



**Deliverable 2.1:**  
**Consumer behaviour change model  
regarding the adoption of efficient  
heating systems**  
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## ABBREVIATIONS

ABBREVIATION	DESCRIPTION
Att	Attitude on heating equipment use in general
BIC	Behaviour Intention to Change to an EEHA
CB	Co-Benefits
CC	Communication Channels
CI	Continuance Intention
CV	Conditional Value
EC	Energy Consumption
EE	Energy Efficiency
EG	Engagement
EEHA	Energy Efficient Heating Appliances
F	Filter
GSI	Green-Self Identity
HA	House Age
HC	House Characteristics
HEC	House Energy Class
HS	Heating Systems
K	Knowledge
Lab	Energy Label
OM	Operation and Maintenance Work
PV	Price Value
RA	Relative Advantage



Sav	EEHA Savings
SC	Spatial Characteristics
SE	Socioeconomic Characteristics
SI	Social Influence
TC	Total Cost
UB	Use behaviour
W	Wellbeing
WA	Consumer willingness to adopt renewable energy sources within their residence

## DEFINITIONS

CONCEPT	DEFINITION
Items	Items are directly measured observations, also referred as indicators. Each item represents a single separate aspect of a larger abstract concept – the construct. By combining several items to form a scale, it is possible to indirectly measure the overall concept – the construct.
Construct	Constructs or latent variables measure concepts that are abstract and not directly observed. Thus, several items are used to measure a single construct.
Context	Context is the used term to reflect the set of constructs that are theoretically related through their impact in the behaviour intention to change to an EEHA, namely: triggers, barriers, engagement, house characteristics, co-benefits and communication channels.
Partial least squares structural equation modelling (PLS-SEM)	PLS-SEM is a variance-based method used to estimate structural equation models. This method simultaneously analyses relationships among measured variables and latent variables (constructs) as well as between latent variables. The goal is to maximize the explained variance of the endogenous latent variables.
Factor analysis	Factor analysis is a dimensionality reduction technique. From a large number of variables, this technique extracts a lower number of factors, each of them explaining the common variance of variables. As such, the observed variables are modelled as linear combinations of the created factors.



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## PROJECT SUMMARY

The HARP project, Heating Appliances Retrofit Planning, aims at raising consumers awareness to the opportunities subjacent to the planned replacement of their old and inefficient heating appliance. This endeavour will be done by supporting the consumer in the identification of the energy (in)efficiency of their current heating equipment and the savings opportunities that derive from its replacement with a more energy-efficient solution. The mission is to accelerate the European replacement rate for heating systems, actively contributing to the reduction of energy demand in buildings, in line with the energy efficiency targets set by the EU.

Now is the time to act and raise consumers' awareness about the opportunities of a planned replacement. By taking advantage of the energy label for space and water heating appliances, we can mainstream the labelling concept to the installed heating stock, allowing the use of a well-known support decision tool to communicate and motivate consumers to replace their heating systems with modern, high-efficiency and renewable solutions. HARP accompanies the consumer decision process, providing an impartial message, based on the energy label and presents technological solutions that respond to the consumer's heating needs, providing a quantified approach for economic and non-economic benefits and bridging the gap with market providers and available national incentives. HARP is promoted by knowledgeable key partners in the fields of consumer behaviour, energy efficiency, heating solutions and business models, working directly with consumers, or indirectly via professionals who are critical multiplying agents—promoting dynamic, efficient heating communities, where all agents, from the supply to the demand side, are committed to an efficient heating market, supporting consumers to make smarter choices.



## EXECUTIVE SUMMARY

The present work was carried out by a NOVA IMS team within the scope of the HARP project, supported by the European Horizon 2020 programme. The focus of this work, documented in this report, is task 2.1, whose objective is the definition of the consumer behaviour change model regarding the adoption of efficient heating appliances.

This report details the model with the factors that may influence consumers to change to an Energy Efficient Heating Appliance (EEHA), presenting also the obtained results of the questionnaire that was made. The target of this project are consumers equipped with old and inefficient heating systems. The presentation of this model reveals the perceived factors that influence consumers decision to change to an EEHA (both at a European level and for each country considered within the HARP project - Portugal, Spain, France, Italy and Germany). The goal is to motivate consumers to replace their old and inefficient heating systems. Thus, the knowledge that is created in this task will be used in the definition of the HARP National Action Plans, within WP4 – Engagement Initiatives. The model findings will suggest what to promote in the HARP countries, highlighting, as well, the most effective communication channels to attend this topic.

The present work intends to accomplish the following tasks:

- Understand consumers 'inner motivations to adopt energy efficient heating systems;
- Identify important factors for explaining the energy efficient heating equipment diffusion process in participating countries;
- Treat and exploitation of the data.

To accomplish these tasks, an online questionnaire was developed and distributed across all European countries considered in the HARP project. The questionnaire was built based on an extensive literature review on the topic (where the main constructs that should be part of the created model were identified) and on a discussion with experts in the heating topic, partners in the HARP project. The questionnaire was validated with a pilot test. It was then translated into the languages of the partner countries (Portuguese, Spanish, French, Italian, German) and disseminated widely until enough answers were collected to carry out the analysis. The data collected was analysed using a partial least squares structural equation modelling (PLS-SEM) and the consumer theory of change model was created. Subsequently, this model was validated using specific criteria and methodologies that are presented in detail in this document. This work presents the overall results, and the specificities observed for each country involved in the project.

The study revealed the engagement context, the co-benefits context and organizational communication channels as the greatest predictors of consumer intention to change to an EEHA. The results are similar in all countries, presenting some variation, either in significance or magnitude of the impact in the consumer intention. Figure 1 describes the process and timeline of the whole task.



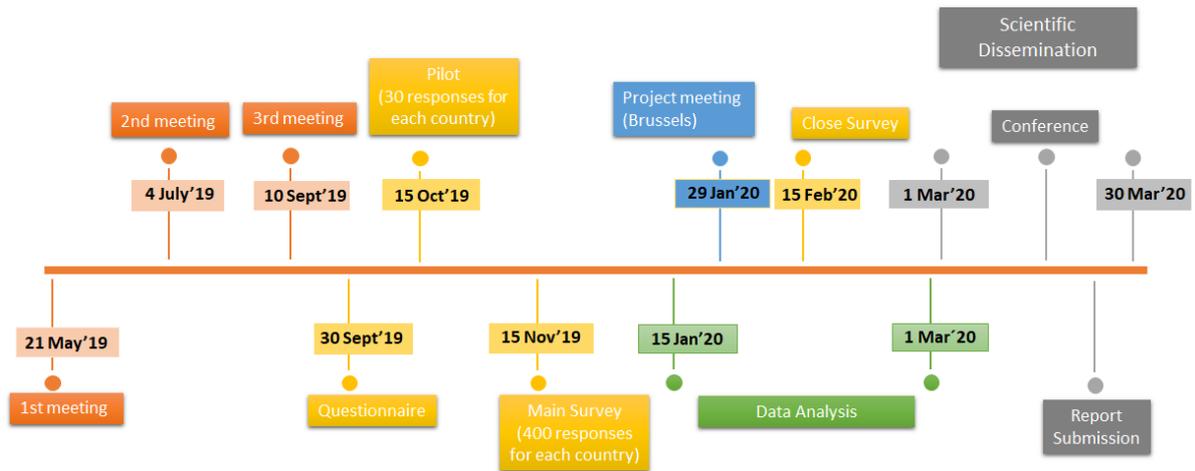


Figure 1. Timeline



## 1 INTRODUCTION

Climate change is one of the most pressing topics in our society. Actions are needed to mitigate the impact of our lifestyle options in the environment and the energy sector is one of the most relevant sectors to address. While being a critical sector to every country's economy, the intensive use of energy, still mostly from fossil fuels, makes the energy sector a key priority in the climate change mitigation plan. The building sector is responsible for 40% of the EU's energy consumption and 85% of that energy is used for space heating and domestic hot water production. From the 126 million space heaters installed in the EU, 59% perform as C or lower energy class. This value is even higher when looking into HARP's considered countries, where the estimate for C class or lower performing equipment's is approximately 70%.

Obviously, one of the easiest solutions to implement is to moderate energy consumption or make it more efficient. In this context, the concept of EEHA assumes particular relevance. Currently, the use of household appliances represents about 85% of energy consumed in the residential sector (Gaspar & Antunes, 2011). As such, it is imperative to moderate this behaviour. One way is by changing to an EEHAs since residential space heating systems are responsible for a significant fraction of the energy demand of private households (Michelsen & Madlener, 2013). Therefore, this work presents an exact model that identifies the factors that influence consumers decision to change to an EEHA. In that way, this model and its conclusions can help each country customize their communication and interaction strategy to motivate consumers to make this change.

Therefore, this document reports everything that was performed to achieve those results:

- Definition of a survey and the choice of the most relevant variables based on the literature and some discussion with the project partners.
- Analysis of the sample performing an exploratory factor analysis.
- Estimation and validation of the model, careful analysis and interpretation of the results.

This allowed us to understand the main drivers of consumer intention to change to an EEHA.



## 2 SURVEY AND SAMPLE SIZE

### 2.1 Survey

In order to study the factors that influence most consumers to change to an EEHA, an extensive literature review about the topic and individuals' behaviour was performed. Table 1 describes each construct as well as their respective context and source. All items were based on literature review and adapted to this topic. Also, several presential and online meetings were conducted with project partners in order to validate the constructs already chosen and add others that, from their experience in the area would make sense, (e.g. the co-benefits context).

The contexts tested in the model were: triggers, barriers, engagement, co-benefits, communication channels, house characteristics, general characteristics and behaviour change.

The **triggers'** context intends to assess what can trigger/motivate the decision to change to an EEHA. The **barriers** are constituted by the variables that can compromise the decision of changing to an EEHA. In the **engagement** context, it is possible to assess the interest that people have in renewable energies and efficient equipment. This paradigm includes both personal and third-party opinions. **Co-benefits** allows assessing the importance of potential additional benefits that an EEHA may provide, either to the consumer or the building. The **communication channels** context intends to assess the influence of communication channels in the consumer's intention to change to an EEHA. **House characteristics** include items related to the characteristics of the respondents' residences which can, in some way, influence or restraint the change to an EEHA. **General characteristics** encompasses socioeconomic data about respondents and some spatial characteristics about the geographical area where respondents live. The **behaviour change** context includes the variables targeted in the study: attitude regarding the use of heating equipment and intention to change. Attitude refers to the evaluation made by consumers regarding the use of heating appliances. Intention refers to the consumer intention to change to an EEHA.

Context	Construct	Construct meaning	Source
Triggers	Energy efficiency (EE)	Possibility of increasing the house's energy efficiency	(Venkatesh, Thong, & Xu, 2012)
	Savings (Sav)	Awareness of the monetary and energy savings potentiated by the use of an EEHA	(Michelsen & Madlener, 2012)
	Label (Lab)	Relevance of EEHA energy label to the decision process	(Sammer & Wüstenhagen, 2006)
	Performance Expectancy (PE)	The degree to which using an EEHA will benefit consumers in performing certain activities	(Venkatesh et al., 2012)
	Relative advantage (RA)	The degree to which the change to an EEHA is perceived to be superior to current practice	(Franceschinis et al., 2017)
	Facilitating Conditions (FC)	Consumers' perceptions of the resources and support available to perform a behaviour	(Venkatesh et al., 2012)
	Wellbeing (W)	Level of wellbeing (physical and psychological) induced by the used of an EEHA	Consortium



Context	Construct	Construct meaning	Source
	Conditional Value (CV)	Is the utility of an EEHA in the face of a specific situation or set of circumstances that the consumer may face	(Sangroya & Nayak, 2017)
	Price Value (PV)	Consumers' cognitive trade-off between the perceived benefits of an EEHA and their monetary cost/value	(Venkatesh et al., 2012)
Barriers	Operation and maintenance (OM)	The degree to which an EEHA requires work related to its operation and maintenance	(Sopha & Klöckner, 2011)
	Total cost (investment and operational cost) (TC)	The degree to which an EEHA is affordable	(Sopha & Klöckner, 2011)
Engagement	Engagement (EG)	(Conscious Attention) The degree of interest the person has or wishes to have in interacting with an EEHA	(Vivek, Beatty, & Morgan, 2012)
	Social influence (SI)	Is the extent to which consumers perceive that important others (e.g., family and friends) believe they should change to an EEHA	(Venkatesh et al., 2012)
	Green Self-Identity (GSI)	Evaluates the level of individual environmental concerns	(Barbarossa, Beckmann, De Pelsmacker, Moons, & Gwozdz, 2015; Sparks & Shepherd, 1992)
House characteristics	House age (HA)	Age of the house since the last renovation	(Michelsen & Madlener, 2012)
	House' energy class (HEC)	The energy class of the house	(Michelsen & Madlener, 2012)
General characteristics	Spatial characteristics (SC)	Spatial characteristics of the area where respondents live	(Michelsen & Madlener, 2012)
	Socioeconomic characteristics (SE)	Socioeconomic characteristics of respondents	(Kowalska-Pyzalska, 2019)
Co-benefits	Co-benefits (CB)	Possible benefits that an EEHA may provide	Consortium
	Co-benefits investment (CB inv)	Willingness to pay for additional benefits that an EEHA may provide	Consortium
Communication channels	Communication channels media (CCM)	Media communication channels (Radio, TV, Newspapers, Mobile Applications, Websites)	(Franceschinis et al., 2017)
	Communication channels organisations (CCO)	Organisation communication channels (Installers or related professionals, EEHA stores, Organisations (local associations and energy agencies) and people that I know who own an EEHA)	(Franceschinis et al., 2017)



Context	Construct	Construct meaning	Source
	Communication channel web media (CCW)	Web and mobile communication channels (Websites and Mobile Applications)	(Franceschinis et al., 2017)
Behaviour change	Attitude on heating equipment use (Att)	Attitude on heating equipment use in general and regarding EEHA	(March, Hernández, & Saurí, 2015)
	Behaviour intention to change to EEHA (BIC)	Individuals' intention to change to an EEHA	(Venkatesh et al., 2012)
	Use behaviour (UB)	Related to the frequency and intensity of use (traditional/non-efficient heating systems)	(Goncalves, Oliveira, & Cruz-Jesus, 2018; Venkatesh et al., 2012)
	Continuance intention (CI)	Users' intention to continue using their actual heating appliance	(Bhattacharjee, 2001)

**Table 1. Description of the constructs**

The questionnaire was created after choosing the variables where it would make sense to measure their importance regarding consumers' intention to change. Due to the questionnaire size and to ensure its wider distribution, it was decided to make it available online. Adapting from the literature, most of the questions have a seven-point numerical scale (1 – completely disagree; 7 – completely agree). The questionnaire was defined in Portuguese and English, reviewed by academic researchers and university staff in order to validate both questionnaires. Then, the questionnaire was translated into the other four languages of the project countries– French, German, Italian and Spanish – available in the Appendix A1 to A6. This was possible with the help of the members of Consortium from each country. Several versions were reworded from each language to English and vice versa, to guarantee that the questions were equivalent and had the same meaning (Cha, Kim, & Erlen, 2007). A pilot survey was also performed, gathering approximately 200 responses. This pilot demonstrated that some of the items were not perceptible, so they were rewritten in order to be more comprehensible. Some questions were also withdrawn, based on the feedback from specialists in the area and the responses obtained. Thus, after these steps, described in Figure 2, the final survey was launched and, from the obtained results, it proved to be valid and reliable. The survey was disseminated in the five countries as an online questionnaire and was available for three months (November 2019 – February 2020). This questionnaire was disseminated with the help of the project partners. Jointly, some initiatives were adopted in order to achieve a higher number of responses, namely disseminating the questionnaire using social media networks and through the definition and exploitation of appealing online flyers.



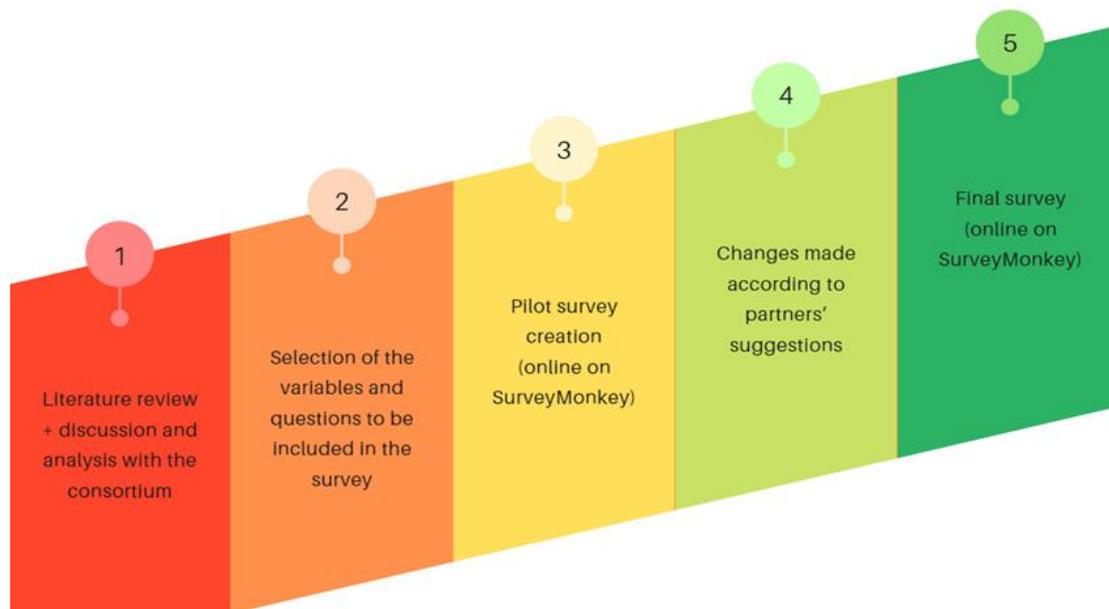


Figure 2. Survey creation process

## 2.2 Sample size

The first step regarding the sample is to calculate the sample size. Assuming a random sampling methodology representative by country, for the primary outcome and (1- $\alpha$ ) % confidence level, different sample schemes can be obtained. If the population size is known, the sampling is based on a finite population approach; otherwise, it is based on an infinite population. Formulas for sample size are given by:

- The sample size for a finite population

$$n = \frac{Z^2 p * q * N}{d^2(N - 1) + Z^2 p . q}$$

- The sample size for an infinite population

$$n = \frac{Z^2 p * q}{d^2} = \frac{1.96^2 * 0.5 * 0.5}{0.05^2} = 385$$

where Z is the standard normal distribution for the (1- $\alpha$ /2) level, d is the precision, p is the prevalence, and q=(1-p).

Since the exact number of consumers, “the population”, owning inefficient heating appliances is unknown, an infinite population size model was considered for this study. Therefore, the second formula was chosen. At the beginning of the study, there was no information about the prevalence of the characteristic (p). p stands for the proportion of the population that evidences the characteristic under evaluation. In this case it refers to the proportion of population that is willing to change their heating system. In absence of information, a pessimistic hypothesis is used. This means that we will



calculate the sample size for the worst-case – the case of no information – assigning 0.5 for the prevalence. Therefore, the first sample size estimation required 400 survey responses per country. Regarding the level of precision (d), a precision of 5% was used. The margin of error of 5% is appropriate if the prevalence of a disease is between 10% and 90% (Naing, Winn, & Rusli, 2006). A disease is a sensitive scenario in which the margin of error should be wisely considered. Thus, using 5% as the level of precision is adequate, considering that the rates of prevalence in each country are within the referred interval.

However, after consulting a study conducted by EUROGAS (“Eurogas : Energy Survey October 2019,” 2019), it was possible to estimate the prevalence and recalculate the sample in the non-pessimistic scenario. The available information was about the willingness to change heating systems in each country. Portugal was not included in the EUROGAS survey, so the prevalence rate was based on the average of the rates of the other four countries. This allowed adjusting the number of survey responses needed per country. As represented in Table 2, all countries achieve the minimum number of complete responses. Moreover, the number of total responses was high. Furthermore, even for complete responses, some countries largely surpassed the number of required answers in the pessimistic scenario (400). The used complete responses were randomly selected from individuals whose characteristics were similar to the respective population in certain variables. The Spanish case is particular since the number of complete responses was extremely higher when compared to the other countries. After selecting the number of valid, complete responses, a random selection of 450 valid individuals was performed. This way, the Spanish sample would not overlap the results.

Country	Z (standard Normal distribution for the $(1-\frac{\alpha}{2})$ level)	p (prevalence) *	q (1-p)	d (precision)	N (the necessary number of complete responses)	Number of total responses	Number of complete responses	Number of randomly selected responses
France	1.96	0.19	0.81	0.05	237	453	411	363
Germany	1.96	0.12	0.88	0.05	163	300	179	179
Italy	1.96	0.22	0.78	0.05	264	649	387	357
Portugal	1.96	0.18	0.82	0.05	227	519	331	262
Spain	1.96	0.19	0.81	0.05	237	9531	4736	450
All					<b>1128</b>	<b>11452</b>	<b>6044</b>	<b>1611</b>

Table 2. Calculation of sample size

Source: [https://eurogas.org/website/wp-content/uploads/2019/12/Eurogas\\_Energy-Report\\_ComRes.pdf](https://eurogas.org/website/wp-content/uploads/2019/12/Eurogas_Energy-Report_ComRes.pdf) EUROGAS: Energy Survey, October 2019; accessed in January 2020



### 3 EXPLORATORY ANALYSIS

In the next subsection, the descriptive statistics on sampling individuals, comparing some parameters with the population and understanding if the target population was indeed achieved is calculated. A factor analysis will be presented in section 3.2, which allowed the creation of a division between the different types of communication channels and co-benefits. Descriptive statistics will allow to understand the characteristics of the sample individuals. The exploratory factor analysis will be applied over the co-benefits and communication channels contexts, allowing to understand latent dimensions within the several types of co-benefits and communication channels.

#### 3.1 Descriptive statistics

The survey was disseminated in all the five countries under analysis. As such, five subsamples were collected. The response rate had some variation from country to country, as represented in Appendix B - Table 10. In total, the selected sample is composed of 1611 individuals. Age is one the most used variables of comparison with the population in many studies in the area of efficient energy and consumer energy choices and behaviours (e.g. Vogiatzi et al., 2018; Chen, 2016; Nie, Vasseur, Fan, & Xu, 2019). This element means that the sample was captured in order to be the most similar to the population in terms of age. Hence, the target population was divided into two age classes: from 18 to 39 years and above 40 years old (see Appendix B – Table 14). None of the samples have significant differences in age from the origin population, except for Portugal that presents a younger sample. A Chi-Squared test was performed in order to test any significant differences between the age classes from the sample and the populations. When comparing the sample individuals with the population, the target population for the questionnaire taken into consideration were only individuals equal to or above 18 years old.

Although the Portuguese sample is younger compared to the other countries, the gender dimension is very similar, evidencing a deviation of only 1% of the total population in both cases. In fact, in most of the countries, the gender dimension is similar to the respective population.

As represented in Table 3, most of the respondents were the owners of the house and the ones responsible for the decision regarding the heating equipment. These are individuals with more power and interest to change their heating appliance. As so, the target population of this study was successfully achieved. Moreover, in several studies focused on the energy topic, the sample is mainly composed by homeowners (e.g. Wilson, Crane, & Chryssochoidis, 2015; Koirala et al., 2018; Musti, Kortum, & Kockelman, 2011).



Descriptive statistics of all sample	
Sample characteristics (n=1611)	Descriptive statistics
Age	
18-39	31%
≥ 40	69%
Gender	
F	41%
M	59%
Responsible for the decision to change to an EEHA	77%
Houseowner	78%
Children (1 = have children; 0 = don't have children)	40%
Number of years of education	15.3
Country	
France	23%
Germany	11%
Italy	22%
Portugal	16%
Spain	28%

**Table 3. Descriptive statistics for all samples**

As represented in Appendix B - Table 14, regarding the number of children, this is a little smaller than in the actual population. However, this variable was used as a control in the model; this means that the results will be valid regardless the presence of children or not. Moreover, the same happens with education. The average number of years of education is approximately 15, which is somewhat higher than in the general population. In fact, the questionnaire being online, which was the best option given its size, also contributes to having responses from individual with higher education. Thus, the years of education was also used as a control variable. This means that the model was tested, controlling the effects of education and number of children. Also, the binary variables that identify the country were used as controls in the overall model with all countries' samples. Having these, the results are valid, regardless of the years of education or the presence of children.

Figure 3 and Appendix B (Tables 12 and 13) summarize information about energy consumption as well as energy source. Regarding the monthly energy consumption per household, in euros, Portugal and Spain are the countries with the lower energy bills. Of course, this measure differs due to different energy prices in each country. Also, generally in the sample, the southwestern countries present lower energy bills when compared with the sample countries of central Europe, what may be justified with lower space heating needs.



