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## ***EURO-TOPTEN MAX***

*Maximising Topten Communication on Top Runner Products*

### **Survey Report**

**No. 2**

### **European visitor feed-back survey on Euro-Topten Websites**

**Deliverable D 5.4, WP 5**

**Prepared by  
Wuppertal Institute for Climate, Environment and  
Energy, Germany**

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## 1 INTRODUCTION

This report presents the progress of the second round of the feed-back survey of Euro-Topten websites and selected results. The objective was to provide information about the typical users of Euro-Topten and to find out how they purchase appliances in general and what Topten appliances they have purchased in the past year.

The overall objective of Euro-Topten is to promote the market transformation towards energy efficient products. To achieve this goal, Euro-Topten operates several country specific websites in Europe, where the most energy efficient products for different categories and subcategories are listed. Euro-Topten firstly aims to a direct influence on the purchasing decisions of individuals. Second, the site forms the basis for further professional audiences, which use the websites and the criteria as a reference for own activities such as energy consulting, customer service, training, awareness raising and public relations. Through these activities further indirect effects are achieved, which are not necessarily noticed by the buyers themselves.

Internet-based information tools are always confronted with the problem, that there is no direct face-to-face interaction with its users. Hence, it is sometimes difficult to get an impression of the specific needs of the receiver of the information, the use of this information by the receiver and, in the end, the effect of the offered information to the decision making process of the receiver. Therefore it is necessary to constantly monitor which user groups visiting the website, to work with this user groups and consider their specific needs and to apply specific communication strategies and also try to evaluate, which effect occur from the information.

Building on the first information about user groups and the assessment of Euro-Topten websites the second round of the survey provides further insights into the precise use of the information and the application on the users purchasing behaviour. Unfortunately, a country-specific evaluation could not be performed as the number of participants per country did not allow such an evaluation.

## 2 METHODS AND PROCEDURE

Over the past 10 years computer aided self interviews increasingly gained importance in the social sciences. This is mainly explained by the increasing number of internet users and the low cost of the survey method. In addition, data can be quickly and easily collected and processed, and in contrast to other survey forms the social desirability bias is rather low<sup>1</sup>. A disadvantage of online surveys is the restriction of the representative of the medium, since the online population is characterized by certain socio-demographic characteristics. However, this restriction is not relevant for the survey of users of the Euro-Topten websites, since the population is given by the users of the websites and thus a closed group is questioned.

In order to get a better impression of the different user groups, which are using the Euro-Topten websites, the Wuppertal Institute performed a internet-based survey with two rounds. The questionnaire and results of the first round are documented in the Survey Report No.1.

The web based feed-back survey was online on all active Euro-Topten partner websites (see Table 1) from October to December 2012. Overall, 2 085 participants opened the survey and 1 791 of them finished the whole survey. According to the web statistics this equals approximately 0.5% of the users, that visit the websites in this time.

For the second round, the participants of the first survey were partially re-interviewed in the first half of 2013. Requirement was that they gave their e-mail address as well as their agreement to participate in a second survey in the first round. 1043 participants provided their e-mail addresses and agreed to take part in a follow up survey.

For both questionnaires the Wuppertal Institute used LimeSurvey<sup>2</sup>, an open source web-based survey application.

The second round was no longer asking for the evaluation of the site and the specific characteristics from the users, but for the different sources of information and the influence on the purchasing behaviour (see Appendix 4.1). This can be insightful for the manner in which the information of the Euro-Topten websites affects the decision making process of users.

As an incentive for both rounds of the survey, a prize draw was offered. In the second round the prize was a package of three 7W Ledon LED lamps, which are also Euro-Topten products.

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<sup>1</sup> cf. Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). Internet, mail, and mixed-mode surveys: The tailored design method. Hoboken, NJ: Wiley.

