

**Illustrated through
the cases of electric
vehicles, energy
efficiency, online
purchasing,
healthcare and
hospitality**



Making Big Discoveries Big Data, AI, Machine Learning & Behavioural Science

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Presentation Outline

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Electric vehicles and 'affect heuristic'

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4

Online purchase and 'behaviour costs'

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Patient experience and 'peak-end'

6

Hotel experience and 'peak-end'

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Five tips to maximise AI-BeSci

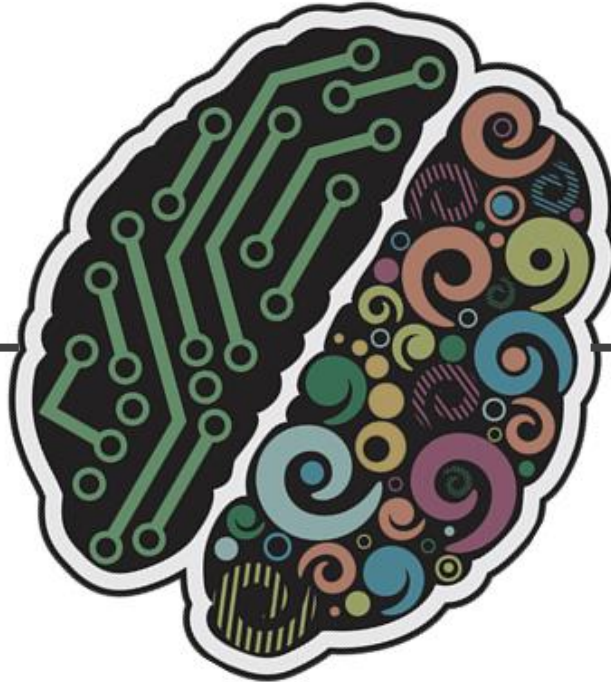
AI and machine learning

- **Supervised** machine learning still main form of AI
- MLAs ability to 'see' and **detect patterns** in data
- But machines remain **social-cognitive dummies**



MLA eyes + BeSci brains

MACHINE
LEARNING EYES

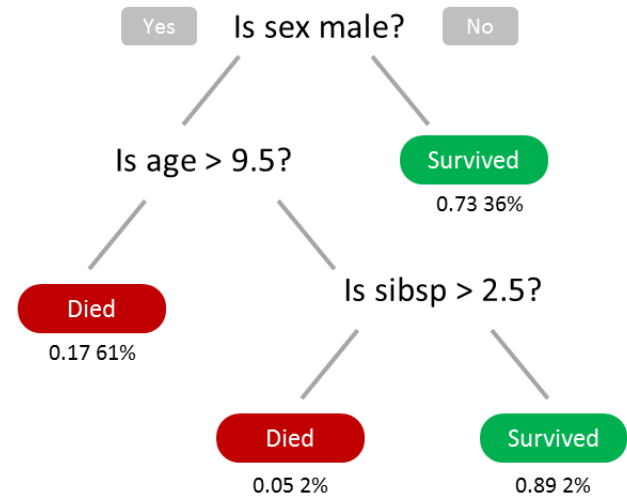


BEHAVIOURAL
SCIENCE BRAINS

Classification and regression trees

- **CRT with supervised learning** used by tax evasion, national security risk, financial risk, voting, online searching behaviour, buying behaviour, healthcare outcomes, etc.
- MLAs often used to ‘score’, identify and **predict**
- Patterns also provide **behavioural insights**

