

JDM Lab

Judgment and Decision-Making Laboratory
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**Psychology, Decision Making, and
Education to a Circular Economy**

School of Science
2023-2024

NUDGING

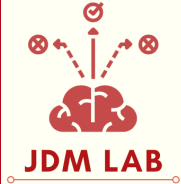
Enrico Rubaltelli, Ph. D.

COLLECTIVE CONSEQUENCES OF INDIVIDUAL BEHAVIORS

- The effects of sub-optimal decisions do not affect individual lives only, but the whole society:
 - If a person cannot support himself/herself while on retirement, the the community will have to provide financial support to reduce the hardship and make life easier.
 - If a person refuse a medical treatment, the healthcare system will have to cover the expenses for a more sever condition down the road.
 - If people decide not to comply with waste and garbage disposal systems, the whole society will pay the consequences of these actions.

HOW TO INTERVENE?

- Recent economic approaches based on judgment and decision-making research suggested that we should modify how we look at economic interest in our societies:
 - Traditionally the only “practical” interest of economics was to gain a profit from consumers’ choices.
 - The goal has always been to convince consumers to eat a lot, smoke, buy lottery tickets, make debts using their credit cards...
 - Even companies that apparently want to help consumers (e.g., anti-nicotine or low-calorie products) are actually pushing for people to smoke or develop obesity.



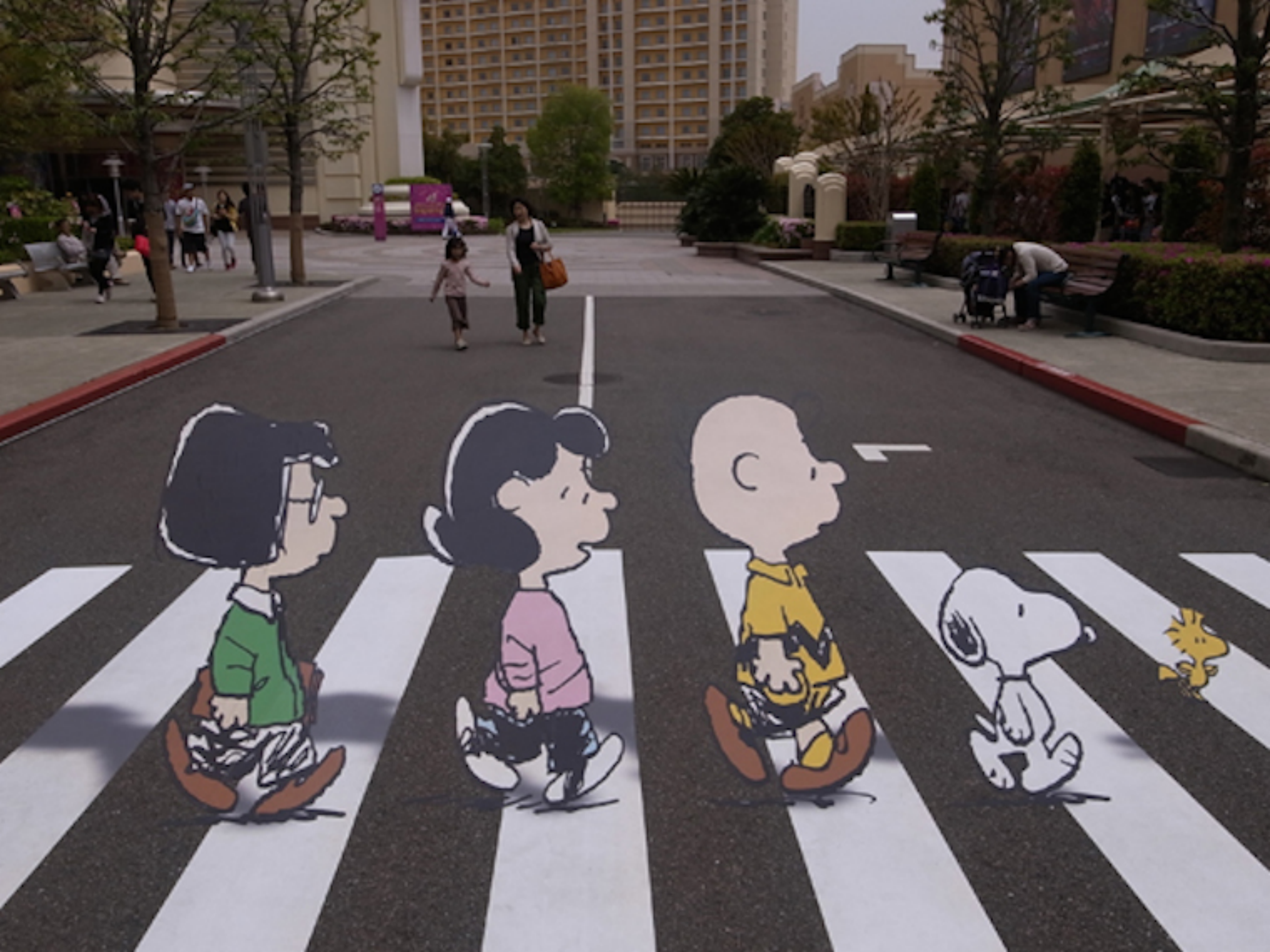
HOW TO INTERVENE?

- The new approaches aim at finding solutions that promote behaviors that favor both:
 - Individual well-being.
 - Companies profit and an effective use of public resources.

HOW TO INTERVENE?

- One particular solution is to “induce” people to behave in a more virtuous way.
- Such a solution may seem to put two opposite views of public policy in conflict:
 - Liberalism (freedom of choice): Each person must be free of choosing which alternative or behavior they prefer (e.g., whether to save for retirement or not).
 - Paternalism (reduction of choice freedom): When people are unable to choose the best alternative it is right to force them (e.g., help savings through a withdrawal from workers salaries).

These two positions seem incompatible. However, they both have pros and cons.