<sup>2</sup> [www.limesurvey.org](http://www.limesurvey.org)

Table 1: Involved websites of the visitor feed-back survey

	<b>Website</b>	<b>Language(s)</b>
	topten.eu	English
	topprodukte.at/	Austrian
	topten.be/	Dutch French
	uspornespotebice.cz/	Czech
	ecotopten.de/	German
	ecotopten.gr/	Greek
	Euro-Topten.es/	Spanish
	topten-suomi.fi/	Finnish
	guidetopten.fr/	French
	Euro-Topten.it/	Italian
	top-10.lt/	Lithuanian
	oekotopten.lu/	German French
	besteprodukter.no/	Norse
	topten.info.pl/	Polish
	topten.pt/	Portuguese
	topten.info.ro/	Romanian
	toptensverige.se/	Swedish

### 3 RESULTS OF THE SECOND ROUND

The following section gives an overview of the main results of the second round, which was related to the different sources of information and the influence on the purchasing behaviour characteristics of the visitors of Euro-Topten websites.

The main results are summarized below:

- 1043 participants of the first round were asked to participate in the second round.
- 383 participants completed the online questionnaire.
- Altogether the participants bought 399 Topten appliances during the year 2013, while household appliances and lighting devices are highly dominating.
- A majority of participants prefers quality and long-lasting products with low energy consumption or environmentally friendly operation whereas design or colour or a certain brand are less important.
- A high share of more than 45 % of participants buy their appliances in a retail store.
- 71 % of the participants find the information on the Topten-websites important for the purchase of a product.
- 59 % of participants orientate themselves on product lists or criteria of Topten.
- Over the lifetime of the products end energy savings of 931.344 kWh, prime energy savings of 1.727.859 kWh and CO<sub>2</sub> savings<sup>3</sup> of 345 t could be achieved by the participants of the second survey.
- Besides the high contribution of Topten household appliances the car category contributes with high CO<sub>2</sub> savings.
- Taking into account bounce rate and self-selection bias of the group of participants each click on the Topten websites could be assessed to 234 kWh end energy, 451 kWh primary energy and 90,1 kg CO<sub>2</sub> savings.
- Altogether for one year of operation of Topten, 340 GWh end energy, 631 GWh primary energy and 126.133 t CO<sub>2</sub> could be saved.

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<sup>3</sup> Source for calculation [www.eumayors.eu/IMG/pdf/technical\\_annex\\_en.pdf](http://www.eumayors.eu/IMG/pdf/technical_annex_en.pdf)

### 3.1 Visitors

In the first half of 2013 the participants who agreed to participate in a second survey were re-interviewed. Emails with links to the online-questionnaire was sent out to 1043 persons. 383 persons completed the questionnaire, which corresponds to response rate of 36,7 %. The country-specific participants are listed in table 2. Persons which didn't fill out the questionnaire are listed as "drop-out".

Table 2 Number of participants per country

	Austria	Belgium	Czech Republic	Germany	Greece	Spain	Europe	Finland	France
<b>participants</b>	273	45	25	49	9	31	1	20	239
<b>drop-out</b>	120	23	17	33	6	24	1	15	168
<b>completed</b>	153	22	8	16	3	7	0	5	71

