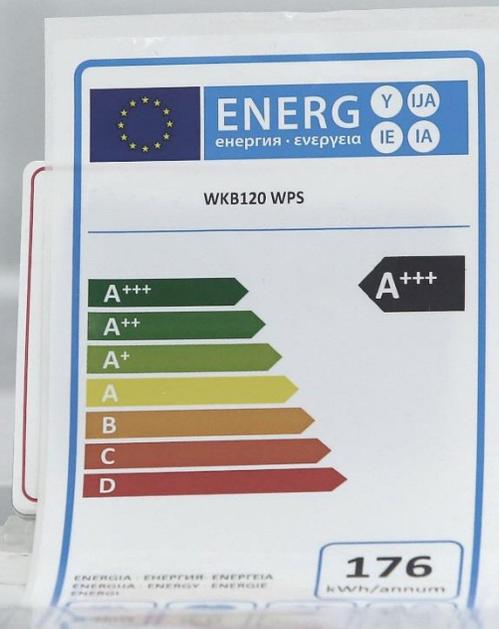


The role of energy efficiency and label information on consumer's purchasing preferences towards appliances: Results from a focus group in Bilbao (Spain)



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CONTEXT

- OBJECTIVE: To understand consumer decision-making and preferences regarding appliances and energy efficiency
- SECTOR: Households
- PRODUCT CATEGORY: Appliances (fridges and washing-machines)
- METHOD: Focus group discussion
 - May 31, 2017 in the city of Bilbao (Spain)
 - 8 home owners (recent purchase, <1 year)
 - Interview guide ([see Table 1](#))



➤ PARTICIPANT CHARACTERISTICS:



Participant	Gender	Education	Age	Number of dwellings	Household size	Socio-economic status
1	Female	High	49	2	3 (1 child)	High
2	Male	Medium	47	2	2	Medium
3	Male	Medium	48	2	4 (2 children)	Medium
4	Male	Medium	37	2	2	Medium
5	Female	Medium	57	1	1	Low
6	Female	Medium	52	1	3 (1 child)	Low
7	Male	High	49	1	4 (2 children)	High
8	Female	Medium	35	1	4 (2 children)	Medium