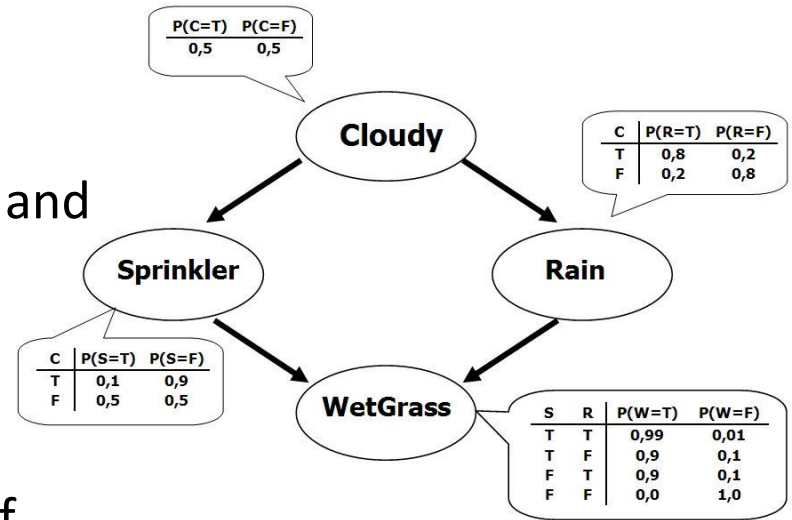
Survival of Titanic passengers



A tree showing survival of passengers on the Titanic ("sibsp" is the number of spouses or siblings aboard). The figures under the leaves show the probability of survival and the percentage of observations in the leaf

Bayesian (belief) networks

- BNs used to **identify complex structures**, often used when ‘deep learning is required’, but becoming more widely used
- BNs are able to **identify causal structures** and recognises **inter-dependent nature** of relationships
- Good at illustrating **cognitive structures** of markets, behaviours, etc...



Electric vehicles and 'affect heuristic'



EV4 How favourable or unfavourable is your overall opinion or impression of EVs

Node 0

	Category	%	n
	Very unfavourable	3.6	57
	Mainly unfavourable	10.6	168
	Neutral	39.5	626
	Mainly favourable	31.1	493
	Very favourable	15.3	242
	Total	100.0	1586

EV6 Are the way of the future Improvement = 0.217

Node 1
Somewhat agree ; Strongly agree

	Category	%	n
	Very unfavourable	0.9	9
	Mainly unfavourable	5.8	60
	Neutral	29.8	306
	Mainly favourable	41.3	425
	Very favourable	22.2	228
	Total	64.8	1028






Node 2
Don't know ; Neither agree nor disagree ;
Somewhat disagree ; Strongly disagree






	Category	%	n
	Very unfavourable	8.6	48
	Mainly unfavourable	19.4	108
	Neutral	57.3	320
	Mainly favourable	12.2	68
	Very favourable	2.5	14
	Total	35.2	558

EV6 Are reliable cars
Improvement = 0.028

Node 5
Somewhat agree ; Strongly agree

Node 6
Don't know ; Neither agree nor disagree ;
Somewhat disagree ; Strongly disagree






	Category	%	n
	Very unfavourable	0.0	0
	Mainly unfavourable	5.3	9
	Neutral	22.8	39
	Mainly favourable	52.0	89
	Very favourable	19.9	34
	Total	10.8	171






	Category	%	n
	Very unfavourable	0.9	4
	Mainly unfavourable	10.2	43
	Neutral	47.4	200
	Mainly favourable	36.5	154
	Very favourable	5.0	21
	Total	26.6	422

EV6 Have a driving distance range that is suitable for my needs
Improvement = 0.011

Node 7
Somewhat agree ; Strongly agree

Node 8
Don't know ; Neither agree nor disagree ;
Somewhat disagree ; Strongly disagree

	Category	%	n
	Very unfavourable	1.2	1
	Mainly unfavourable	5.9	4
	Neutral	31.8	27
	Mainly favourable	48.2	41
	Very favourable	12.9	11
	Total	5.4	85

	Category	%	n
	Very unfavourable	0.9	3
	Mainly unfavourable	11.3	38
	Neutral	51.3	173
	Mainly favourable	33.5	113
	Very favourable	3.0	10
	Total	21.2	337

Electric vehicles and the 'affect heuristic'

1.

Feeling of 'driving the future' will encourage EV adoption

2.

