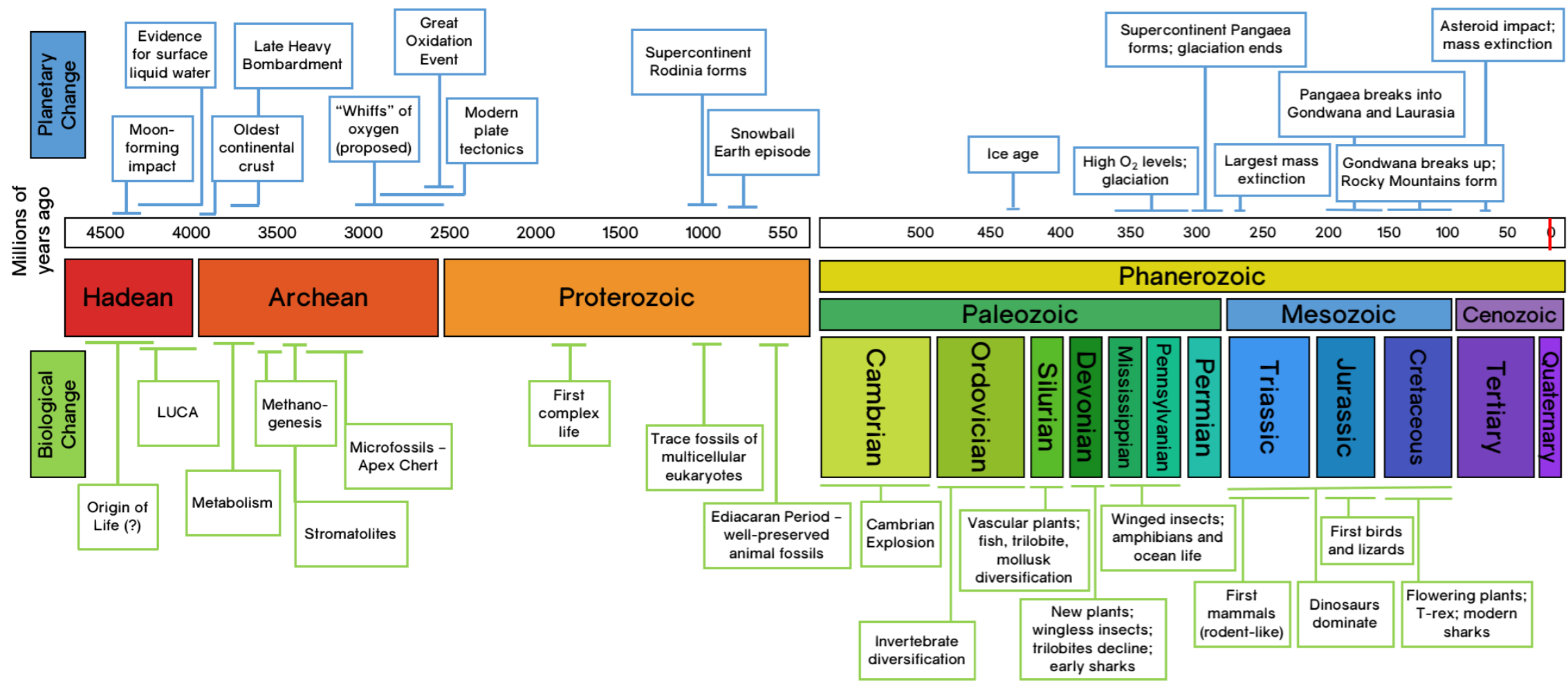# Knowledge of desired household waste separation (Competence Score) in the Republic of Ireland

Paul Delaney

History of Earth
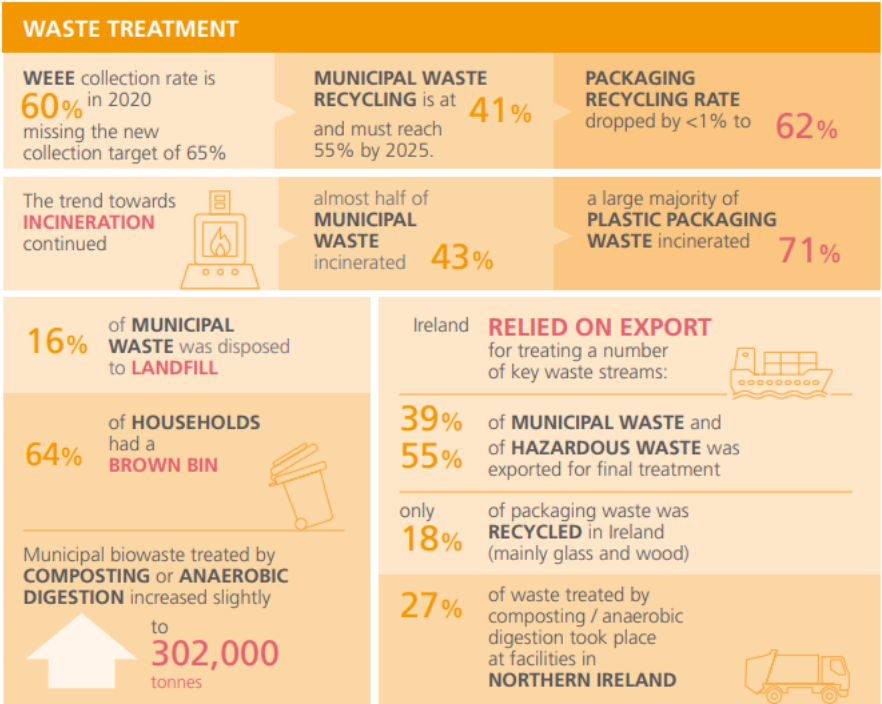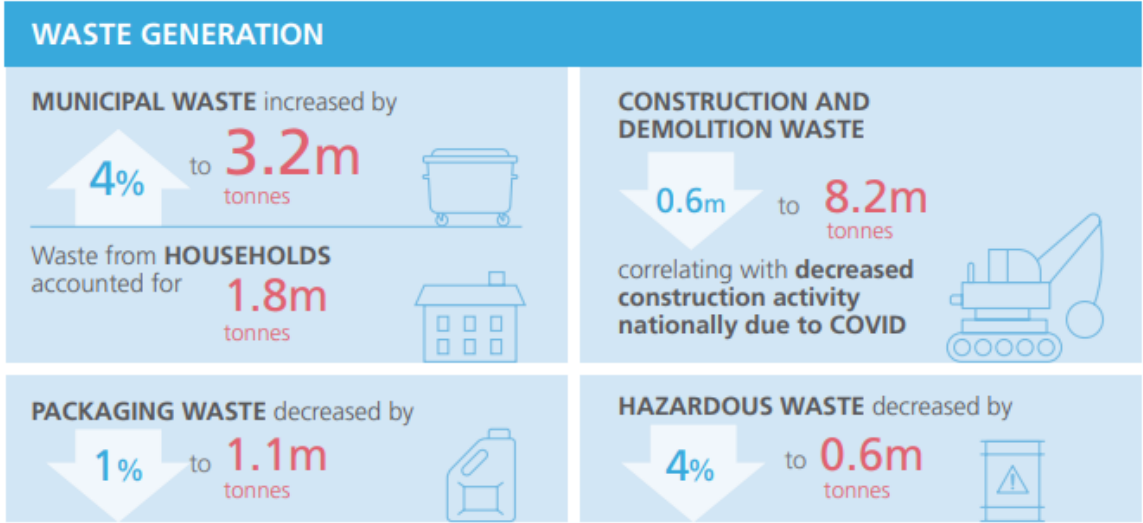
Kenneth E. Boulding