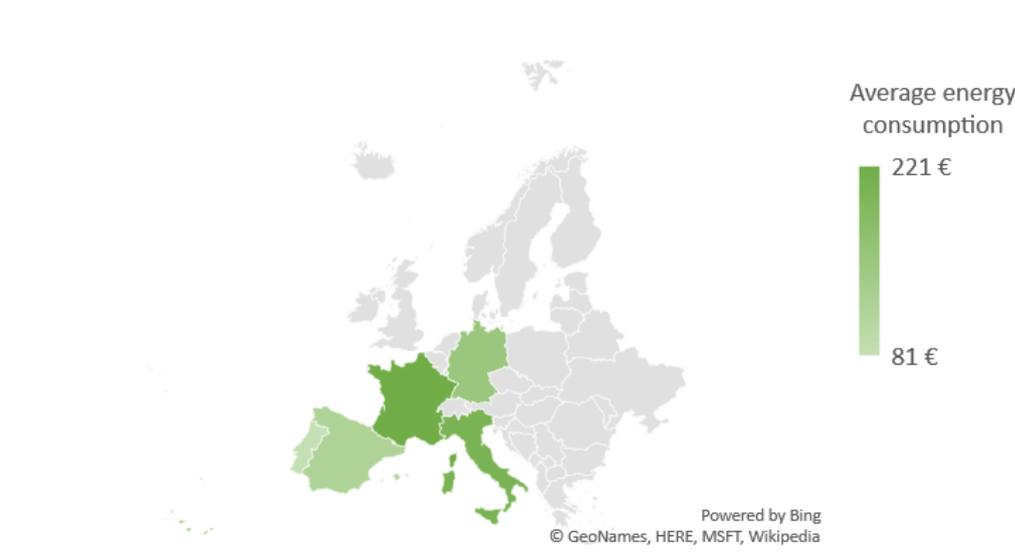


Figure 3. Monthly energy consumption of household (in euros) per country

### 3.2 Exploratory factor analysis

As discussed, communication channels and co-benefits are relevant dimensions to be measured in the model. However, each dimension of those includes many different items that translate different communication channels and even co-benefits. In order to capture the relation between the items of each dimension, a factor analysis was performed. A factor analysis is a widely used technique to understand latent dimensions responsible for the correlations between variables. This technique will help in the division of communication channels and co-benefits variables into more detailed variables, according to their type.

Figure 4 represents the four steps followed in conducting this factor analysis. First, it is essential to assess the suitability of data using the Kaiser-Mayer-Olkin (KMO) procedure. Secondly, the number of factors is extracted based mainly in three criteria to choose the number of factors:

- Kaiser criterion: every factor with an eigenvalue higher than 1 should be retained;
- Pearson criterion: all factors should be retained until 70-80% of the variance is explained;
- Scree plot criterion: all factors should be retained until the first big elbow in the plot is achieved

Finally, the factors are rotated and interpreted based on factor loadings.



Figure 4. Factor analysis process



### 3.2.1 Exploratory factor analysis for communication channels

Concerning the communication channels, the KMO is 0.807, ensuring the suitability of data. Then, based on the Kaiser and Pearson criterion, three factors were chosen. After the three factors extractions, a Varimax rotation was performed, that provides more interpretability to the factors, based on the factor loadings represented in Table 4. These factors explain 56% of the initial variance of the variables. Interpreting the factor loadings, communication channels media (CCM) can be defined as the first factor, because they include the usual media channels, namely television, radio and newspaper. The second factor is communication channels organisations (CCO) since they include the professionals related with EEHA, as well as organisations, agencies and stores. Although the item representing someone an individual may know and own an EEHA is not correlated with any factor – the highest loading is with factor 2 – it makes more sense that this item remains in the second factor. The third factor is communication channels web media (CCW), since this includes mobile applications and websites, reflecting the communication by technological means.

	<b>Factor 1 – Commun. channels media (CCM)</b>	<b>Factor 2 – Commun. channels organisations (CCO)</b>	<b>Factor 3 – Commun. channels web media (CCW)</b>
Radio	<b>0.899</b>	0.171	0.158
TV	<b>0.763</b>	0.245	0.189
Newspaper	<b>0.705</b>	0.215	0.279
Installers and/or related professionals	0.090	<b>0.912</b>	0.104
Stores of EEHA	0.157	<b>0.678</b>	0.217
Organisations (local associations, energy agencies)	0.301	<b>0.504</b>	0.119
People that I know and have an EEHA	0.191	<b>0.336</b>	0.181
Websites	0.128	0.200	<b>0.695</b>
Mobile Applications	0.321	0.159	<b>0.534</b>
<b>Explained variance</b>	<b>2.166</b>	<b>1.859</b>	<b>1.012</b>
<b>Explained variance (%)</b>	<b>24.1%</b>	<b>20.7%</b>	<b>11.2%</b>
<b>KMO</b>		<b>0.807</b>	

Table 4. Rotated factor model for communication channels

Figure 5 summarizes the results for the communication channels factor analysis, representing the communication channels in each box within the respective type of communication – media, organisations and web media.

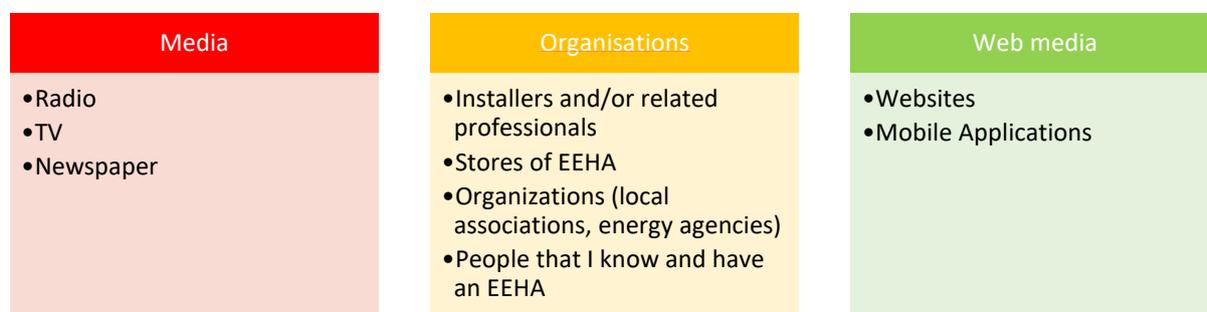


Figure 5. Factor analysis results for communication channels



### 3.2.2 Exploratory factor analysis for co-benefits

Regarding co-benefits, the KMO is 0.899, representing reliability of the factors. Based on the Kaiser criterion, two factors should be retained. As explained earlier, the factors were rotated in order to interpret them better. These two factors explain 53.6% of the initial variance. Based on factor loadings represented in Table 5, the first factor corresponds to co-benefits (CB), including variables that measure the importance of co-benefits in general. The second factor corresponds to co-benefits investment (CB inv) since it captures the variables measuring the willingness to pay for specific co-benefits.

	Factor 1 – Co-benefits investment	Factor 2 – Co-benefits
Have better indoor air quality	<b>0.802</b>	0.080
Lower indoor noise level	<b>0.797</b>	0.086
Operate the EEHA more easily	<b>0.795</b>	0.084
Achieve a comfortable indoor temperature during the heating season more easily	<b>0.787</b>	0.033
Lower external noise level	<b>0.777</b>	0.074
Be more independent to energy prices	<b>0.758</b>	0.085
Have more useful living area	<b>0.740</b>	0.132
Have a reduced environmental impact	<b>0.714</b>	0.105
Have a more aesthetically pleasing EEHA	<b>0.687</b>	0.165
Value the dwelling in the real-estate market	<b>0.667</b>	0.233
It allows me to be independent from energy price fluctuations	0.072	<b>0.757</b>
It allows me to have a reduced environmental impact	0.160	<b>0.669</b>
It values the dwelling in the real-estate market (I will sell the house for a higher price if it is equipped with an EEHA)	0.121	<b>0.655</b>
Condensation, humidity and mould-related problems are avoided	0.091	<b>0.618</b>
It will not reduce my house’s useful floor area	0.020	<b>0.570</b>
<b>Explained variance</b>	<b>5.739</b>	<b>2.301</b>
<b>Explained variance (%)</b>	<b>38.3%</b>	<b>15.3%</b>
<b>KMO</b>	<b>0.899</b>	

Table 5. Rotated factor model for co-benefits

Figure 6 summarizes the results for the co-benefits factor analysis, representing the co-benefits elements in each box within the respective type of co-benefits – co-benefits and co-benefits investment.

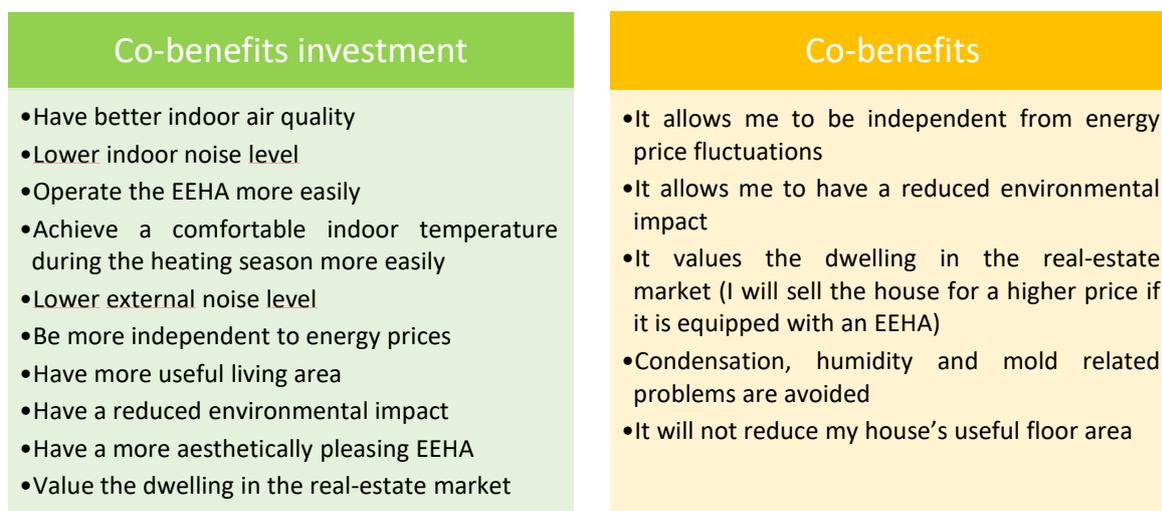


Figure 6. Factor analysis results for co-benefits



## 4 BEHAVIOUR MODEL

### 4.1 Initial model

The first step to build the model was to include all the identified constructs in a single model and estimate it with the results obtained after two months of the survey release. After this first estimation, the constructs that were statistically significant for each of the dependent variables were identified. This allowed realizing the most significant variables that would possibly be chosen to include in the final model. Not all variables have a significant impact on the dependent variables (regardless of whether they are positive or negative), and as such, they are ideally the ones to exclude, as they do not explain anything. Thus, the final variables to be included in the model were selected: operation and maintenance, engagement, energy efficiency, social influence, savings, energy label, co-benefits, co-benefits investment, communication channels, house energy class and house age. As dependent variables, the attitude regarding the use of heating equipment and intention to change to an EEHA were selected, since these are the ones that really capture consumers' willingness and intention to change to an EEHA.

### 4.2 Final conceptual model

After the selection of the variables to include in the model, the final conceptual model was created. This model allows understanding what drives people to change their behaviour about the heating appliance they have. Based on the reviewed literature, experts' discussion, and some initial analysis, Figure 7 represents the conceptual model.

The study of consumer behaviour is controlled usually by some variables, especially socio-demographic parameters and, in the particular case of energy, house demographics (e.g. Erell et al., 2018; Davis, 2011; Mills & Schleich, 2009; Yang & Zhao, 2015). The years of education, the presence of children in the household and the country were used as control variables in the model. These attributes will preserve the impacts on explanatory variables.



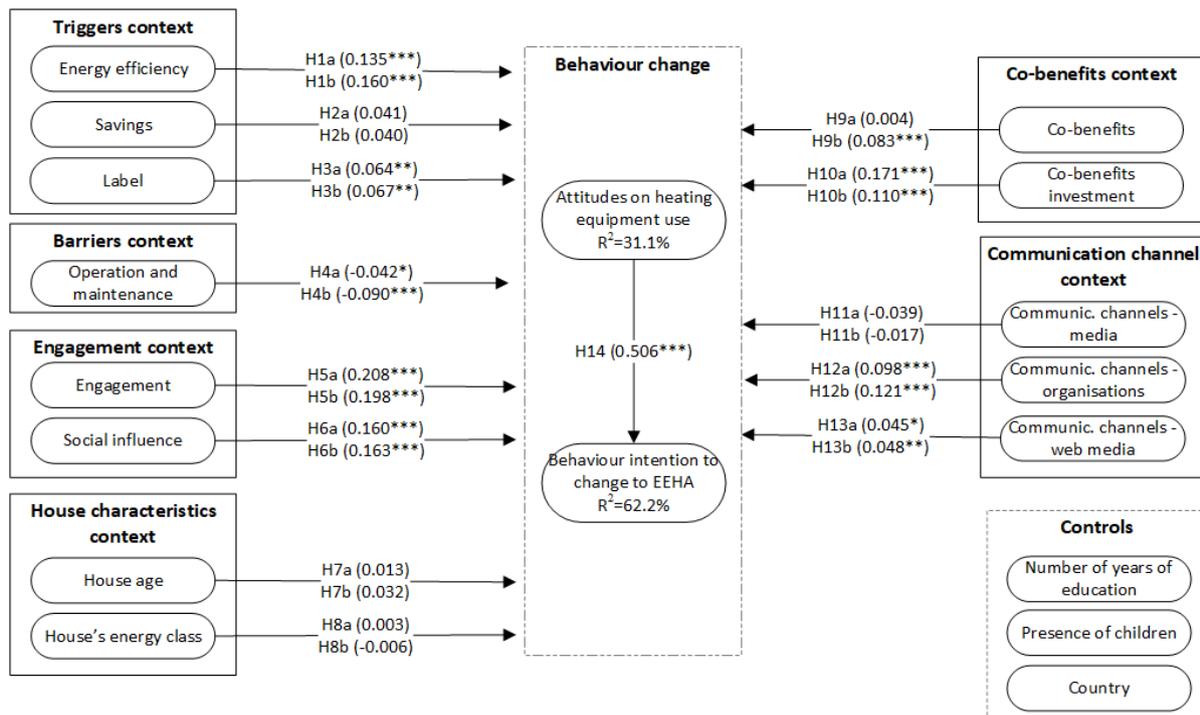


Figure 7. Final conceptual model

### 4.3 Results

The partial least squares (PLS) technique was used for this study. This method is a variance-based technique, as discussed in this investigation since:

- I. not all items in our data are distributed normally ( $p < 0.01$  based on Kolmogorov–Smirnov’s test);
- II. the research model has not been tested in the literature;
- III. the research model presents formative constructs;
- IV. the research model is considered as complex.

This method was considered the best one since it fits the available data and meets the purpose of this study based on the information mentioned above. SmartPLS 3.0 (Ringle, Wende, & Becker, 2015) was used to estimate the model, verify its validity and reliability and to analyse the model results, steps described in Figure 8.



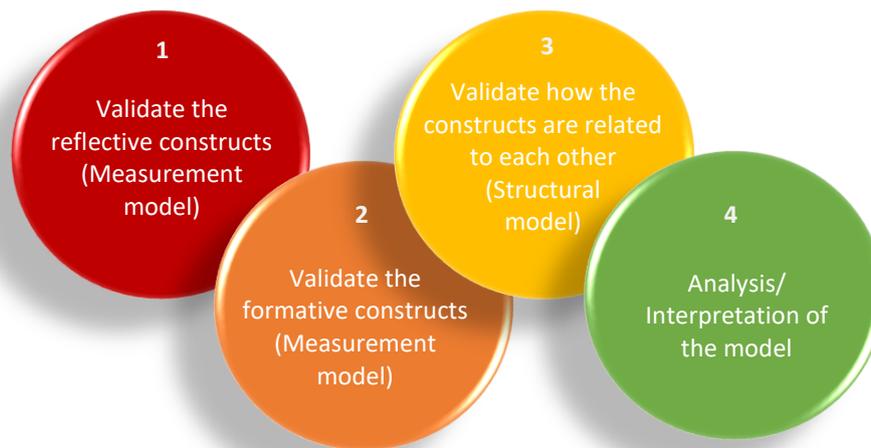


Figure 8. Steps for achieving the correct model in PLS-SEM

### 4.3.1 Measurement model

Structural equation modelling (SEM) and Partial least squares (PLS) which is a variance-based technique, was the method used to estimate the conceptual model. This method was chosen since all the requirements are present. Using this technique, firstly the measurement model should be analysed, and then the structural model may be tested. Several measures need to be analysed to assess the measurement model. Table 6 shows the mean and standard deviation of the reflective constructs, as well as the composite reliability (CR) and the average variance extracted (AVE). All constructs should present a CR higher than 0.7, showing and an AVE higher than 0.5 to guarantee the reliability of scales and convergent validity (Hair, Ringle, & Sarstedt, 2011; Fornell & Larcker, 1981). As such, these measures are verified.

Then, it is necessary to assess the discriminant validity. The Fornell-Larcker criterion, the cross-loadings and the Heterotrait-Monotrait Ratio (HTMT) were used to measure this. Concerning the first criteria, the diagonal elements, representing the squared-root of AVE are higher than the correlation between the constructs (Fornell & Larcker, 1981). This factor is also verified. Table 7 represents the loadings and cross-loadings, showing that all loadings are higher than the cross-loadings, satisfying the needed criteria (Chin, 1998). The other measure, HTMT, is represented in Table 8, showing diagonal values lower than 0.9, which establishes discriminant validity.



Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	6.104	1.356	1.000	<b>1.000</b>									
Sav	5.952	1.201	0.894	0.489	<b>0.861</b>								
Lab	6.132	1.135	0.927	0.452	0.491	<b>0.900</b>							
OM	3.162	1.625	0.938	-0.247	-0.143	-0.157	<b>0.914</b>						
EG	4.355	1.541	0.960	0.233	0.120	0.218	-0.184	<b>0.961</b>					
SI	3.710	1.741	0.974	0.195	0.153	0.215	-0.088	0.601	<b>0.962</b>				
HA	4.305	1.924	1.000	0.094	0.066	-0.029	-0.072	-0.026	0.027	<b>1.000</b>			
HEC	3.332	2.600	1.000	0.016	-0.074	0.020	-0.078	0.306	0.249	-0.239	<b>1.000</b>		
Att	3.984	1.725	0.884	0.314	0.263	0.304	-0.159	0.314	0.311	0.056	0.023	<b>0.890</b>	
BIC	4.875	1.660	0.925	0.430	0.320	0.360	-0.287	0.457	0.439	0.084	0.121	0.680	<b>0.897</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 6. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1.000</b>	0.489	0.452	-0.247	0.233	0.195	0.094	0.016	0.314	0.430
Sav1	0.311	<b>0.708</b>	0.325	-0.050	0.057	0.114	0.047	-0.102	0.186	0.188
Sav2	0.491	<b>0.936</b>	0.482	-0.168	0.139	0.172	0.065	-0.048	0.265	0.340
Sav3	0.435	<b>0.920</b>	0.441	-0.128	0.100	0.102	0.056	-0.058	0.220	0.274
Lab1	0.385	0.433	<b>0.887</b>	-0.073	0.137	0.161	-0.038	-0.025	0.263	0.276
Lab2	0.385	0.420	<b>0.927</b>	-0.136	0.225	0.222	-0.013	0.027	0.262	0.320
Lab3	0.443	0.466	<b>0.884</b>	-0.201	0.219	0.195	-0.028	0.045	0.291	0.366
OM1	-0.221	-0.118	-0.140	<b>0.891</b>	-0.187	-0.089	-0.013	-0.094	-0.131	-0.237
OM2	-0.206	-0.134	-0.126	<b>0.903</b>	-0.116	-0.034	-0.087	-0.036	-0.133	-0.242
OM3	-0.246	-0.138	-0.161	<b>0.946</b>	-0.196	-0.112	-0.090	-0.083	-0.167	-0.300
EG1	0.252	0.161	0.266	-0.164	<b>0.967</b>	0.575	-0.027	0.270	0.329	0.465
EG2	0.192	0.063	0.145	-0.192	<b>0.955</b>	0.580	-0.021	0.322	0.270	0.409
SI1	0.179	0.136	0.199	-0.085	0.594	<b>0.957</b>	0.026	0.251	0.303	0.424
SI2	0.177	0.143	0.202	-0.065	0.566	<b>0.969</b>	0.031	0.227	0.290	0.408
SI3	0.205	0.163	0.220	-0.103	0.574	<b>0.961</b>	0.022	0.239	0.304	0.435
HA	0.094	0.066	-0.029	-0.072	-0.026	0.027	<b>1.000</b>	-0.239	0.056	0.084
HEC	0.016	-0.074	0.020	-0.078	0.306	0.249	-0.239	<b>1.000</b>	0.023	0.121
Att2	0.325	0.287	0.311	-0.164	0.282	0.255	0.060	0.009	<b>0.894</b>	0.640
Att3	0.233	0.180	0.229	-0.118	0.276	0.299	0.039	0.033	<b>0.885</b>	0.569
BIC1	0.413	0.299	0.342	-0.257	0.437	0.405	0.067	0.126	0.614	<b>0.927</b>
BIC2	0.449	0.358	0.368	-0.258	0.351	0.370	0.108	0.054	0.579	<b>0.908</b>
BIC3	0.294	0.205	0.258	-0.256	0.438	0.405	0.053	0.144	0.635	<b>0.853</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA).

**Table 7. Loadings and cross-loadings**



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.530									
Lab	0.478	0.567								
OM	0.259	0.155	0.169							
EG	0.241	0.128	0.234	0.201						
SI	0.199	0.170	0.232	0.092	0.640					
HA	0.094	0.072	0.031	0.073	0.027	0.028				
HEC	0.016	0.089	0.038	0.082	0.322	0.254	0.239			
Att	0.365	0.334	0.374	0.192	0.379	0.370	0.065	0.027		
BIC	0.459	0.368	0.405	0.320	0.506	0.478	0.090	0.129	0.845	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA).

**Table 8. Heterotrait-Monotrait ratio (HTMT)**

Concerning the formative constructs, here, it is necessary to assess the collinearity, significance and relevance of indicator weights (Hair et al., 2011). A Variance Inflation Factor (VIF) lower than 5 is required to guarantee no collinearity issues. Through Table 9, it is observed that that condition is ensured. Also, it is necessary to guarantee the relevance and significance of indicator weights. The analysis of Table 9 allows concluding the relevance of indicator weights, since all indicators that do not have a significative weight, have a loading higher than 0.5.

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	5.623	1.737	0.274***	0.589***	1.516
	CB2	5.277	1.675	-0.214***	0.227***	1.395
	CB3	5.312	1.696	0.261***	0.591***	1.537
	CB4	5.782	1.476	-0.148*	0.501***	1.819
	CB5	6.081	1.354	0.854***	0.946***	1.634
Co-benefits investment	CB6	252.943	236.461	0.403***	0.801***	2.674
	CB7	249.765	234.095	-0.089	0.699***	2.897
	CB8	218.981	223.278	0.028	0.658***	3.137
	CB9	209.052	222.694	0.125	0.637***	3.077
	CB10	195.953	207.858	-0.150	0.611***	2.681
	CB11	262.967	242.853	-0.042	0.671***	2.356
	CB12	186.082	200.868	0.343***	0.652***	2.238
	CB13	223.899	223.320	-0.230**	0.550***	2.378
	CB14	270.643	236.566	0.134	0.677***	1.982
	CB15	297.098	246.125	0.634***	0.902***	2.268
Communication channels organisations	CC1	4.627	1.894	0.481***	0.768***	1.207
	CC7	5.061	1.814	0.573***	0.854***	1.426
	CC8	4.975	1.653	0.019	0.595***	2.143
	CC9	4.538	1.691	0.226**	0.577***	1.908
Communication channels web media	CC2	4.979	1.575	0.624***	0.868***	1.243
	CC3	3.577	1.802	0.553***	0.829***	1.243
Communication channels media	CC4	3.672	1.762	0.320*	0.848***	2.144
	CC5	3.344	1.784	0.295	0.904***	3.046
	CC6	3.608	1.871	0.498***	0.926***	2.478

**Note:** The items descriptions are in Appendix D.

**Table 9. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**



In conclusion a good measurement model for both reflective and formative constructs is achieved. As so, for reflective constructs, construct reliability, convergent validity, indicator reliability, and discriminatory validity are confirmed. Also, for the reflective ones, no collinearity issues and the significance and relevance of indicator weights were verified. The measurement model was tested for all countries individually. All the results from the measurement model of each country are in Appendix C (from C1 to C5). Having all these tested and validated for the whole sample and each country individually, it is possible to estimate the structural model, presented in the next sub-section.

### 4.3.2 Structural model

In Figure 9, the total effects of each variable are represented. Total effects include the direct effects over behaviour intention plus the indirect ones. The indirect ones are the direct effects over attitude times the direct effects of attitude over intention (Henseler, Ringle, & Sinkovics, 2009).