EXAMPLE OF NUDGE 1



EXAMPLE OF NUDGE 2



EXAMPLE OF NUDGE 2

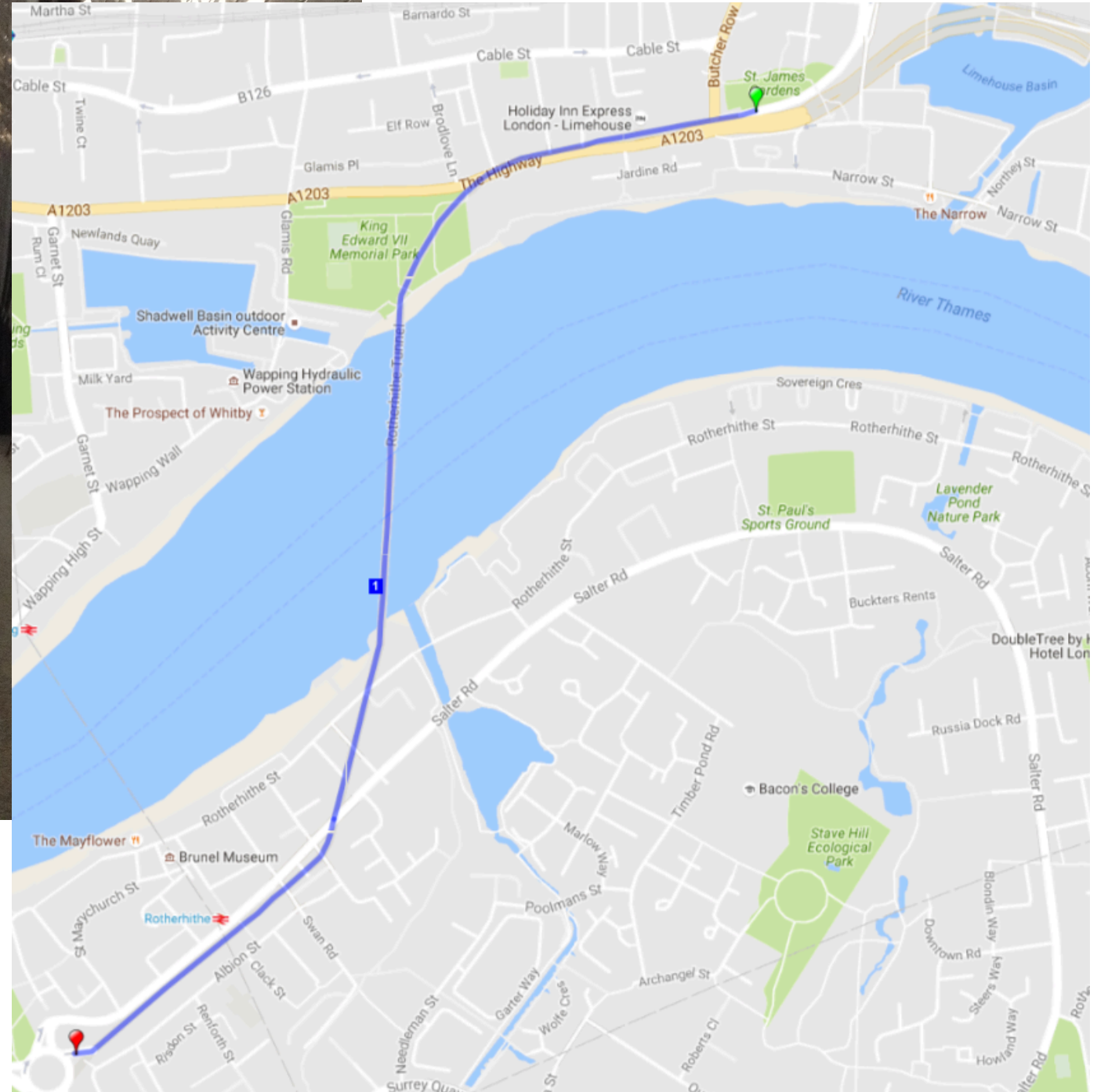


EXAMPLE OF NUDGE 3

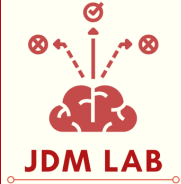


Rotherhithe Tunnel
(London)

EXAMPLE OF NUDGE 3



**Rotherhithe Tunnel
(London)**



POSSIBLE INTERVENTIONS

- By taking advantage of decision biases it is possible to design public and economic policies that leave people free to choose how to act while at the same time increasing the likelihood that they behave in the most advantageous way.

POSSIBLE INTERVENTIONS

- Several psychological phenomena can be used to achieve this goal:
 1. Defaults rules (automatic enrollment)
 2. Simplification (reduction in the complexity of the decision context)
 3. Social norms and social comparison (highlight others' behavior)
 4. Convenience (offering low-cost solutions or making healthy alternatives more visible)
 5. Disclosure (making the cost of a behavior explicit)

POSSIBLE INTERVENTIONS

6. Notifications and graphic solutions (like the images on cigarette packages)
7. Pre-commitments (asking people to commit to a specific program)
8. Reminders (text messages or emails reminding people to pay bills or other expenses)
9. Behavioral intentions (messages to increase voters turn-out)
10. Feedback about the outcome of past choices (an household's past electric expenses)

POSSIBLE INTERVENTIONS

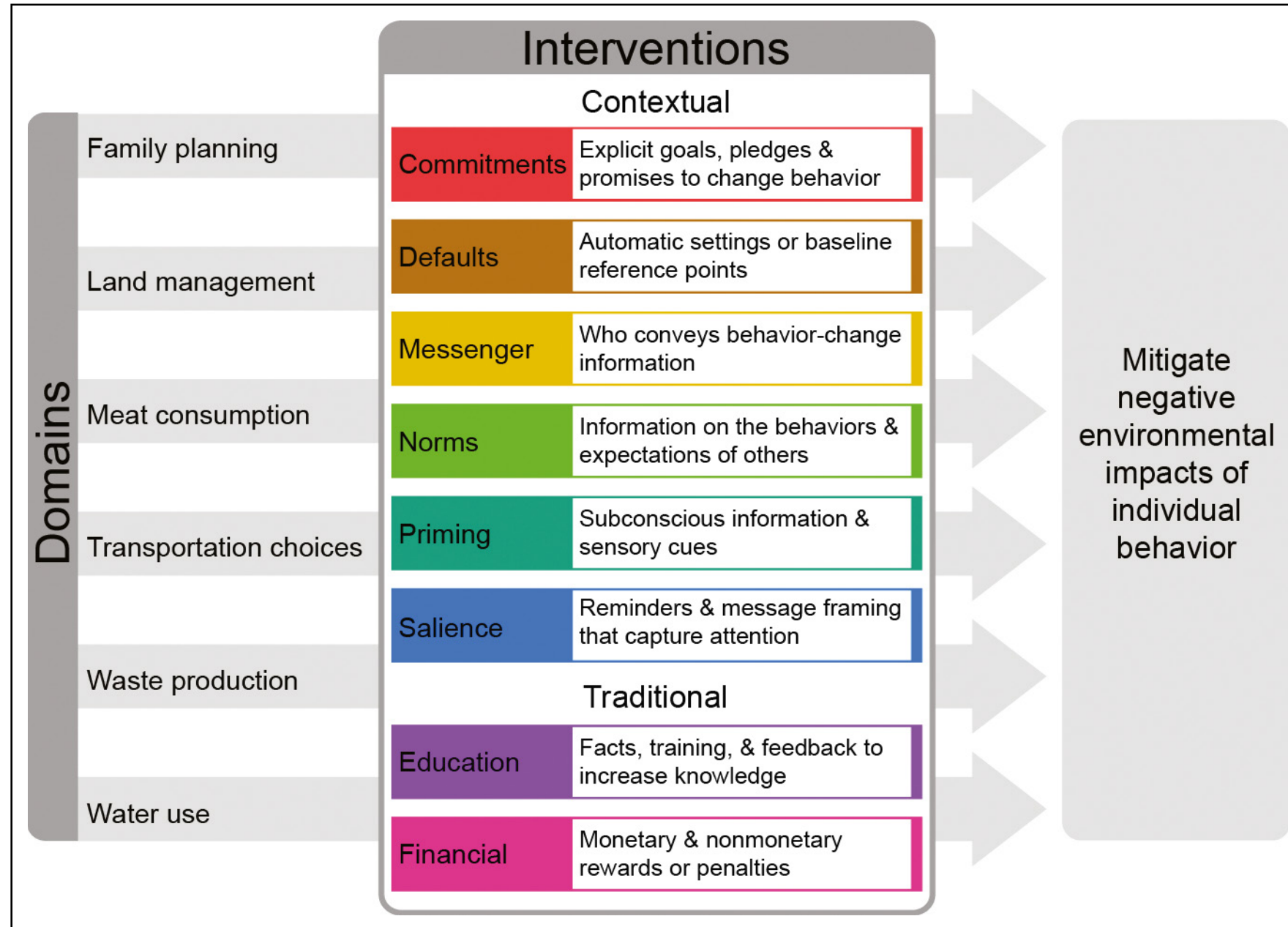


























Figure 3. Behavior-change interventions that target decision making in six domains where human behavior has large impacts on the environment. See Panel 1 for a summary of evidence on energy use and recycling. Variables are adapted from Dolan et al. (2012).

POSSIBLE INTERVENTIONS

Intervention	Promising	Mixed	No effect
Commitments			
Defaults			
Messenger			
Norms			
Priming			
Salience			
Education			
Financial			

Notes.  = family planning;  = land management;  = meat consumption;  = transportation choices;  = waste production;  = water use. Domains are allocated to a particular column according to the proportion of studies in that domain that measured a statistically significant effect of that intervention, as reported by the studies' authors. *Promising* = 75% or more results found an effect; *Mixed* = less than 75% but more than zero results; *No effect* = none of the studies that tested that intervention detected an effect. See Figure 4 for the relative frequency of tested interventions within each domain.



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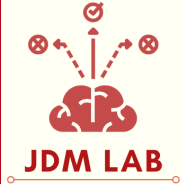
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Could A Nudge Improve Safety At Railway Platforms?

by Simon Carøe Aarestrup | Jun 28, 2017 | English post

What would you do, if somebody asked you to develop a solution that prevents people from falling down onto the railway tracks – and where would you even start? Most people would likely counter the...



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by Simon Carøe Aarestrup | Apr 21, 2017 | English post




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Action Choreography Pt. 1: The Reason Why You Should Know The Term Action Choreography



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NUDGE IS AN EVIDENCE-BASED APPROACH

- Evidence-based policy (EBP) offers a systematic form of validation for decision-making in leadership (Ruggeri et al., 2021).
 - Those responsible can refer to “the evidence” at the front end.
 - This is why it is a good decision.
 - And for any outcomes.
 - This decision was made on the best information available at the time.