The economics of the coming spaceship earth

1966

EPA stats

WASTE GENERATION

MUNICIPAL WASTE increased by **4%** to **3.2m** tonnes

Waste from **HOUSEHOLDS** accounted for **1.8m** tonnes

CONSTRUCTION AND DEMOLITION WASTE **0.6m** to **8.2m** tonnes

correlating with **decreased construction activity nationally due to COVID**

PACKAGING WASTE decreased by **1%** to **1.1m** tonnes

HAZARDOUS WASTE decreased by **4%** to **0.6m** tonnes

WASTE TREATMENT

WEEE collection rate is **60%** in 2020 missing the new collection target of 65%

MUNICIPAL WASTE RECYCLING is at **41%** and must reach 55% by 2025.

PACKAGING RECYCLING RATE dropped by <1% to **62%**

The trend towards **INCINERATION** continued

almost half of **MUNICIPAL WASTE** incinerated **43%**

a large majority of **PLASTIC PACKAGING WASTE** incinerated **71%**

16% of **MUNICIPAL WASTE** was disposed to **LANDFILL**

64% of **HOUSEHOLDS** had a **BROWN BIN**

Municipal biowaste treated by **COMPOSTING** or **ANAEROBIC DIGESTION** increased slightly to **302,000** tonnes

Ireland **RELIED ON EXPORT** for treating a number of key waste streams:

39% of **MUNICIPAL WASTE** and **55%** of **HAZARDOUS WASTE** was exported for final treatment

only **18%** of packaging waste was **RECYCLED** in Ireland (mainly glass and wood)

27% of waste treated by composting / anaerobic digestion took place at facilities in **NORTHERN IRELAND**