Focusing on the 'short-cut' means people are more willing to engage

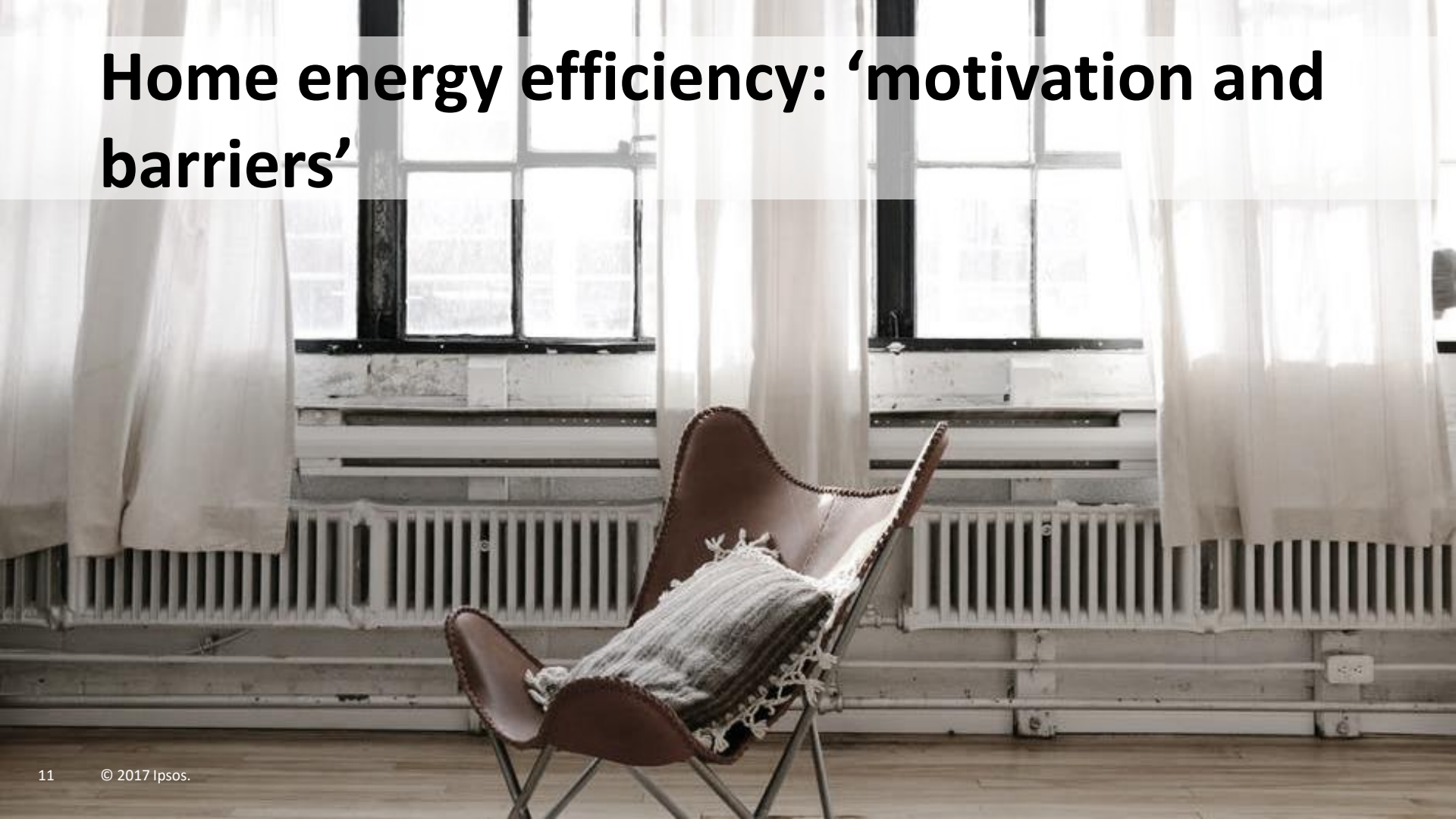
3.