NUDGE IS AN EVIDENCE-BASED APPROACH

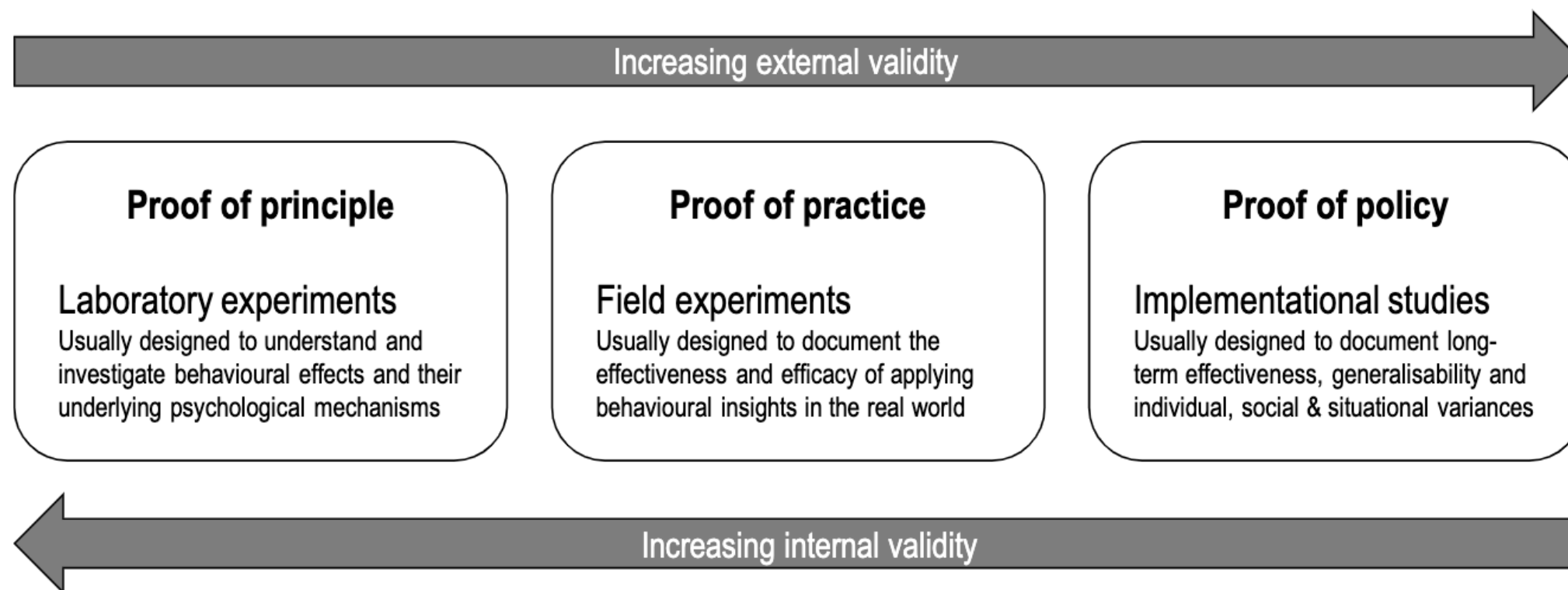
- Evidence-based policy (EBP) refers to scientifically supported conclusions that are (for the most part) identified through peer-reviewed sources (Bowen & Zwi, 2005; Lin & Gibson, 2003).
- EBP is a paradigm that incorporates research evidence into the process of decision-making:
 - That is, the process of identifying the best option to tackle the defined problem.

NUDGE IS AN EVIDENCE-BASED APPROACH

- Key characteristics of EBP:
 - Relevance: Impact that the evidence can create and its generalization.
 - Quality, accuracy, and objectivity of the methods.
 - Credibility: Internal reliability of the evidence.
 - Practicalities: How accessible the evidence is for policymakers along with its feasibility and affordability (Ruggeri et al., 2021).

NUDGE IS AN EVIDENCE-BASED APPROACH

Figure 2.14. From “proof of concept” to proof of implementation in studies on effectiveness of nudging



Source: OECD Basic Manual

GUIDELINES TO CREATE “GOOD NUDGES”

- Thaler and Sunstein (2008) identified three fundamental criteria that define a nudging intervention:
 - Nudges must be transparent and not deceptive.
 - Changing a decision should be as easy as possible (ideally, it should be as easy as a simple mouse click).
 - Good reasons must exist to think that the behavior favored by a nudge can increase people’s well-being.
- These criteria mark the fundamental difference between nudging and persuasion. Many companies used nudges, but most of the times without adhering to all three criteria (they are closer to persuasion than nudging).

STRATEGIES TO CREATE EFFECTIVE NUDGES

1. Easy: Simplifying messages and requests.

- To encourage a behavior it is importante to make it easy to adopt, to discourage a behavior it must be made harder to do.

2. Attract: Make visible the benefits of a behavior.

- It could be very valuable to attract people's attention, for instance by making something more salient. An offer or suggestion must be at least attractive.

STRATEGIES TO CREATE EFFECTIVE NUDGES

3. Social: To impact people's behavior it is important to understand their social networks and the comparisons they make with others around them.

- Often we do not see others' choices, but we infer them (and the inference can be wrong!).

4. Timely: How important is the moment in which the intervention is introduced?

- It matters from a causal point of view. It is better to intervene early rather than when a habit is already formed (e.g., smoking).
- Even when a habit is formed, there are times in which it is easier to counteract it.
- When to ask for a "sacrifice"? Tomorrow is better than today!

- Three main types of green nudges:

1. Those that capitalize on consumers' desire to maintain an attractive self-image through 'green' behavior.

- We can therefore simplify product information or make some characteristics more prominent (e.g., eco-labels).
- These nudges use the 'easy' and 'attractive' strategies.

- Three main types of green nudges:

2. Those that exploit people's inclination to 'follow the heard' (for instance, by imitating the behavior of their peers).

- We can therefore convey specific social norms through peer comparison (e.g., home energy reports).
- These nudges use the 'social' strategy.

- Three main types of green nudges:

3. Those nudges that take advantage of purposefully set defaults that stipulate what happens if people don't actively choose (e.g., energy providers offering green energy as default).

- These nudges use the 'easy' strategy.

DEFAULTS AND STATUS QUO

- It is possible to design interventions to create defaults corresponding to the choice that is the most convenient for the single (or the community).
- This way, we should expect that only a minority of people would choose to modify the default condition:
 - For the pension funds, if the enrollment is the default solution, only people who have very strong reasons to leave the program should do that (e.g., people who are about to buy a new house and so on).