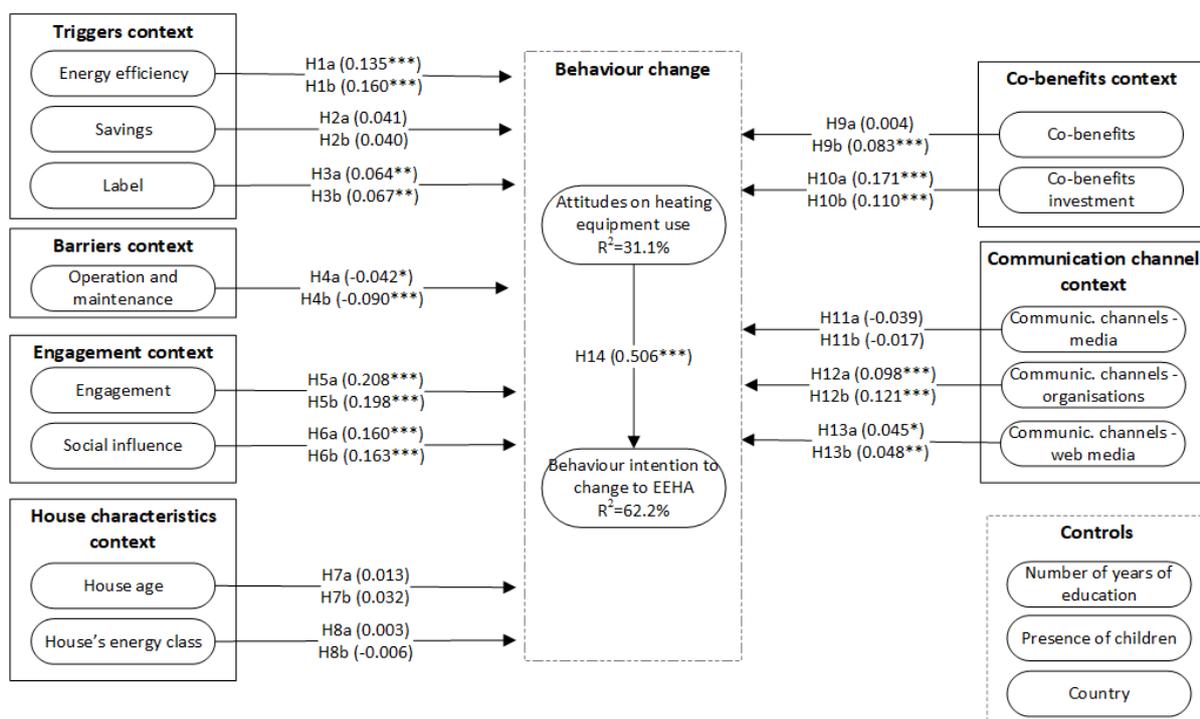


Figure 9. Structural model for behaviour intention to change. Total effects (\* p-value <0.10; \*\* p-value<0.05; \*\*\* p-value<0.01)

From Figure 9, the most critical drivers for consumers to change to an EEHA can be evidenced. The model explains 31.1% of the variation in attitude on heating equipment use. From the triggers context, energy efficiency ( $\hat{\beta}_{total}=0.135$ ;  $p<0.01$ ) and label ( $\hat{\beta}_{total}=0.061$ ;  $p<0.05$ ), are both statistically significant. Thus, H1a and H3a are supported, and H2a is not supported. From the barriers context, operation and maintenance is a barrier and statistically significant ( $\hat{\beta}_{total}=-0.042$ ;  $p<0.1$ ), H4a. From the engagement context, both engagement ( $\hat{\beta}_{total}=0.208$ ;  $p<0.01$ ) and social influence ( $\hat{\beta}_{total}=0.160$ ;  $p<0.01$ ) are statistically significant. Thus, H5a and H6a are supported. From the house characteristics context, neither hypotheses (H7a and H7b) are supported. From the co-benefits context, neither hypotheses (H7a and H7b) are supported. From the co-benefits context, co-benefits investment is statistically significant ( $\hat{\beta}_{total}=0.171$ ;  $p<0.01$ ), supporting H10a. From the communication channels context, the organisation ( $\hat{\beta}_{total}=0.098$ ;  $p<0.01$ ) and web media ( $\hat{\beta}_{total}=0.045$ ;  $p<0.1$ ) channels are statistically significant. Thus, H12a and H13a are also supported.



The model explains 62.2% of the variation in behaviour intention to change to an EEHA. From the triggers context, energy efficiency ( $\hat{\beta}_{total}=0.160$ ;  $p<0.01$ ) and label ( $\hat{\beta}_{total}=0.067$ ;  $p<0.05$ ), both are statistically significant. Thus, H1b and H3b are supported. From the context of the barriers, it confirmed the hypothesis of a negative effect of operation and maintenance ( $\hat{\beta}_{total}=-0.090$ ;  $p<0.01$ ), designated by H4b. From the engagement context, both engagement ( $\beta_{total}=0.198$ ;  $p<0.01$ ) and social influence ( $\hat{\beta}_{total}=0.163$ ;  $p<0.01$ ) are statistically significant. Thus, H5b and H6b are also supported. From the co-benefits context, both co-benefits ( $\hat{\beta}_{total}=0.083$ ;  $p<0.01$ ) and co-benefits investment are statistically significant ( $\hat{\beta}_{total}=0.110$ ;  $p<0.01$ ). Thus, H9b and H10b are supported. From the communication channels, the organisation ( $\hat{\beta}_{total}=0.121$ ;  $p<0.01$ ) and web media ( $\hat{\beta}_{total}=0.048$ ;  $p<0.1$ ) channels present statistically significant and positive effects for behaviour intention, supporting H12b and H13b. Finally, attitude on heating equipment use ( $\hat{\beta}_{total}=0.506$ ;  $p<0.01$ ) is statistically significant to explain behaviour intention to change to an EEHA, supporting H14.

The model supported 9 out of 13 established hypotheses to explain behaviour intention to change to an EEHA.

#### 4.4 Results of the final conceptual model – total effects per country

After testing the model with the whole sample, the model was tested individually per country. Appendix E (Table 36) describes the total effects of each country. The next sub-chapters present the results by country.



#### 4.4.1 Conceptual model for France

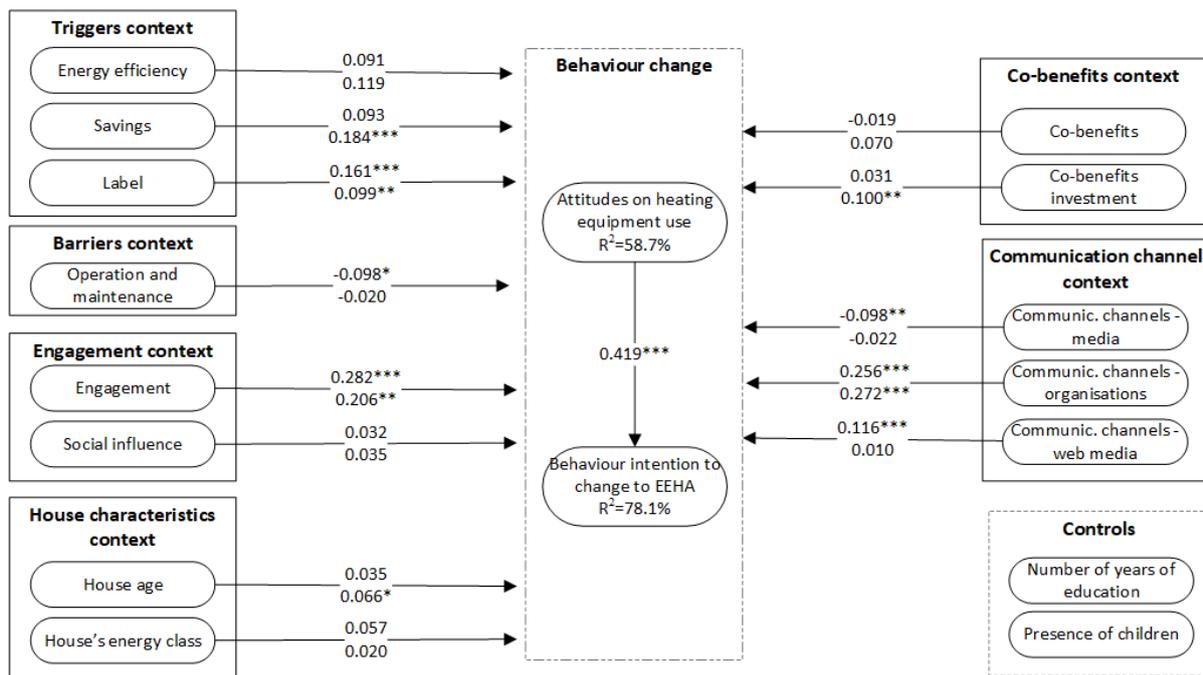


Figure 10. Final model – France. Total effects (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)

Observing Figure 10, the model for France explains approximately 78% of the behaviour intention to change to an EEHA (R-Squared), being the country with higher R-Squared. Figure 11 describes the most significant effects in behaviour intention to change to an EEHA. As so, these are the main consumer drivers in France.

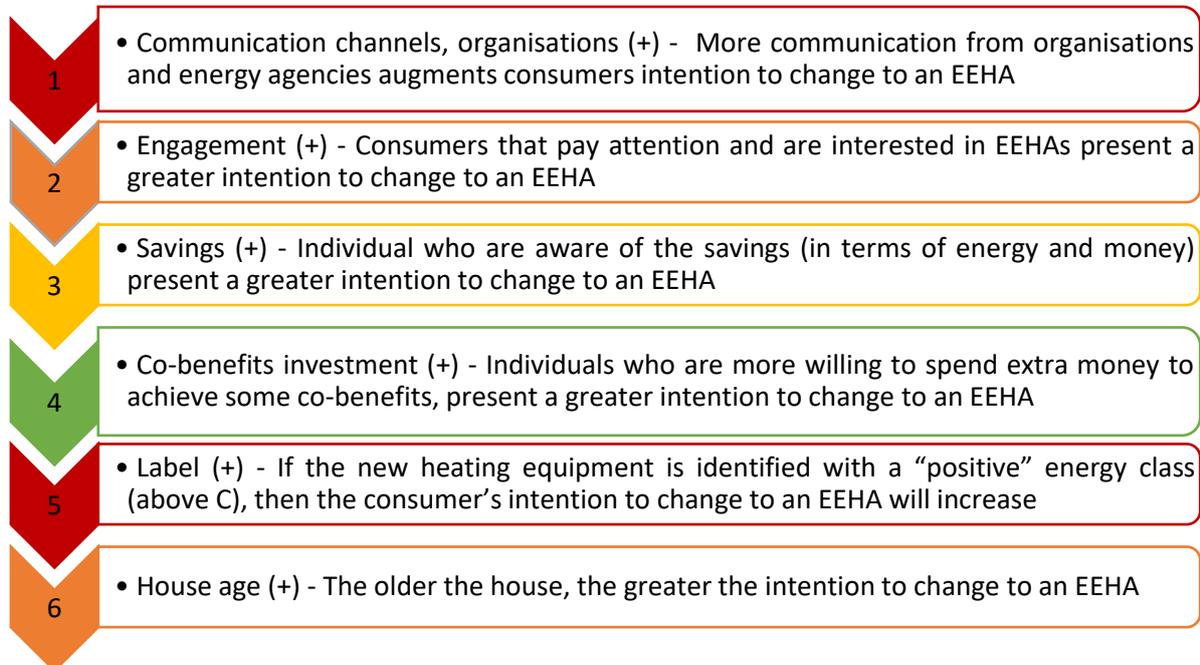


Figure 11. Results for France



#### 4.4.2 Conceptual model for Germany

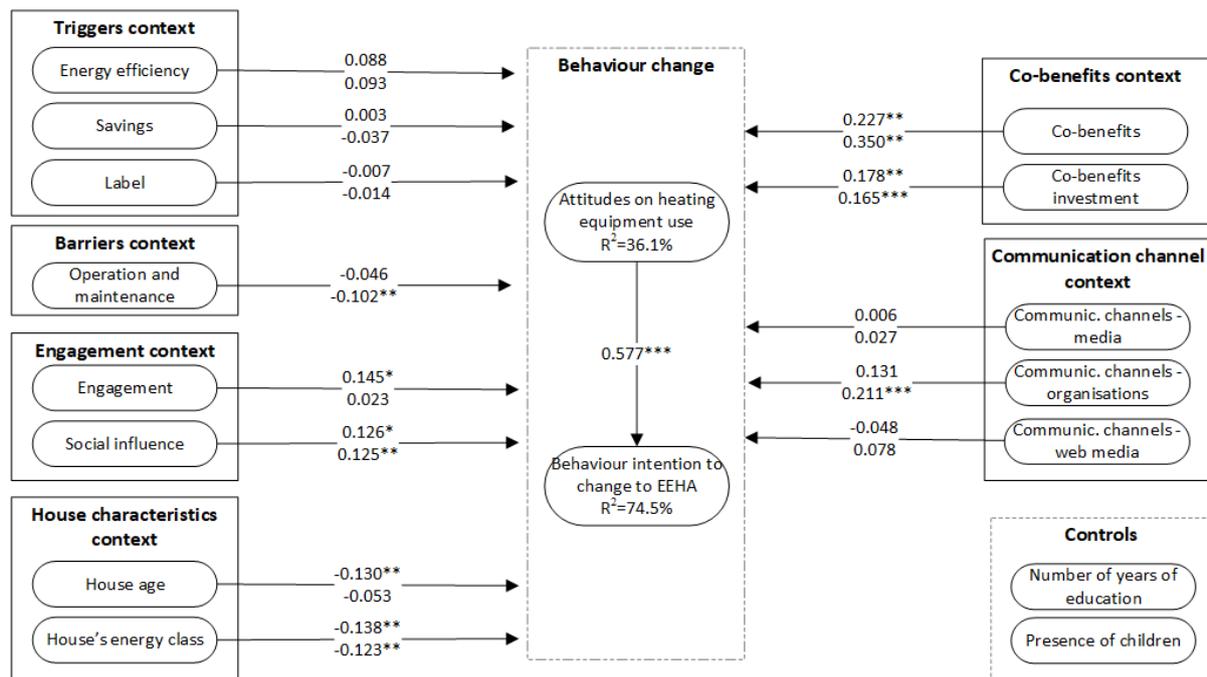


Figure 12. Final model – Germany. Total effects (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)

Observing Figure 12, the model for Germany explains approximately 75% of the behaviour intention to change to an EEHA (R-Squared), being the second country with higher R-Squared. Figure 13 describes the most significant effects in behaviour intention to change to an EEHA.

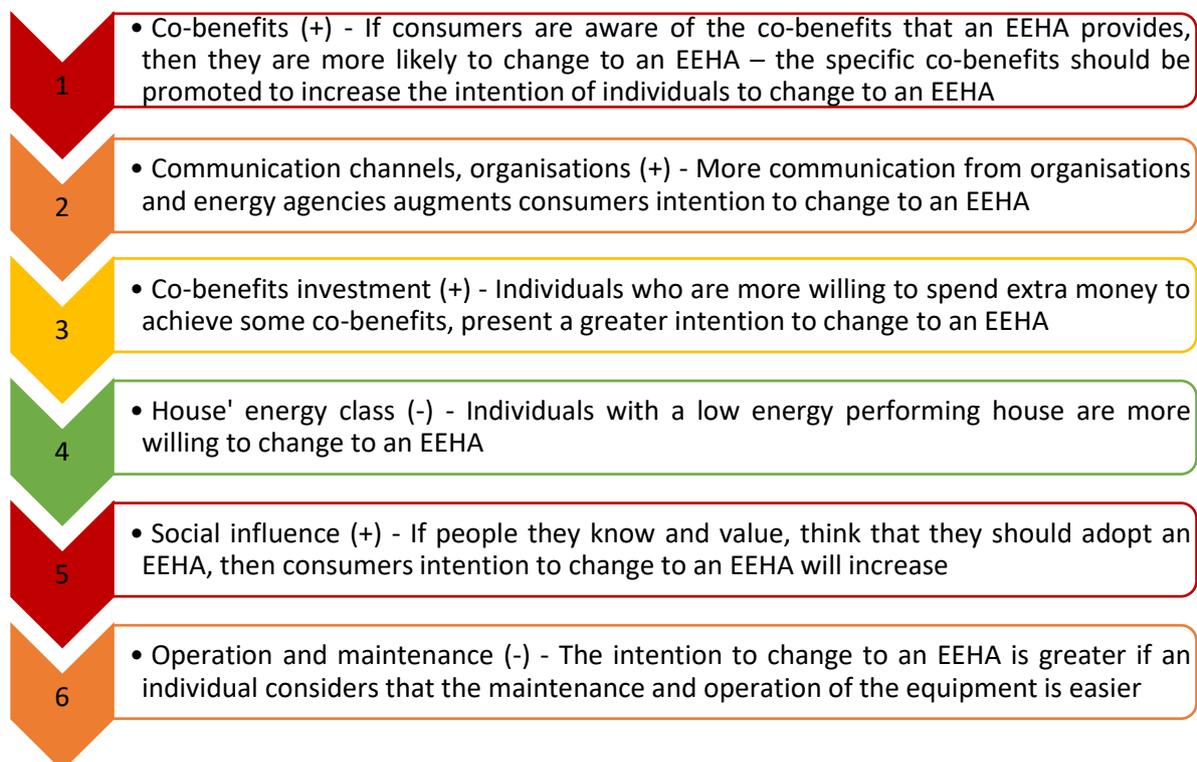


Figure 13. Results for Germany



### 4.4.3 Conceptual model for Italy

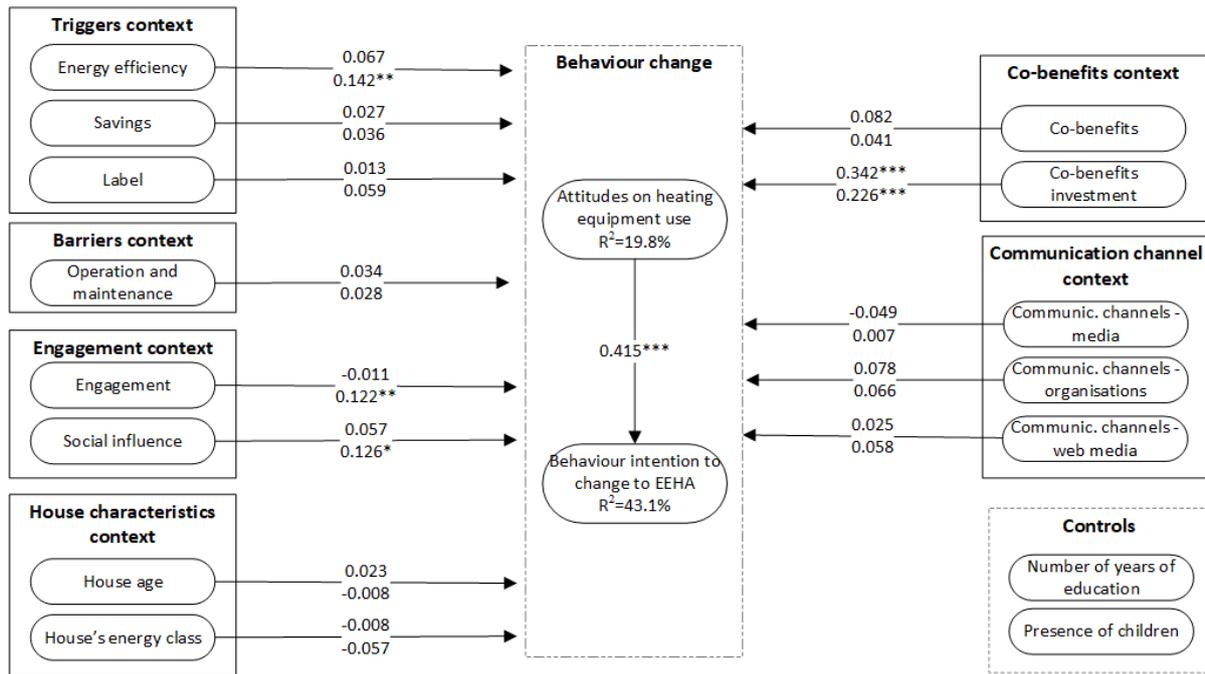


Figure 14. Final model – Italy. Total effects (\* p-value <0.10; \*\* p-value<0.05; \*\*\* p-value<0.01)

Observing Figure 14, the model for Italy explains approximately 43% of the behaviour intention to change to an EEHA (R-Squared). Although it is the country with the lowest R-Squared, 43% is still a satisfactory percentage of explained variance, especially when compared with other studies. Figure 15 describes the most significant effects in behaviour intention to change to an EEHA. As so, these are the main consumer drivers in Italy.

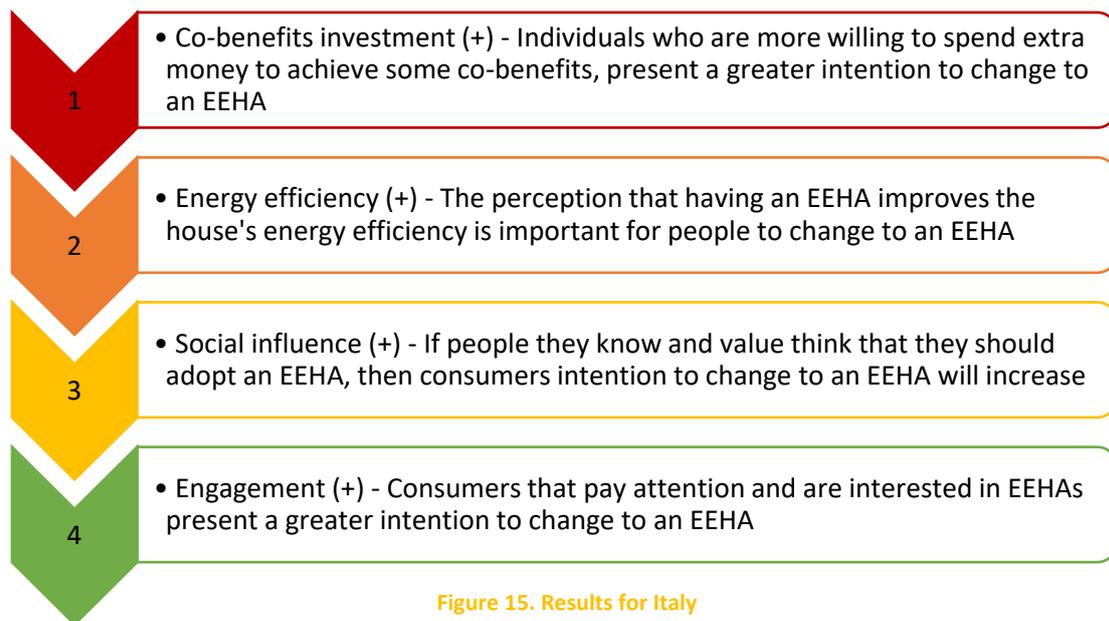


Figure 15. Results for Italy



#### 4.4.4 Conceptual model for Portugal

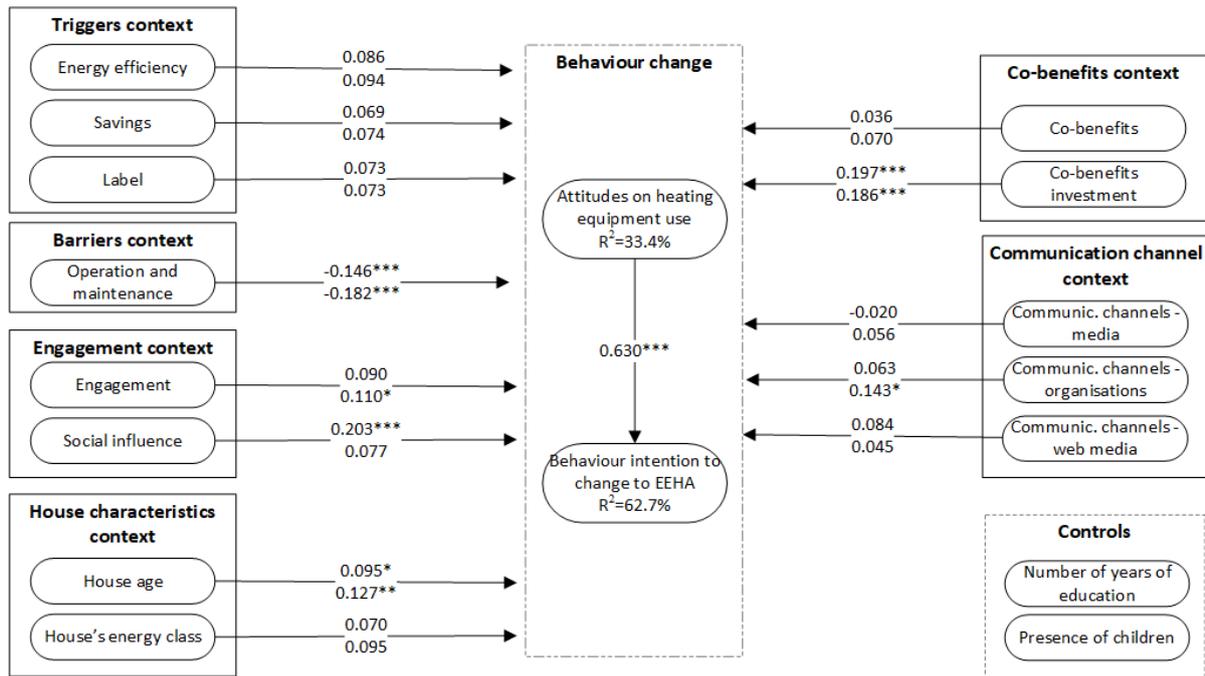


Figure 16. Final model – Portugal. Total effects (\* p-value <0.10; \*\* p-value<0.05; \*\*\* p-value<0.01)

Observing Figure 16, the model for Portugal explains approximately 63% of the behaviour intention to change to an EEHA (R-Squared). Figure 17 describes the most significant effects in behaviour intention to change to an EEHA. As so, these are the main consumer drivers in Portugal.