Housing waste

household waste in Ireland in 2020 = 372 kg / person
+18.5% in 2 years

1.2M tonnes collected from our homes
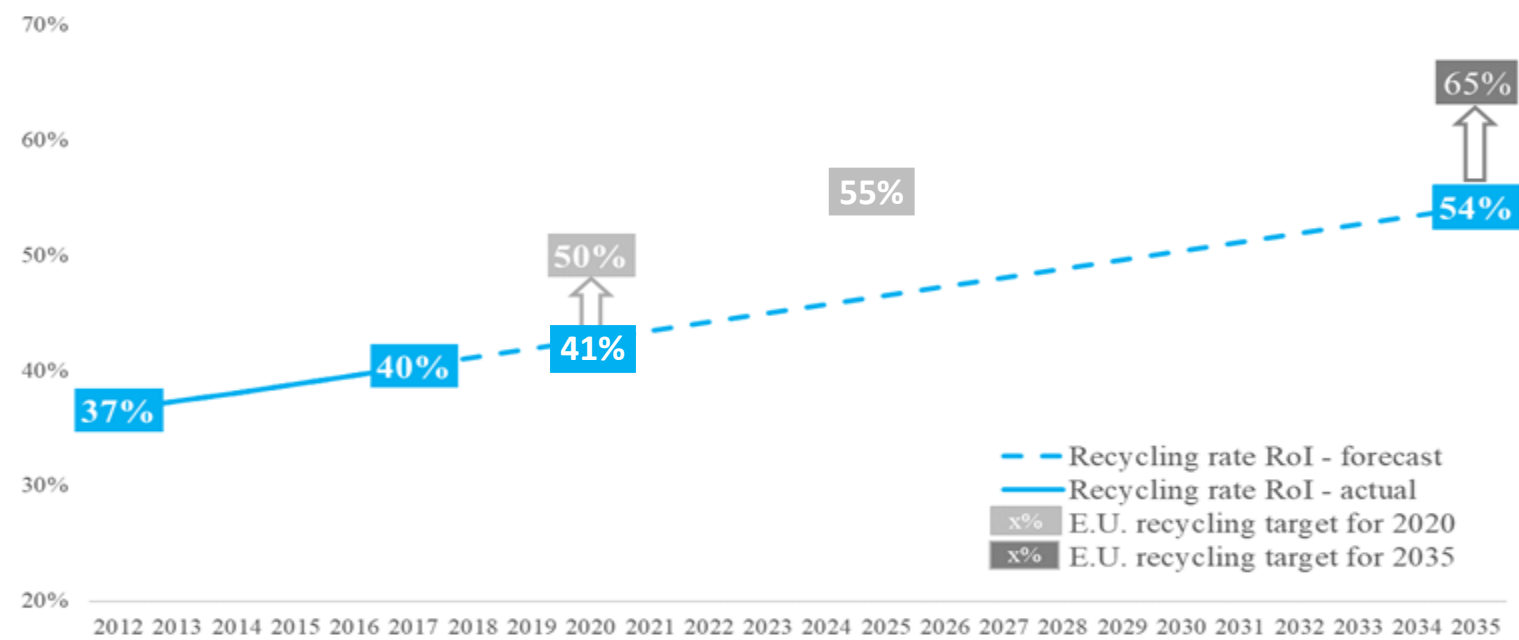

59%
723,000
tonnes

22%
268,000
tonnes

16%
200,000
tonnes

3%
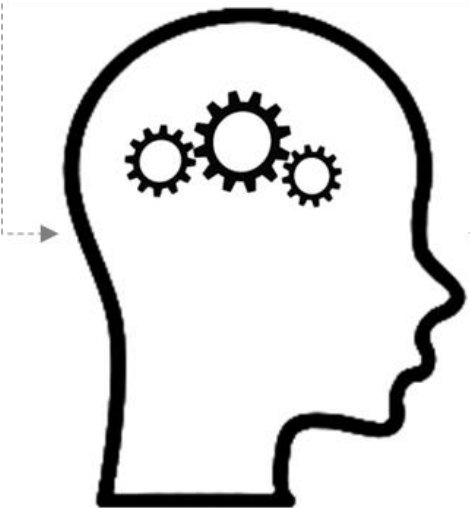32,000
tonnes

Rational for study - 1/3c

Recycling Rate and forecast against target – Rep. of Ireland

Intervention required to improve performance
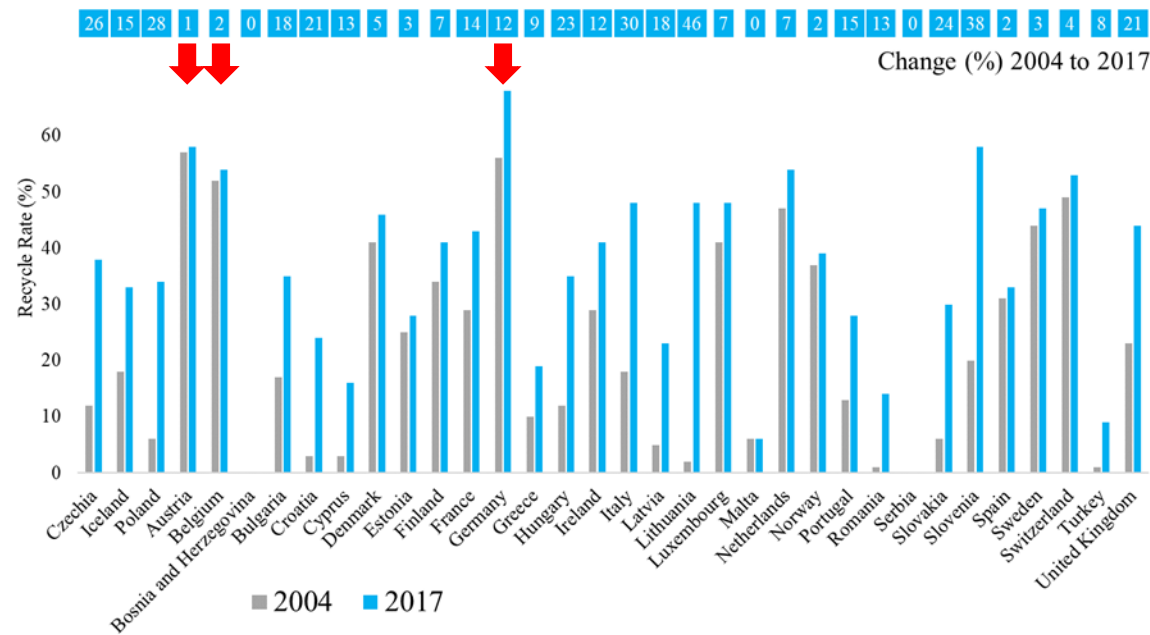
Waste Separation decision tree

229 Types of items

Home
3 bins types

Civic Amenity Facility
12 – 25 bin types

Waste disposal decision making has become complex. There are high expectations of a broad audience.

