EEE are being **hoarded**, **1/3 of these being defective** and **2/3 functional**, but not intended to be reused in the future. On average, this equipment has been in this state for 3.7 years. Quantified, it would mean **17 thousand tons**. Apparently there is a higher hoarding percentage in Oltenia and a smaller one in Transylvania.

The **10.5 hoarding percentage is smaller than the European average of 16%**, way under the situation in Italy, almost similar with the one in Slovenia and UK, but higher than Portugal.

The reasons for which the products are being hoarded are due on the one hand to the intention of having a **back-up** and to their **sentimental value (42%** - under the European average of 68%), and on the other hand to the fact that people **do not know what to do with them or where to take them (32%)**.

Those who lacked the time to dispose of the products or declared that the products didn't stand in their way represent 19%. **Only 8% declare that they have thought of future disposal.**

Most of the equipment is disposed of within the age range of 4 to 10 years old.

33% of households disposed of items during the past 12 months, **42% of the disposed equipment being sent for reuse.**

About **8300 tons** of the equipment within the sample were **disposed of as waste**, out of which **4550 tons through incorrect channels**. Only **8.4% of households correctly** disposed of 1600 tons in stores, 1200 tons through municipalities and 950 at other collection points.

The likely disposal habit shows us that **1/3 of the population give away for reuse** those items that they no longer need, **1/3 dispose of them incorrectly** and **1/3 hand them over correctly** in stores, at municipalities or other collection points.

These percentages are also confirmed by the **awareness regarding the e-waste collection points, which is of 30%.**

The figures above show an image of the Romanian society with both good and bad sides regarding the use and disposal habits of small electric and electronic equipment.

We tend to keep what we no longer use (either functional or defective) for some time, but for a rather short period of time as compared to the rest of Europe, and we give away the functional products to be reused by relatives and friends or we sell them.

As for the rest of them, we incorrectly throw most of them to the waste bin, we give them away to informal scrap metal collectors, we dispose of them together with plastic items or we simply leave them in the street.

This situation is caused by the lack of collecting infrastructure and by a low level of information and awareness-raising.

According to the survey up to **a third of the population would have a correct e-waste disposal behavior.**

At the same time, it should be noted that the incorrect disposal of e-waste has a negative impact on the environment and people's health, as well as on the economy through the loss of raw materials important in the context of circular economy.



Report by: GBD Research



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