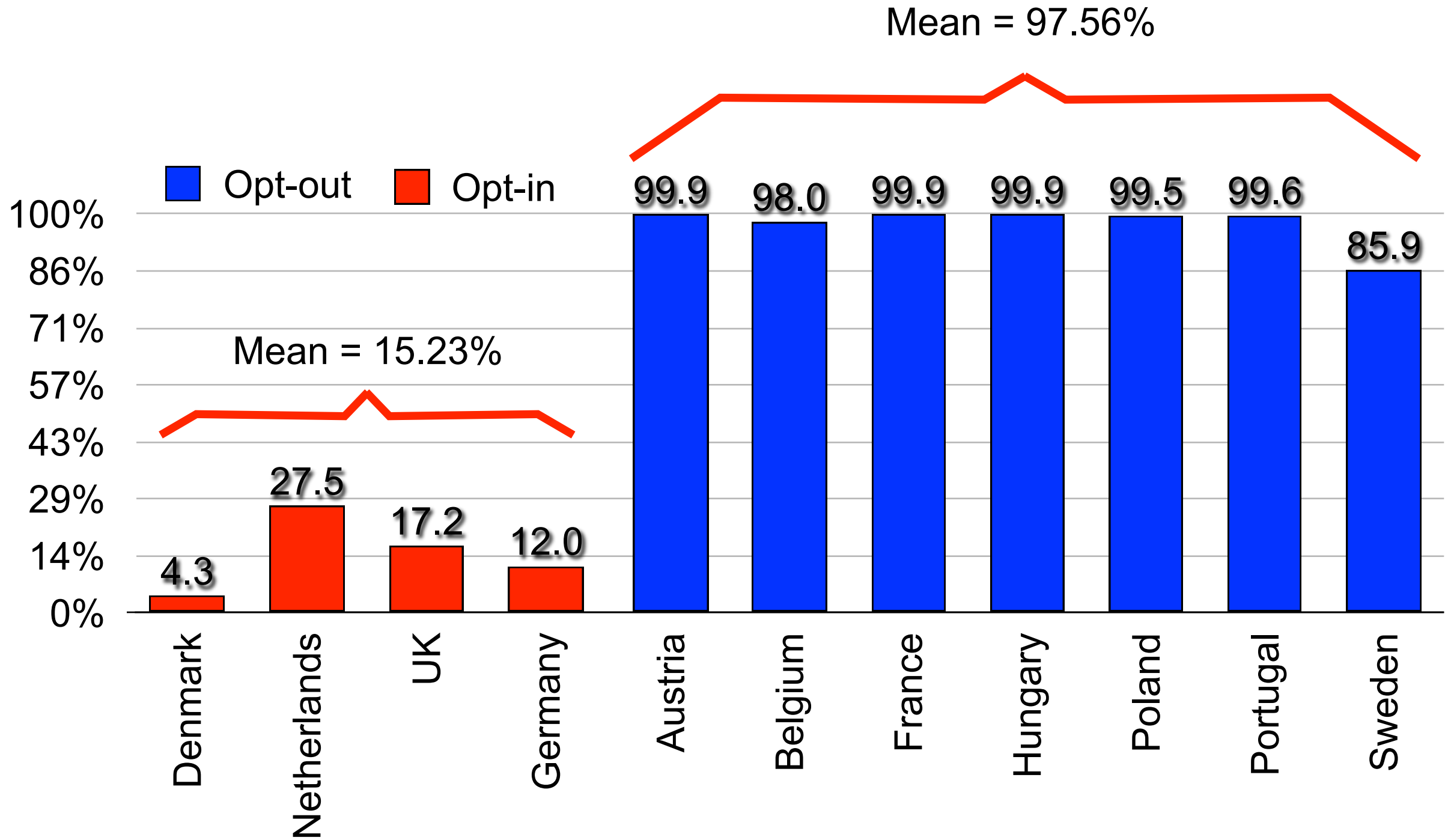
DEFAULTS AND STATUS QUO

- Similar to the pension funds intervention, organ donation is a relevant social issue both for single patients and for the well-being of the whole community.
- There are too few organs available for transplantation and it is paramount to increase the pool of organs.

DEFAULTS AND STATUS QUO

- Depending on how we choose the default, we can identify two strategies:
 - **Opt-in programs** (no one is a organ donor, but everyone can choose to enter the donation program).
 - **Opt-out programs** (everyone is an organ donor, but each person is free to leave the program).

DEFAULTS AND STATUS QUO



(Fonte: Johnson & Goldstein (2003). Do defaults save lives? *Science*, 302, 1338-1339).

'GREEN DEFAULTS'



- In many cases, when green energy is the default, people accept it even if it is more expensive.
 - But they do not opt-in into green energy when the default is a more traditional source of energy (e.g., coal).
 - Example 1: Town of Schönau, Germany.
 - Example 2: Energiedienst GmbH, Germany.



EFFECTS OF MAKING A BEHAVIOR EASY TO ADOPT



- In the UK, an intervention to help empty the lofts allowed to increase the number of households who chose to insulate their roofs.
- The intervention worked even when the cost was higher than just insulating the roof!

EFFECTS OF MAKING A BEHAVIOR HARD TO ADOPT



- It is possible to reduce negative behaviors in a similar vain, by making more difficult engage in them.
- If pills are sold in blisters rather than bottles it is significantly less likely that someone would use them to kill themselves.

FACILITATING GREEN BEHAVIOR



- An intervention induced people to waste less food during breakfast in 38 hotels (Kallbekken & Sælen, 2013).

Table 1

Average amount of food waste (kg) per hotel in the control group (38 hotels) and test groups (7 hotels in each group), before and after the treatment was introduced. Standard deviations in brackets.

Group	Pre-treatment food waste (kg, average per hotel)	Post-treatment food waste (kg, average per hotel)
Control	35.07 (34.63)	32.98 (30.77)
Reduced plate size	36.88 (51.06)	25.84 (27.15)
Salient sign	47.76 (38.88)	34.25 (25.84)

FACILITATING GREEN BEHAVIOR

- Nudges in this context can be more powerful than mandates (Lombardini & Lankoski, 2013).
 - Students in Finland responded to mandatory 'vegetarian days' in school canteens by taking food from home.

ECO-LABELING

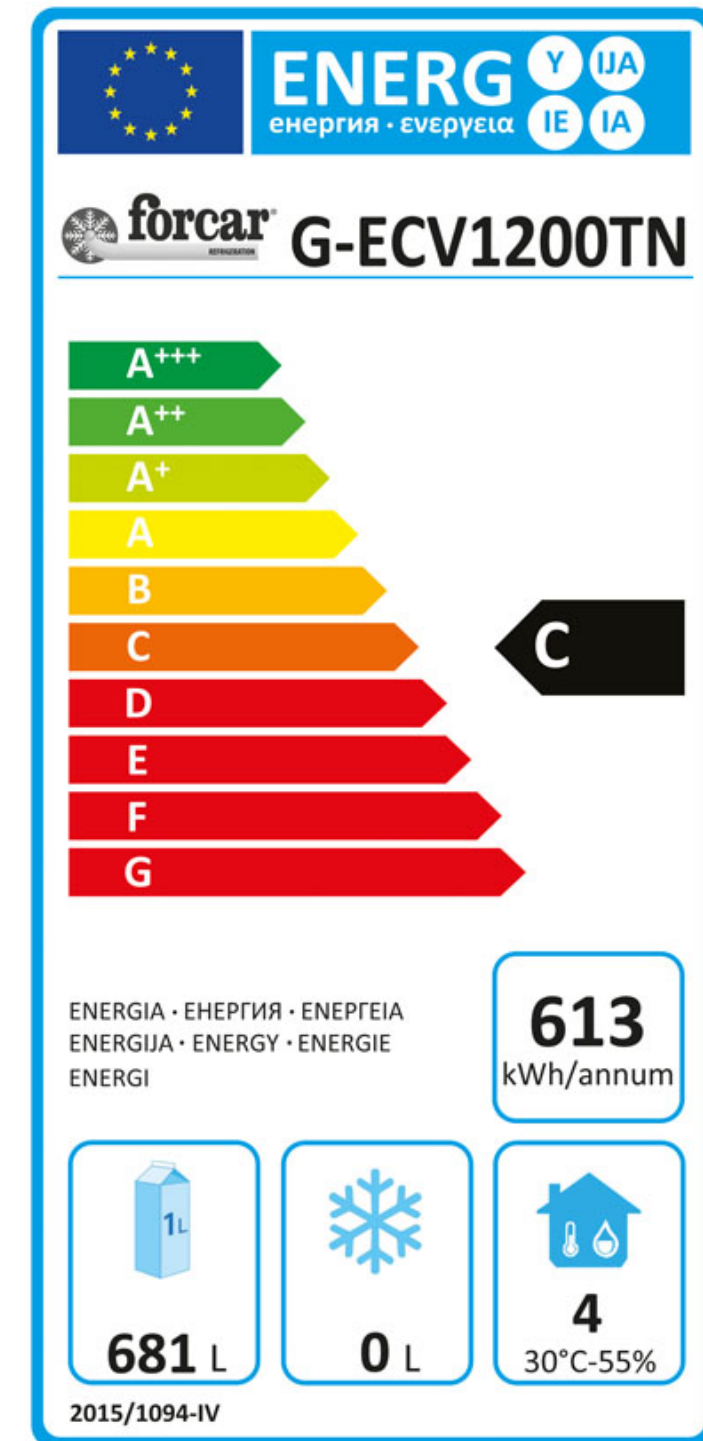
- Eco-labels provide useful information to consumer.
- They also confer a certain social value on environmentally relevant characteristics when pro-environmental behaviors are socially approved in a specific cultural context.
- Eco-labels can also be used to convey social norms

- Issues related to the use of labels:
 - They rely on rational assumption (e.g., people will process information in a consistent and logically sound way).
 - Simply providing information should improve their choices.

- However, consumers find hard to change their daily routines and habits (even when perfectly informed about the negative implications).
 - In addition, due to limited cognitive resources people can see product characteristics in a biased way.
 - Their values can also impact the effect of labels.
 - Conservatives are less likely to buy a (more expensive) energy efficient light bulb if labeled as 'environmental friendly' than when there is no label at all.