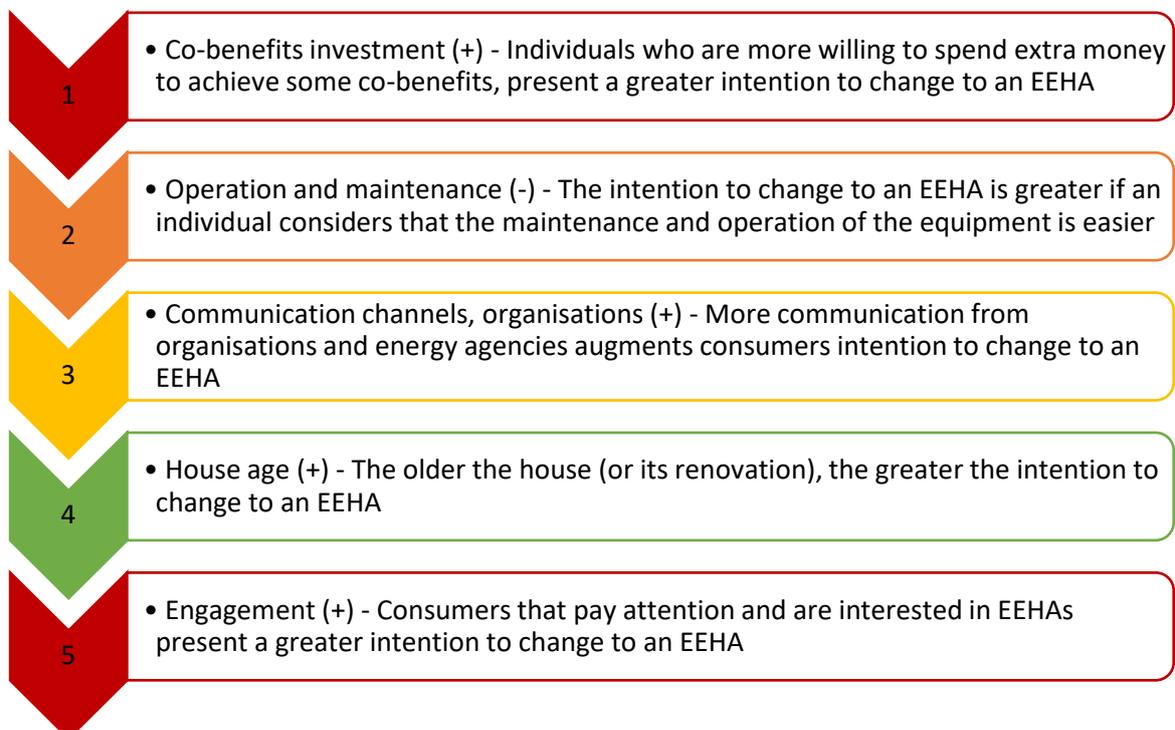


Figure 17. Results for Portugal



#### 4.4.5 Conceptual model for Spain

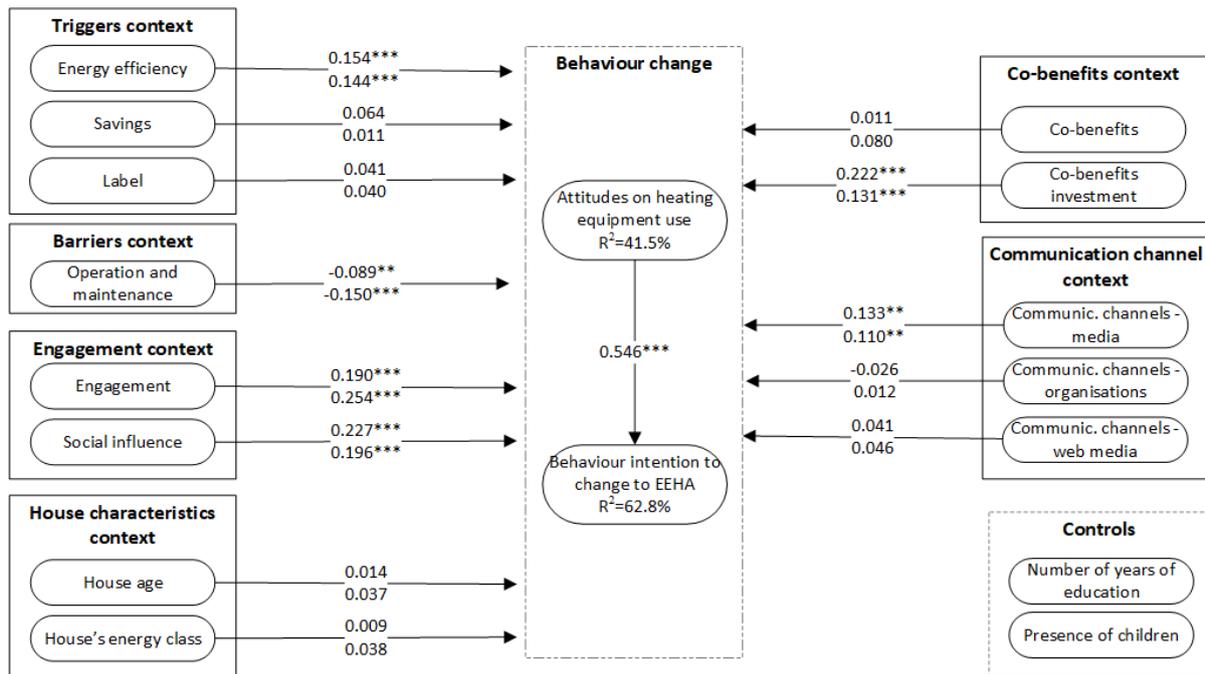


Figure 18. Final model – Spain. Total effects (\* p-value <0.10; \*\* p-value<0.05; \*\*\* p-value<0.01)

Observing Figure 18, the model for Spain explains approximately 63% of the behaviour intention to change to an EEHA (R-Squared). Figure 19 describes the most significant effects in behaviour intention to change to an EEHA. As so, these are the main consumer drivers in Spain.

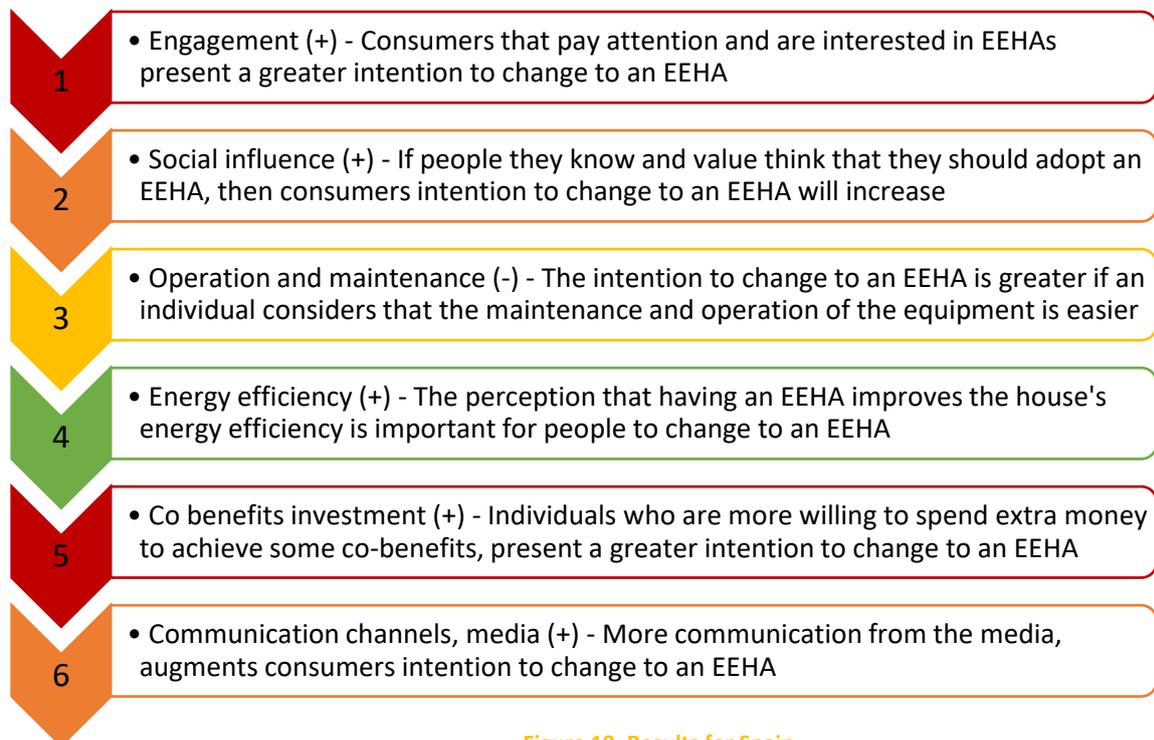


Figure 19. Results for Spain



In conclusion, the results for all countries evidence that although the effect varies in terms of the magnitude of impact in intention and relevance, the majority of the drivers are relevant for the model in all countries. However, these differences are important and suggest different strategies to approach the consumer in each country.

#### 4.4.6 Results for communication channels

In order to understand which communication channels would be most valued by consumers who intend to change to an EEHA, a more particular study was carried out on the variable referring to communication channels. Figure 20 shows the communication channels most valued in each country. This way it is possible to understand the most valuable communication channels by consumers who intend to change to an EEHA and as so, customize the country's HARP National Action Plan accordingly:

- France: people they know and own an EEHA, local organisations and energy agencies and EEHA stores;
- Germany: people that they know and own an EEHA, radio, websites and the EEHA stores;
- Italy: local organisations and energy agencies, installers and/or related professionals and mobile applications;
- Portugal: local organisations and energy agencies, websites and the people that they know and own an EEHA;
- Spain: radio, mobile applications and the people that they know and own an EEHA.

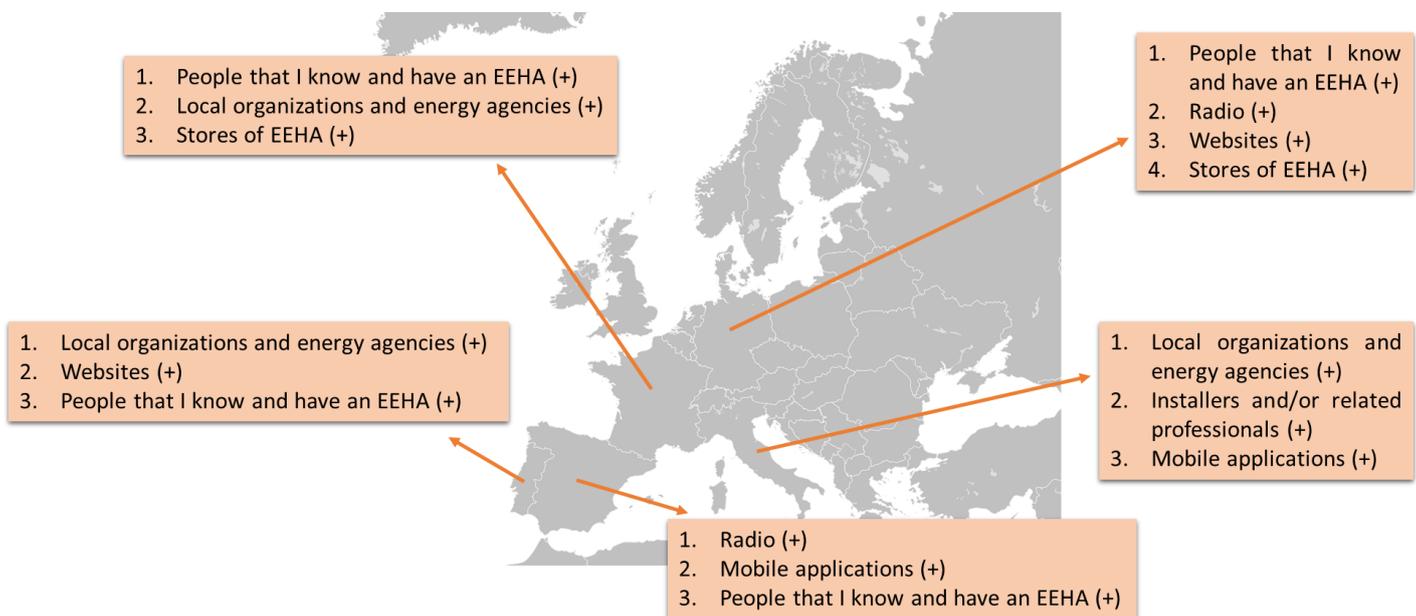


Figure 20. Most valued communication channels by country

In general, organizational communication channels are the most valued communication channel in all the countries. Websites and mobile applications are also very relevant. The media channel is most valued by the German and Spanish consumers (mainly the radio format). This analysis shows the high importance of organizations and energy agencies. It also, reveals the increasing search of information through web and web applications in all these countries, which is especially relevant for the HARP online tool. Figure 21 in Appendix E presents the structural model for communication channels.



## 5 CONCLUSION

Nowadays, actions towards the mitigation of climate problems are imperative. Therefore, projects like HARP stand out, in particular attempting to increase the replacement of inefficient heating systems with EEHAs. Therefore, to achieve that objective, some actions, promotions and campaigns should be taken. In order to support those campaigns and guarantee their success, the consumer behaviour change models allow understanding what aspects and information the consumers consider more relevant regarding the energy efficient heating topic and may drive them to change their heating appliances. In fact, a campaign can be much more effective if people know exactly what to promote. Therefore, the model presented in this report identifies the key messages to promote EEHA in the HARP countries, as well as the most effective communication channels to use.

The first step in the creation of the consumer behaviour change model was identifying the variables that can influence the consumers to change to an EEHA. Consequently, a literature review was conducted and discussions held with the consortium members. After that, a survey was created and translated into the five languages of the countries considered in this project. With the survey available for three months, a high number of responses was obtained, that allowed creating a model and achieve results for each country, using some specific techniques.

A summary of the conclusions for each country is presented below.

For **France**, it is possible to conclude that:

- More communication from organisations and energy agencies augments consumers intention to change to an EEHA;
- Consumers that pay attention and are interested in EEHAs present a greater intention to change to an EEHA;
- Individual who are aware of the savings (in terms of energy and money) present a greater intention to change to an EEHA;
- Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;
- If the new heating equipment is identified with a “positive” energy class (above C), then the consumer’s intention to change to an EEHA will increase;
- The older the house (or its renovation), the greater the intention to change to an EEHA;
- The most valuable communication channels for French consumers who intend to change to an EEHA are the people they know and own an EEHA, the local organisations and energy agencies and the EEHA stores.

For **Germany**, it is concluded that:

- If consumers are aware of the co-benefits that an EEHA provides, then they are more likely to change to an EEHA – the specific co-benefits should be promoted to increase the intention of individuals to change to an EEHA;
- More communication from organisations and energy agencies augments consumers intention to change to an EEHA;
- Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;



- Consumers with a low energy performing house are more willing to change to an EEHA;
- If people they know and value, think that they should adopt an EEHA, then consumers intention to change to an EEHA will increase;
- The intention to change to an EEHA is greater if an individual considers that the maintenance and operation of the equipment is easier;
- The most valuable communication channels for German consumers who intend to change to an EEHA are the people that they know and own an EEHA, radio, websites and the EEHA stores.

For **Italy**, it is possible to conclude that:

- Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;
- The perception that having an EEHA increases the house energy efficiency is important for people to change to an EEHA;
- If people they know and value think that they should adopt an EEHA, then consumers intention to change to an EEHA will increase;
- Consumers that pay attention and are interested in EEHAs present a greater intention to change to an EEHA;
- The most valuable communication channels for Italian consumers who intend to change to an EEHA are the local organisations and energy agencies, installers and/or related professionals and mobile applications.

For **Portugal**, it is concluded that:

- Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;
- The intention to change to an EEHA is greater if an individual considers that the maintenance and operation of the equipment is easier;
- More communication from organisations and energy agencies augments consumers intention to change to an EEHA;
- The older the house (or its renovation), the greater the intention to change to an EEHA;
- Consumers that pay attention and are interested in EEHAs present a greater intention to change to an EEHA;
- The most valuable communication channels for Portuguese consumers who intend to change to an EEHA are local organisations and energy agencies, websites and the people that they know and own an EEHA.

For **Spain**, it is concluded that:

- Consumers that pay attention and are interested in EEHAs present a greater intention to change to an EEHA;
- If people they know and value think that they should adopt an EEHA, then consumers intention to change to an EEHA will increase;
- The intention to change to an EEHA is greater if an individual considers that the maintenance and operation of the equipment is easier;
- The perception that having an EEHA increases the houses energy efficiency is important for people to change to an EEHA;



- Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;
- More communication from the media, augments consumers intention to change to an EEHA;
- The most valuable communication channels for Spanish consumers who intend to change to an EEHA are the radio, mobile applications and the people that they know and own an EEHA.

From the detail of the individual country models it is possible to identify common criteria that should clearly be endorsed in the consumers engagement campaigns:

- **Co-benefits:**
  - Individuals who are more willing to spend extra money to achieve some co-benefits, present a greater intention to change to an EEHA;
- **Influencers:**
  - If people they know and value, think that they should adopt an EEHA, then consumers intention to change to an EEHA will increase;
  - The most valuable communication channels for consumers who intend to change to an EEHA are people that they know and own an EEHA.
- **Local organizations and energy agencies**
  - More communication from organisations and energy agencies augments consumers intention to change to an EEHA;
  - The most valuable communication channels for consumers who intend to change to an EEHA are the local organisations and energy agencies.

The detail of the individual country models shows that the differences between countries are not extreme but these should be taken into account when defining the HARP National Action Plans to assure the successful engagement of consumers, using the HARP resources and pursuing the planned replacement of their old and inefficient heating appliance.



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## Appendix A – Questionnaire

### Appendix A1 – Questionnaire in English



## Drivers to change to an Energy Efficient Heating Appliance

This questionnaire is part of the European HARP (Heating Appliances Retrofit Planning) project which aims to study changes in consumer behavior regarding the adoption of energy-efficient heating solutions, addressing both space and water heating appliances.

Energy Efficient Heating Appliances (EEHA) is an appliance that performs with an energy class superior to C (for example heat pumps).

Your cooperation will greatly contribute to accomplish the goal of this project and help to understand the factors that influence the replacement of inefficient heating solutions with more efficient ones.

All the data collected is covered by a strict confidentiality and anonymity criterion. You just need less than 10 minutes to fill in the questionnaire. Thank you for your cooperation.



## Drivers to change to an Energy Efficient Heating Appliance

\* 1. Answer the following questions selecting one option.

	Yes	No
Do you have a (space or water) heating appliance installed in your home?	<input type="radio"/>	<input type="radio"/>
Is your heating system centralized?	<input type="radio"/>	<input type="radio"/>
Do you have an individual space heating appliance installed in your home?	<input type="radio"/>	<input type="radio"/>
Do you have an individual water heating appliance installed in your home?	<input type="radio"/>	<input type="radio"/>
Do you have an individual combined space and water heating appliance installed in your home?	<input type="radio"/>	<input type="radio"/>
Is your space heating system centralized for the whole building?	<input type="radio"/>	<input type="radio"/>
Is your water heating system centralized for the whole building?	<input type="radio"/>	<input type="radio"/>

\* 2. Are you responsible for the decision of installing or replacing the heating solution in your home?

Yes  No



## Drivers to change to an Energy Efficient Heating Appliance



\* 3. I would be more likely to change to an EEHA (Energy Efficient Heating Appliance) if:

	1 - Completely disagree	2	3	4	5	6	7 - Completely agree
It will increase my house's energy efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It will require less maintenance than my current system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It will work better than my current system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is compatible with my home in terms of the building aesthetics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Condensation, humidity and mould related problems are avoided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It will not reduce my house's useful floor area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It will allow me to have a comfortable indoor temperature during the heating season	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It will improve the indoor air quality in my house	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it will be easy to operate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is offered at a discounted price or with other promotional incentives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easily available in the market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My current heating appliance is damaged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is reasonably priced	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a good value for the money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It provides a good value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I receive a subsidy to finance the replacement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware of total energy savings over the EEHA lifetime	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware of total monetary savings over the EEHA lifetime	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It values the dwelling in the real-estate market (I will sell the house for a higher price if it is equipped with an EEHA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It allows me to be independent from energy price fluctuations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It allows me to have a reduced environmental impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 4. Evaluate the following sentences about energy labels.

	1 - Completely disagree	2	3	4	5	6	7 - Completely agree
The energy label is important in the decision of buying a heating appliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I buy a heating appliance, I pay attention to the energy label	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more willing to buy a heating appliance with an efficient energy class (above C, i.e., A or B)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Drivers to change to an Energy Efficient Heating Appliance

\* 5. I will not purchase an **EEHA (Energy Efficient Heating Appliance)** because:

	1 - Completely disagree	2	3	4	5	6	7 - Completely agree
I believe that EEHA would cost more than I can afford	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe the initial investment in an EEHA is not affordable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that the maintenance costs of an EEHA are not affordable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that the operation of an EEHA is more complicated than my current heating solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that an EEHA needs the user to perform maintenance work by himself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that the maintenance of an EEHA requires too much work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Drivers to change to an Energy Efficient Heating Appliance

\* 6. Evaluate the following sentences about **engagement**.

	1 - Completely disagree	2	3	4	5	6	7 - Completely agree
I consider myself concerned about environmental problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider myself a "green consumer"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry about the effects of heating appliances on the environment and climate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry about the pollution caused by the use of heating appliances.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pay a lot of attention to anything about EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep up with things related to EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who are important to me think that I should adopt EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who influence my behavior think that I should adopt EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People whose opinions that I value prefer that I adopt EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 7. Evaluate the importance of the following sources to search for information about EEHA (Energy Efficient Heating Appliance).

	1 - No Important	2	3	4	5	6	7 - Very Important
People I know who own an EEHA	<input type="radio"/>						
Internet Websites	<input type="radio"/>						
Mobile Applications	<input type="radio"/>						
Newspapers	<input type="radio"/>						
Radio	<input type="radio"/>						
Television	<input type="radio"/>						
Organizations (local associations, energy agencies)	<input type="radio"/>						
Installers and/or related professionals	<input type="radio"/>						
EEHA shops	<input type="radio"/>						
I don't search for information about EEHA	<input type="radio"/>						



## Drivers to change to an Energy Efficient Heating Appliance

\* 8. Evaluate the following sentences about changing to an EEHA (Energy Efficient Heating Appliance).

	1 - Completely disagree	2	3	4	5	6	7 - Completely agree
I intend to change to EEHA in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will try to change to EEHA in my future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am ready to change to EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to discontinue the use of my current heating systems to EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could, I would like to switch from my actual heating system to an EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intend to discontinue the use of my current heating system rather than continue its use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually track my energy consumption based on my billing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to change my heating appliance(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am planning to buy an EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 9. Please choose your **usage frequency** for each of the following:

	1 - Never	2	3	4	5	6	7 - Every time I need
Domestic Hot Water (DHW) System	<input type="radio"/>						
Space heating system	<input type="radio"/>						
Combined heating system (water and space)	<input type="radio"/>						

\* 10. Evaluate the following sentence about **the use of your heating system**.

On average, what is the monthly energy consumption of your household (in monetary units)?

\* 11. Evaluate the following sentences about **changing to an EEHA (Energy Efficient Heating Appliance)**.

	Yes	No
I prefer a cheap inefficient system instead of a more expensive efficient system	<input type="radio"/>	<input type="radio"/>
I am willing to adopt renewable energy sources in my residence	<input type="radio"/>	<input type="radio"/>



## Drivers to change to an Energy Efficient Heating Appliance

\* 12. In which country do you live in?

\* 13. Please answer the following questions.

	Yes	No	I don't know
Has your house been renovated since its construction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do your home space/construction characteristics limit the choice set for a heating system (e.g. lack of suitable space for certain EEHA)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Please answer the following questions.

	0	1	2	3	4	5	>= 6
How many people live in your household?	<input type="radio"/>						
How many children (up to 12 years old) live in your home?	<input type="radio"/>						



\* 15. If known, what is the energy class of your house (based on the Energy Performance of Building Certificate)?

- A+
  A
  B
  B-
  C
  D
  E
  F
  I don't know

\* 16. What type of area do you live in?

- Rural
  Urban

\* 17. Are you the owner of your dwelling?

- Yes
  No

\* 18. What is the size of your dwelling (in m<sup>2</sup>)?

- < 50 m<sup>2</sup>
 [50, 100[ m<sup>2</sup>
 [100, 150[ m<sup>2</sup>
 [150, 200[ m<sup>2</sup>
 [200, 250[ m<sup>2</sup>
 [250, 300[ m<sup>2</sup>
 >= 300 m<sup>2</sup>

\* 19. How old is your dwelling since your last renovation (in years)? If it was not renovated, answer with the years since its construction.

- < 1
  [1, 5[
  [5, 10[
  [10, 15[
  [15, 20[
  [20, 25[
  [25, 30[
  >=30

\* 20. What is your dwelling type?

- Apartment
  House

\* 21. What is the energy source of your main space heating system?

- Gas
  Oil-fired
  Electricity
  Biomass
  Solar
  Other
  I don't have one

\* 22. What is the energy source of your main domestic hot water system is:

- Gas
  Oil-fired
  Electricity
  Biomass
  Solar
  Other
  I don't have one

\* 23. How old are you (in years)?



\* 24. What is your gender?

Female  Male  Other

\* 25. What is your level of education?

Primary  Secondary  Bachelor  Master  PhD

\* 26. What do you think about the price of heating solutions?

low  right price  little high but acceptable  too high  no idea

\* 27. What is the monthly income of your household?