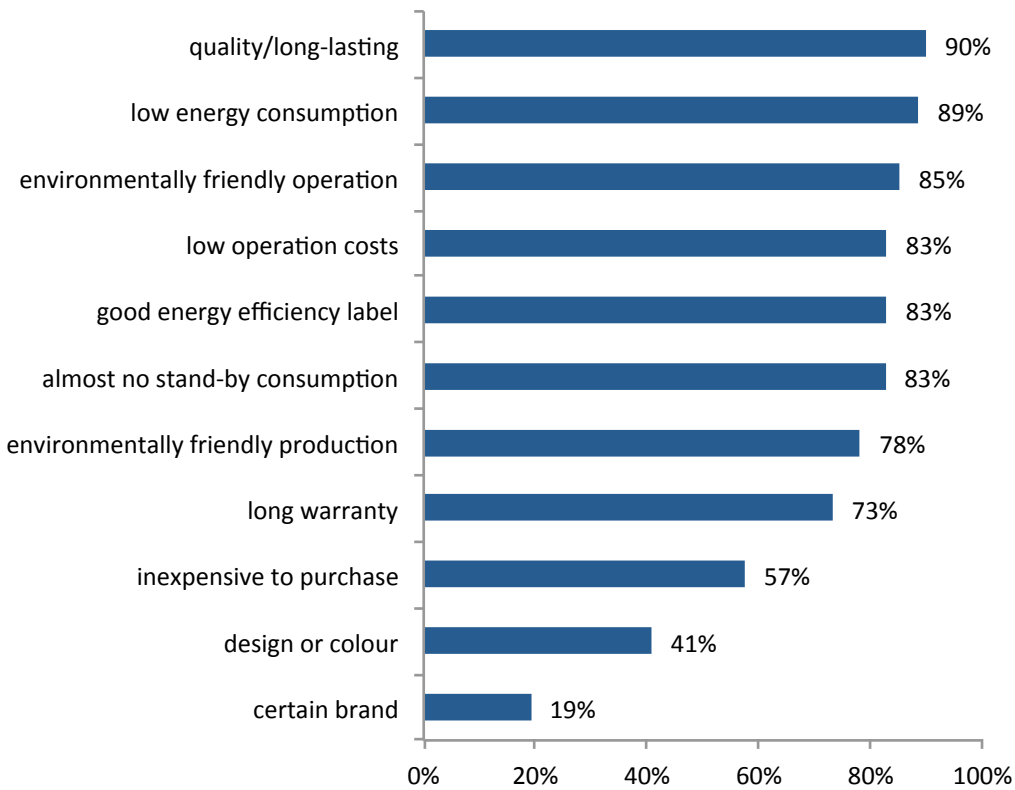
	Italy	Lithuania	Luxembourg	Norway	Poland	Portugal	Romania	Sweden
<b>participants</b>	34	40	82	10	20	79	49	37
<b>drop-out</b>	26	30	56	6	14	62	34	25
<b>completed</b>	8	10	26	4	6	17	15	12

### 3.2 Preferred product characteristics and sources of information

The second round was asking for the different sources of information and the influence on the purchasing behaviour (see Appendix 4.1). This can be insightful for the manner in which the information of the Euro-Topten websites affects the decision making process of users.

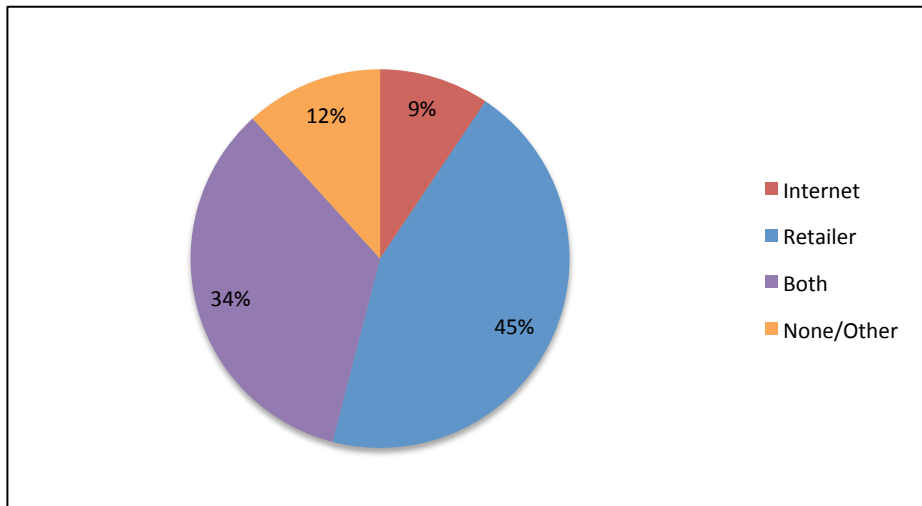
Asking, which specific properties of a product are important, a majority of participants prefers quality and long-lasting products with low energy consumption or environmentally friendly operation whereas design or colour or a certain brand are less important (cf. Fig. 1).