ECO-LABELING

- In the future it will be important to avoid the mistakes of the past (see energy labels).
- Originally they reported letters from A (in green) to G (in red).
 - In 1995, when 90% of refrigerators reached the best grade (A), the labels where modified introducing:
 - A+++; A++; and A+.
- Consumers perceived these three labels as almost equivalent and all as very good and became less likely to choose the most energy-efficient appliances.



ECO-LABELING

From March 2021 there will be **New Energy Labels** for

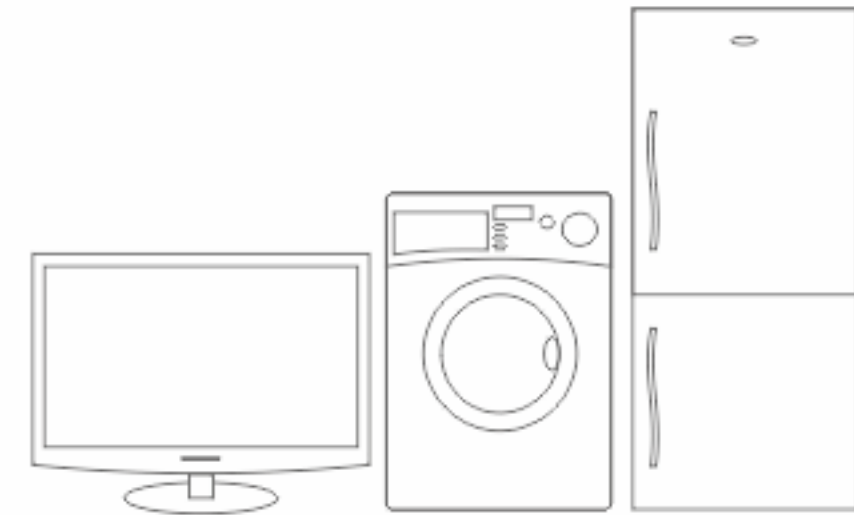


Washing Machines,
Dishwashers,
Refrigeration
& Televisions

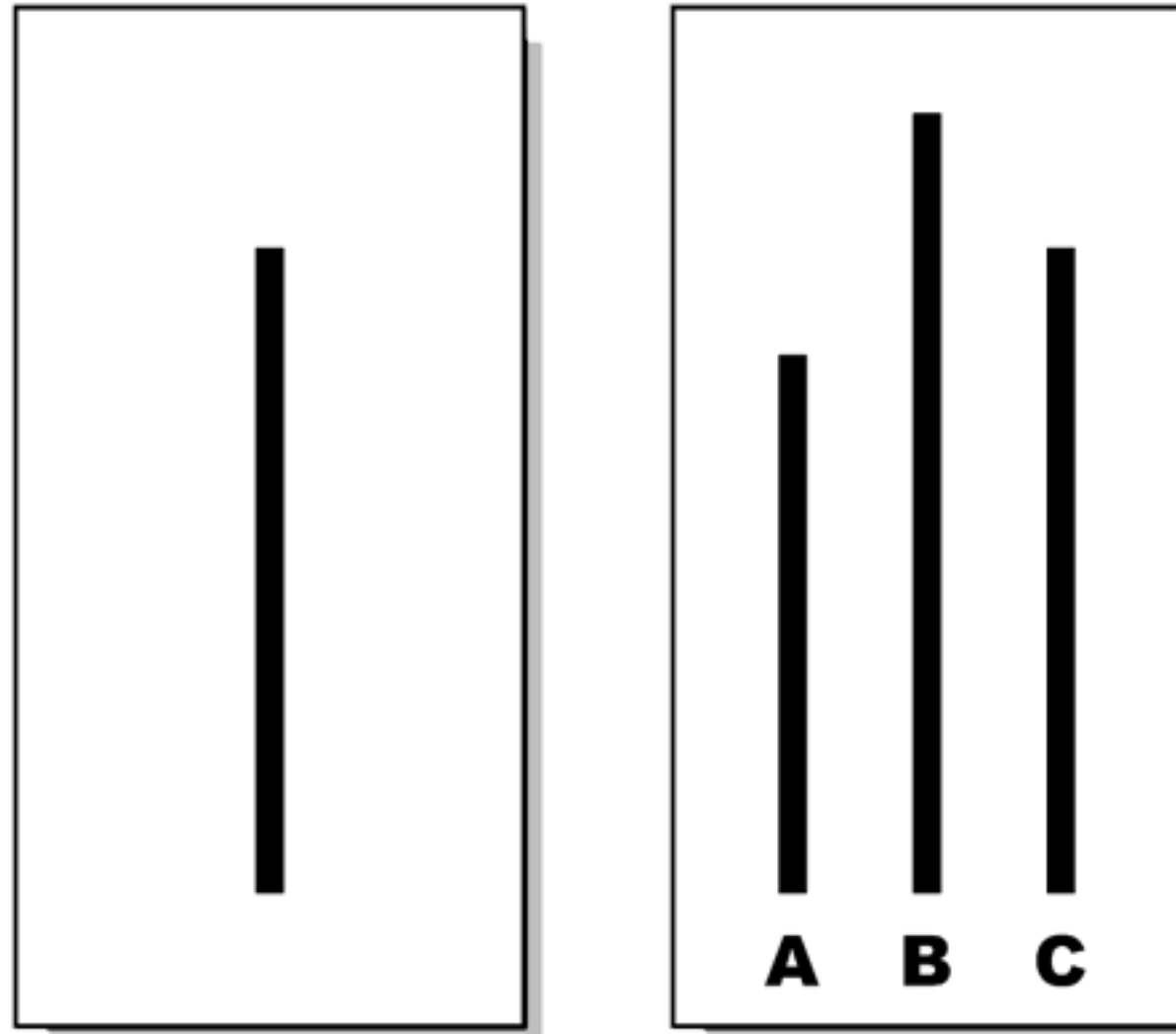


This is to reflect the new scale for classifying energy consumption.

The energy consumption of the machine remains the same



SOCIAL NORMS AND SOCIAL COMPARISON



SOCIAL NORMS AND SOCIAL COMPARISON

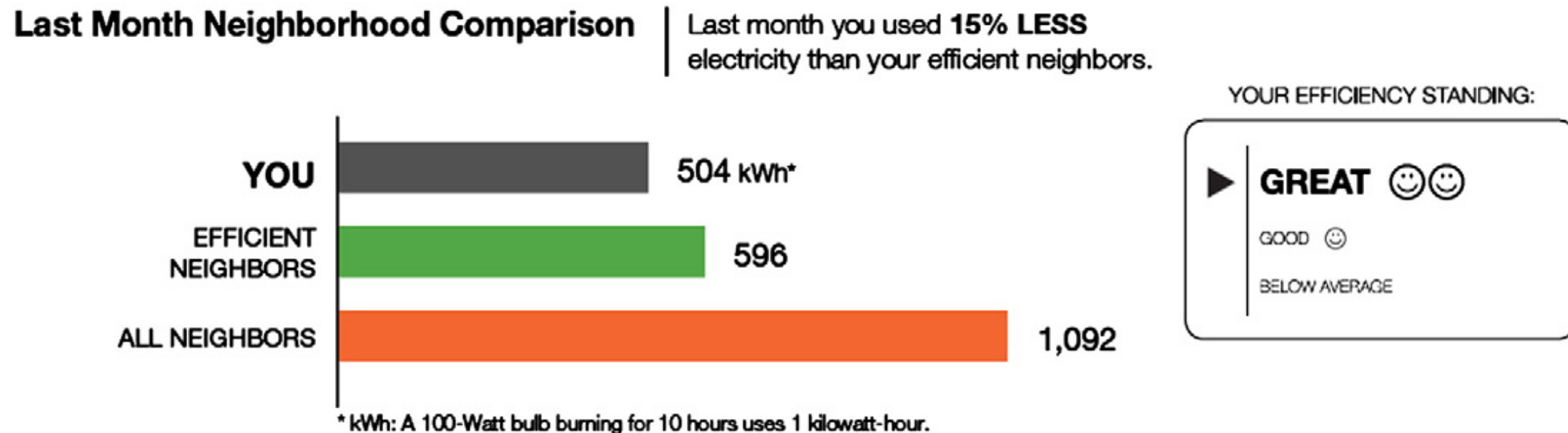


Fig. 1. Home energy reports: social comparison module.

- Allcott (2011) demonstrated that comparing an household's energy consumption with the consumption of their neighbors can lead to a significant decrease in the electricity bill.
- This study showed that such interventions, in the U.S., can help households save up to 2% on their bills.