[0, 500[  [500, 1000[  [1000, 1500[  [1500, 2000[  [2000, 2500[  [2500, 3000[  [3000, 3500[  
 [3500, 4000[  [4000, 4500[  [4500, 5000[  [5000, 5500[  [5500, 6000[  >= 6000

\* 28. Are you willing to invest an extra value for your EEHA if it allows you to:

	No	Up to 100 €	Between 100 and 500 €	More than 500 €
Achieve a comfortable indoor temperature during the heating season more easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have better indoor air quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower indoor noise level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower external noise level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operate the EEHA more easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be more independent to energy prices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a more aesthetically pleasing EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have more useful living area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value the dwelling in the real-estate market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have a reduced environmental impact	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



29. What is your level of knowledge regarding:

	1 - Very limited	2	3	4	5	6	7 - Very good
The subject of this survey (EEHA)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NOVA IMS?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Know more about energy efficient heating and the HARP project at: <https://heating-retrofit.eu/>



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## Appendix A2 – Questionnaire in French



### Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)

Ce questionnaire a été élaboré dans le cadre du projet européen HARP (Heating Appliances Retrofit Planning). HARP vise à étudier les changements de comportement des consommateurs en ce qui concerne l'achat de systèmes de chauffage (air et eau) éco-énergétiques (SCEE) [Energy Efficient Heating Appliance – EEHA en anglais].

Les SCEE sont des systèmes de chauffage dont l'étiquette énergétique est supérieure à C, (par exemple les pompes à chaleur).

Votre collaboration nous aidera à mieux comprendre les facteurs qui influencent le remplacement de système de chauffage peu efficace sur le plan énergétique par des solutions plus efficaces.

Toutes les données collectées sont couvertes par un strict critère de confidentialité et d'anonymat. Moins de 10 minutes vous seront nécessaires pour remplir le questionnaire. Merci de votre coopération.



### Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)

\* 1. Répondez aux questions suivantes.

	Oui	Non
Votre domicile est-il équipé d'un système de chauffage (pour l'eau et/ou l'air)?	<input type="radio"/>	<input type="radio"/>
Votre système de chauffage est-il centralisé?	<input type="radio"/>	<input type="radio"/>
Avez-vous un système de chauffage individuel dans votre maison?	<input type="radio"/>	<input type="radio"/>
Avez-vous un équipement individuel pour chauffer votre eau chaude dans votre maison?	<input type="radio"/>	<input type="radio"/>
Avez-vous un équipement individuel combiné pour chauffer vos locaux et votre eau installé dans votre maison?	<input type="radio"/>	<input type="radio"/>
Votre système de chauffage est-il centralisé pour l'ensemble du bâtiment?	<input type="radio"/>	<input type="radio"/>
Votre système de chauffage de l'eau est-il centralisé pour l'ensemble du bâtiment?	<input type="radio"/>	<input type="radio"/>

\* 2. Êtes-vous décisionnaire en ce qui concerne l'installation ou le remplacement de votre système de chauffage?

Oui  Non



## Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)

\* 3. Je serais susceptible de passer à un système de chauffage éco-énergétique (SCEE) si:

	1 - Entièrement en désaccord	2	3	4	5	6	7 - Entièrement d'accord
L'efficacité énergétique de mon logement est accrue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Le SCEE nécessite moins d'entretien que mon système actuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il fonctionne mieux que mon système actuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il s'intègre bien avec l'esthétique de mon logement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les problèmes de condensation, d'humidité et de moisissure sont évités	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
La surface utile au sol de mon logement n'est pas réduite avec un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je peux obtenir une température intérieure confortable pendant la saison de chauffe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Le SCEE améliore la qualité de l'air intérieur de mon logement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je pense qu'il est facile à utiliser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il est offert à prix réduit ou accompagné d'autres promotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il est facilement disponible sur le marché	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mon appareil de chauffage actuel est endommagé	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Son prix est raisonnable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
C'est un bon rapport qualité-prix	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sa valeur est bonne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je reçois une subvention pour financer mon changement de système	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis conscient des économies d'énergie totales pendant la durée de vie du SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis conscient des économies financières totales pendant toute la durée de vie du SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il accroît la valeur de mon logement sur le marché immobilier (je pourrais vendre mon logement plus cher s'il est équipé d'un SCEE)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il me permet d'être moins dépendant des fluctuations des prix de l'énergie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Il me permet de réduire mon impact sur l'environnement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 4. Évaluez les propositions suivantes au sujet de l'étiquetage énergétique.

	1 - Entièrement en désaccord	2	3	4	5	6	7 - Entièrement d'accord
L'étiquette énergétique est importante dans la décision d'achat d'un appareil de chauffage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lorsque j'achète un appareil de chauffage, je fais attention à l'étiquette énergétique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis plus disposé à acheter un appareil de chauffage ayant une classe énergétique supérieure à C, c'est à dire A ou B.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)

\* 5. Je n'achèterai pas de SCEE parce que:

	1 - Entièrement en désaccord	2	3	4	5	6	7 - Entièrement d'accord
Je crois que qu'il coûte plus cher que ce que je peux y mettre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je crois que l'investissement initial n'est pas abordable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je pense que les coûts d'entretien ne sont pas abordables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je crois que le fonctionnement est plus complexe que pour mon système actuel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je pense que l'utilisateur doit effectuer lui-même les travaux d'entretien	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je crois que le maintien d'un SCEE nécessite trop de travail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)



\* 6. Évaluez les phrases suivantes au sujet de l'engagement.

	1 - Entièrement en désaccord	2	3	4	5	6	7 - Entièrement d'accord
Je me considère concerné par les problèmes environnementaux	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je me considère comme un "consommateur vert"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je m'inquiète de l'impact des appareils de chauffage sur l'environnement et le climat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je m'inquiète de la pollution causée par l'utilisation d'appareils de chauffage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je prête beaucoup d'attention à tout ce qui concerne les SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je me tiens au courant de tout ce qui a trait aux SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les gens qui sont importants pour moi pensent que je devrais adopter un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les gens qui influencent mon comportement pensent que je devrais adopter un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les personnes dont j'apprécie les opinions préfèrent que j'adopte un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 7. Évaluer l'importance des sources suivantes pour la recherche d'informations sur les SCEE.

	1 - Pas important	2	3	4	5	6	7 - Très important
Mes relations qui possèdent un SCEE	<input type="radio"/>						
Internet	<input type="radio"/>						
Applications mobiles	<input type="radio"/>						
Journaux	<input type="radio"/>						
Radio	<input type="radio"/>						
Télévision	<input type="radio"/>						
Organismes divers (associations locales, agences de l'énergie)	<input type="radio"/>						
Installateurs et/ou professionnels apparentés	<input type="radio"/>						
Magasins	<input type="radio"/>						
Je ne cherche pas d'informations sur les SCEE	<input type="radio"/>						



## Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)



\* 8. Évaluez les propositions suivantes concernant le passage à un SCEE.

	1 - Entièrement en désaccord	2	3	4	5	6	7 - Entièrement d'accord
J'ai l'intention de passer à un SCEE à l'avenir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'essaierai de passer à un SCEE à l'avenir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis prêt à passer à un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai l'intention d'arrêter d'utiliser mon système de chauffage actuel pour passer à un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Si je le pouvais, j'aimerais passer de mon système de chauffage actuel à un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
J'ai l'intention d'arrêter d'utiliser mon système de chauffage actuel plutôt que de continuer à l'utiliser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je fais habituellement le suivi de ma consommation d'énergie en fonction de ma facturation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je suis prêt(e) à changer mon (mes) appareil(s) de chauffage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Je prévois d'acheter un SCEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 9. Veuillez choisir votre fréquence d'utilisation pour chacun des éléments suivants:

	1 - Jamais	2	3	4	5	6	7 - Chaque fois que j'en ai besoin
Système d'eau chaude sanitaire (ECS)	<input type="radio"/>						
Système de chauffage de l'air	<input type="radio"/>						
Système de chauffage combiné (eau et locaux)	<input type="radio"/>						

\* 10. Évaluez la proposition suivante concernant l'utilisation de votre système de chauffage.

En moyenne, quelle est la consommation d'énergie mensuelle de votre ménage (en €)?

\* 11. Évaluez les propositions suivantes concernant le passage à un SCEE.

	Oui	Non
Je préfère un système peu coûteux et inefficace plutôt qu'un système plus coûteux et efficace	<input type="radio"/>	<input type="radio"/>
Je suis prêt à utiliser des énergies renouvelables pour mon logement	<input type="radio"/>	<input type="radio"/>



## Motivations pour passer à un Système de Chauffage Eco-Energétique (SCEE)

\* 12. Dans quel pays vivez-vous?

\* 13. Veuillez répondre aux questions suivantes.

	Oui	Non	Je ne sais pas
Votre logement a-t-il été rénové depuis sa construction?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Les caractéristiques de votre logement limitent-elles votre choix d'un SCEE (p. ex. manque d'espace convenable pour certains systèmes)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Veuillez répondre aux questions suivantes.

	0	1	2	3	4	5	>= 6
Combien de personnes vivent dans votre logement?	<input type="radio"/>						
Combien d'enfants (jusqu'à 12 ans) vivent dans votre logement?	<input type="radio"/>						

\* 15. Quelle est l'étiquette énergétique de votre maison (d'après le certificat de performance énergétique du bâtiment)?

A+
  A
  B
  B-
  C
  D
  E
  F
  Je ne sais pas

\* 16. Sur quel type de territoire habitez-vous?

Rural
  Urbain

\* 17. Êtes-vous propriétaire de votre logement?

Oui
  Non

\* 18. Quelle est la taille de votre logement (en m2)?

< 50 m2
  [50, 100[ m2
  [100, 150[ m2
  [150, 200[ m2
  [200, 250[ m2
  [250, 300[ m2
  >= 300 m2



\* 19. Quand la dernière rénovation de votre logement (en années) a t'elle été effectuée ? S'il n'a jamais été rénové, quel est l'âge de votre logement (années).

< 1   
  [1, 5[   
  [5, 10[   
  [10, 15[   
  [15, 20[   
  [20, 25[   
  [25, 30[   
  >=30

\* 20. Quel est votre type d'habitation?

Appartement   
  Maison

\* 21. Avec quelle énergie fonctionne votre système de chauffage principal?

Gaz   
  Gasol  
l   
  Electricit  
é   
  Biomass  
e   
  Solaire   
  Autres   
  Je n'ai pas de système de chauffage

\* 22. Avec quelle énergie fonctionne votre système d'eau chaude sanitaire principal?

Gaz   
  Gasol  
l   
  Electricit  
é   
  Biomass  
e   
  Solaire   
  Autre   
  Je n'en ai pas

\* 23. Quel age avez-vous (années)?

\* 24. Quel est votre sexe?

Femme   
  Homme   
  Autre

\* 25. Quel est votre niveau d'éducation?

Primaire   
  Secondaire  
(Bac)   
  Licenc  
e   
  Master   
  Doctorat

\* 26. Que pensez-vous du prix des systèmes de chauffage?

Bas   
  Adapté   
  Un peu élevé mais acceptable   
  Trop élevé   
  Aucune idée

\* 27. Quel est le revenu mensuel de votre ménage?

[0, 500[   
  [500, 1000[   
  [1000, 1500[   
  [1500, 2000[   
  [2000, 2500[   
  [2500, 3000[   
  [3000, 3500[  
 [3500, 4000[   
 [4000, 4500[   
 [4500, 5000[   
 [5000, 5500[   
 [5500, 6000[   
 >= 6000



\* 28. Êtes-vous prêt à investir plus pour un SCEE si cela vous permet?

	Non	Jusqu'à 100 €	Entre 100 et 500 €	Plus de 500 €
Atteindre plus facilement une température confortable pendant la saison de chauffage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoir une meilleure qualité de l'air intérieur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Réduire le niveau sonore à l'intérieur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Réduire le niveau de bruit externe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utiliser le SCEE plus facilement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Être plus indépendant des prix de l'énergie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoir un système plus esthétique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoir plus d'espace de vie	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Valoriser le logement sur le marché immobilier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoir un impact réduit sur l'environnement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Quel est votre niveau de connaissance concernant:

	1 - Très limité	2	3	4	5	6	7 - Très bon
Le sujet de cette enquête?	<input type="radio"/>						
L'association ENERGIES 2050 ( <a href="http://www.energies2050.org">www.energies2050.org</a> )?	<input type="radio"/>						



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## Appendix A3 – Questionnaire in German



### Treiber für den Wechsel zu einer energieeffizienten Heizung

Diese Umfrage ist Teil des europäischen Projekts HARP (Heating Appliances Retrofit Planning), das darauf abzielt, Veränderungen im Verbraucherverhalten hinsichtlich der Einführung energieeffizienter Heizlösungen zu untersuchen, die sowohl Heizgeräte als auch Warmwassererzeuger betreffen.

Die energieeffiziente Heizung (Heizgerät) [Energy Efficient Heating Appliances (EEHA)] ist ein Gerät, welches eine bessere Effizienzklasse als Klasse C aufweist (z.B. Wärmepumpen).

Ihre Unterstützung wird wesentlich dazu beitragen, das Ziel des Projekts zu erreichen und die Faktoren zu verstehen, die den Austausch von ineffizienten Heizungslösungen durch effizientere fördern.

Hinweis: Da die Befragung einheitlich in allen am Projekt teilnehmenden EU-Ländern durchgeführt wird, sind manche Fragen und Antwortmöglichkeiten unter Umständen nicht genau für Ihre Heizungssituation (in Deutschland) zutreffend.

Alle gesammelten Daten werden vertraulich und anonymisiert behandelt. Sie benötigen voraussichtlich weniger als 15 Minuten, um den Fragebogen auszufüllen. Vielen Dank für Ihre Mitarbeit.



### Treiber für den Wechsel zu einer energieeffizienten Heizung

\* 1. Beantworten Sie bitte die folgenden Fragen und wählen dafür eine Option

	Ja	Nein
Sind in Ihrer Wohnung oder in Ihrem Haus Heizgeräte für die Raumheizung und/oder Warmwasserbereitung installiert?	<input type="radio"/>	<input type="radio"/>
Haben Sie eine Zentralheizung?	<input type="radio"/>	<input type="radio"/>
Haben Sie eine dezentrale Heizung in Ihrem Haus oder Ihrer Wohnung installiert?	<input type="radio"/>	<input type="radio"/>
Haben Sie einen dezentralen Warmwasserbereiter in Ihrem Haus oder Ihrer Wohnung installiert?	<input type="radio"/>	<input type="radio"/>
Haben Sie einen dezentralen kombinierten Heizungs- und Warmwasserbereiter in Ihrem Haus oder Ihrer Wohnung installiert?	<input type="radio"/>	<input type="radio"/>
Ist eine Zentralheizung im gesamten Gebäude (bei Mehrfamilienhäusern) installiert?	<input type="radio"/>	<input type="radio"/>
Ist eine zentrale Warmwasserbereitung im gesamten Gebäude (bei Mehrfamilienhäusern) installiert?	<input type="radio"/>	<input type="radio"/>

\* 2. Sind Sie für die Entscheidung über die Installation oder den Austausch der Heizung in Ihrem Haus verantwortlich?

Ja  Nein



## Treiber für den Wechsel zu einer energieeffizienten Heizung

\* 3. Ich würde eher zu einer energieeffizienten Heizung wechseln, wenn...

	1 - trifft gar nicht zu	2	3	4	5	6	7 - trifft vollkommen zu
sie die Energieeffizienz meines Hauses / meiner Wohnung erhöhen würde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie weniger Wartung erfordern würde als meine bisherige Heizung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie besser funktionieren würde als meine bisherige Heizung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie zur Ästhetik meines Hauses bzw. meiner Wohnung passen würde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kondensations-, Feuchtigkeits- und Schimmelprobleme vermieden werden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie die Nutzfläche meines Hauses / meiner Wohnung nicht verringern würde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie mir ermöglichen würde, während der Heizsaison eine angenehme Raumtemperatur zu haben	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie die Raumluftqualität in meinem Haus / meiner Wohnung verbessern würde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie einfach zu bedienen ist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie zu einem reduzierten Preis oder mit anderen Anreizen zur Anschaffung angeboten wird	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie leicht auf dem Markt verfügbar ist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
meine aktuelle Heizung beschädigt wäre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie preiswert ist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
das Preis-Leistungs-Verhältnis ansprechend ist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie einen Mehrwert bietet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ich einen Zuschuss zur Finanzierung des Heizungsaustauschs erhalte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mir die Energieeinsparungen während der gesamten Lebensdauer der energieeffizienten Heizung bewusst wären	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ich mir der Kostenersparnis während der gesamten Lebensdauer der energieeffizienten Heizung bewusst wäre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie die Wohnung bzw. das Haus auf dem Immobilienmarkt aufwertet (Wertsteigerung der Immobilie mit einer energieeffizienten Heizung)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie mir ermöglicht, unabhängig von Energiepreisschwankungen zu sein	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sie mir ermöglicht, die Umweltbelastung zu reduzieren	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 4. Bewerten Sie die folgenden Sätze über Energielabel (angenommen, Sie sind für die Anschaffung einer Heizung zuständig).

	1 - trifft gar nicht zu	2	3	4	5	6	7 - trifft vollkommen zu
Das Energielabel ist wichtig für die Entscheidung über den Kauf einer Heizung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wenn ich eine Heizung kaufe, achte ich auf das Energielabel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich bin eher bereit, eine Heizung mit einer effizienten Energieklasse (A oder B statt C) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Treiber für den Wechsel zu einer energieeffizienten Heizung

\* 5. Ich werde keine energieeffiziente Heizung kaufen, weil...

	1 - trifft gar nicht zu	2	3	4	5	6	7 - trifft vollkommen zu
...ich glaube, dass sie mehr kosten würde, als ich mir leisten kann.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ich glaube, dass die anfängliche Investition in eine energieeffiziente Heizung nicht bezahlbar ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ich glaube, dass die Wartungskosten einer energieeffizienten Heizung nicht bezahlbar sind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ich glaube, dass der Betrieb einer energieeffizienten Heizung komplizierter ist als der meiner derzeitigen Heizung.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ich glaube, dass eine energieeffiziente Heizung mehr Wartungsarbeiten vom Nutzer selbst erfordert.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...ich glaube, dass die Wartung einer energieeffizienten Heizung zu viel Arbeit erfordert.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Treiber für den Wechsel zu einer energieeffizienten Heizung





\* 8. Bewerten Sie die folgenden Sätze für die Umstellung auf eine energieeffiziente Heizung.

	1 - trifft gar nicht zu	2	3	4	5	6	7 - trifft vollkommen zu
Ich beabsichtige, in Zukunft auf eine energieeffiziente Heizung umzustellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich werde versuchen, in Zukunft auf eine energieeffiziente Heizung umzustellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich bin bereit, auf eine energieeffiziente Heizung umzustellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich beabsichtige, die Nutzung meiner derzeitigen Heizung für eine energieeffiziente Heizung einzustellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wenn ich könnte, würde ich gerne von meiner derzeitigen Heizung auf eine energieeffiziente Heizung umstellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich beabsichtige, die Nutzung meiner derzeitigen Heizung einzustellen, anstatt sie weiter zu nutzen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich verfolge meinen Energieverbrauch basierend auf meiner Abrechnung.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich bin bereit, meine Heizung auszutauschen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ich habe vor, eine energieeffiziente Heizung zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 9. Bitte wählen Sie für jede der folgenden Anwendungen Ihre Nutzungshäufigkeit aus:

	1 - nie	2	3	4	5	6	7 - immer, wenn ich es brauche
Warmwasser	<input type="radio"/>						
Raumheizung	<input type="radio"/>						
Kombinierte Heizung (Raumwärme und Warmwasser)	<input type="radio"/>						

\* 10. Beantworten Sie den folgenden Satz zur Nutzung Ihrer Heizung.

Wie hoch sind im Durchschnitt Ihre monatlichen Energiekosten (in Euro)?

\* 11. Bewerten Sie die folgenden Sätze für den Wechsel zu einer energieeffizienten Heizung.

	Ja	Nein
Ich bevorzuge eine billige, ineffiziente Heizung anstelle einer teureren, energieeffizienten Heizung.	<input type="radio"/>	<input type="radio"/>
Ich bin bereit, erneuerbare Energien in meiner Wohnung bzw. in meinem Haus zu nutzen.	<input type="radio"/>	<input type="radio"/>



## Treiber für den Wechsel zu einer energieeffizienten Heizung

\* 12. In welchem Land leben Sie?

\* 13. Bitte beantworten Sie die folgenden Fragen.

	Ja	Nein	Unbekannt
Wurde Ihr Haus / Ihre Wohnung seit dem Bau saniert?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schränken Ihre Wohnfläche oder die Baueigenschaften des Hauses die Auswahlmöglichkeiten für eine Heizung ein (z. B. Mangel an geeigneter Fläche für eine bestimmte energieeffiziente Heizung)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Bitte beantworten Sie die folgenden Fragen.

	0	1	2	3	4	5	>= 6
Wie viele Menschen leben in Ihrem Haushalt?	<input type="radio"/>						
Wie viele Kinder (bis 12 Jahre) leben in Ihrem Haushalt?	<input type="radio"/>						

\* 15. Wenn bekannt, welche Energieeffizienzklasse hat Ihr Haus / Ihre Wohnung (basierend auf dem Energieausweis für Gebäude)?

A+
  A
  B
  B-
  C
  D
  E
  F
  Unbekannt

\* 16. Leben Sie im ländlichen oder städtischen Raum?

Land
  Stadt

\* 17. Sind Sie Eigentümer Ihres Hauses / Ihrer Wohnung?

Ja
  Nein

\* 18. Wie groß ist Ihr Haus / Ihre Wohnung (in m<sup>2</sup>)?

< 50 m<sup>2</sup>
 50 - < 100 m<sup>2</sup>
 100 - < 150 m<sup>2</sup>
 150 - < 200 m<sup>2</sup>
 200 - < 250 m<sup>2</sup>
 250 - < 300 m<sup>2</sup>
 >= 300 m<sup>2</sup>



\* 19. Wann wurde Ihr Haus / Ihre Wohnung das letzte Mal saniert (in Jahren)? Wenn es/sie nicht saniert wurde, antworten Sie mit den Jahren seit dem Bau.

- < 1  
  1 - < 5  
  5 - < 10  
  10 - < 15  
  15 - < 20  
  20 - < 25  
  25 - < 30  
  >=30

\* 20. Was ist Ihr Wohntyp?

- Wohnung  
  Haus

\* 21. Was ist der primäre Energieträger für Ihre Raumheizung?

- Gas  
  Öl  
  Strom  
  Biomasse  
  Solar  
  Andere  
  Ich habe keine Heizung.

\* 22. Was ist der primäre Energieträger Ihrer Warmwasserbereitung?

- Gas  
  Öl  
  Strom  
  Biomasse  
  Solar  
  Andere  
  Ich habe keine

\* 23. Wie alt sind Sie (in Jahren)?

\* 24. Was ist Ihr Geschlecht?

- Weiblich  
  Männlich  
  Divers

\* 25. Welchen Bildungsstand haben Sie?

- Mittlerer Schulabschluss  
  Hochschulreife  
  Bachelor  
  Master / Diplom  
  Promotion

\* 26. Wie schätzen Sie den Preis für Heizungen ein?

- niedrig  
  richtiger Preis  
  ein bisschen zu hoch, aber akzeptabel  
  zu hoch  
  keine Ahnung

\* 27. Wie hoch ist das monatliche Einkommen Ihres Haushalts?

- < 500  
  500 - < 1000  
  1000 - < 1500  
  1500 - < 2000  
  2000 - < 2500  
  2500 - < 3000  
  3000 - < 3500  
 3500 - < 4000  
  4000 - < 4500  
  4500 - < 5000  
  5000 - < 5500  
  5500 - < 6000  
  >= 6000



\* 28. Welchen Betrag würden Sie für die Anschaffung einer energieeffizienten Heizung zusätzlich investieren:

	Keinen	Bis zu 100 €	Zwischen 100 und 500 €	Mehr als 500 €
Leichtere Erreichung eines angenehmen Raumklimas während der Heizsaison	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bessere Raumluftqualität	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niedrigerer Geräuschpegel im Haus / in der Wohnung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niedrigerer Geräuschpegel außerhalb des Hauses / der Wohnung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Einfacheres Bedienen der energieeffizienten Heizung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unabhängigkeit von Energiepreisen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
eine ästhetisch ansprechendere energieeffiziente Heizung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mehr nutzbaren Wohnraum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
bessere Bewertung des Hauses / der Wohnung auf dem Immobilienmarkt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduzierte Umweltbelastung	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Wie ist ihr Wissensstand hinsichtlich:

	1 - sehr gering	2	3	4	5	6	7 - sehr hoch
des Themas dieser Umfrage (energieeffiziente Heizung)?	<input type="radio"/>						
NOVA IMS (NOVA Information Management School)?	<input type="radio"/>						



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## Appendix A4 – Questionnaire in Italian



### Motivi per cui passare ad un apparecchio ad alta efficienza energetica

Il questionario fa parte del progetto europeo HARP che mira ad analizzare come si comporta il consumatore rispetto all'adozione di nuovi apparecchi di riscaldamento.

Un apparecchio ad alta efficienza energetica è un apparecchio la cui classe energetica risulta pari o superiore alla classe B (per esempio caldaie a condensazione, sistemi ibridi, pompe di calore, ecc..).

Il suo contributo ci aiuterà a raggiungere gli obiettivi di questo progetto e a farci capire quali sono i fattori che influenzano la sostituzione di apparecchi di riscaldamento obsoleti con quelli più efficienti.

Tutti i dati raccolti saranno rigorosamente riservati e anonimi.

Saranno necessari meno di 10 minuti per la compilazione del sondaggio.

Grazie per la collaborazione.



### Motivi per cui passare ad un apparecchio ad alta efficienza energetica

\* 1. Risponda alle seguenti domande selezionando un'opzione.