Rational for study – 3/3

Recycling Rate by country, 2004 & 2017

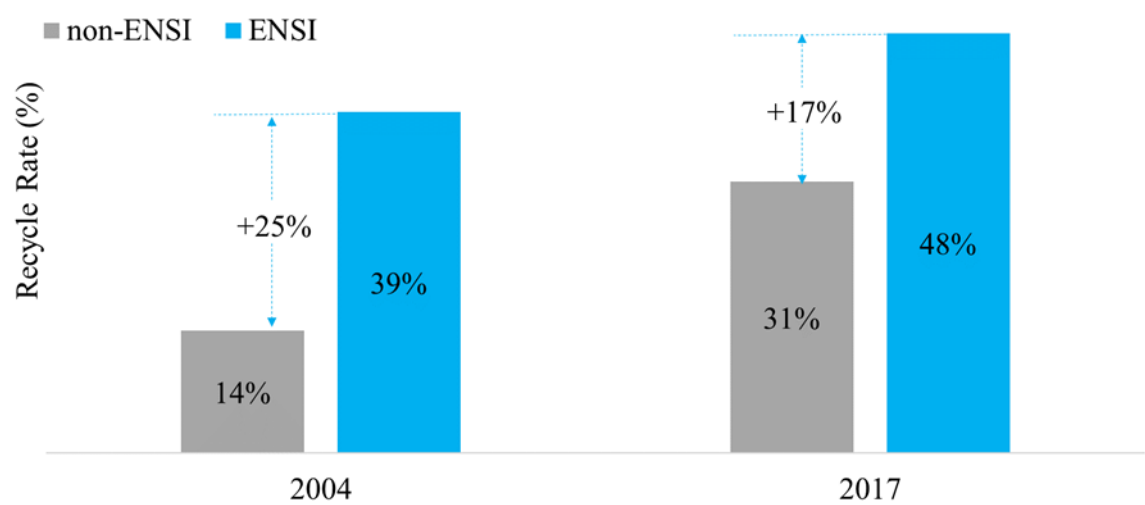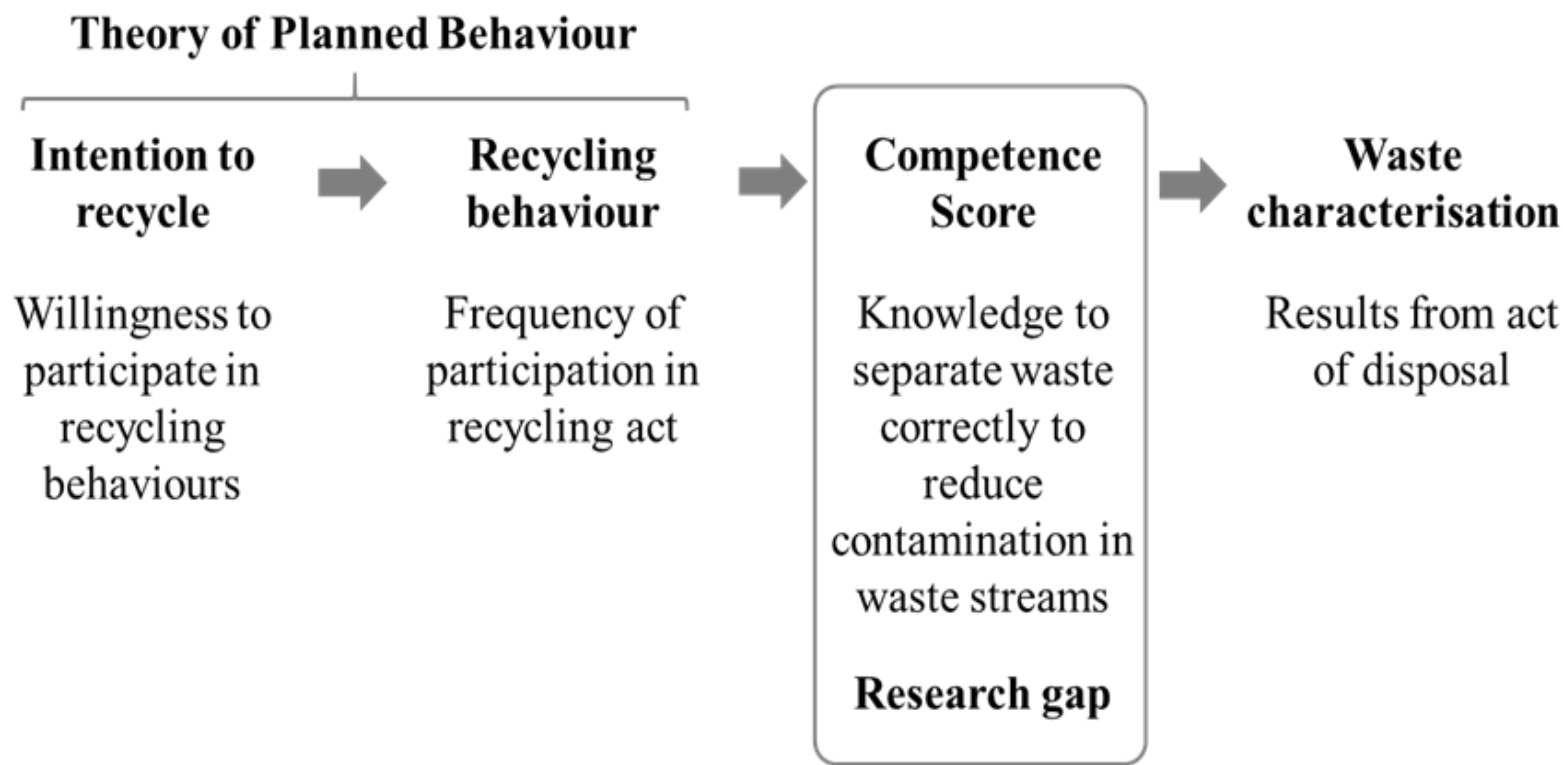| 26 | 15 | 28 | 1 | 2 | 0 | 18 | 21 | 13 | 5 | 3 | 7 | 14 | 12 | 9 | 23 | 12 | 30 | 18 | 46 | 7 | 0 | 7 | 2 | 15 | 13 | 0 | 24 | 38 | 2 | 3 | 4 | 8 | 21 |

Change (%) 2004 to 2017

■ 2004 ■ 2017

Across the E.U., ENSI participants had higher national recycling rates on average.

Austria and Belgium had hit 2020 target of 50% recycling in 2004.

Germany had hit 2035 target of 65% in 2017.

Recycling Rate by ENSI participation / not, 2004 & 2017

■ non-ENSI ■ ENSI

2004: non-ENSI 14%, ENSI 39%, +25%
2017: non-ENSI 31%, ENSI 48%, +17%

Theory of Planned Behaviour

Intention to recycle		**Recycling behaviour**		**Competence Score**		**Waste characterisation**
Willingness to participate in recycling behaviours	→	Frequency of participation in recycling act	→	Knowledge to separate waste correctly to reduce contamination in waste streams **Research gap**	→	Results from act of disposal

Method

- **Online questionnaire**

- **Random distribution via digital platforms to generate random sample**

- **Sample = 298**

- **Not nationally representative**

- **Analysis run in Microsoft Excel and IBM SPSS**

Competence Score

How do you dispose of a light bulb?
(tick all that apply)

English

☐ household recycling (green) bin

☐ WEEE drop off recycling point

☐ household general waste (black) bin

☐ civic amenity facility

☐ other (please specify)

Intention to Recycle (TPB)

"How likely are you to recycle your waste at home in the next 4 weeks?"
On a scale of 1 – 5 where 1 = strongly disagree; 5 = strongly agree.