Identify and understand heuristics to trigger desired behaviour change

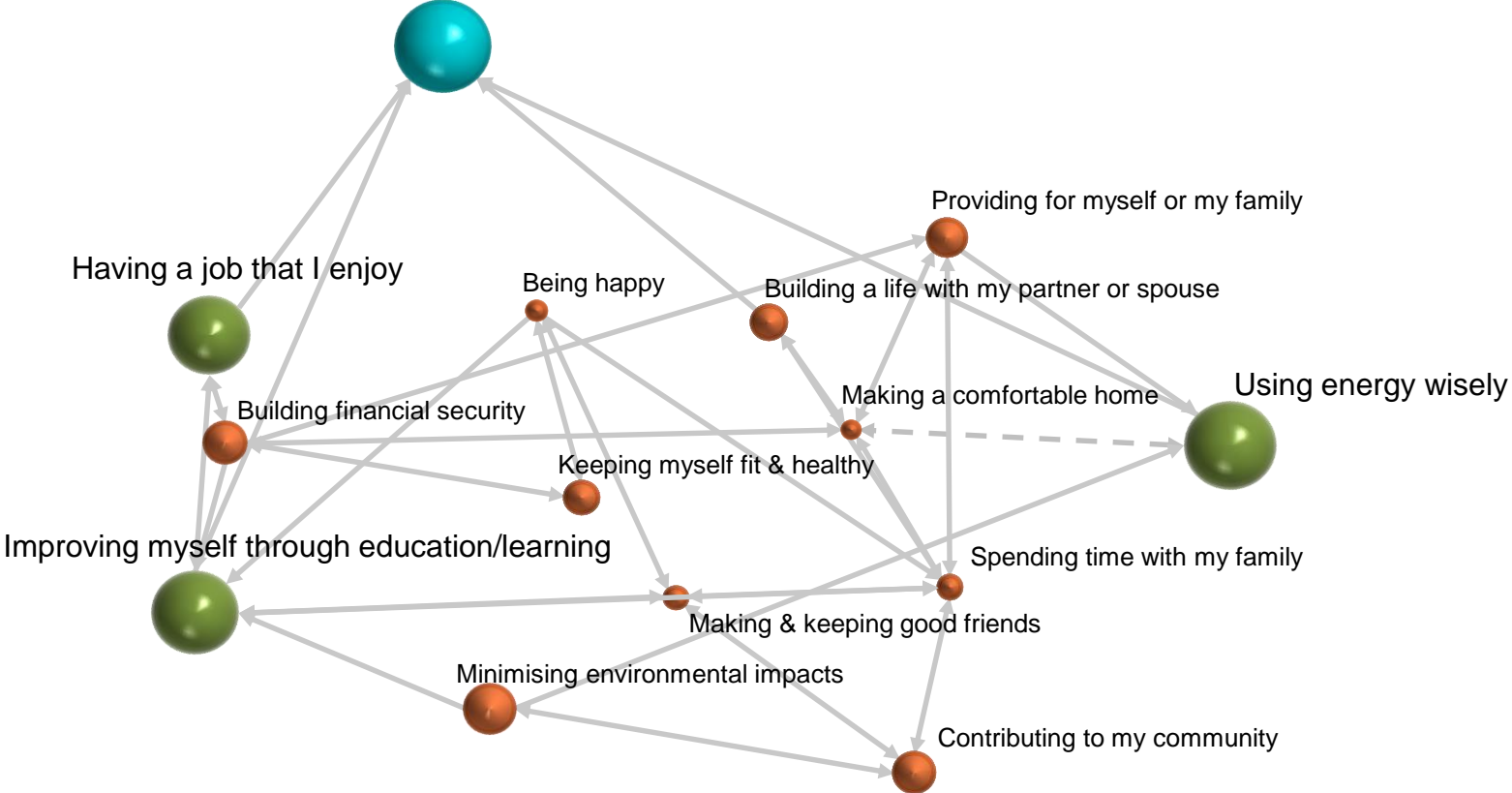


TESLA

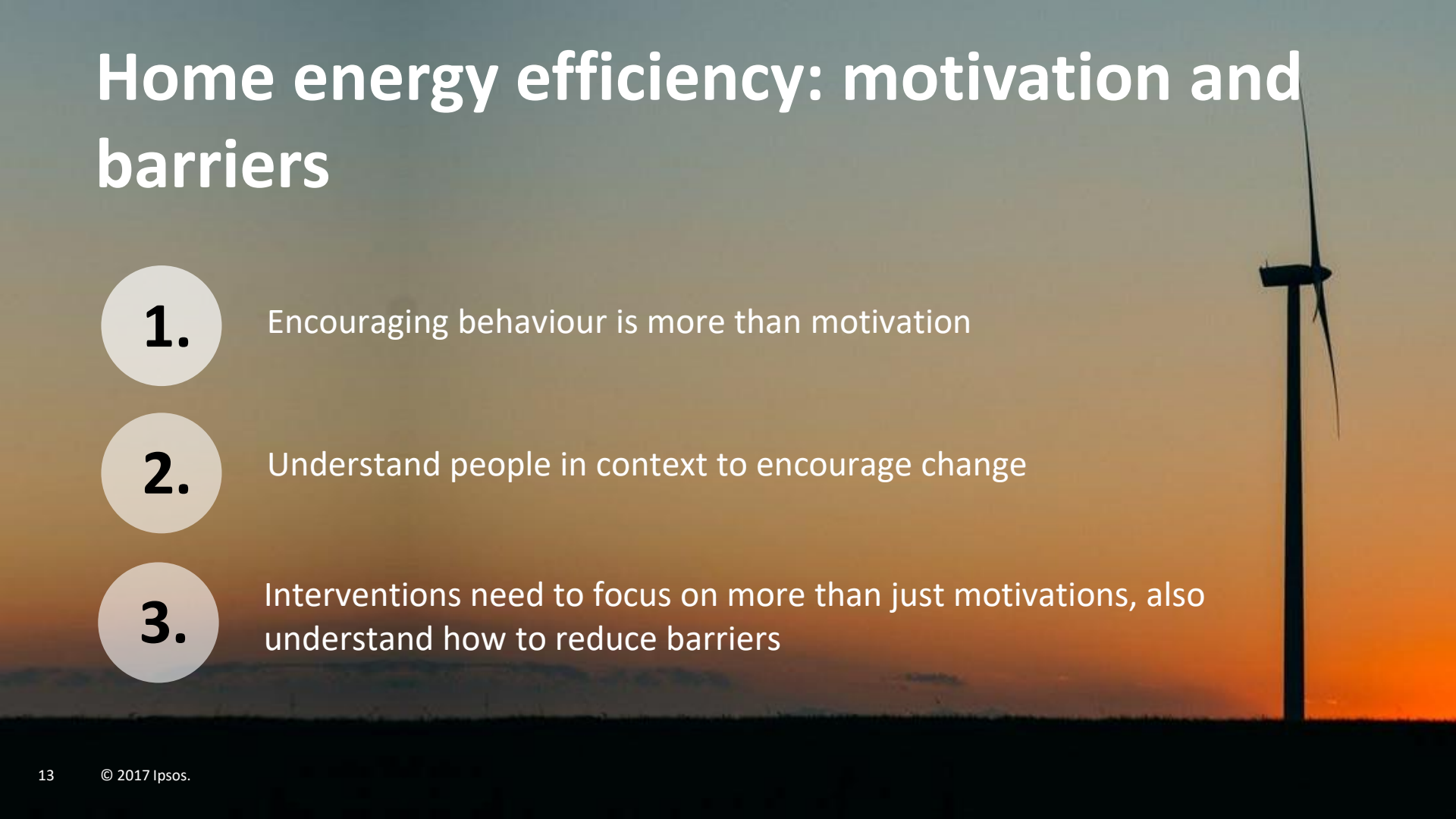
Home energy efficiency: 'motivation and barriers'



Number of energy efficient actions done



Home energy efficiency: motivation and barriers



1.

Encouraging behaviour is more than motivation

2.