	Si	No
A casa possiede un apparecchio per il riscaldamento e/o Acqua Calda Sanitaria (ACS)?	<input type="radio"/>	<input type="radio"/>
Il suo impianto di riscaldamento è centralizzato?	<input type="radio"/>	<input type="radio"/>
A casa possiede un apparecchio autonomo per il riscaldamento?	<input type="radio"/>	<input type="radio"/>
A casa possiede un apparecchio autonomo per l'acqua calda sanitaria?	<input type="radio"/>	<input type="radio"/>
A casa possiede un apparecchio autonomo combinato per riscaldamento e acqua calda sanitaria?	<input type="radio"/>	<input type="radio"/>
Il sistema di riscaldamento è centralizzato per l'intero edificio?	<input type="radio"/>	<input type="radio"/>
Il sistema per l'acqua calda sanitaria è centralizzato per l'intero edificio?	<input type="radio"/>	<input type="radio"/>

\* 2. Lei è responsabile dell'installazione o sostituzione dell'apparecchio di riscaldamento della sua abitazione?

S  N  
i o



## Motivi per cui passare ad un apparecchio ad alta efficienza energetica

\* 3. Mi piacerebbe passare ad un apparecchio ad alta efficienza energetica se:

	1 - Assolutamente non d'accordo	2	3	4	5	6	7 - Assolutamente d'accordo
Aumenterà l'efficienza energetica della mia casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Richiederà meno manutenzione rispetto al mio sistema attuale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lavorerà meglio del mio attuale impianto	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E' in linea con l'estetica della mia casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono evitati problemi di muffa e condensa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non risulta troppo ingombrante	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consente di ottenere una confortevole temperatura interna durante la stagione invernale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Migliora la salubrità dell'aria in casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ritengo sia facile da far funzionare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E' offerto a prezzo scontato o gode di incentivi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E' facilmente acquistabile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
La mia attuale caldaia è danneggiata	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ha un costo ragionevole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ha un buon rapporto qualità-prezzo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dà un valore aggiunto alla mia casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ricevo un sussidio per finanziare la sostituzione	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono consapevole dell'energia totale risparmiata durante la vita utile del nuovo apparecchio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono a conoscenza del risparmio economico associato alla vita utile del nuovo apparecchio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aumenta il valore immobiliare della casa (Venderò l'immobile ad un prezzo più alto se l'impianto termico è efficiente)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mi consente di non essere condizionato dalle variazioni delle tariffe energetiche	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mi consente di ridurre l'impatto ambientale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 4. Valuti le seguenti affermazioni sulle etichette energetiche.

	1 - Assolutamente non d'accordo	2	3	4	5	6	7 - Assolutamente d'accordo
L'etichetta energetica incide sull'acquisto di un apparecchio per il riscaldamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Al momento dell'acquisto di un apparecchio per il riscaldamento, presto attenzione all'etichetta energetica	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono predisposto a comprare un apparecchio di classe energetica efficiente (A+++, A++, A+, A, B, ecc...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivi per cui passare ad un apparecchio ad alta efficienza energetica

\* 5. Non comprerò un apparecchio efficiente perchè:

	1 - Assolutamente non d'accordo	2	3	4	5	6	7 - Assolutamente d'accordo
Penso che un apparecchio efficiente costi troppo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Penso che l'investimento iniziale di un nuovo apparecchio non sia conveniente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Penso che i costi di manutenzione di un nuovo apparecchio non siano convenienti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ritengo che il funzionamento di un nuovo apparecchio sia più complesso rispetto a quello del mio attuale apparecchio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Credo che per un apparecchio efficiente sia necessaria la manutenzione da parte del suo proprietario	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ritengo che la manutenzione di un apparecchio nuovo richieda molto lavoro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivi per cui passare ad un apparecchio ad alta efficienza energetica



\* 6. Valuti il suo impegno.

	1 - Assolutamente non d'accordo	2	3	4	5	6	7 - Assolutamente d'accordo
Sono sensibile alle questioni ambientali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mi reputo un consumatore green	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono consapevole dei problemi ambientali derivanti dai consumi energetici	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono preoccupato per l'inquinamento causato dagli impianti di riscaldamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono molto attento a tutto ciò che riguarda gli apparecchi efficienti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuerò ad interessarmi all'efficienza energetica della mia casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Le persone per me importanti ritengono si debbano adottare apparecchi efficienti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Le persone che influenzano le mie scelte ritengono si debbano scegliere apparecchi efficienti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Le persone che apprezzo ritengono preferibile scegliere soluzioni efficienti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 7. Si valuti l'importanza delle fonti da cui ottenere informazioni sugli apparecchi efficienti.

	1 - No Importante	2	3	4	5	6	7 - Molto Importante
Conoscenti che possiedono un apparecchio efficiente	<input type="radio"/>						
Internet	<input type="radio"/>						
App smartphone	<input type="radio"/>						
Giornali	<input type="radio"/>						
Radio	<input type="radio"/>						
Televisione	<input type="radio"/>						
Organizzazioni (Associazioni di categoria, agenzie per l'energia, ecc..)	<input type="radio"/>						
Installatori e/o professionisti coinvolti	<input type="radio"/>						
Punti di vendita	<input type="radio"/>						
Non cerco informazioni su apparecchi efficienti	<input type="radio"/>						



## Motivi per cui passare ad un apparecchio ad alta efficienza energetica



\* 8. Si valutino le seguenti affermazioni riguardanti il passaggio ad un apparecchio efficiente.

	1 - Assolutamente non d'accordo	2	3	4	5	6	7 - Assolutamente d'accordo
Ho intenzione di passare ad un apparecchio efficiente in futuro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cercherò di passare ad un apparecchio efficiente in futuro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono pronto per passare ad un apparecchio efficiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ho intenzione di interrompere l'uso del mio attuale impianto e passare ad una soluzione più efficiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se potessi, passerei dal mio attuale impianto di riscaldamento a uno nuovo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ho intenzione di interrompere l'uso del mio attuale impianto di riscaldamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generalmente seguo il mio consumo di energia attraverso le bollette	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sono disposto a cambiare il mio apparecchio di riscaldamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ho programmato l'acquisto di un nuovo apparecchio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 9. Selezioni la sua frequenza di utilizzo per ciascuna affermazione:

	1 - Mai	2	3	4	5	6	7 - Tutte le volte in cui ne ho bisogno
Impianto di ACS – Acqua Calda Sanitaria	<input type="radio"/>						
Impianto di riscaldamento	<input type="radio"/>						
Impianto di riscaldamento e ACS – Acqua Calda Sanitaria	<input type="radio"/>						

\* 10. Valuti la seguente affermazione sull'uso del suo impianto di riscaldamento.

In media, qual è il consumo energetico mensile della sua famiglia (in euro)?

\* 11. Risponda alle seguenti affermazioni riguardanti la possibilità di passare ad un apparecchio efficiente.

	Si	No
Preferisco un apparecchio economico inefficiente ad uno efficiente più costoso	<input type="radio"/>	<input type="radio"/>
Sono disposto ad utilizzare fonti energetiche rinnovabili nella mia casa	<input type="radio"/>	<input type="radio"/>



## Motivi per cui passare ad un apparecchio ad alta efficienza energetica

\* 12. In quale Paese vive?

\* 13. Risponda ai seguenti quesiti.

	Si	No	No lo so
E' stata mai riqualificata/ristrutturata la sua casa?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lo spazio e le caratteristiche della sua casa limitano la scelta di un apparecchio di riscaldamento (per esempio spazio insufficiente per certi apparecchi efficienti?)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Si risponda ai seguenti quesiti.

	0	1	2	3	4	5	>= 6
Quante persone vivono nella sua casa?	<input type="radio"/>						
Quanti bambini (fino ai 12 anni) ci sono?	<input type="radio"/>						

\* 15. Se nota, qual'è la classe energetica della sua casa (Così come riportato sull'APE) ?

A1 - A4  
  B  
  C  
  D  
  E  
  F  
  No lo so

\* 16. In che tipo di zona vive?

Rural e  
  Urban a

\* 17. E' proprietario della casa in cui vive?

S i  
  N o

\* 18. Quant'è grande la sua casa (in m2)?

< 50 m2  
  [50, 100[ m2  
  [100, 150[ m2  
  [150, 200[ m2  
  [200, 250[ m2  
  [250, 300[ m2  
  >= 300 m2



\* 19. Quanti anni sono trascorsi dalla sua ultima riqualificazione? Se non è stata ristrutturata, quanti anni fa è stata costruita?

- < 1  
  [1, 5[  
  [5, 10[  
  [10, 15[  
  [15, 20[  
  [20, 25[  
  [25, 30[  
  >=30

\* 20. Che tipo di casa ha?

- Condominio  
  Villa

\* 21. Qual'è la fonte di energia del suo principale impianto di riscaldamento?

- Metano  
  Gasolio  
  Elettricità  
  Biomassa  
  Solar  
  Altro  
 Non ho alcun impianto di riscaldamento

\* 22. Qual è la fonte energetica del suo principale impianto di ACS – Acqua Calda Sanitaria?

- Metano  
  Gasolio  
  Elettricità  
  Biomassa  
  Solar  
  Altro  
 Non ho alcun impianto di ACS

\* 23. Qual è la sua età??

\* 24. Qual è il suo sesso?

- Donna  
  Uomo  
 Altro

\* 25. Qual è il suo titolo di studio?

- Scuola Elementare/Medie  
 Scuola Superiore  
 Laurea Triennale  
 Laurea Specialistica/Master  
 Dottorato di Ricerca

\* 26. Cosa ne pensa del prezzo degli apparecchi di riscaldamento?

- basso  
 giusto  
 leggermente elevato , ma accettabile  
 troppo elevato  
 non ho idea

\* 27. Qual è il reddito mensile della sua famiglia (in euro)?

- [0, 500[  
 [500, 1000[  
 [1000, 1500[  
 [1500, 2000[  
 [2000, 2500[  
 [2500, 3000[  
 [3000, 3500[  
 [3500, 4000[  
 [4000, 4500[  
 [4500, 5000[  
 [5000, 5500[  
 [5500, 6000[  
 >= 6000



\* 28. E' disposto ad investire attraverso l'acquisto di un nuovo apparecchio se le consente di:

	No	Fino a 100 €	Tra 100 e 500 €	più di 500 €
Raggiungere più facilmente una temperatura interna confortevole durante la stagione invernale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avere un'aria in casa più salubre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ridurre la rumorosità interna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ridurre la rumorosità esterna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Far funzionare l'impianto più facilmente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Essere meno condizionato dalle tariffe energetiche	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avere un apparecchio esteticamente piacevole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avere una zona living più funzionale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aumentare il valore dell'immobile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ridurre l'impatto ambientale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Qual'è il suo livello di conoscenza su:

	1 - Molto limitato	2	3	4	5	6	7 - Ottimo
L'argomento di questo sondaggio?	<input type="radio"/>						
NOVA IMS?	<input type="radio"/>						

Scopra di più riguardo all'efficienza energetica del riscaldamento e al progetto HARP: <https://heating-retrofit.eu/>



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## Appendix A5 – Questionnaire in Portuguese



### O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?

Este questionário faz parte do projeto Europeu HARP (Heating Appliances Retrofit Planning – Planear a substituição de equipamentos de aquecimento), e tem como objetivo estudar as mudanças no comportamento do consumidor em relação à adoção de soluções de aquecimento de baixo consumo de energia, abrangendo tanto os equipamentos de aquecimento, ambiente e de água.

Os Aquecedores Energeticamente Eficientes (AEE) são equipamentos de aquecimento com um elevado desempenho energético, ou seja com classificação energética superior a C (por exemplo, bombas de calor). As soluções mais eficientes são classificadas como A ou B.

A sua cooperação contribuirá bastante para alcançar o objetivo deste projeto e ajudará a entender os fatores que influenciam a substituição de soluções de aquecimento ineficientes por outras mais eficientes.

Todos os dados recolhidos estão ao abrigo de um rigoroso critério de confidencialidade e anonimato. São necessários menos de 10 minutos para preencher o questionário. Desde já agradecemos a sua cooperação.



### O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?

\* 1. Responda às seguintes questões selecionando apenas uma opção.

	Sim	Não
Tem um equipamento de aquecimento ambiente instalado na sua casa?	<input type="radio"/>	<input type="radio"/>
Tem um equipamento de aquecimento de água instalado na sua casa?	<input type="radio"/>	<input type="radio"/>
Tem um equipamento de aquecimento combinado, que faz aquecimento ambiente e de água, instalado na sua casa?	<input type="radio"/>	<input type="radio"/>
O sistema de aquecimento ambiente de sua casa é centralizado para todo o edifício?	<input type="radio"/>	<input type="radio"/>
O sistema de aquecimento de água de sua casa é centralizado para todo o edifício?	<input type="radio"/>	<input type="radio"/>
O seu sistema de aquecimento é centralizado?	<input type="radio"/>	<input type="radio"/>

\* 2. É o responsável pela decisão de instalar ou mudar de solução de aquecimento na sua casa?

Sim  Não



## O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?

\* 3. Eu estaria mais disposto(a) a mudar para um AEE (Aquecedor Energeticamente Eficiente) se:

	1 - Discordo Totalmente	2	3	4	5	6	7 - Concordo Totalmente
Aumentar a eficiência energética da minha casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exigir menos manutenção do que o meu sistema atual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trabalhar melhor do que o meu sistema atual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For compatível com a minha casa em termos de estética	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evitar os problemas relacionados com condensação, humidade e mofo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Não reduzir a área útil (de chão) da minha casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permitir ter uma temperatura interior confortável durante a estação de inverno	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Melhorar a qualidade do ar interior da minha casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tiver a perceção de que é fácil de operar/utilizar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For oferecido a um preço de desconto ou com outros incentivos promocionais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estiver facilmente disponível no mercado	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
O meu atual equipamento de aquecimento estiver estragado	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estiver disponível a um preço razoável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For um bom investimento em termos monetários	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For um bom investimento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Receber um subsídio para financiar a substituição do equipamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estiver consciente da poupança total de energia que posso alcançar, ao longo do tempo de vida de um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estiver consciente da poupança total, em termos monetários, que posso alcançar ao longo do tempo de vida de um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Valorizar a minha casa no mercado imobiliário (conseguiria vender a minha casa por um preço mais elevado se ela estiver equipada com um AEE)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permitir ser independente das flutuações de preço da energia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permitir ter um reduzido impacto ambiental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 4. Avalie as seguintes afirmações relacionadas com a **etiqueta energética**.

	1 - Discordo Totalmente	2	3	4	5	6	7 - Concordo Totalmente
A etiqueta energética é importante na decisão de comprar um equipamento de aquecimento (de ambiente e água)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quando compro um equipamento energético tomo atenção à etiqueta energética	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estou mais disposto(a) a comprar um equipamento de aquecimento se tiver uma classe energética mais eficiente (superior a C, ou seja, A ou B)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?

\* 5. Eu não compro um **AEE (Aquecedor Energeticamente Eficiente)** porque:

	1 - Discordo Totalmente	2	3	4	5	6	7 - Concordo Totalmente
Considero que um AEE iria custar mais do que eu consigo pagar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero que o investimento inicial num AEE não é suportável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero que os custos de manutenção de um AEE não são suportáveis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero que a operação/utilização de um AEE é mais complicada do que a minha atual solução de aquecimento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero que um AEE precisa que o utilizador tenha ele próprio de fazer a manutenção do equipamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero que a manutenção de um AEE requer demasiado trabalho	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?



\* 6. Avalie as seguintes afirmações.

	1 - Discordo Totalmente	2	3	4	5	6	7 - Concordo Totalmente
Considero-me uma pessoa preocupada com os problemas ambientais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considero-me um "consumidor verde"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preocupo-me com os efeitos dos equipamentos de aquecimento no ambiente e no clima	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preocupo-me com a poluição causada pelo uso de equipamentos de aquecimento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presto muita atenção a qualquer coisa relacionada com AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acompanho informações relacionadas com AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pessoas que são importantes para mim acham que devo adotar um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pessoas que influenciam o meu comportamento acham que devo adotar um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pessoas cuja opinião eu valorizo preferem que eu adote um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 7. Avalie a importância das seguintes fontes de informação sobre AEE (Aquecedores Energeticamente Eficientes).

	1 - Nada Importante	2	3	4	5	6	7 - Muito Importante
Pessoas que eu conheço e que possuem um AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sites da Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aplicações móveis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jornais	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rádio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Televisão	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizações (Associações locais, agências de energia)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instaladores e/ou profissionais relacionados	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lojas de AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eu não procuro informação sobre AEE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?





## O que leva à adoção de um Aquecimento Energeticamente Eficiente (AEE)?

\* 12. Em que país vive?

\* 13. Responda às seguintes questões.

	Sim	Não	Não sei
A sua casa já foi renovada?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As características da sua casa e da construção da mesma limitam a escolha do sistema de aquecimento (ex. falta de espaço para determinados AAEE)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Responda às seguintes questões.

	0	1	2	3	4	5	>= 6
Quantos membros constituem o seu agregado familiar?	<input type="radio"/>						
Quantas crianças (até 12 anos) vivem na sua casa?	<input type="radio"/>						

\* 15. Se souber, qual é a classe energética da sua casa (baseado no Certificado de Desempenho Energético do Edifício)?

A+
  A
  B
  B-
  C
  D
  E
  F
  Não sei

\* 16. Em que tipo de área vive?

Rura  
l
  Urban  
a

\* 17. É o(a) dono(a) da sua casa?

Sim
  Não

\* 18. Qual é a dimensão da sua casa (em m2)?

< 50 m2
  [50, 100[ m2
  [100, 150[ m2
  [150, 200[ m2
  [200, 250[ m2
  [250, 300[ m2
  >= 300 m2



\* 19. Quantos anos tem a sua casa desde a última renovação? Caso não tenha sido renovada responda com os anos desde a sua construção.

- < 1  
  [1, 5[  
  [5, 10[  
  [10, 15[  
  [15, 20[  
  [20, 25[  
  [25, 30[  
  >=30

\* 20. Qual é o seu tipo de casa?

- Apartamento  
  Moradia

\* 21. A fonte de energia do seu principal sistema de aquecimento ambiente é:

- Gás  
  Petróleo  
  Eletricidade  
  Biomassa  
  Solar  
  Outro
- Eu não tenho um sistema de aquecimento ambiente

\* 22. Qual é a fonte de energia do principal sistema de aquecimento de água em sua casa?

- Gás  
  Petróleo  
  Eletricidade  
  Biomassa  
  Solar  
  Outro
- Eu não tenho um sistema de aquecimento de água

\* 23. Qual é a sua idade (em anos)?

\* 24. Qual é o seu género?

- Feminino  
  Masculino  
  Outro

\* 25. Qual é o seu nível de formação?

- Primária  
  Secundária  
  Licenciatura  
  Mestrado  
  Doutoramento

\* 26. Qual a sua opinião sobre o preço das soluções de aquecimento?

- baixo  
  preço certo  
  um pouco alto mas aceitável  
  muito alto  
  não sei



\* 27. Qual é o rendimento mensal do seu agregado familiar?

- [0, 500[   
  [500, 1000[   
  [1000, 1500[   
  [1500, 2000[   
  [2000, 2500[   
  [2500, 3000[   
  [3000, 3500[  
 [3500, 4000[   
 [4000, 4500[   
 [4500, 5000[   
 [5000, 5500[   
 [5500, 6000[   
 >= 6000

\* 28. Está disposto(a) a investir um valor extra na aquisição de um AEE se este permitir:

	Não	Até 100 €	Entre 100 e 500 €	Mais que 500 €
Alcançar mais facilmente uma temperatura interior confortável durante o inverno	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ter uma melhor qualidade do ar interior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diminuir o nível de barulho interior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diminuir o nível de barulho exterior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operar/Utilizar o AEE mais facilmente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ser mais independente dos preços de energia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ter uma estética mais agradável	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ter mais área útil em casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Valorizar a casa no mercado imobiliário	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ter um reduzido impacto ambiental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. Qual é o seu nível de conhecimento relativamente:

	1 - Muito limitado	2	3	4	5	6	7 - Muito bom
Ao tema deste questionário (AAEE)?	<input type="radio"/>						
NOVA IMS?	<input type="radio"/>						

Saiba mais sobre aquecimento energeticamente eficiente e o projeto HARP em: <https://heating-retrofit.eu/>



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## Appendix A6 – Questionnaire in Spanish



### Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía

Este cuestionario forma parte del proyecto europeo HARP (Heating Appliances Retrofit Planning) que tiene como objetivo estudiar los cambios en el comportamiento de los consumidores con respecto a la adopción de soluciones de calefacción eficientes desde el punto de vista energético, abordando tanto los aparatos de calefacción como los de agua caliente.

Los Aparatos de Calefacción de Eficiencia Energética (EEHA) son aparatos que funcionan con una clase energética superior a la C (por ejemplo, bombas de calor).

Su cooperación contribuirá en gran medida a lograr el objetivo de este proyecto y ayudará a comprender los factores que influyen en la sustitución de soluciones de calefacción ineficientes por otras más eficientes.

Todos los datos recogidos están amparados por un estricto criterio de confidencialidad y anonimato. Necesitará menos de 10 minutos para rellenar el cuestionario. Gracias por su colaboración.



### Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía

\* 1. Conteste las siguientes preguntas seleccionando una opción.

	Sí	No
¿Tiene un aparato de calefacción o sistema de agua caliente sanitaria instalado en su casa?	<input type="radio"/>	<input type="radio"/>
¿Su sistema de calefacción está centralizado?	<input type="radio"/>	<input type="radio"/>
¿Su vivienda dispone de calefacción individual?	<input type="radio"/>	<input type="radio"/>
¿Su vivienda dispone de agua caliente individual?	<input type="radio"/>	<input type="radio"/>
¿Tiene usted un mismo equipo (caldera u otro) para calefacción y agua caliente?	<input type="radio"/>	<input type="radio"/>
¿Su vivienda dispone de calefacción centralizada?	<input type="radio"/>	<input type="radio"/>
¿Su vivienda dispone de agua caliente centralizada?	<input type="radio"/>	<input type="radio"/>

\* 2. ¿Es usted quien toma la decisión de instalar o reemplazar el sistema de calefacción en su hogar?

Sí  No



## Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía

\* 3. Es más probable que me cambie a un EEHA (Dispositivo de Calefacción de Eficiencia Energética) si:

	1 - Completamente en desacuerdo	2	3	4	5	6	7 - Completamente de acuerdo
Aumentara la eficiencia energética de mi casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Requiriese menos mantenimiento que mi sistema actual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funcionara mejor que mi sistema actual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuera compatible con mi casa en cuanto a la estética del edificio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se evitaran los problemas de condensación, humedad y moho	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No redujera el área útil de mi casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me permitiera tener una temperatura interior confortable durante la temporada de calefacción	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mejorara la calidad del aire interior de mi casa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuera fácil de manejar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se ofreciera a un precio de descuento o con otros incentivos promocionales	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estuviera fácilmente disponible en el mercado	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mi aparato de calefacción actual estuviera dañado	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tuviera un precio razonable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tuviera una buena relación calidad-precio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proporcionara un valor añadido	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recibiera una subvención para financiar el reemplazo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuera consciente del ahorro total de energía que supone a largo plazo contar con un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conociera el ahorro económico a largo plazo que supone contar con un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Añadiera valor a la vivienda en el mercado inmobiliario (pudiera vender la casa por un precio más alto si estuviese equipada con un EEHA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permitiera que las fluctuaciones de los precios de la energía no me afectaran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me permitiera reducir el impacto ambiental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



\* 4. Evalúe las siguientes frases sobre las etiquetas de energía.

	1 - Completamente en desacuerdo	2	3	4	5	6	7 - Completamente de acuerdo
La etiqueta energética es importante en la decisión de comprar un aparato de calefacción	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cuando compro un aparato de calefacción presto atención a la etiqueta energética	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estoy más predispuesto a comprar un aparato de calefacción si este tiene una categoría de eficiencia energética (superior a C, es decir, A o B)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía

\* 5. No compraré un EEHA (Energy Efficient Heating Appliance) porque:

	1 - Completamente en desacuerdo	2	3	4	5	6	7 - Completamente de acuerdo
Creo que un EEHA costaría más de lo que puedo permitirme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creo que la inversión inicial en una EEHA no es asequible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creo que los costes de mantenimiento de un EEHA no son asequibles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creo que el funcionamiento de un EEHA es más complicado que el de mi actual sistema de calefacción	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creo que una EEHA necesita que el usuario realice el trabajo de mantenimiento por sí mismo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creo que el mantenimiento de un EEHA requiere demasiado trabajo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía



\* 6. Evalúe las siguientes frases sobre su compromiso medioambiental.

	1 - Completamente en desacuerdo	2	3	4	5	6	7 - Completamente de acuerdo
Me considero preocupado por los problemas ambientales	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me considero un "consumidor verde"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me preocupan los efectos de los aparatos de calefacción sobre el medio ambiente y el clima	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me preocupa la contaminación causada por el uso de aparatos de calefacción	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presto mucha atención a cualquier tema relacionado con los EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Me mantengo al día sobre los temas relacionados con los EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Las personas que son importantes para mí creen que debería instalar un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Las personas que influyen en mi comportamiento creen que debería instalar un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Las personas cuyas opiniones valoro prefieren que instale un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 7. Evalúe la importancia de las siguientes fuentes para buscar información sobre EEHA (Energy Efficient Heating Appliance).