Figure 1 Most frequently considered appliances characteristics



Looking at the buying behaviour it turned out that a high share of participants buy their appliances in a retail store (cf. Fig. 2) even though they consider the internet as source of information as important before buying a product (cf. Fig. 3).

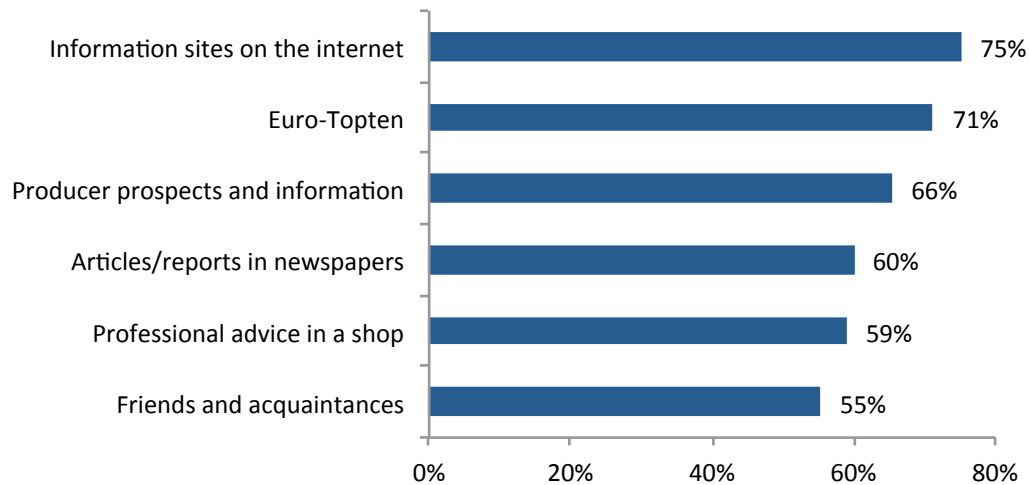
Figure 2 Buying behaviour





71 % of the participants find the information on the Topten-websites important for the purchase of a product. In another question 59 % of participants responded that they orientate themselves on product lists or criteria of Topten.

Figure 3 Sources of information for the purchase of a product



### 3.3 Distribution of purchased Topten-products

Altogether all 383 participants purchased 399 Topten-products in 2012, 315 participants or 82% bought one or more products, 68 bought no product. In Table 3 the number of products per category is listed. Household appliances and lighting devices are highly dominating.

Table 3 Euro-Topten products bought by the participants

Categories	Topten products
Fridge / Fridge Freezer	35
Freezer	23
Dishwasher	21
Washing Machine	27
Tumble Drier	16
Vacuum Cleaner	15
Coffee Machine	6
Other Household Appliances <sup>1</sup>	12
Monitors - Flat Screen	3
Laser Printers/Multifunctional	9
Other Office Equipment <sup>2</sup>	1
TV	23

Other Consumer Electronics <sup>3</sup>	6
Energy saving lamp (CFL)	72
LED	111
Halogen	2
Heat Pump	3
Circulation Pump	5
Air Condition	2
Car	6
Other Mobility <sup>4</sup>	1
<b>Total</b>	<b>399</b>

<sup>1</sup> iron, hairdryer, steamer, chest freezer, electric kettle, kitchen machine

<sup>2</sup> laptop

<sup>3</sup> camera, stereo system, laptop

<sup>4</sup> motorcycle

### 3.4 Resulting savings through the participants of the survey

Table 4 lists the savings that are caused by the 383 participants of the second round of the survey. Over the lifetime of the products end energy savings of 931.344 kWh, prime energy savings of 1.727.859 kWh and CO<sub>2</sub> savings<sup>4</sup> of 345 t could be achieved by the participants of the second survey.