Strongly disagree
○

Somewhat disagree
○

Neither agree nor disagree
○

Somewhat agree
○

Strongly agree

Knowledge sources

Did your primary school participate in the Green Schools Program?
Green Schools is a voluntary program run by An Taisce (government) to promote sustainability through schools which started in Ireland in 1997. The volume of participating schools increased over time.
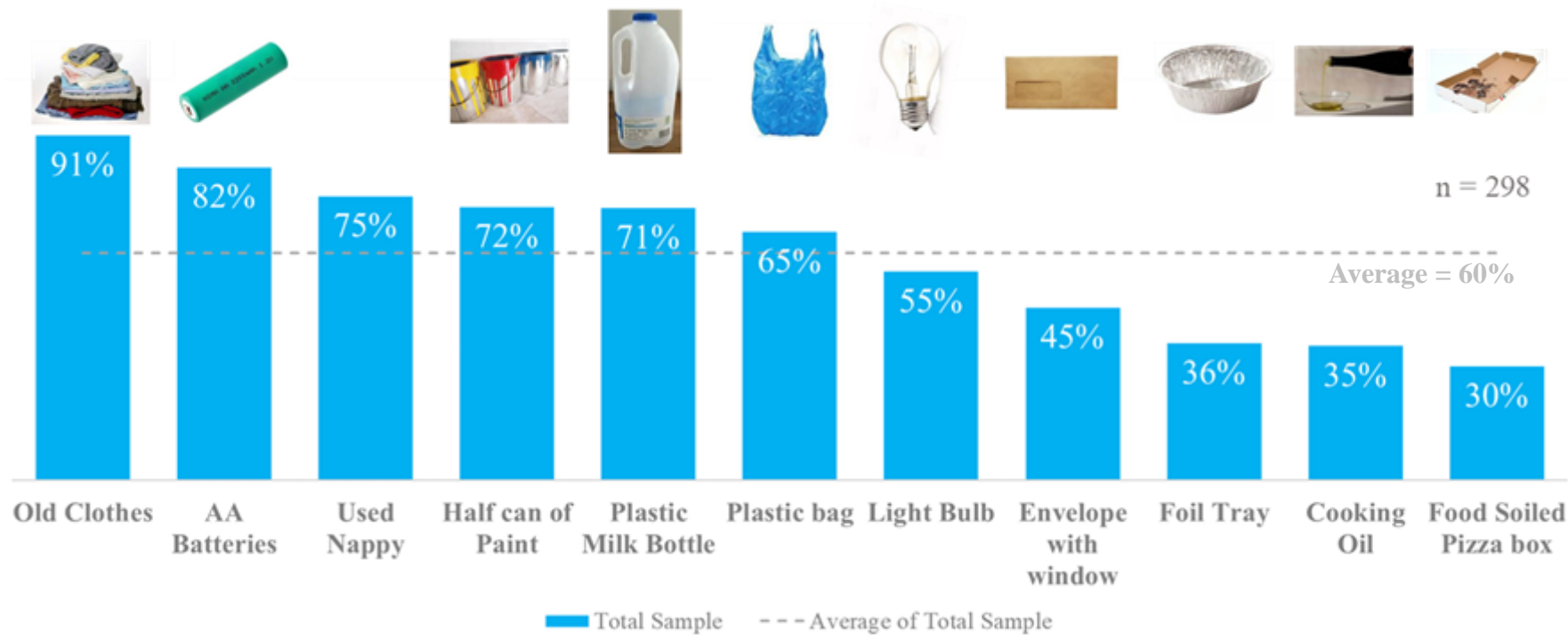
○ Yes

◉ No

○ Do not know / cannot recall

# Findings – Competence Score

Competence Score by item

n = 298

Average = 60%

- Old Clothes: 91%
- AA Batteries: 82%
- Used Nappy: 75%
- Half can of Paint: 72%
- Plastic Milk Bottle: 71%
- Plastic bag: 65%
- Light Bulb: 55%
- Envelope with window: 45%
- Foil Tray: 36%
- Cooking Oil: 35%
- Food Soiled Pizza box: 30%

■ Total Sample   - - - Average of Total Sample

60% knowledge is

- Lower than that required to achieve targets

- Insufficient to achieve circularity

Points of Confusion

Pizza Boxes

MyWaste.ie – front page

you`ve recycled all items....