SOCIAL NORMS AND SOCIAL COMPARISON

- Based on the energy consumption, households also received a feedback regarding how to decrease bills depending on a series of actions.

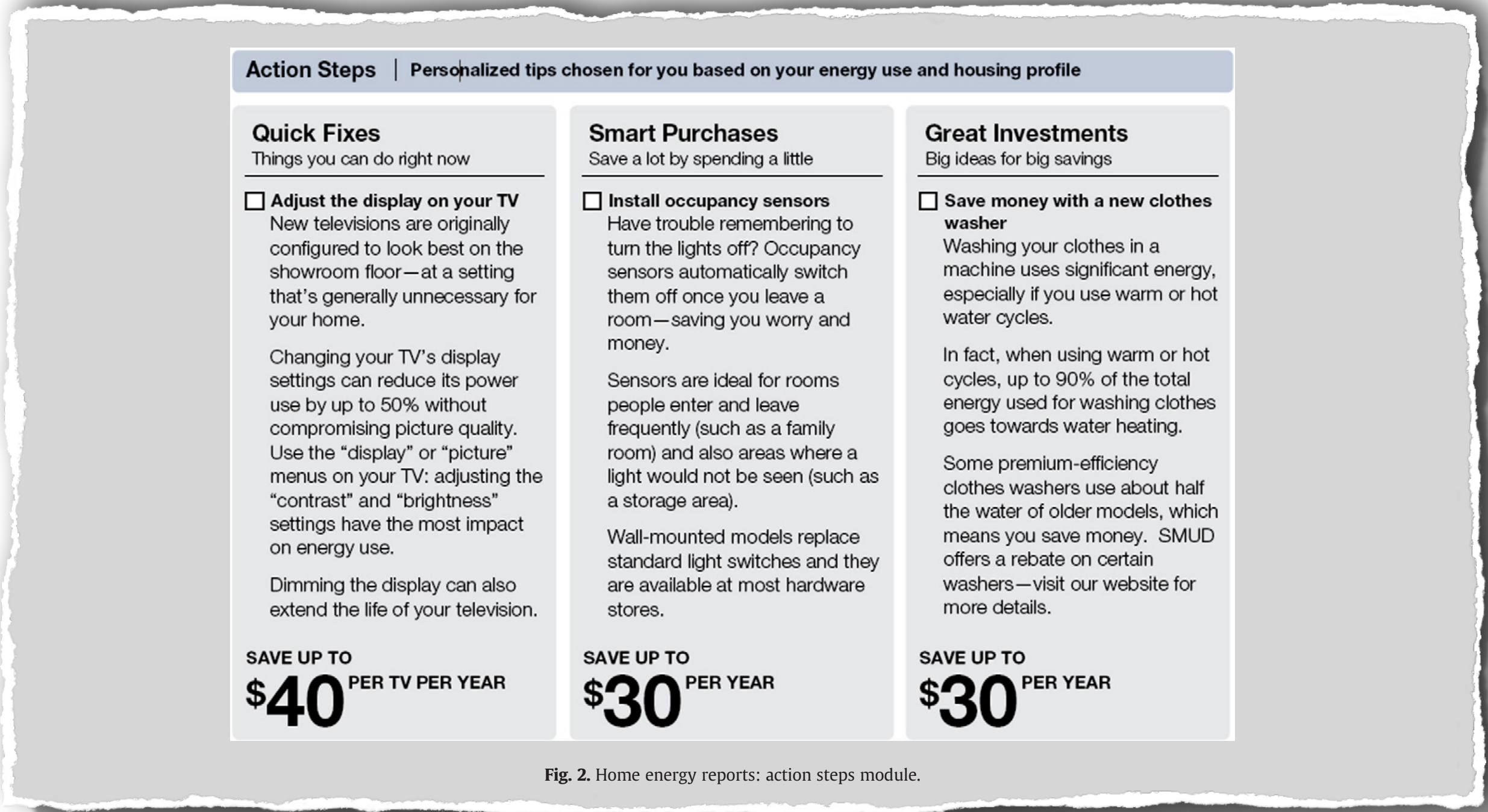


Fig. 2. Home energy reports: action steps module.

SOCIAL NORMS AND SOCIAL COMPARISON

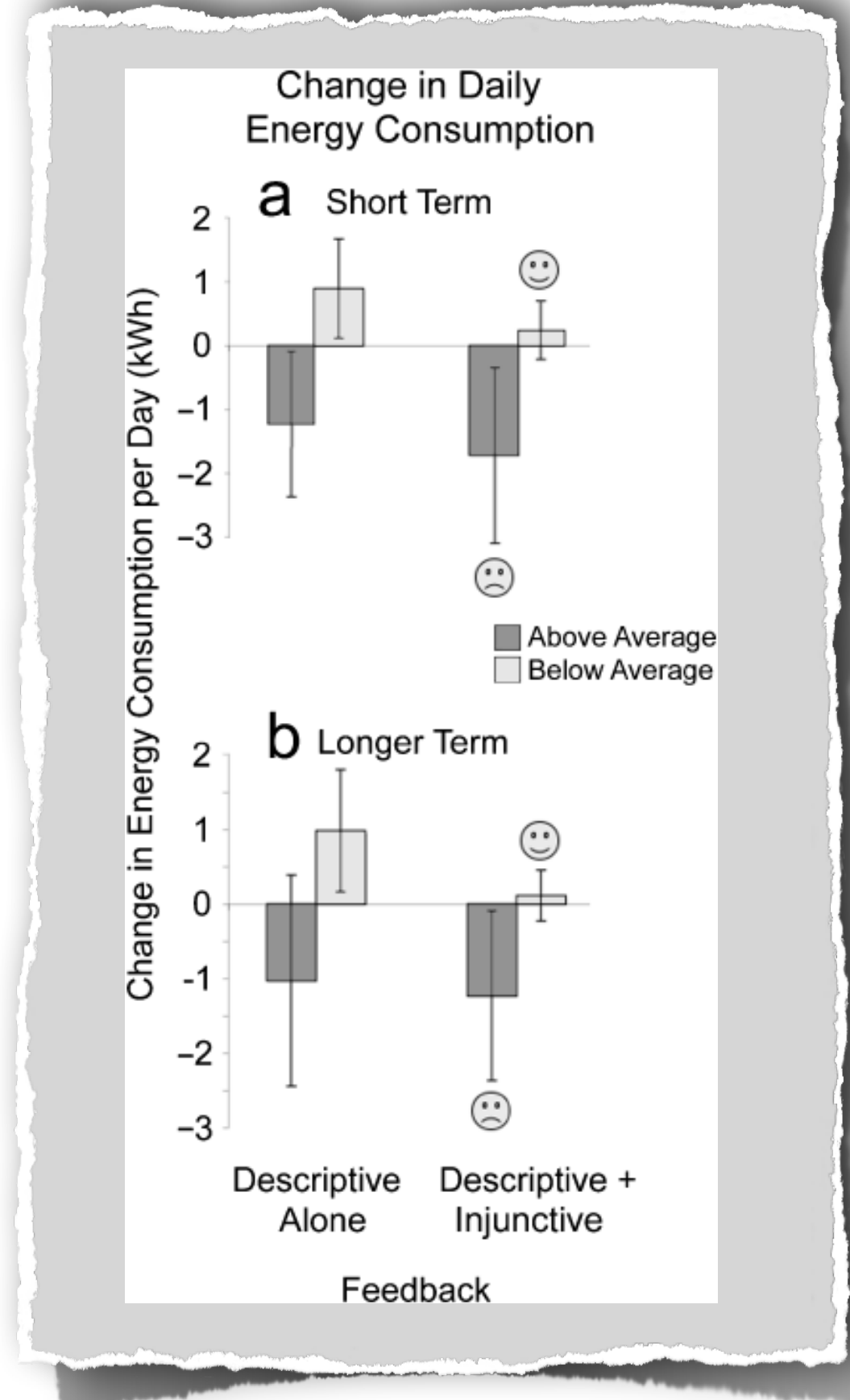
- Potential issues when creating interventions based on social comparison (especially in relation to energy conservation):
 1. The effect may decrease over time or people may have problems creating a new, stable habit.
 2. People's reactions are critically impacted by political ideology and cultural worldviews.
 3. 'Boomerang effect' and 'moral licensing': Those households who saved more and are among the best may consume more in the next time period.