Table 4 End energy, primary energy and CO<sub>2</sub> savings caused by the participants of the survey

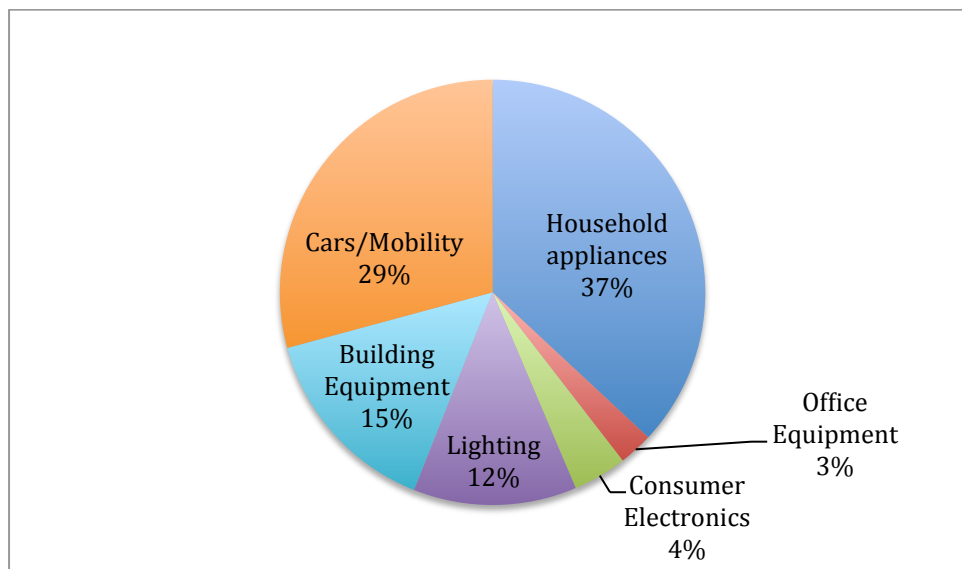
Categories	Bought Topten appliances	End energy reduction for an average Top-ten model [kWh/a]	Lifetime of savings [a]	End energy reduction for all given purchases over lifetime [kWh]	Primary energy reduction for all given purchases over lifetime [kWh]	CO <sub>2</sub> reduction for all given purchases over lifetime [t CO <sub>2</sub> ]
Fridge / Fridge Freezer	35	150	15	78.750	196.875	36,23
Freezer	23	120	15	41.400	103.500	19,04
Dishwasher	21	50	15	15.750	39.375	7,25
Washing Machine	27	80	15	32.400	81.000	14,9
Tumble Drier	16	320	15	76.800	192.000	35,33
Vacuum Cleaner	15	80	10	12.000	30.000	5,52
Coffee Machine	6	133	10	7.980	19.950	3,67
Other Household Appliances	12	100	10	12.000	30.000	5,52
Monitors - Flat Screen	3	28	5	420	1.050	0,19

<sup>4</sup> Source for calculation [www.eumayors.eu/IMG/pdf/technical\\_annex\\_en.pdf](http://www.eumayors.eu/IMG/pdf/technical_annex_en.pdf)

Laser Printers/Multifunctional	9	400	5	18.000	45.000	8,28
Other Office Equipment	1	200	5	1.000	2.500	0,46
TV	23	120	10	27.600	69.000	12,7
Other Consumer Electronics	6	100	5	3.000	7.500	1,38
Energy saving lamp (CFL)	72	40	15	43.200	108.000	19,87
LED	111	30	15	49.950	124.875	22,98
Halogen	2	15	2	60	150	0,03
Heat Pump	3	1850	15	83.250	208.125	38,3
Circulation Pump	5	320	15	24.000	60.000	11,04
Air Condition	2	115	15	3.450	8.625	1,59
Car	6	5560	12	400.334	400.334	100,8
Other Mobility	1	-	12	-	-	-
<b>Total</b>	<b>399</b>	<b>9811</b>		<b>931.344</b>	<b>1.727.859</b>	<b>345,06</b>

In Figure 3 the shares of the CO<sub>2</sub> mitigation through the participating persons are shown. It should be noted that besides the high contribution of Topten household appliances the car category contributes with high CO<sub>2</sub> savings.