	1 - Nada importante	2	3	4	5	6	7 - Muy importante
Personas que conozco que tienen un EEHA	<input type="radio"/>						
Internet	<input type="radio"/>						
Aplicaciones móviles	<input type="radio"/>						
Prensa escrita	<input type="radio"/>						
Radio	<input type="radio"/>						
Televisión	<input type="radio"/>						
Organizaciones (asociaciones locales, agencias de energía)	<input type="radio"/>						
Instaladores y/o profesionales relacionados	<input type="radio"/>						
Tiendas EEHA	<input type="radio"/>						
No busco información sobre EEHA	<input type="radio"/>						



## Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía



\* 8. Evalúe las siguientes frases sobre el cambio a un EEHA (Aparato de Calefacción de Eficiencia Energética).

	1 - Completamente en desacuerdo	2	3	4	5	6	7 - Completamente de acuerdo
Tengo la intención de cambiar a un EEHA en el futuro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intentaré cambiar a EEHA en el futuro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estoy preparado para cambiar a un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tengo la intención de disminuir el uso de mis sistemas de calefacción actuales en favor de un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Si pudiera, me gustaría cambiar mi sistema de calefacción actual para un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tengo la intención de disminuir el uso de mi sistema de calefacción actual en lugar de continuar con su uso	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suelo hacer un seguimiento de mi consumo de energía basado en mi facturación	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estoy dispuesto a cambiar mi(s) aparato(s) de calefacción	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estoy planeando comprar un EEHA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 9. Por favor, elija su frecuencia de uso para cada una de las siguientes opciones:

	1 - Nunca	2	3	4	5	6	7 - Todo el tiempo que necesito
Sistema de agua caliente sanitaria (ACS)	<input type="radio"/>						
Sistema de calefacción	<input type="radio"/>						
Sistema de calefacción combinado (agua y calefacción)	<input type="radio"/>						

\* 10. Evalúe la siguiente frase sobre el uso de su sistema de calefacción.

De media, ¿cuál es el consumo de energía mensual de su hogar (en euros)?

\* 11. Evalúe las siguientes frases sobre el cambio a un EEHA (Aparato de Calefacción de Eficiencia Energética).

	Sí	No
Prefiero un sistema barato e ineficiente en lugar de un sistema eficiente más caro	<input type="radio"/>	<input type="radio"/>
Estoy dispuesto a instalar fuentes de energía renovables en mi residencia	<input type="radio"/>	<input type="radio"/>



## Motivaciones para cambiar a un dispositivo de calefacción eficiente en energía

\* 12. ¿En qué país reside?

\* 13. Por favor, conteste las siguientes preguntas.

	Sí	No	No lo sé
¿Su casa ha sido reformada desde su construcción?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
¿Limitan las características del espacio/construcción de su casa la elección de poder instalar un sistema de calefacción (por ejemplo, la falta de espacio adecuado para ciertos EEHA)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* 14. Por favor, conteste las siguientes preguntas.

	0	1	2	3	4	5	>= 6
¿Cuántas personas viven en su casa?	<input type="radio"/>						
¿Cuántos niños (menores de 12 años) viven en su casa?	<input type="radio"/>						

\* 15. Si lo conoce, ¿cuál es el certificado energético de su vivienda (basada en el Certificado de Rendimiento Energético de un Edificio)?

A+
  A
  B
  B-
  C
  D
  E
  F
  No lo sé

\* 16. ¿En qué tipo de zona vive usted?

Rural
  Urbano

\* 17. ¿Es usted el propietario de su vivienda?

Sí
  No

\* 18. ¿Cuál es el tamaño de su vivienda (en m<sup>2</sup>)?

< 50 m<sup>2</sup>
 [50, 100[ m<sup>2</sup>
 [100, 150[ m<sup>2</sup>
 [150, 200[ m<sup>2</sup>
 [200, 250[ m<sup>2</sup>
 [250, 300[ m<sup>2</sup>
 >= 300 m<sup>2</sup>



\* 19. ¿Cuántos años han pasado desde la última reforma que realizó a su vivienda? Si no ha sido nunca reformada, responda con los años transcurridos desde su construcción

- < 1   
  [1, 5[   
  [5, 10[   
  [10, 15[   
  [15, 20[   
  [20, 25[   
  [25, 30[   
  >=30

\* 20. ¿Cuál es su tipo de vivienda?

- Piso/ Apartamento   
  Casa

\* 21. ¿Cuál es la fuente de energía de su sistema de calefacción principal?

- Gas   
  Gasoleo   
  Electricidad   
  Biomasa   
  Solar   
  Otros   
  No tengo sistema de calefacción

\* 22. ¿Cuál es la fuente de energía de su sistema principal de agua caliente sanitaria (ACS)?

- Gas   
  Gasoleo   
  Electricidad   
  Biomasa   
  Solar   
  Otros   
  No tengo sistema de agua caliente

\* 23. ¿Cuántos años tiene usted?

\* 24. ¿Cuál es su sexo?

- Femenino   
  Masculino   
  Otro

\* 25. ¿Cuál es su nivel educativo?

- Primaria   
  Secundaria   
  Grado   
  Master   
  Doctorado

\* 26. ¿Qué opina del precio de las soluciones de calefacción?

- Bajo   
  Precio justo   
  Un poco alto pero aceptable   
  Demasiado alto   
  No lo sé

\* 27. ¿Cuál es el ingreso mensual de su familia?

- [0, 500[   
  [500, 1000[   
  [1000, 1500[   
  [1500, 2000[   
  [2000, 2500[   
  [2500, 3000[   
  [3000, 3500[  
 [3500, 4000[   
 [4000, 4500[   
 [4500, 5000[   
 [5000, 5500[   
 [5500, 6000[   
 >= 6000



\* 28. ¿Está dispuesto a invertir un valor adicional para un EEHA si esto le supusiera?

	No	Hasta 100 €	Entre 100 y 500 €	Más de 500 €
Alcanzar una temperatura interior confortable durante la temporada de calefacción más fácilmente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tener una mejor calidad de aire interior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Menor nivel de ruido en interiores	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Menor nivel de ruido externo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilizar un EEHA con facilidad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ser más independiente de los precios de la energía	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tener un EEHA más agradable estéticamente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tener una mayor superficie útil habitable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Añadir valor a la vivienda en el mercado inmobiliario	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tener un impacto ambiental reducido	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. ¿Cuál es su nivel de conocimiento sobre: (Muy limitado/Muy bueno)

	1 - Muy limitado	2	3	4	5	6	7 - Muy bueno
El tema de esta encuesta (EEHA)?	<input type="radio"/>						
NOVA IMS?	<input type="radio"/>						

Si quiere saber más sobre cómo hacer su calefacción más eficiente energéticamente y sobre el proyecto HARP visite: <https://heating-retrofit.eu>



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## Appendix B – Descriptive Statistics

Response Rate	
Country	Percentage of complete responses (%)
France	91
Germany	60
Italy	59
Portugal	64
Spain	50

Table 10. Response rate per country

Country	Female (%)	Male (%)	Homeowner (%)	Apartment (%)	Average number of children	Average number of members in the household
France	51	49	82	69	1	3
Germany	23	74	69	33	1	3
Italy	24	76	84	59	1	3
Portugal	52	48	66	73	0	3
Spain	51	49	78	75	1	3

Table 11. Descriptive statistics per country

Country	Gas (%)	Oil (%)	Electricity (%)	Biomass (%)	Solar (%)	Other (%)	Don't know/Don't have (%)
France	34	25	37	3	1	0	0
Germany	54	27	6	5	0	8	0
Italy	74	4	9	5	1	6	1
Portugal	16	2	62	9	1	3	7
Spain	59	8	24	3	0	0	6

Table 12. Energy source of space heating system per country

Country	Gas (%)	Oil (%)	Electricity (%)	Biomass (%)	Solar (%)	Other (%)	Don't know/Don't have (%)
France	31	22	45	0	2	0	0
Germany	44	22	19	4	4	7	0
Italy	70	3	13	1	6	6	1
Portugal	60	1	23	0	10	0	6
Spain	72	6	17	0	3	0	2

Table 13. Energy source of domestic hot water system per country



Country	Age	Sample (%)	Population (%) *
France	18 - 39	33	33
	≥ 40	67	67
Germany	18 - 39	32	32
	≥ 40	68	68
Italy	18 - 39	29	29
	≥ 40	71	71
Portugal	18 - 39	47	30
	≥ 40	53	70
Spain	18 - 39	31	31
	≥ 40	69	69

Table 14. Age distribution of sample and population

\* Source: [https://ec.europa.eu/eurostat/en/web/products-datasets/-/DEMO\\_PJAN](https://ec.europa.eu/eurostat/en/web/products-datasets/-/DEMO_PJAN) (EUROSTAT: Population on 1 January by age and sex. Last update was 24.02.20 and extracted on 04.03.20)



## Appendix C – Measurement model for each country

### Appendix C1 – Measurement model for France

Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	5.843	1.356	1.000	<b>1.000</b>									
Sav	5.760	1.230	0.961	0.815	<b>0.945</b>								
Lab	5.988	1.196	0.974	0.539	0.623	<b>0.962</b>							
OM	3.838	1.891	0.961	-0.556	-0.506	-0.369	<b>0.944</b>						
EG	4.157	1.282	0.950	0.124	0.183	0.317	-0.056	<b>0.951</b>					
SI	4.400	1.395	0.966	0.349	0.364	0.442	-0.363	0.656	<b>0.951</b>				
HA	4.435	1.746	1.000	0.408	0.334	0.139	-0.398	-0.178	0.070	<b>1.000</b>			
HEC	3.333	2.403	1.000	-0.258	-0.214	0.062	0.161	0.246	0.142	-0.367	<b>1.000</b>		
Att	4.214	1.402	0.927	0.496	0.526	0.573	-0.409	0.518	0.560	0.144	0.088	<b>0.930</b>	
BIC	4.876	1.437	0.960	0.672	0.696	0.616	-0.514	0.436	0.562	0.281	-0.039	0.785	<b>0.943</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 15. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1.000</b>	0.815	0.539	-0.556	0.124	0.349	0.408	-0.258	0.672	0.496
Sav1	0.771	<b>0.939</b>	0.608	-0.455	0.135	0.350	0.305	-0.181	0.620	0.492
Sav2	0.815	<b>0.965</b>	0.609	-0.547	0.182	0.377	0.353	-0.223	0.711	0.523
Sav3	0.720	<b>0.930</b>	0.547	-0.426	0.200	0.301	0.285	-0.201	0.637	0.472
Lab1	0.501	0.575	<b>0.958</b>	-0.332	0.307	0.440	0.082	0.094	0.562	0.536
Lab2	0.497	0.592	<b>0.974</b>	-0.330	0.320	0.442	0.121	0.078	0.581	0.556
Lab3	0.555	0.628	<b>0.954</b>	-0.401	0.291	0.396	0.193	0.011	0.633	0.561
OM1	-0.464	-0.408	-0.274	<b>0.908</b>	-0.062	-0.313	-0.312	0.116	-0.409	-0.323
OM2	-0.537	-0.489	-0.347	<b>0.958</b>	-0.029	-0.323	-0.416	0.173	-0.508	-0.390
OM3	-0.564	-0.524	-0.410	<b>0.965</b>	-0.069	-0.388	-0.389	0.162	-0.526	-0.433
EG1	0.145	0.201	0.344	-0.066	<b>0.961</b>	0.626	-0.142	0.210	0.455	0.533
EG2	0.085	0.142	0.251	-0.038	<b>0.942</b>	0.623	-0.204	0.263	0.367	0.445
SI1	0.311	0.322	0.410	-0.310	0.673	<b>0.940</b>	0.056	0.147	0.524	0.525
SI2	0.339	0.360	0.437	-0.340	0.632	<b>0.964</b>	0.068	0.126	0.546	0.535
SI3	0.345	0.355	0.414	-0.386	0.569	<b>0.948</b>	0.075	0.134	0.533	0.538
HA	0.408	0.334	0.139	-0.398	-0.178	0.070	<b>1.000</b>	-0.367	0.281	0.144
HEC	-0.258	-0.214	0.062	0.161	0.246	0.142	-0.367	<b>1.000</b>	-0.039	0.088
Att2	0.458	0.487	0.519	-0.334	0.491	0.497	0.124	0.044	<b>0.749</b>	0.930
Att3	0.465	0.490	0.546	-0.427	0.473	0.544	0.144	0.119	<b>0.711</b>	0.929
BIC1	0.632	0.655	0.613	-0.511	0.452	0.567	0.257	-0.012	0.962	<b>0.765</b>
BIC2	0.740	0.742	0.593	-0.583	0.278	0.497	0.371	-0.138	0.940	<b>0.687</b>
BIC3	0.522	0.567	0.534	-0.353	0.508	0.524	0.161	0.046	0.926	<b>0.770</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 16. Loadings and cross-loadings**

Note: Although the condition of loadings and cross-loadings between attitude and behaviour intention is not verified, the other measures for discriminant validity, namely HTMT and Fornell-Lacker are verified.



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.839									
Lab	0.549	0.654								
OM	0.570	0.532	0.382							
EG	0.127	0.196	0.337	0.060						
SI	0.359	0.384	0.464	0.383	0.713					
HA	0.408	0.343	0.140	0.407	0.192	0.072				
HEC	0.258	0.220	0.065	0.164	0.263	0.147	0.367			
Att	0.540	0.590	0.637	0.455	0.591	0.627	0.157	0.096		
BIC	0.692	0.739	0.647	0.540	0.473	0.596	0.288	0.072	0.884	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 17. Heterotrait-Monotrait ratio (HTMT)**

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	5.581	1.682	0.193*	0.812***	2.880
	CB2	5.320	1.526	0.061	0.744***	2.606
	CB3	5.689	1.447	0.303***	0.872***	3.560
	CB4	5.760	1.369	-0.195	0.828***	4.582
	CB5	5.972	1.302	0.718***	0.967***	4.397
Co-benefits investment	CB6	137.713	160.807	-0.358*	0.589***	4.347
	CB7	161.395	169.715	0.518***	0.792***	3.726
	CB8	138.009	154.195	-0.119	0.500***	2.982
	CB9	115.089	140.874	0.085	0.308***	1.833
	CB10	117.202	139.749	-0.013	0.473***	3.452
	CB11	148.377	158.517	0.286	0.702***	3.869
	CB12	132.297	154.492	0.051	0.484***	3.365
	CB13	136.429	167.000	-0.288*	0.446***	3.553
	CB14	188.019	186.203	0.043	0.720***	3.541
	CB15	224.474	218.346	0.758***	0.939***	3.074
Communication channels organisations	CC1	4.793	1.961	0.707***	0.935***	1.640
	CC7	5.182	2.037	0.384***	0.807***	1.770
	CC8	4.700	1.436	-0.078	0.349***	2.081
	CC9	4.507	1.363	0.253***	0.223***	1.905
Communication channels web media	CC2	4.386	1.540	1.125***	0.952***	1.320
	CC3	3.248	1.673	-0.352**	0.202	1.320
Communication channels media	CC4	2.708	1.476	0.739***	0.908***	2.391
	CC5	2.499	1.421	-0.246	0.739***	3.139
	CC6	3.039	1.677	0.594**	0.861***	2.082

**Note:** The items descriptions are in Appendix D.

**Table 18. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**



## Appendix C2 – Measurement model for Germany

Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	5.743	1.799	1.000	<b>1.000</b>									
Sav	5.507	1.637	0.890	0.490	<b>0.857</b>								
Lab	5.524	1.564	0.916	0.467	0.536	<b>0.886</b>							
OM	2.321	1.386	0.939	-0.109	-0.038	-0.078	<b>0.915</b>						
EG	4.194	1.661	0.930	0.370	0.112	0.197	-0.104	<b>0.933</b>					
SI	2.790	1.696	0.969	0.255	0.218	0.278	0.044	0.373	<b>0.955</b>				
HA	4.804	2.157	1.000	0.080	0.111	0.050	0.038	0.040	0.114	<b>1.000</b>			
HEC	2.648	2.476	1.000	0.038	0.005	-0.078	-0.037	0.184	0.066	-0.294	<b>1.000</b>		
Att	3.978	2.096	0.890	0.413	0.274	0.323	-0.123	-0.045	0.309	-0.037	-0.045	<b>0.895</b>	
BIC	4.782	1.963	0.936	0.513	0.360	0.436	-0.180	0.345	0.365	0.035	-0.065	0.784	<b>0.911</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 19. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1.000</b>	0.490	0.467	-0.109	0.370	0.255	0.080	0.038	0.513	0.413
Sav1	0.212	<b>0.651</b>	0.221	0.068	0.024	0.198	0.101	0.011	0.111	0.100
Sav2	0.541	<b>0.959</b>	0.547	-0.081	0.165	0.226	0.090	0.031	0.417	0.329
Sav3	0.391	<b>0.928</b>	0.501	-0.006	0.032	0.150	0.116	-0.041	0.274	0.182
Lab1	0.446	0.459	<b>0.905</b>	-0.047	0.174	0.214	0.081	-0.098	0.327	0.238
Lab2	0.364	0.451	<b>0.889</b>	-0.028	0.105	0.217	0.059	-0.160	0.333	0.216
Lab3	0.421	0.497	<b>0.862</b>	-0.112	0.220	0.285	0.008	0.013	0.459	0.365
OM1	-0.091	-0.021	-0.043	<b>0.909</b>	-0.073	0.044	0.042	0.031	-0.137	-0.118
OM2	-0.089	-0.074	-0.105	<b>0.929</b>	-0.084	0.045	0.042	-0.063	-0.180	-0.137
OM3	-0.120	-0.002	-0.059	<b>0.908</b>	-0.131	0.032	0.019	-0.060	-0.174	-0.079
EG1	0.409	0.182	0.275	-0.067	<b>0.963</b>	0.369	0.001	0.177	0.386	0.379
EG2	0.248	-0.017	0.040	-0.147	<b>0.901</b>	0.321	0.098	0.166	0.226	0.251
SI1	0.243	0.199	0.248	0.003	0.371	<b>0.953</b>	0.087	0.080	0.381	0.324
SI2	0.234	0.203	0.277	0.080	0.364	<b>0.966</b>	0.096	0.063	0.320	0.295
SI3	0.255	0.224	0.273	0.050	0.330	<b>0.945</b>	0.147	0.043	0.338	0.262
HA	0.080	0.111	0.050	0.038	0.040	0.114	<b>1.000</b>	-0.294	0.035	-0.037
HEC	0.038	0.005	-0.078	-0.037	0.184	0.066	-0.294	<b>1.000</b>	-0.065	-0.045
Att2	0.438	0.330	0.361	-0.077	0.293	0.322	0.040	-0.073	<b>0.703</b>	0.896
Att3	0.300	0.159	0.217	-0.144	0.336	0.231	-0.107	-0.007	<b>0.701</b>	0.894
BIC1	0.426	0.274	0.340	-0.143	0.308	0.314	0.012	-0.038	0.916	<b>0.745</b>
BIC2	0.477	0.387	0.385	-0.117	0.320	0.342	0.067	-0.077	0.929	<b>0.689</b>
BIC3	0.498	0.323	0.462	-0.228	0.315	0.340	0.016	-0.063	0.888	<b>0.708</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 20. Loadings and cross-loadings**



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.483									
Lab	0.496	0.568								
OM	0.115	0.084	0.077							
EG	0.379	0.144	0.193	0.131						
SI	0.262	0.249	0.297	0.057	0.407					
HA	0.08	0.13	0.06	0.039	0.057	0.118				
HEC	0.038	0.035	0.109	0.059	0.198	0.067	0.294			
Att	0.476	0.297	0.38	0.148	0.419	0.363	0.095	0.052		
BIC	0.541	0.358	0.474	0.197	0.372	0.392	0.037	0.069	0.954	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 21. Heterotrait-Monotrait ratio (HTMT)**

Note: The condition of loadings and cross-loadings between attitude and behaviour intention is not verified, as well as the HTMT measure between attitude and behaviour intention. This is due to the small dimension of the sample.

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	5.089	2.158	-0.005	0.361***	1.562
	CB2	4.531	2.099	-0.227*	-0.001	1.318
	CB3	4.363	2.063	0.249*	0.541***	1.345
	CB4	5.559	1.680	0.024	0.566***	1.694
	CB5	5.654	1.885	0.894***	0.954***	1.651
Co-benefits investment	CB6	301.754	252.941	0.365	0.584***	3.089
	CB7	306.604	260.044	-0.316	0.411***	3.254
	CB8	261.486	255.427	-0.079	0.424***	3.077
	CB9	256.863	267.399	0.296	0.449***	3.257
	CB10	195.270	225.918	-0.393**	0.216	2.159
	CB11	355.396	270.914	0.204	0.606***	1.929
	CB12	196.667	215.081	0.341*	0.408***	1.850
	CB13	256.250	250.634	-0.159	0.330**	1.780
	CB14	327.059	275.654	0.021	0.512***	1.885
	CB15	391.901	271.039	0.746***	0.913***	1.789
Communication channels organisations	CC1	4.117	1.989	0.64***	0.840***	1.245
	CC7	4.397	1.964	0.309	0.683***	1.553
	CC8	4.872	1.824	-0.140	0.534***	1.843
	CC9	3.922	1.825	0.475	0.687***	1.506
Communication channels web media	CC2	5.128	1.716	0.793***	0.911***	1.082
	CC3	2.771	1.811	0.429	0.648***	1.082
Communication channels media	CC4	3.190	1.658	0.123	0.511	1.465
	CC5	2.547	1.683	1.301***	0.941***	2.601
	CC6	2.665	1.845	-0.548	0.525*	2.651

**Note:** The items descriptions are in Appendix D.

**Table 22. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**



## Appendix C3 – Measurement model for Italy

Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	6.431	1.086	1.000	<b>1.000</b>									
Sav	5.859	1.184	0.852	0.315	<b>0.812</b>								
Lab	6.131	1.096	0.904	0.446	0.413	<b>0.871</b>							
OM	2.451	1.403	0.875	-0.151	-0.076	-0.280	<b>0.838</b>						
EG	5.612	0.729	0.917	0.332	0.309	0.455	-0.218	<b>0.921</b>					
SI	4.871	1.350	0.936	0.179	0.249	0.269	-0.068	0.440	<b>0.910</b>				
HA	4.210	2.101	1.000	-0.053	-0.072	-0.097	0.049	-0.168	-0.103	<b>1.000</b>			
HEC	5.179	2.108	1.000	0.107	0.090	0.097	-0.039	0.152	0.117	-0.391	<b>1.000</b>		
Att	3.828	1.870	0.865	0.187	0.154	0.197	-0.088	0.191	0.186	0.009	0.017	<b>0.874</b>	
BIC	5.422	1.550	0.899	0.314	0.243	0.327	-0.123	0.364	0.331	-0.060	0.029	0.544	<b>0.865</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 23. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1.000</b>	0.315	0.446	-0.151	0.332	0.179	-0.053	0.107	0.187	0.314
Sav1	0.213	<b>0.689</b>	0.248	-0.003	0.170	0.186	-0.012	-0.040	0.149	0.196
Sav2	0.294	<b>0.869</b>	0.402	-0.122	0.320	0.238	-0.094	0.137	0.105	0.212
Sav3	0.254	<b>0.864</b>	0.351	-0.061	0.261	0.174	-0.071	0.130	0.115	0.177
Lab1	0.374	0.316	<b>0.840</b>	-0.187	0.295	0.233	-0.116	0.072	0.200	0.272
Lab2	0.379	0.362	<b>0.918</b>	-0.268	0.459	0.242	-0.044	0.066	0.169	0.300
Lab3	0.413	0.403	<b>0.853</b>	-0.278	0.436	0.226	-0.096	0.118	0.145	0.281
OM1	-0.137	-0.086	-0.272	<b>0.892</b>	-0.211	-0.070	0.078	-0.034	-0.094	-0.105
OM2	-0.112	-0.036	-0.167	<b>0.690</b>	-0.111	0.004	0.035	0.015	-0.020	-0.059
OM3	-0.134	-0.059	-0.246	<b>0.915</b>	-0.200	-0.073	0.012	-0.054	-0.082	-0.127
EG1	0.293	0.292	0.438	-0.217	<b>0.935</b>	0.418	-0.137	0.112	0.188	0.363
EG2	0.321	0.276	0.398	-0.182	<b>0.906</b>	0.391	-0.175	0.173	0.161	0.303
SI1	0.140	0.242	0.276	-0.079	0.418	<b>0.907</b>	-0.098	0.118	0.199	0.320
SI2	0.138	0.212	0.194	-0.027	0.347	<b>0.909</b>	-0.079	0.099	0.096	0.234
SI3	0.203	0.221	0.247	-0.067	0.418	<b>0.915</b>	-0.100	0.101	0.188	0.328
HA	-0.053	-0.072	-0.097	0.049	-0.168	-0.103	<b>1.000</b>	-0.391	0.009	-0.060
HEC	0.107	0.090	0.097	-0.039	0.152	0.117	-0.391	<b>1.000</b>	0.017	0.029
Att2	0.168	0.165	0.210	-0.094	0.209	0.199	0.006	-0.015	<b>0.921</b>	0.565
Att3	0.160	0.093	0.121	-0.053	0.108	0.112	0.010	0.059	<b>0.823</b>	0.354
BIC1	0.313	0.220	0.343	-0.105	0.328	0.269	-0.045	-0.032	0.454	<b>0.894</b>
BIC2	0.255	0.200	0.279	-0.067	0.318	0.281	-0.043	0.020	0.351	<b>0.859</b>
BIC3	0.245	0.209	0.230	-0.137	0.301	0.307	-0.065	0.082	0.577	<b>0.842</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 24. Loadings and cross-loadings**



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.366									
Lab	0.488	0.528								
OM	0.169	0.096	0.331							
EG	0.368	0.398	0.547	0.252						
SI	0.186	0.301	0.302	0.071	0.503					
HA	0.053	0.085	0.107	0.056	0.187	0.107				
HEC	0.107	0.148	0.107	0.045	0.171	0.123	0.391			
Att	0.224	0.203	0.246	0.099	0.238	0.213	0.011	0.051		
BIC	0.343	0.307	0.392	0.138	0.437	0.371	0.064	0.056	0.671	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 25. Heterotrait-Monotrait ratio (HTMT)**

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	5.510	1.845	0.053	0.273	1.428
	CB2	4.927	1.743	-0.107	0.112	1.235
	CB3	5.238	1.725	0.328	0.613***	1.514
	CB4	5.342	1.693	-0.318	0.338*	1.781
	CB5	6.120	1.361	0.957***	0.944***	1.503
Co-benefits investment	CB6	372.603	261.773	0.460***	0.815***	1.892
	CB7	366.391	258.904	-0.164	0.621***	2.139
	CB8	290.260	254.016	-0.134	0.635***	3.223
	CB9	279.146	250.161	0.034	0.662***	3.404
	CB10	274.280	243.950	0.142	0.740***	2.540
	CB11	362.248	264.179	0.156	0.689***	1.963
	CB12	238.050	233.470	0.286*	0.729***	2.233
	CB13	293.049	252.525	0.103	0.738***	2.595
	CB14	364.902	251.831	0.056	0.629***	1.905
	CB15	406.535	250.143	0.335**	0.770***	2.243
Communication channels organisations	CC1	4.751	1.710	0.026	0.246	1.124
	CC7	5.367	1.571	0.574***	0.828***	1.210
	CC8	5.429	1.584	0.545**	0.842***	2.069
	CC9	4.700	1.763	0.086	0.684***	2.125
Communication channels web media	CC2	5.291	1.459	0.123	0.494	1.182
	CC3	3.796	1.818	0.945***	0.994***	1.182
	CC4	4.199	1.708	0.799**	0.856***	2.019
Communication channels media	CC5	3.807	1.783	-0.685	0.446*	2.672
	CC6	3.930	1.903	0.784*	0.793***	2.592

**Note:** The items descriptions are in Appendix D.

**Table 26. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**

Note: In items CB1, CB2, CC1 and CC2 it was not verified significance of weights.