Understand people in context to encourage change

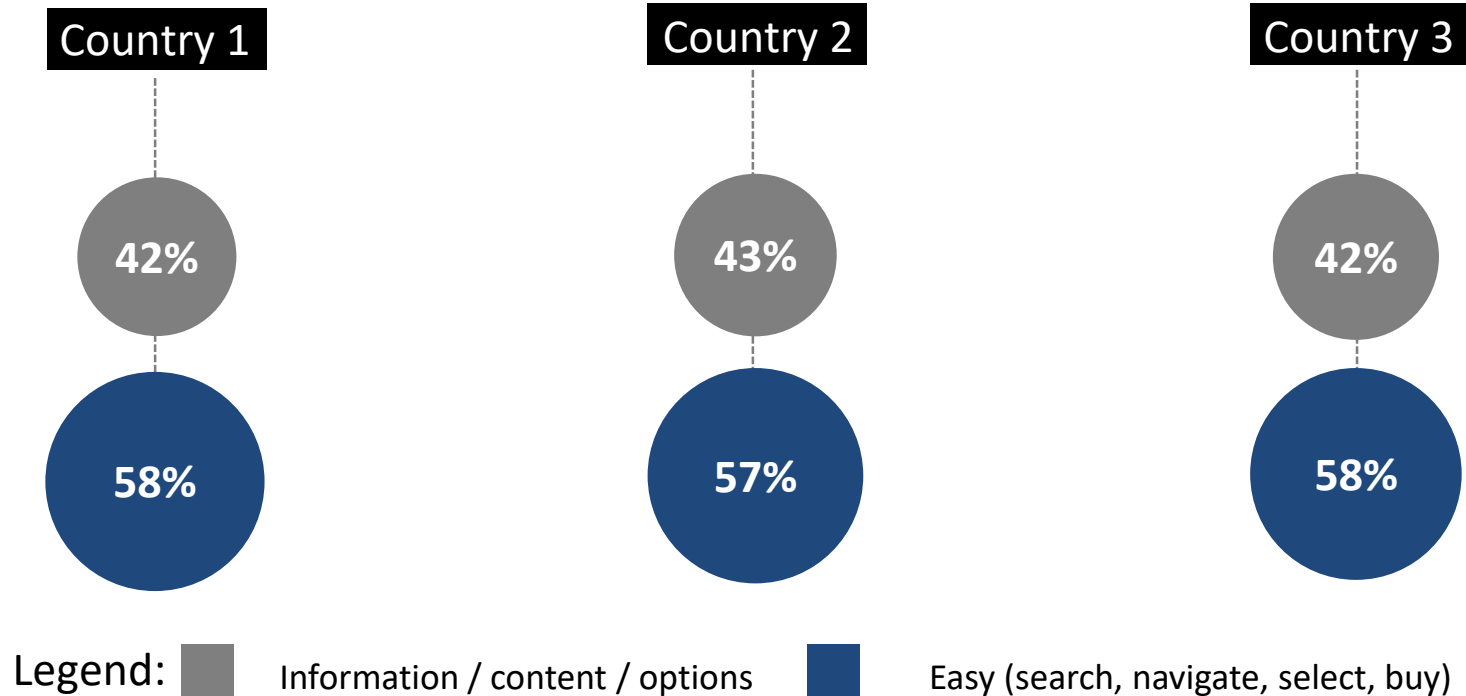
3.

Interventions need to focus on more than just motivations, also understand how to reduce barriers

Online purchase and 'behavioural costs'



Impact of customer experience on overall impression (SEA)



Online purchase and 'behavioural costs'

1. Misallocation of marketing resources?
2. Underestimating 'behavioural costs'
3. Less leverage in motivation than costs



Healthcare: patient experience and 'peak-end effect'



Impact of patient experience on patient memories

Experience	Overall impression index	
Politeness and courtesy of admission staff: very good	143	and
Care and treatment from nurses: very good	122	and
Care and treatment from Drs: very good	133	and
Discharge process: very good	143	

Impact of patient experience on patient memories

Experience	Overall impression index	
Care and treatment from nurses: very good	122	and
Care and treatment from Drs: very good	133	and
Discharge process: good to very poor	114	and
Politeness and courtesy of admission staff: good to very poor	89	