KEY FINDINGS: Structure

1. What attributes matter in the purchasing decision?

- Refrigerators
- Washing-machines



2. How important is energy efficiency in this decision?

3. Does current informational policy increase the demand for more efficient technologies?

4. How can informational policy be changed to increase the demand for more efficient technologies?

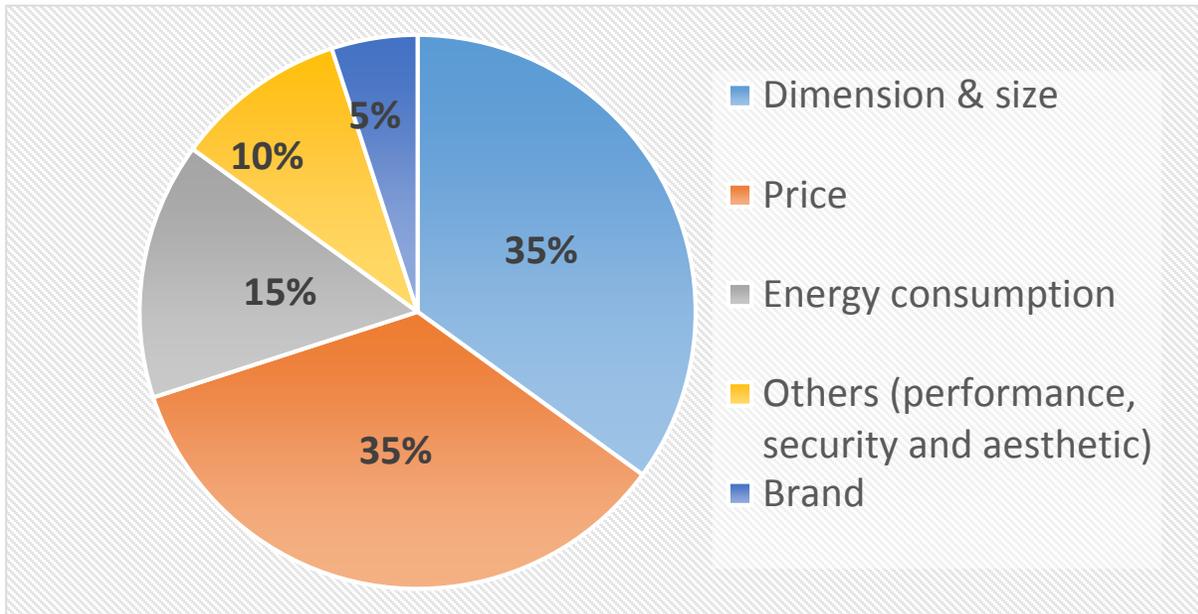


What attributes matter in the purchasing decision?

The group's purchasing decision - weights

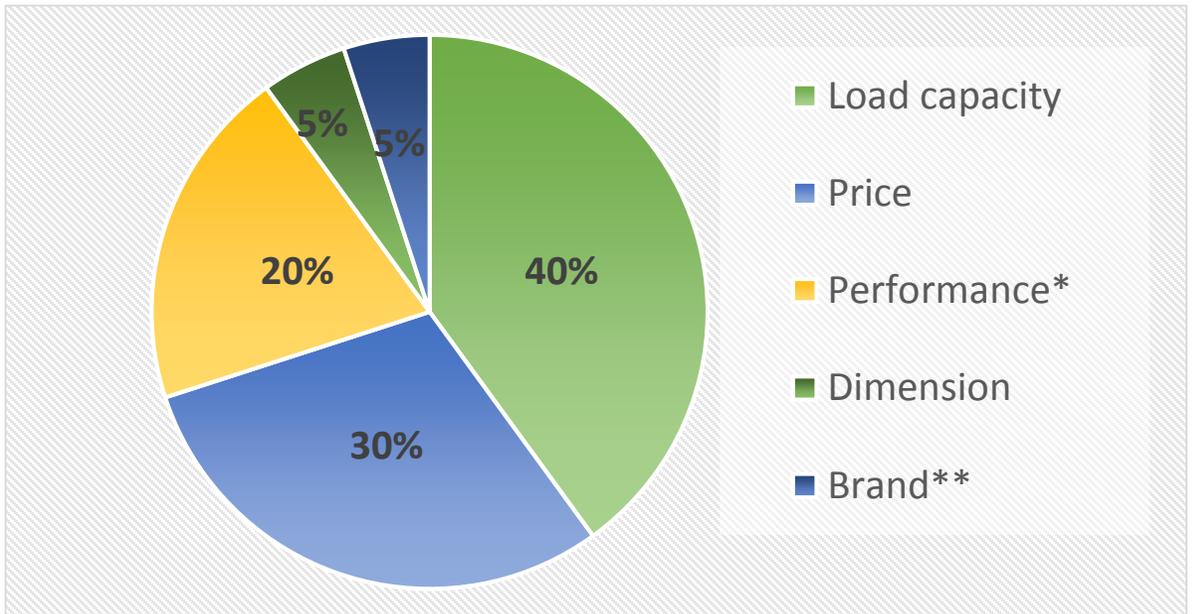
Refrigerator

(Based on the group's ranking of factors that can be found when buying a refrigerator)
 (See [Table 2.a](#) and [Table 2.b](#))



Washing-machine

(Based on the group's ranking of factors that can be found when buying a washing-machine)
 (See [Table 3.a](#) and [Table 3.b](#))



*Understood as number and functions of programs, control panel, spin speed, water overflow control, water consumption, energy consumption

***Just mentioned by women with children

How important is energy efficiency in this decision?

- **Energy efficiency** is a concept **difficult to define** properly for the participants. They relate it to the production of energy, the reduction of energy consumption, labelling and to the environment
- **To buy or not to buy an energy efficient appliance?** Results of a role play:



	PROS	CONS
Individual dimension	<p>Investment recovery:</p> <ul style="list-style-type: none"> - Medium term - Reduced energy costs - Fast recovery given that the extra-cost of purchase of EE goods is reasonable 	<p>Uncertainty about:</p> <ul style="list-style-type: none"> - Knowledge to compute the profitability of the investment - Useful life of the good (premature breakdown, planned obsolescence) - Frequency of uses <p>Higher initial cost (price)</p>
Collective dimension	<p>Society:</p> <ul style="list-style-type: none"> - Job opportunities (R&D) - Mitigation of environmental impacts and co-benefits: climate mitigation and health 	<p>Lack of confidence in:</p> <ul style="list-style-type: none"> - Labelling - Institutions - Manufacturers

Does current informational policy increase the demand for more efficient technologies?