## Appendix C4 – Measurement model for Portugal

Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	6.416	0.978	1.000	<b>1.000</b>									
Sav	6.209	0.885	0.834	0.365	<b>0.796</b>								
Lab	6.422	0.814	0.883	0.425	0.303	<b>0.846</b>							
OM	3.173	1.458	0.924	-0.087	-0.023	-0.074	<b>0.896</b>						
EG	4.015	1.653	0.969	0.166	0.210	0.378	-0.091	<b>0.969</b>					
SI	3.221	1.697	0.985	0.125	0.122	0.284	0.077	0.574	<b>0.978</b>				
HA	4.664	1.928	1.000	-0.023	0.036	-0.042	0.183	0.037	0.043	<b>1.000</b>			
HEC	3.248	2.770	1.000	-0.071	-0.085	-0.047	-0.095	0.126	0.068	-0.232	<b>1.000</b>		
Att	4.388	1.617	0.888	0.266	0.256	0.316	-0.173	0.379	0.366	0.057	0.036	<b>0.893</b>	
BIC	5.192	1.446	0.923	0.311	0.288	0.337	-0.219	0.381	0.310	0.064	0.049	0.755	<b>0.894</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 27. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1</b>	0.365	0.425	-0.087	0.166	0.125	-0.023	-0.071	0.266	0.311
Sav1	0.244	<b>0.572</b>	0.175	0.02	0.196	0.123	-0.056	-0.028	0.112	0.158
Sav2	0.316	<b>0.903</b>	0.331	-0.005	0.193	0.118	0.077	-0.079	0.261	0.287
Sav3	0.312	<b>0.872</b>	0.19	-0.06	0.129	0.062	0.023	-0.085	0.206	0.22
Lab1	0.29	0.292	<b>0.809</b>	-0.058	0.296	0.206	0.005	-0.101	0.225	0.203
Lab2	0.32	0.22	<b>0.896</b>	-0.124	0.376	0.251	0.002	-0.029	0.271	0.303
Lab3	0.446	0.269	<b>0.832</b>	-0.009	0.287	0.255	-0.098	-0.008	0.294	0.327
OM1	-0.079	-0.009	-0.075	<b>0.895</b>	-0.058	0.043	0.22	-0.128	-0.149	-0.179
OM2	-0.025	-0.024	0.057	<b>0.827</b>	-0.024	0.173	0.101	-0.06	-0.044	-0.095
OM3	-0.099	-0.028	-0.102	<b>0.962</b>	-0.12	0.058	0.151	-0.066	-0.202	-0.251
EG1	0.205	0.229	0.396	-0.068	<b>0.972</b>	0.566	0.036	0.125	0.376	0.392
EG2	0.113	0.176	0.335	-0.11	<b>0.967</b>	0.547	0.037	0.12	0.358	0.343
SI1	0.124	0.119	0.283	0.071	0.577	<b>0.97</b>	0.043	0.072	0.332	0.291
SI2	0.134	0.119	0.273	0.085	0.565	<b>0.985</b>	0.043	0.065	0.371	0.306
SI3	0.108	0.119	0.278	0.07	0.544	<b>0.98</b>	0.039	0.065	0.369	0.312
HA	-0.023	0.036	-0.042	0.183	0.037	0.043	<b>1</b>	-0.232	0.057	0.064
HEC	-0.071	-0.085	-0.047	-0.095	0.126	0.068	-0.232	<b>1</b>	0.036	0.049
Att1	0.288	0.252	0.279	-0.179	0.286	0.292	0.072	0.008	<b>0.902</b>	0.716
Att2	0.182	0.203	0.285	-0.128	0.396	0.366	0.029	0.058	<b>0.884</b>	0.63
BIC1	0.299	0.311	0.279	-0.194	0.34	0.28	0.067	0.051	0.671	<b>0.924</b>
BIC2	0.31	0.26	0.292	-0.231	0.295	0.227	0.097	0.004	0.651	<b>0.912</b>
BIC3	0.225	0.2	0.332	-0.164	0.384	0.322	0.01	0.075	0.701	<b>0.846</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 28. Loadings and cross-loadings**



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.437									
Lab	0.463	0.392								
OM	0.08	0.054	0.101							
EG	0.169	0.267	0.433	0.083						
SI	0.126	0.153	0.316	0.109	0.6					
HA	0.023	0.078	0.046	0.185	0.038	0.043				
HEC	0.071	0.096	0.06	0.100	0.131	0.069	0.232			
Att	0.305	0.334	0.401	0.178	0.456	0.43	0.065	0.043		
BIC	0.333	0.357	0.39	0.221	0.419	0.334	0.069	0.052	0.931	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 29. Heterotrait-Monotrait ratio (HTMT)**

Note: Although the HTMT between attitude and behaviour intention is higher than 0.9, a confidence interval was calculated. As so, the HTMT confidence interval does not surpass 1, concluding discriminant validity.

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	6.187	1.194	0.375**	0.598***	1.209
	CB2	5.351	1.533	-0.273	-0.034	1.141
	CB3	5.359	1.586	0.043	0.335*	1.454
	CB4	5.847	1.373	-0.099	0.262	1.437
	CB5	6.260	1.135	0.853***	0.912***	1.335
Co-benefits investment	CB6	262.222	220.631	0.867***	0.879***	2.981
	CB7	234.793	216.825	-0.251	0.621***	3.371
	CB8	209.012	208.427	0.069	0.585***	3.987
	CB9	216.118	220.145	0.164	0.651***	4.336
	CB10	201.667	199.223	0.346	0.676***	2.782
	CB11	241.556	225.188	-0.167	0.552***	2.369
	CB12	194.218	196.242	-0.245	0.371**	3.378
	CB13	221.656	208.649	-0.304	0.347**	2.732
	CB14	272.872	221.766	0.210	0.494***	1.730
	CB15	259.227	218.613	0.265	0.743***	2.545
Communication channels organisations	CC1	4.802	1.781	0.432***	0.646***	1.168
	CC7	5.286	1.606	0.766***	0.907***	1.623
	CC8	5.149	1.623	-0.088	0.598***	2.377
	CC9	5.107	1.572	0.125	0.631***	2.309
Communication channels web media	CC2	5.134	1.494	0.599***	0.911***	1.575
	CC3	4.267	1.697	0.516***	0.879***	1.575
Communication channels media	CC4	4.057	1.786	0.097	0.811***	2.550
	CC5	3.866	1.777	0.628	0.965***	3.271
	CC6	4.466	1.750	0.357	0.880***	2.215

**Note:** The items descriptions are in Appendix D.

**Table 30. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**

Note: In the items CB2 and CB4 it was not verified significance of weights.



## Appendix C5 – Measurement model for Spain

Construct	Mean	STD	CR	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	6.018	1.441	1.000	<b>1.000</b>									
Sav	6.209	1.059	0.904	0.397	<b>0.873</b>								
Lab	6.329	0.930	0.929	0.362	0.367	<b>0.902</b>							
OM	3.474	1.401	0.937	-0.109	-0.034	-0.095	<b>0.913</b>						
EG	3.761	1.553	0.961	0.179	0.153	0.212	-0.119	<b>0.961</b>					
SI	2.897	1.566	0.973	0.095	0.157	0.124	-0.016	0.614	<b>0.961</b>				
HA	3.867	1.711	1.000	0.050	0.062	-0.091	0.003	0.029	0.042	<b>1.000</b>			
HEC	2.187	2.224	1.000	0.023	-0.055	0.067	-0.110	0.121	0.056	-0.140	<b>1.000</b>		
Att	3.729	1.693	0.891	0.305	0.246	0.252	-0.183	0.485	0.457	0.030	0.075	<b>0.897</b>	
BIC	4.309	1.700	0.919	0.309	0.235	0.264	-0.244	0.531	0.462	0.046	0.110	0.750	<b>0.890</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 31. Mean, standard-deviation, CR and Fornell-Lacker table. The diagonal elements are the square-root of AVE**

Item	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE	<b>1.000</b>	0.397	0.362	-0.109	0.179	0.095	0.050	0.023	0.309	0.305
Sav1	0.241	<b>0.701</b>	0.324	0.069	0.091	0.093	0.046	-0.052	0.127	0.177
Sav2	0.391	<b>0.950</b>	0.317	-0.070	0.165	0.171	0.049	-0.047	0.250	0.232
Sav3	0.385	<b>0.945</b>	0.335	-0.053	0.134	0.138	0.067	-0.049	0.220	0.232
Lab1	0.338	0.372	<b>0.904</b>	-0.059	0.199	0.082	-0.064	0.024	0.258	0.213
Lab2	0.296	0.277	<b>0.924</b>	-0.083	0.203	0.130	-0.073	0.077	0.214	0.235
Lab3	0.344	0.341	<b>0.879</b>	-0.115	0.173	0.124	-0.107	0.080	0.243	0.235
OM1	-0.146	-0.076	-0.136	<b>0.879</b>	-0.122	-0.064	0.027	-0.086	-0.208	-0.168
OM2	-0.070	-0.013	-0.077	<b>0.926</b>	-0.094	0.036	0.007	-0.112	-0.220	-0.155
OM3	-0.085	-0.006	-0.052	<b>0.933</b>	-0.110	-0.015	-0.022	-0.102	-0.239	-0.176
EG1	0.183	0.178	0.241	-0.117	<b>0.963</b>	0.589	0.043	0.102	0.526	0.469
EG2	0.161	0.114	0.165	-0.111	<b>0.960</b>	0.592	0.011	0.132	0.494	0.464
SI1	0.100	0.141	0.105	-0.006	0.596	<b>0.956</b>	0.051	0.070	0.427	0.434
SI2	0.065	0.125	0.099	-0.009	0.579	<b>0.967</b>	0.058	0.032	0.435	0.431
SI3	0.107	0.185	0.151	-0.028	0.595	<b>0.959</b>	0.013	0.059	0.467	0.451
HA	0.050	0.062	-0.091	0.003	0.029	0.042	<b>1.000</b>	-0.140	0.046	0.030
HEC	0.023	-0.055	0.067	-0.110	0.121	0.056	-0.140	<b>1.000</b>	0.110	0.075
Att1	0.291	0.267	0.232	-0.187	0.350	0.276	0.068	0.022	<b>0.640</b>	0.882
Att2	0.259	0.180	0.222	-0.144	0.510	0.528	-0.009	0.108	<b>0.702</b>	0.911
BIC1	0.317	0.245	0.247	-0.188	0.486	0.415	0.035	0.096	0.930	<b>0.684</b>
BIC2	0.357	0.274	0.296	-0.233	0.433	0.377	0.068	0.065	0.908	<b>0.666</b>
BIC3	0.144	0.103	0.159	-0.231	0.499	0.443	0.019	0.133	0.828	<b>0.650</b>

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 32. Loadings and cross-loadings**

Note: Although the condition of loadings and cross-loadings between attitude and behaviour intention is not verified, the other measures for discriminant validity, namely HTMT and Fornell-Larcker are verified.



Construct	EE	Sav	Lab	OM	EG	SI	HA	HEC	Att	BIC
EE										
Sav	0.426									
Lab	0.384	0.433								
OM	0.116	0.086	0.108							
EG	0.187	0.17	0.234	0.131						
SI	0.096	0.171	0.134	0.045	0.655					
HA	0.05	0.068	0.096	0.021	0.03	0.043				
HEC	0.023	0.062	0.071	0.116	0.127	0.057	0.14			
Att	0.352	0.312	0.309	0.223	0.575	0.526	0.05	0.083		
BIC	0.329	0.266	0.3	0.277	0.596	0.507	0.049	0.118	0.924	

**Notes:** (EE: efficient energy; Sav: savings; Lab: label; OM: operation and maintenance; EG: engagement; SI: social influence; HA: house age; HEC: house energy class; Att: attitude on heating equipment use; BIC: behaviour intention to change to an EEHA)

**Table 33. Heterotrait-Monotrait ratio (HTMT)**

Note: Although the HTMT between attitude and behaviour intention is higher than 0.9, a confidence interval was calculated. As so, the HTMT confidence interval does not surpass 1, concluding discriminant validity.

Construct	Item	Mean	STD	Weights	Loadings	VIF
Co-benefits	CB1	5.629	1.690	0.385***	0.680***	1.363
	CB2	5.773	1.443	-0.182	0.313**	1.338
	CB3	5.416	1.621	0.132	0.495***	1.349
	CB4	6.200	1.211	0.237	0.683***	1.660
	CB5	6.202	1.211	0.642***	0.884***	1.394
Co-benefits investment	CB6	228.883	221.328	0.558***	0.838***	3.383
	CB7	216.389	217.406	-0.190	0.705***	3.772
	CB8	218.978	221.312	0.321*	0.816***	3.303
	CB9	202.778	214.449	0.260	0.785***	3.251
	CB10	186.409	195.724	-0.405**	0.584***	2.997
	CB11	257.089	237.533	-0.060	0.675***	3.433
	CB12	191.791	203.518	0.442***	0.734***	2.299
	CB13	228.339	216.193	-0.180	0.545***	2.220
	CB14	259.153	235.464	-0.009	0.593***	2.221
	CB15	255.216	230.194	0.349*	0.735***	2.346
Communication channels organisations	CC1	4.496	1.963	0.389**	0.686***	1.186
	CC7	4.856	1.771	0.405*	0.801***	1.668
	CC8	4.778	1.735	0.063	0.780***	2.735
	CC9	4.349	1.770	0.444*	0.808***	2.225
Communication channels web media	CC2	5.060	1.562	0.381**	0.715***	1.229
	CC3	3.587	1.770	0.775***	0.939***	1.229
Communication channels media	CC4	4.000	1.692	0.302	0.805***	1.867
	CC5	3.671	1.743	0.835***	0.975***	2.729
	CC6	3.687	1.774	-0.078	0.736***	2.448

**Note:** The items descriptions are in Appendix D.

**Table 34. Mean, standard-deviation, weights, loadings and VIF of formative construct indicators (\* p-value <0.10; \*\* p-value <0.05; \*\*\* p-value <0.01)**



## Appendix D – CONSTRUCTS

Construct	Items
Energetic efficiency (EE)	EE. It will increase my house's energy efficiency
Savings (Sav)	Sav1. I receive a subsidy to finance the replacement
	Sav2. I am aware of the total energy savings over EEHA lifetime
	Sav3. I am aware of the total monetary savings over the EEHS lifetime
Label (Lab)	Lab1. The energy label is important in the decision of buying a heating appliance
	Lab2. When I buy a heating appliance, I pay attention to the energy label
	Lab3. I am more willing to buy a heating appliance with an efficient energy class (above C, i.e., A or B)
Operation and Maintenance (OM)	OM1. I believe that the operation of an EEHA is more complicated than my current heating solution
	OM2. I believe that an EEHA needs the user to perform the maintenance work by himself
	OM3. I believe that the maintenance of an EEHA requires too much work
Engagement (EG)	EG1. I pay a lot of attention to anything about EEHA
	EG2. I keep up with things related to EEHA
Social influence (SI)	SI1. People who are important to me think that I should adopt EEHA
	SI2. People who influence my behaviour think that I should adopt EEHA
	SI3. People whose opinions that I value prefer that I adopt EEHA
House age (HA)	HA. How old is your dwelling since your last renovation (in years)? If it was not renovated, answer with the years since its construction.
House energy class (HEC)	HEC. If you know, what is the energy class of your house (based on the Energy Performance of Building Certificate)?
Co-benefits (CB)	CB1. Condensation, humidity and mould related problems are avoided
	CB2. It will not reduce my house's useful floor area
	CB3. It values the dwelling in the real-estate market (I will sell the house for a higher price if it is equipped with an EEHA)
	CB4. It allows me to be independent from energy price fluctuations
	CB5. It allows me to have a reduced environmental impact
	CB6. Achieve a comfortable indoor temperature during the heating season more easily
	CB7. Have better indoor air quality
	CB8. Lower indoor noise level
	CB9. Lower external noise level
	CB10. Operate the EEHA more easily
	CB11. Be more independent to energy prices
	CB12. Have a more aesthetically pleasing EEHA
	CB13. Have more useful living area
	CB14. Value the dwelling in the real-estate market
	CB15. Have a reduced environmental impact
Communication channels (CC)	CC1. People I know who own an EEHA
	CC2. Internet Websites
	CC3. Mobile Application
	CC4. Newspapers
	CC5. Radio
	CC6. Television
	CC7. Organisations (local associations, energy agencies)
	CC8. Installers and/or related professionals
	CC9. EEHA shop
Attitude on heating equipment use in general	Att1. I usually track my energy consumption based on my billing (dropped)
	Att2. I am willing to change my heating appliance(s)
	Att3. I am planning to buy an EEHA
BIC to an EEHA	BIC1. I intend to change to EEHA in the future
	BIC2. I will try to change to EEHA in my future
	BIC3. I am ready to change to EEHA

Table 35. Items of the constructs of the conceptual model



## Appendix E –RESULTS

Construct	Path	Total Effects				
		France	Germany	Italy	Portugal	Spain
Energy efficiency	EE -> Att	0.091	0.088	0.067	0.086	0.154***
	EE -> BIC	0.119	0.093	0.142**	0.094	0.144***
Savings	Sav -> Att	0.093	0.003	0.027	0.069	0.064
	Sav -> BIC	0.184***	-0.037	0.036	0.074	0.011
Label	Lab -> Att	0.161***	-0.007	0.013	0.073	0.041
	Lab -> BIC	0.099**	-0.014	0.059	0.073	0.040
Operation and maintenance	OM -> Att	-0.098*	-0.046	0.034	-0.146***	-0.089**
	OM -> BIC	-0.020	-0.102**	0.028	-0.182***	-0.150***
Engagement	EG -> Att	0.282***	0.145*	-0.011	0.090	0.190***
	EG -> BIC	0.206***	0.023	0.122**	0.110*	0.254***
Social influence	SI -> Att	0.032	0.126*	0.057	0.203***	0.227***
	SI -> BIC	0.035	0.125**	0.126*	0.077	0.196***
House age	HA -> Att	0.035	-0.13**	0.023	0.095*	0.014
	HA -> BIC	0.066*	-0.053	-0.008	0.127**	0.037
House' energy class	HEL -> Att	0.057	-0.138**	-0.008	0.070	0.009
	HEL -> BIC	0.020	-0.123**	-0.057	0.095	0.038
Co-benefits	CB -> Att	-0.019	0.227**	0.082	0.036	0.011
	CB -> BIC	0.070	0.350***	0.041	0.070	0.080
Co-benefits investment	CB inv -> Att	0.031	0.178**	0.342***	0.197***	0.222***
	CB inv -> BIC	0.100**	0.165***	0.226***	0.186***	0.131***
Communication channels media	CCM -> Att	-0.098**	0.006	-0.049	-0.020	0.133**
	CCM -> BIC	-0.022	0.027	0.007	0.056	0.110**
Communication channels organisations	CCO -> Att	0.256***	0.131	0.078	0.063	-0.026
	CCO -> BIC	0.272***	0.211***	0.066	0.143*	0.012
Communication channels web media	CCW -> Att	0.116***	-0.048	0.025	0.084	0.041
	CCW -> BIC	0.010	0.078	0.058	0.045	0.046
Attitude on heating equipment use	Att -> BIC	0.419***	0.577***	0.415***	0.630***	0.564***
R-squared (%)		78.1	74.5	43.1	62.7	62.8

Table 36. Total effects of the constructs in each country



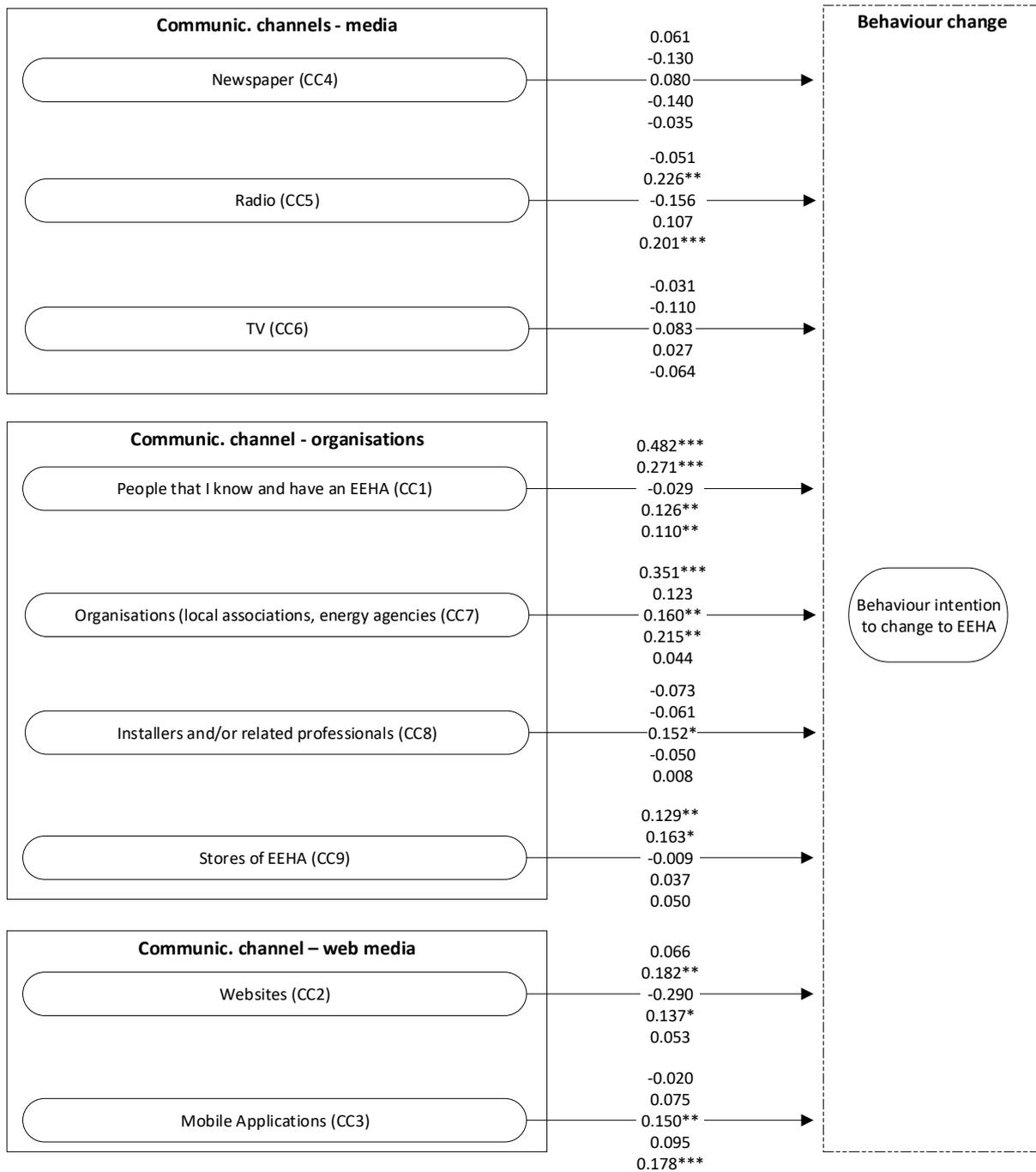


Figure 21. Structural model of communication channels. Total effects (\* p-value <0.10; \*\* p-value<0.05; \*\*\* p-value<0.01). Order (FR, GE, IT, PT, SP)