Patient experience and 'peak-end' effect

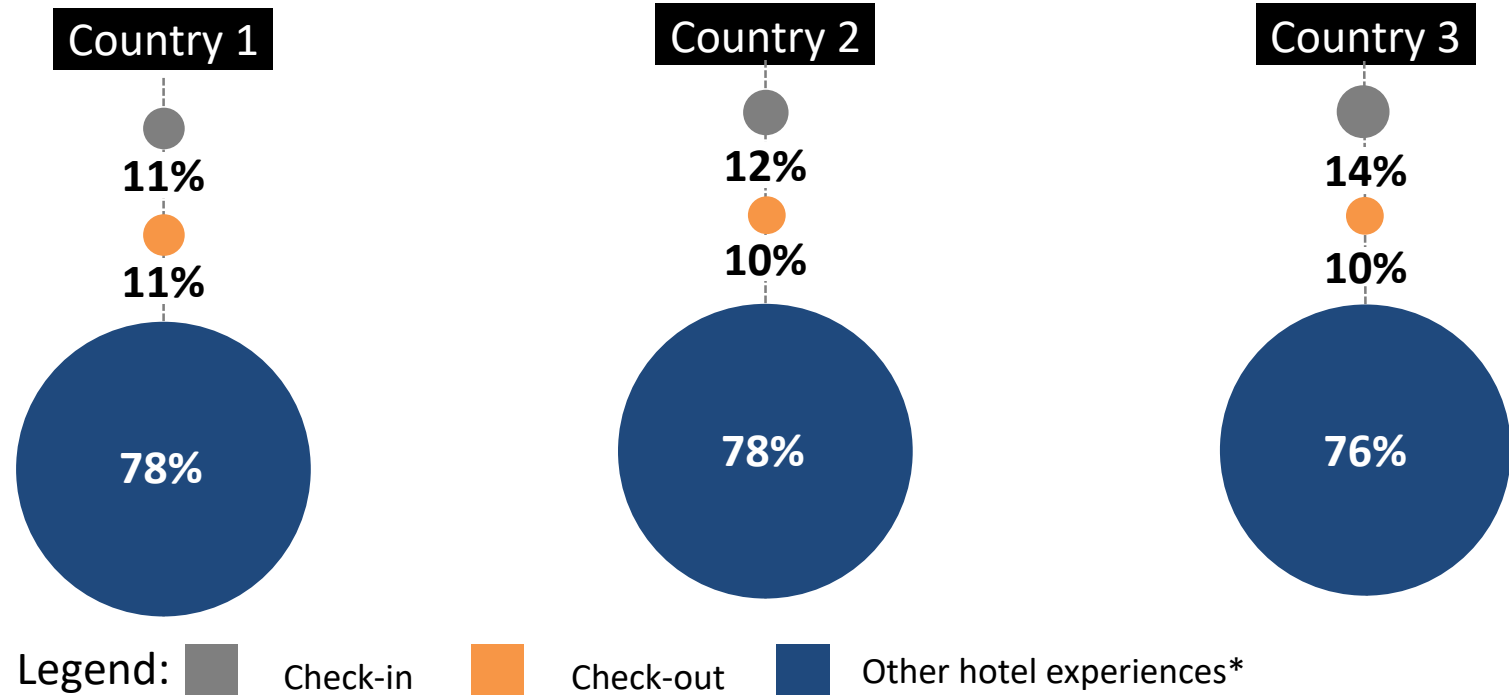
1. No observed 'peak' effect
2. But strong impact of 'end' effect at patient discharge
3. Unexpected strong effect at patient admission
4. BeSci principles + context
5. Re-design discharge process



Hotel customers and peak-end effect



Impact of customer experience on overall impression (SEA)



Hotel experience and 'peak-end' effect

1.

No 'end' effect in check-out experience

2.

Hotel policy addresses check-out negatives

3.

Opportunity to build positive experience

The END



Five tips to maximise AI/BeSci benefits

1. Go beyond driver rank
2. Let machines find patterns
3. Know cognitive mechanisms
4. Think person + context
5. Accelerate cooperation