Figure 4 Shares of CO<sub>2</sub> mitigation



### 3.5 Assessment of overall savings through Topten-Websites

To assess the overall energy and CO<sub>2</sub> savings, from a methodological point of view, a problem a researcher has to deal with when analysing the result of a web survey is self-selection bias<sup>5</sup>. This bias arises when a sample is not randomly drawn from the population, but possible respondents decide themselves whether to participate in the survey or not. This has also been the case in this survey.

Several ways to deal with a self-selection bias are discussed in the literature<sup>6</sup>. One such method is the Propensity Score Matching. Yet, to perform Propensity Score Matching in this case we had to have a lot more information about the population (i.e. all website users). Within this project we did not have the resources to gather the respective data.

Therefore we are just able to acknowledge that a self-selection bias likely influences the results. To deal with this and not overstate the savings induced by TopTen, we extrapolate total savings not based on all users of the website but on the number of unique visitors, whose visit duration is more than only a few seconds. We could observe in the web statistics a bounce rate of about 50 % and an access time of 2 to 5 minutes on average of all national websites. For the calculation of energy savings and CO<sub>2</sub>-mitigation, we therefore have corrected the unique visitors by dividing them by two and have then corrected this number of the remaining visitors by multiplying it with 0,2 to factor in that the users who answered the survey are likely those with a more active use of the website (i.e. consulting the website for advice before buying a certain product). It should be noted that the factor of 0,2 is our own estimate to stay on the safe side. But further research should be undertaken to review this.

Based on these estimates the number of Topten generated purchases can be calculated by dividing the number of unique visitors by a factor 10.

Based on these estimates and the finding of 1,4 mio. unique visitors per year together on all Topten websites the calculations lead to the achieved savings listed in Table 5.

Table 5 Energy and CO<sub>2</sub> savings through Topten

	<b>Savings over the lifetime of products per Unique Visitor</b>	<b>Savings over the lifetime of products for 1 year of operation of Topten</b>	<b>Savings per year for 1 year of operation of Topten<sup>7</sup></b>
End energy savings	243 kWh	340 GWh	26,5 GWh/a
Primary energy savings	451 kWh	631 GWh	49,1 GWh/a
CO <sub>2</sub> mitigation	90,1 kg	126.133 t	9.815 t/a

<sup>5</sup> Bethlehem, J., 2010. Selection Bias in Web Surveys. International Statistical Review 78, 161–188

<sup>6</sup> Nicolini, G., Dalla Valle, L., 2011. Errors in Customer Satisfaction Surveys and Methods to Correct Self-Selection Bias. Quality Technology & Quantitative Management 8, 167–181.

<sup>7</sup> The average lifetime of products is 12,85 years, based on the technical specifications on topten.eu

## 4 APPENDIX

### 4.1 Questionnaire 2

#### Second European user feed-back survey

Welcome to the second round of the European Visitor-Feed-Back Survey!

Thank you for your time to answer a few short questions. We would like to know how you purchase appliances and what appliances you have purchased in the past year. The survey will take less than 10 minutes of your time.

Participants that complete the full survey will have the chance to win a package of three LED lamps. Simply answer all questions and indicate at the end of the survey that you want to participate in the prize draw.

#### (Q1) If I buy an item, it is important for me...

Please choose the appropriate response for each item:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
that it was produced in an environmentally friendly way.					
that it is of good quality and long-lasting.					
that it is inexpensive to purchase.					
that costs of operation are low.					
that the design or colour is attractive.					
that it is of a certain brand.					
that it consumes as little energy as possible.					
that it consumes almost no energy in stand-by-modus.					
that a long warranty is included.					
that it is awarded with a very good energy efficiency label.					

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
that its operation is as environmentally friendly as possible.					