SOCIAL NORMS AND SOCIAL COMPARISON

- The boomerang effect can be counteracted in two ways:
 - Adding implicit injunctive norms to the descriptive ones (e.g., smiling and frowning faces; Alcott & Rogers, 2014).
 - By using language as framing tool.
 - Some qualifiers make people think about reasons for performing an action ('more and more', 'a few', 'most').
 - Others draw attention to reasons against that behavior ('not all', 'at most').

SOCIAL NORMS AND SOCIAL COMPARISON

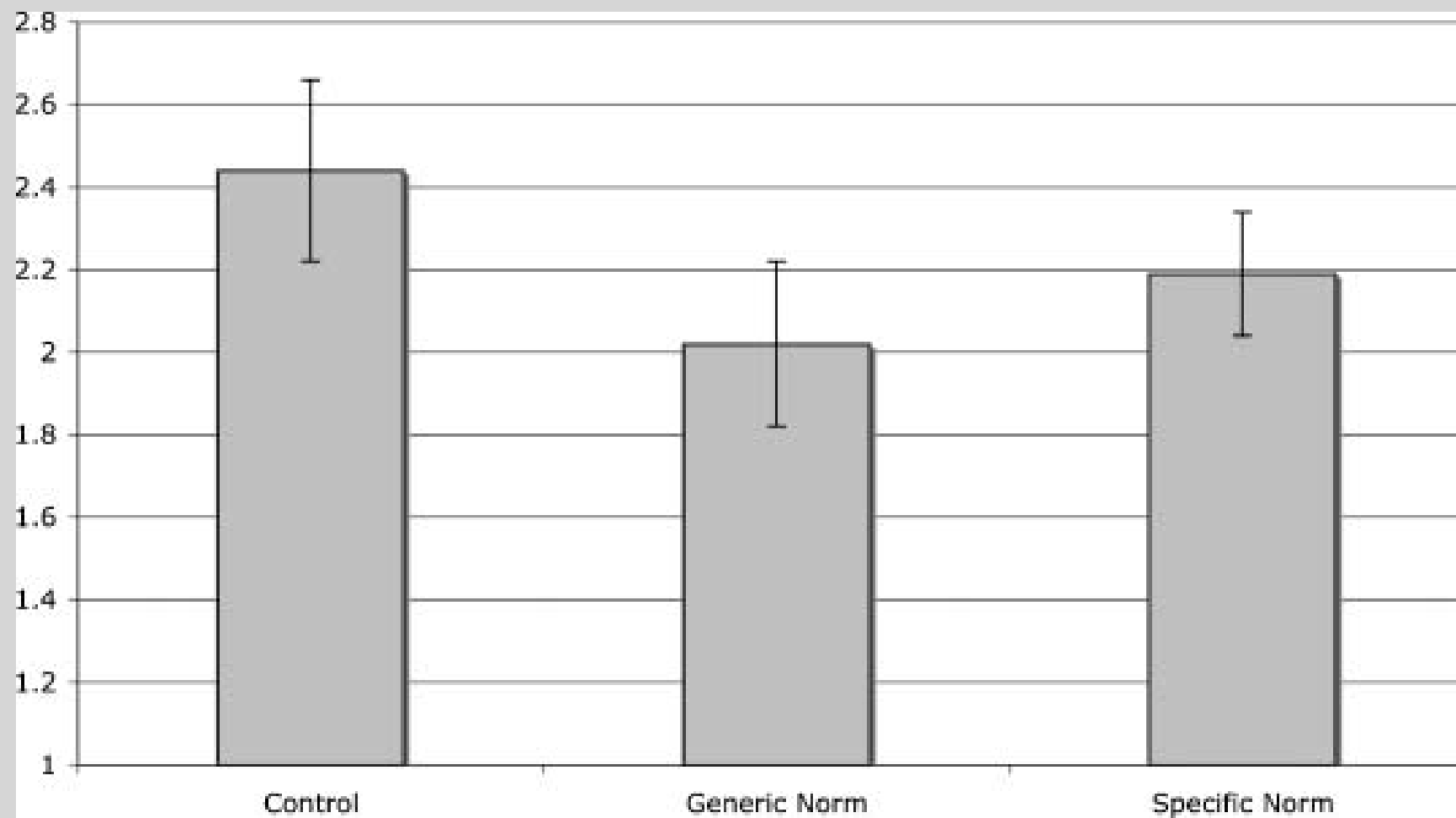
- Furthermore, a study by Alcott and Rogers (2014) showed that these interventions can have an effect on the long term.
- Finally, Costa and Kahn (2010) found that the intervention can have undesired effects depending on people's political orientation:
 - Conservative households tend to increase their energy consumption when the feedback showed that they have spent less than their neighbors.



SOCIAL NORMS AND SOCIAL COMPARISON

- Another study presented messages regarding others' behavior to increase people's willingness to reuse towels while staying in hotels.
- Again, it was a field study run in a real hotel:
 - Control condition:
 - The message communicated the utility of not changing the towels in order to reduce the energy consumption required to wash them every day.
 - Generic norm condition:
 - Added to the message there was the number of people, for the whole hotel, who decided to reuse their towels.
 - Specific norm condition:
 - In this case, the message included the number of people staying in that room who reused their towels.

SOCIAL NORMS AND SOCIAL COMPARISON



Note: Error bars represent 95% CI of the mean.

Figure 1. Mean number of towels replaced × experimental condition.

ATTRACT: RECYCLE BINS

- A new intervention to increase the use of trash bins has been tested in Copenhagen.
 - In collaboration with the city council, the trash bins were painted with very bright colors (to attract people's attention).
 - Previously, like in many other cities, trash bins were painted with very neutral colors (e.g., gray).
 - Furthermore, researchers painted on the ground a bunch of footprints like steps moving in the direction of the trash bin.

ATTRACT: RECYCLE BINS



ATTRACT: RECYCLE BINS

Analyzing students' behavior around the university campus, researchers found that the intervention increased the use of the trash bins by about **45%**.



TIMELY: AVOIDING THE DEVELOPMENT OF BAD HABITS

- A timely strategy is to provide critical information right at the time of the decision.
 - For instance, it is possible to provide specific information to consumer when they are making their buying decision.
 - One of such interventions concerns the labels about the efficiency of domestic appliances (A+, A++, A+++).
 - This is information regarding the possible savings in energy consumption.
 - The same intervention has been used in some American restaurants that report the calorie count on their menu (in order to fight obesity).