recyclable   not recyclable

see the full list
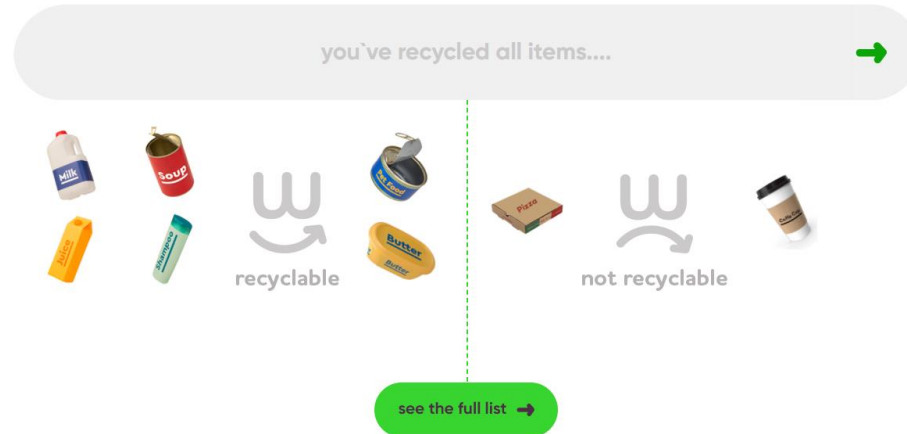
MyWaste.ie – A to Z

If you have a take out pizza, be sure to scrape of any food waste and then the box can be placed in the recycle bin, you can put the scrapings in the food waste [brown] bin
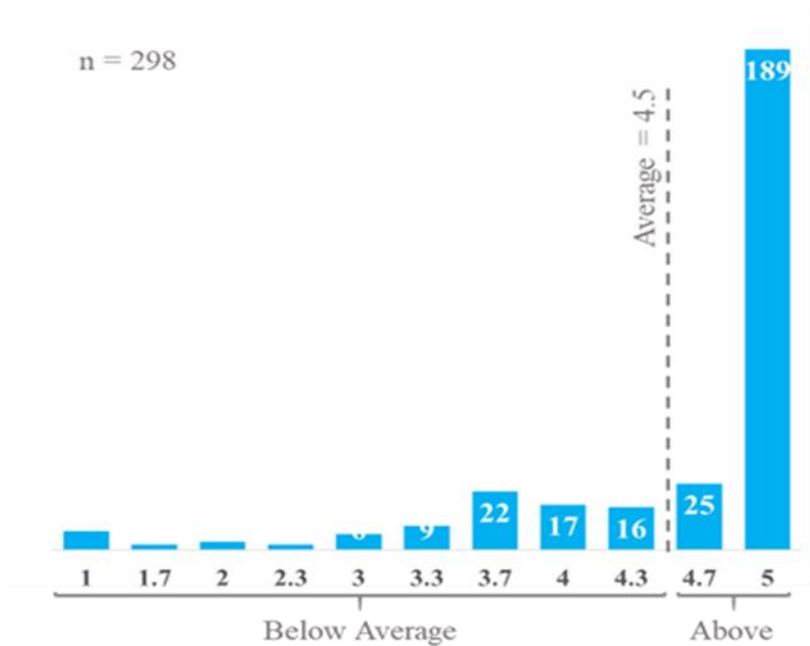
Old Clothes

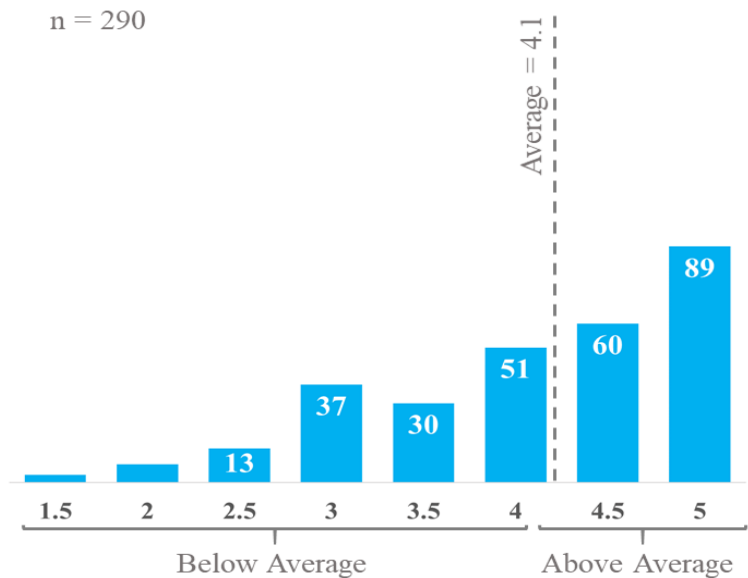EPA (2018) estimated that 45,000 tonnes of textiles were disposed of incorrectly.

Of 8 CAF's in Dublin area, only Bray is flagged to accept textiles.