Participants were asked about their understanding of energy labels:

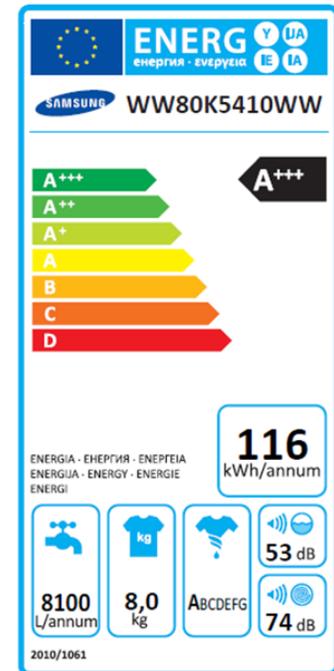
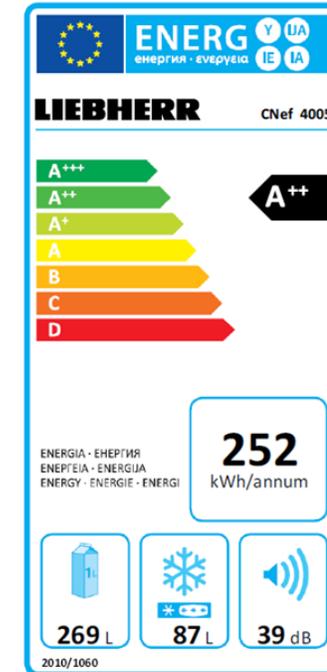
- **Most aware** of the existence
- However, they (+ their relatives or peers) **neither fully understand** its language **nor** they fully **rely** on it:

“...in the label they report a triple A but they don’t explain it (Female, 35). “As we [the group] don’t trust, energy efficiency label is not the first thing we consider” (male, 49).

- Participants **react positively** to the **colour and letter stimuli** (“*traffic lights*”)
- The energy consumption data in **KWh/year** is **unclear** because the unit of measure is difficult to apprehend for non-experts

“[referring to the 252 KWh/year of consumption of the fridge] [the consumer] doesn’t know if that’s a lot or that’s a little” (male, 47).

- **A scale is missing** to value the units of energy consumption and noise (decibels)



How can informational policy be changed to increase the demand for more efficient technologies?

- The **colour/letter graduation system** is **good stimuli** (“popular”reference easy to apprehend) but they would **complement it with a simple text** to explain the meaning of the grades
- The **energy consumption data in monetary units** (either to complement or replace the physical unit of KWh/year) is appreciated. However, **several challenges** as the **energy cost depends on:**
 - Electricity price (*“How much is a KW? We don’t know”, Male 49*)
 - The frequency of uses (which fluctuates with household characteristics and the price of energy)
- **Suggestions:**
 - **Present the energy cost for an average of uses and electricity price** or per use of the appliance (in the case of washing-machine)
 - **Complement the noise information with a relative gradient of noise level** from low to high based on tolerable or recommended levels of noise



Conclusions

- **Key factors** when buying a refrigerator and a washing-machine: **dimension, capacity, price**
- **Information on energy consumption is not decisive** in the purchasing decision, **but** together with the performance (involving programs and functions, security) **can lead the consumer to buy a more energy efficient appliance on equal price, dimension and capacity**
- **Current labels:**
 - **Not self-contained**, they miss clarity and valuable information
 - **Lack of confidence** with regard to institutions, manufacturers and labels and equity concerns
- **Suggestions:**
 - A **more transparent and self-contained label** coupled with trained sales staff, and educational and informational campaigns to better apprehend the language of the labels
 - Economic information on the **operational costs** in the label
 - **Transparency and financial supports to restore the equity issue** between the individual effort and the effort of manufacturers regarding the contribution of environmental and climatic impacts mitigation

The CONSUMER Energy-Efficiency Decision making project (CONSEED) does research to understand better how European consumers make energy efficiency decisions.