**(Q2) In terms of a chosen appliance, where do you buy it?**

Please choose **all** that apply:

- Internet
- Retailer
- Other:

**(Q3) If you purchase an item/appliance, do you orient yourself by criteria or product lists of topten.eu?**

Please choose **only one** of the following:

- Yes
- No

**(Q4) How important do you consider the following sources of information for the purchase of a product/appliance?**

Please choose the appropriate response for each item:

	very important	important	neutral	less important	not important
<b>Producer prospectus and information</b>					
<b>Articles/reports in newspapers</b>					
<b>topten.eu</b>					
<b>Information sites on the internet</b>					
<b>Professional advice in a shop.</b>					

	very im- portant	important	neutral	less im- portant	not im- portant
<b>Friends and acquaintances</b>					

**(Q5) Please state if you have purchased one or more products of the categories shown below within the last 12 months. For the applicable categories, you can then specify more precisely which items you purchased, how many of them you bought and whether the items purchased are among the topten.eu recommendations.**

Please choose **all** that apply:

- Household Appliances
- Office Equipment
- Consumer Electronics
- Lighting
- Building Equipment
- Mobility

**(Q6)**

**Only answer this question if the following conditions are met:**  
 Answer was at question '5 [Q0005]

	Total number of purchased items	Thereof topten.eu products
<b>Fridge / Fridge Freezer</b>		
<b>Freezer</b>		
<b>Dishwasher</b>		
<b>Washing Machine</b>		
<b>Tumble Drier</b>		
<b>Vacuum Cleaner</b>		
<b>Coffee Machine</b>		

**Total number of purchased items Thereof topten.eu products****Other**

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**(Q7) Please specify which other household appliance did you purchase.****Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '6 [Q0006]

Please write your answer here:

**(Q8)****Only answer this question if the following conditions are met:**

Answer was at question '5 [Q0005]

	<b>Total number of purchased items</b>	<b>Thereof topten.eu products</b>
<b>Monitors - Flat Screen</b>		
<b>Inkjet Printers</b>		
<b>Laser Printers/Multifunctional</b>		
<b>Other</b>		

**(Q9) Please specify which other office equipments you purchased.****Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '8 [Q0008]

Please write your answer here:

**(Q10)****Only answer this question if the following conditions are met:**

Answer was at question '5 [Q0005]

	<b>Total number of purchased items</b>	<b>Thereof topten.eu products</b>
<b>TV</b>		



**Total number of purchased items Thereof topten.eu products****Other**

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**(Q11) Please specify which other kind of consumer electronics did you purchase.****Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '10 [Q0010]

Please write your answer here:

**(Q12)****Only answer this question if the following conditions are met:**

Answer was at question '5 [Q0005]

**Total number of purchased items Thereof topten.eu products****Energy saving lamp (CFL)**

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**LED**

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**Halogen**

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**Other**

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**(Q13) Please specify which other kind of lighting did you purchase.****Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '12 [Q0012]

Please write your answer here:

**(Q14)****Only answer this question if the following conditions are met:**

Answer was at question '5 [Q0005]

**Total number of purchased items Thereof topten.eu products****Heating Boiler**

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**Total number of purchased items Thereof topten.eu products**

<b>Heat Pump</b>		
<b>Circulation Pump</b>		
<b>Air Condition</b>		
<b>Other</b>		

**(Q15) Please specify which other kind of building equipment did you purchase?**

**Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '14 [Q0014]

Please write your answer here:

**(Q16)**

**Only answer this question if the following conditions are met:**

Answer was at question '5 [Q0005]

**Total number of purchased items Thereof topten.eu products**

<b>Car</b>		
<b>Other</b>		

**(Q17) Please specify which other kind of mobility item did you purchase?**

**Only answer this question if the following conditions are met:**

Answer was greater than or equal to '1' at question '16 [Q0016]

Please write your answer here:

**(Q18) Do you want to participate in the prize draw and have the chance to win a package of three LED lamps?**

Please choose **only one** of the following:

Yes

No