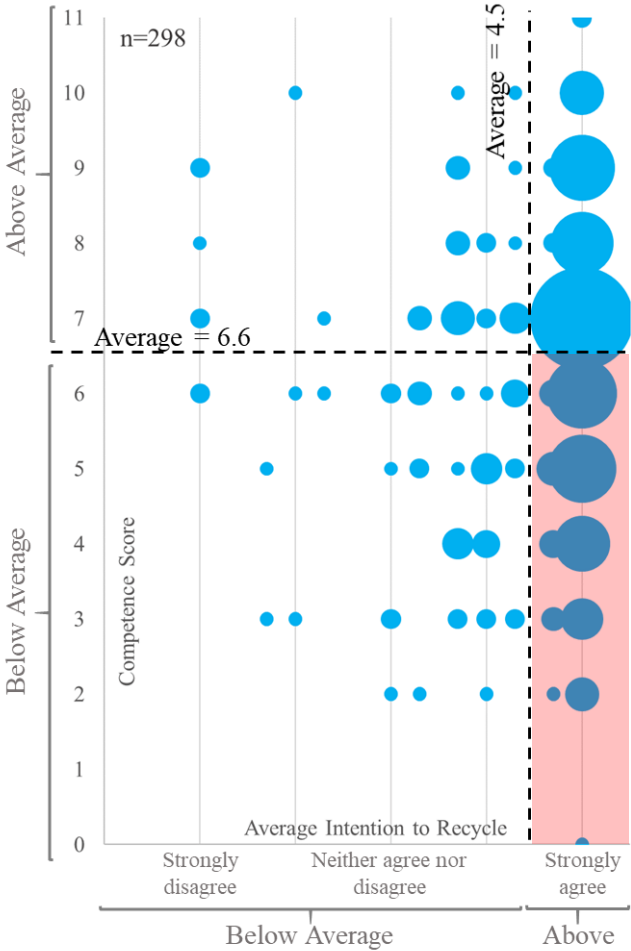# Findings – Theory of Planned Behaviour

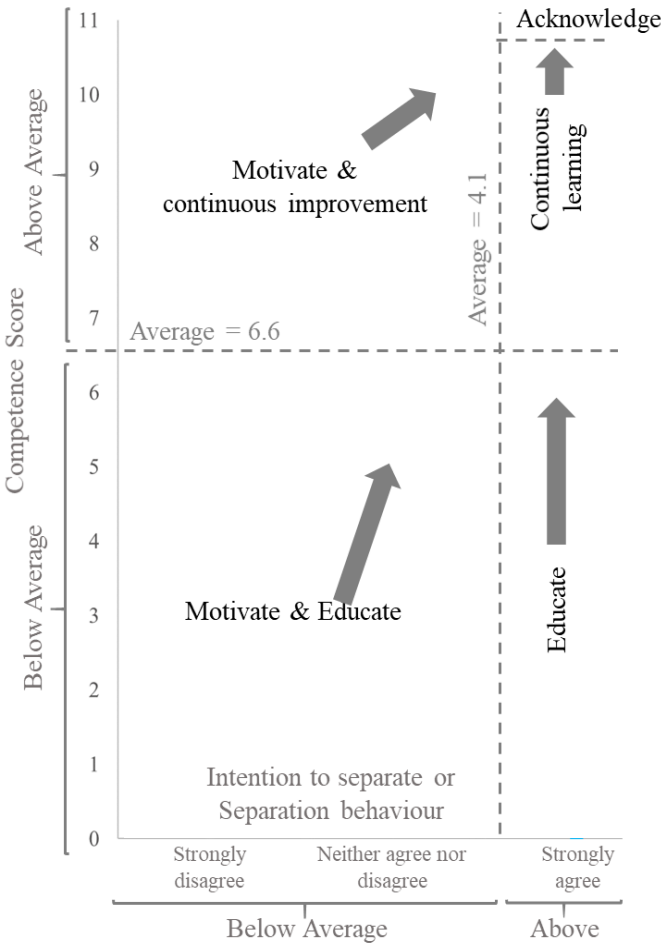**Intention to Recycle**

Recycling Behaviour

Respondents are enthusiastic about recycling and believe they recycle.

Findings – Combined

Competence Score and Intention to Recycle
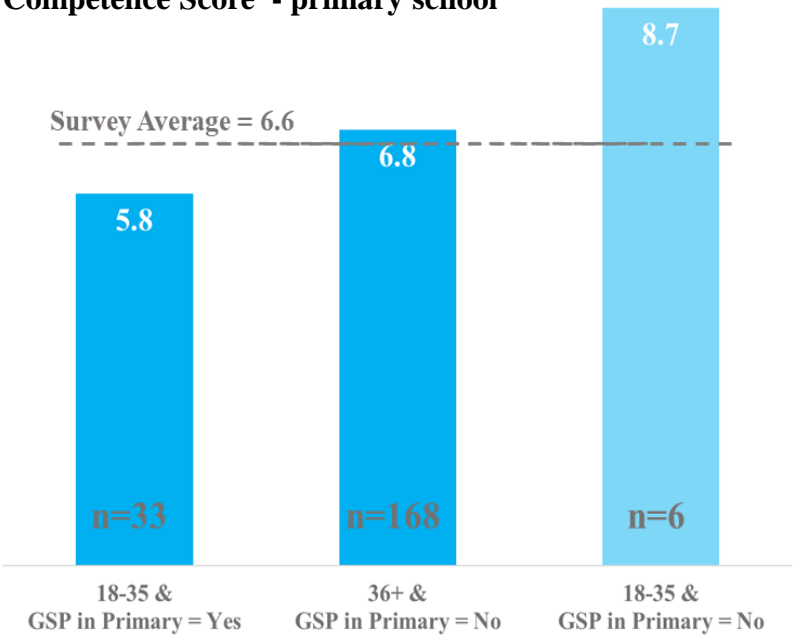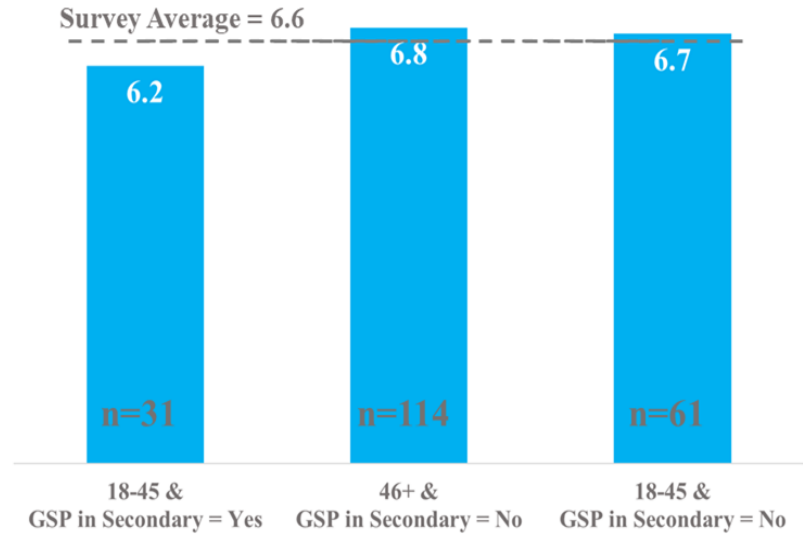

DDH Matrix (Desired Disposal Habits)

Competence Score – participation in the Green Schools Program

Competence Score - primary school

Survey Average = 6.6

5.8	6.8	8.7
n=33	n=168	n=6
18-35 & GSP in Primary = Yes	36+ & GSP in Primary = No	18-35 & GSP in Primary = No

Competence Score - secondary school

Survey Average = 6.6

6.2	6.8	6.7
n=31	n=114	n=61
18-45 & GSP in Secondary = Yes	46+ & GSP in Secondary = No	18-45 & GSP in Secondary = No