Do households and professional consumers pay attention to energy labels? What information are they looking for? We focus on three products: cars, appliances/machinery and buildings.

This project has received funding from the European Union's Framework Programme for research and innovation Horizon 2020 under grant agreement number 723741.

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EXTRA SLIDES

Table 1: Interview guide for Household – Appliances in Bilbao (Spain)

Warm-up questions

1 Which appliances have you brought recently?

2 Which are the appliances you use most at home and why?

3 How is their purchasing process?

- Who (husband, wife, shop-assistant...) and what (Internet...) is involved in the decision?
- What steps are taken, how much time is invested?
- Where do you usually buy the appliances (shopping mall, neighbourhood store...)?
- What do you take into account when you go to buy an appliance?

Attributes

4 How is the purchasing process of a refrigerator? (same questions as in 3 specific for the refrigerator)

5 What are the key factors in the purchasing decision of a refrigerator?

6 How is the purchasing process of a washing-machine? (same questions as in 3 specific for the washing-machine)

7 What are the key factors in the purchasing decision of a washing-machine?

Energy efficiency

8 What is energy efficiency?

9 Do you understand it? Do you trust it?

10 Is it well explained? Have you to ask about it to the shop-assistant?

11 Do you have it into account when buying a new appliance?

12 Do you care about the consumption of appliances? Are you concerned about your energy bill?

13 Why should we buy an energy efficient appliance? What are the main obstacles for doing that?

Current energy label

14 How you get information about the energy efficiency of an appliance?

15 Does the shop-assistant give information about the energy efficiency? How?

16 Are you aware of the energy efficiency label and the information is presented in it?

17 What do you think about the label? Do you think it is useful?

Future energy label

18 How could we improve the labelling?

- What should be removed?
- What should be added?
- What should be changed?

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Table 2a: Refrigerator's characteristics to select

Refrigerator	
Order	Characteristics
	Price
	Brand
	Store (shopping mall, neighbourhood store...)
	Energy label
	Energy consumption
	Dimensions (height, width, depth)
	Colour, material, design
	Type (independent, concealable, refrigerator with 1 door, refrigerator with 2 doors, side by side or American, French door)
	Capacity (volume)
	Spin speed
	Noise level
	Security (open door alarm)
	Performance (no frost system, reversible doors, number of trays, adjustable compartments, interior LED lighting, differentiated cold zones, temperature control, temperature indicator, Wi-Fi or Bluetooth connectivity...)
	Others (specify):

Table 2b: The group's factors ranking for the refrigerator

Total sum	Factor
30	Dimension (height, width, depth)
29	Price
16	Energy consumption
14	Capacity (volume)
9	Brand
6	Performance (no frost system, reversible doors, number of trays, temperature control and indicator...)
6	Energy label
4	Type (independent, concealable, one door, two door, side by side, French door)
3	Store (shopping mall, neighbourhood store...)
2	Security (open door alarm)
1	Aesthetic (colour, material, design)

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Table 3a: Washing-machines' characteristics to select

Washing-machine	
Order	Characteristics
	Price
	Brand
	Store (shopping mall, neighbourhood store...)
	Energy label
	Energy consumption
	Water consumption
	Dimensions (height, width, depth)
	Colour, material, design
	Type (independent, concealable, front loading, top loading)
	Load capacity (kilos of clothes)
	Spin speed
	Noise level
	Security (automatic door lock, anti-overflow system-Aqua Stop)
	Performance (number of programs, number of temperatures, deferred programming, load sensor, electronic control panel vs traditional, program end indicator ...)
	Others (specify):

Table 3b: The group's factors ranking for the washing-machine

Total sum	Factor
26	Load capacity (kilos of clothes)
23	Price
15	Dimension (height, width, depth)
12	Brand
10	Performance (number of programs and temperatures, load sensor, electronic control panel...)
9	Water consumption
7	Type (independent, concealable, front loading, top loading)
7	Spin speed
7	Energy consumption
2	Security (automatic door lock, anti-overflow system-Aqua Stop)
1	Store (shopping mall, neighbourhood store...)
1	Noise level

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