Findings – Competence Score – by age band

n = 298
Survey Average = 6.6

Age band	Score	n
18 - 25	6.1	n=28
26 - 35	6.5	n=37
36 - 45	6.3	n=88
46 - 55	6.8	n=87
56 - 65	7.4	n=37
65+	6.1	n=21
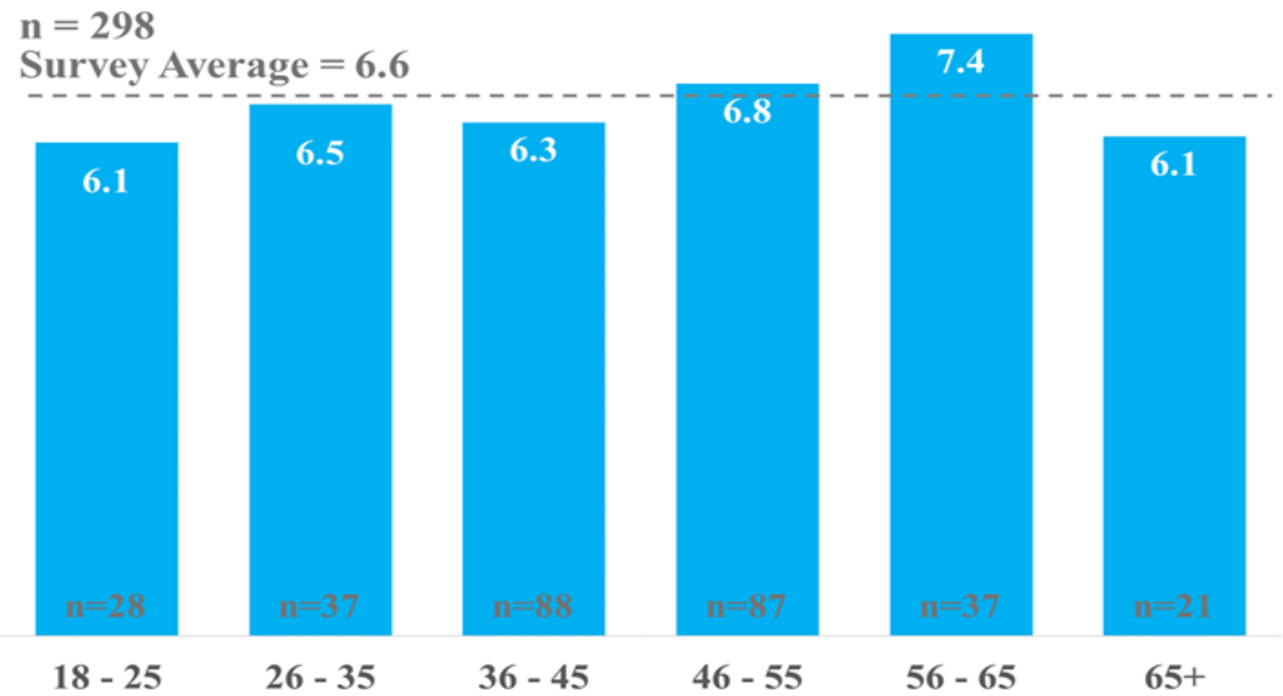
Findings – future sources of waste separation learning

CS by sources of waste separation knowledge

Average CS = 6.6

n=298

- % of Sample selecting Response #/n (%)
- Average Competence Score

| Source	%	CS
From my waste provider	51%	6.8
From a government or council website	37%	7.2
At home from my parents	18%	6.7
At home from my children	9%	7.1
At primary school	9%	6.1
I haven't learned about waste	9%	5.3
At secondary school	8%	7.1
From a voluntary community scheme, e.g. tidy towns	6%	6.6
At third-level college / university	5%	6.5
From participating in a voluntary scheme		0.0

Expectation from paid service provider to provide details behind service.
Those consulting government websites have highest average competence score.

Recommendations to resolve complexity for a broad audience

Separation decision tree

229
Types of items

Home
3 bins types

Civic Amenity Facility
12 – 25 bin types
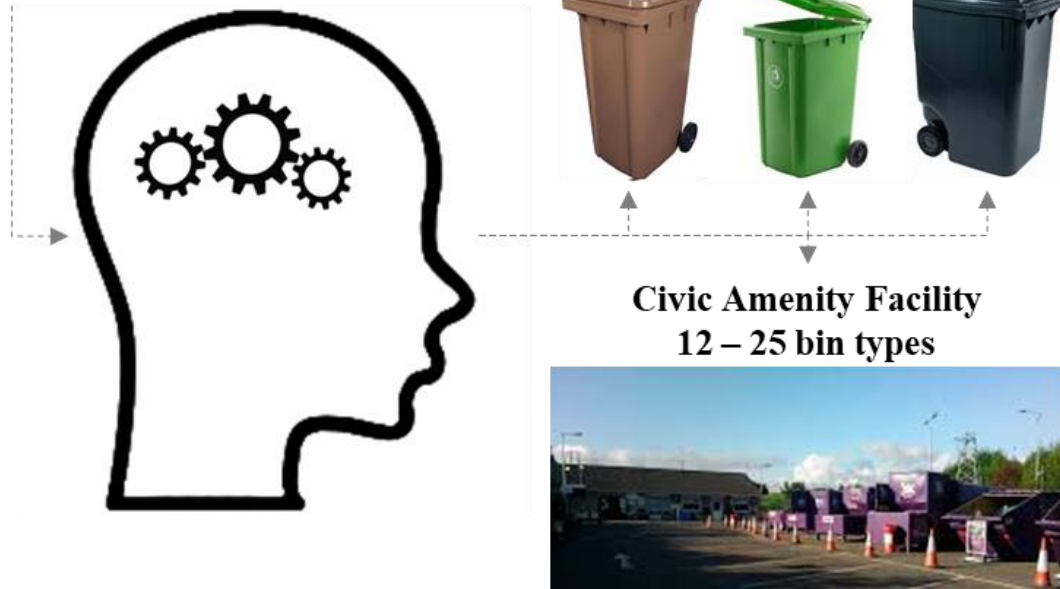
Address complexity in waste separation to simplify processes for users

Standardise waste infrastructure to support consistent marketing of services

Simplify information to facilitate continuous learning & reduce time to digest information

Complement GSP within the curriculum and class-based learning objectives

Ireland's guide to waste

mywaste

Refresh our knowledge annually

Use shopping habits to influence producers

Use election calls to influence your local politicians

Thank you