Figure 2.1. The BASIC framework

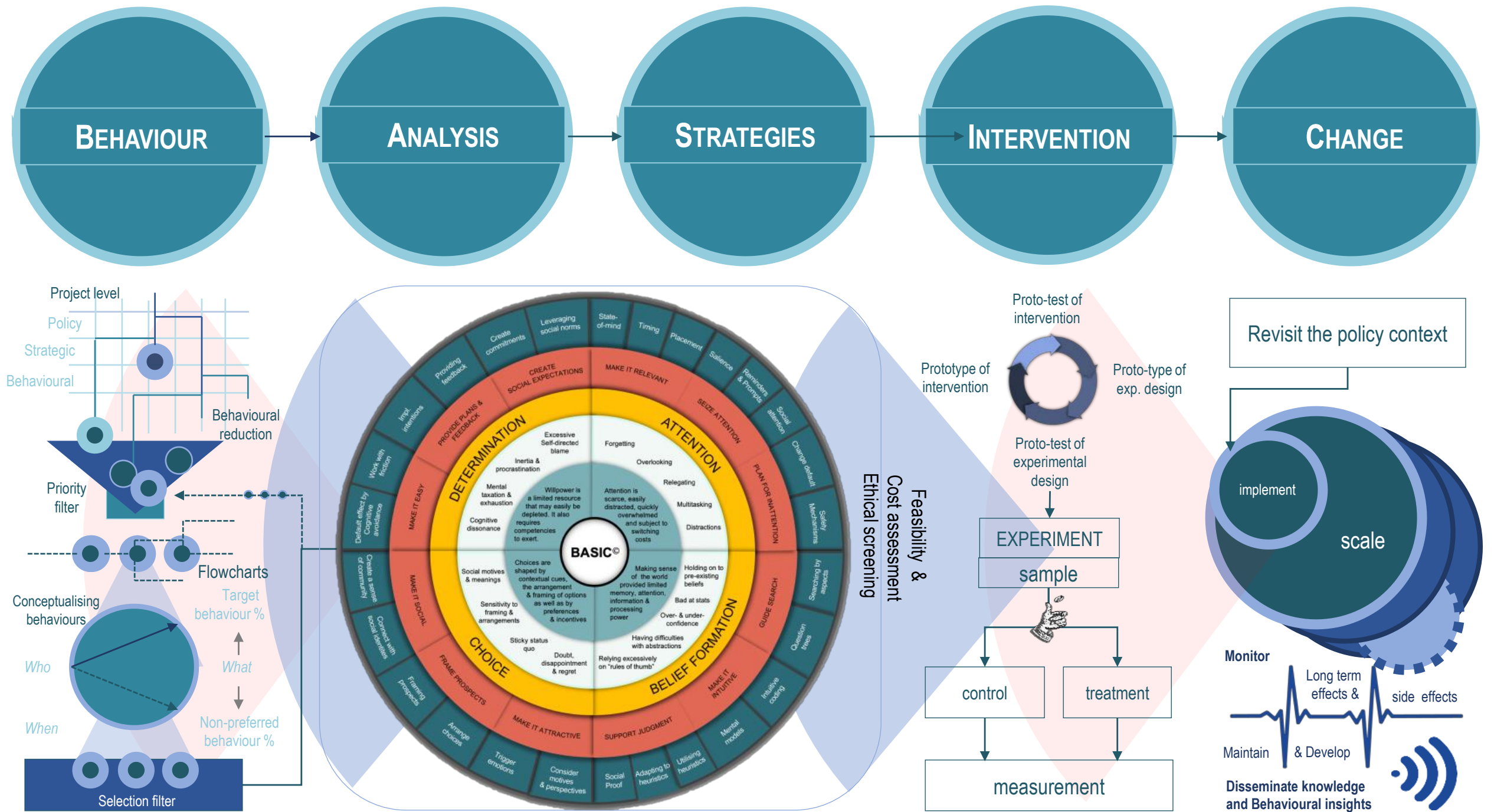


Table 1.1. Applying BASIC to increasing enrolment in pension plans

Stage	Description	Example
Behaviour	Identify and better understand your policy problem.	Increase pension savings by encouraging more citizens to enrol in pension plans.
Analysis	Review the available evidence to identify the behavioural drivers of the problem.	Individuals tend to stick with defaults and choose inaction over action.
Strategy	Translate the analysis to behaviourally informed strategies.	Change the default. Automatically enrol individuals into pension plans and allow them to opt-out.
Intervention	Design and implement an intervention to test which strategy best addresses the problem.	Test whether allowing individuals to opt-out increases pension savings rather than the current practice of opt-in.
Change	Develop plans to scale and sustain behaviour.	Share results with citizens, apply findings to system-wide reminders and monitor long-term consequences of the intervention.

Source: Adapted from Thaler, R.H. and S. Benartzi (2004), “Save more tomorrow: Using behavioral economics to increase employee saving”, *Journal of Political Economy*, Vol. 112(1), University of Chicago.

Table 1.2. Considerations before applying Behavioural Insights (BI)

What BI is	What BI is not
<p>Problem-solving method</p> <p>BI is a powerful method to better understand policy problems and pre-test solutions before they are implemented across a wide range of policy issues.</p>	<p>Silver bullet</p> <p>BI is not a silver bullet that solves all policy challenges. Some policy issues may benefit more from traditional policy levers (i.e. financial, regulatory or awareness-raising approaches) or alternative non-traditional tools (i.e. human centred design or machine learning).</p>
<p>Way to learn “what works”</p> <p>The BI culture of empirically testing solutions and disseminating results allows practitioners and academics to exchange evidence on lessons learned to inform policymaking.</p>	<p>One-size-fits-all</p> <p>Replicating what works in one environment does not guarantee success in another environment. Ethical considerations should also be adapted to the context. Pre-testing solutions in the context where you plan to implement the policy minimises this risk.</p>
<p>Beyond nudging 1.0</p> <p>BI goes beyond nudging or small policy tweaks. BI represents a wide range of tools to use evidence to diagnose problems, bridge the gap between research and practice, and inform comprehensive policy solutions.</p>	<p>Only for behavioural experts</p> <p>BI is not limited to behavioural experts. A multi-disciplinary approach is key for BI projects. BI brings together diverse expertise such as knowledge of the policy context, behavioural science and first-hand experience with public service.</p>
<p>Policy tool</p> <p>BI should be considered every time you are designing or evaluating a policy. Even in cases where you may not be able to start with a behavioural analysis or run a full experiment, BI can still be used to complement traditional policy tools and levers throughout the policy cycle.</p>	<p>Irrationality</p> <p>BI does not suggest that humans are fundamentally irrational creatures. Rather, it argues that deviations from “traditionally explained rational” behaviour are not the result of flawed reasoning but rather adaptive forms of reasoning that can also constitute efficient heuristics (i.e. mental shortcuts or intuitive judgments) in an uncertain world.</p>

Figure 2.3. Simplified sample behavioural reduction structure from a larger organisation applying BI to health at work

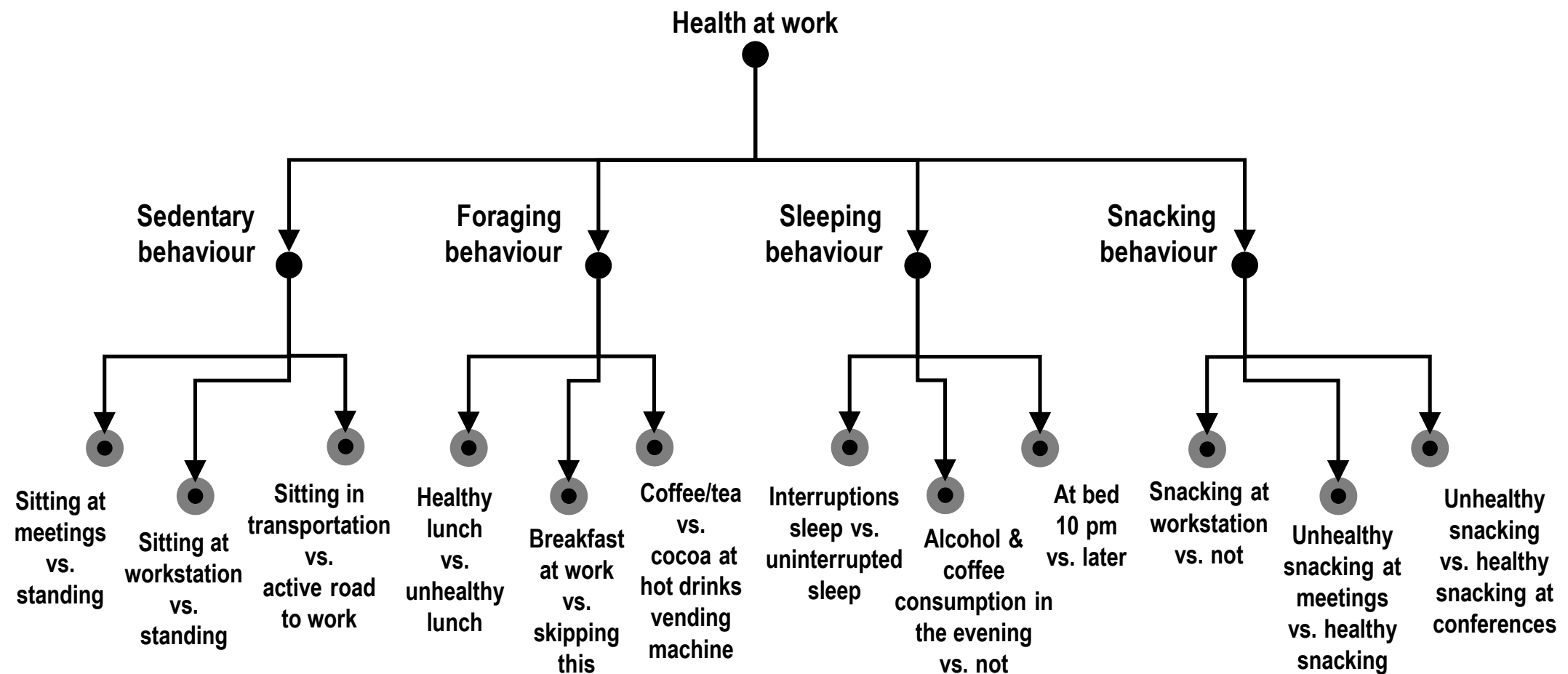


Figure 2.4. Schema for conceptualising behaviour as a decision point

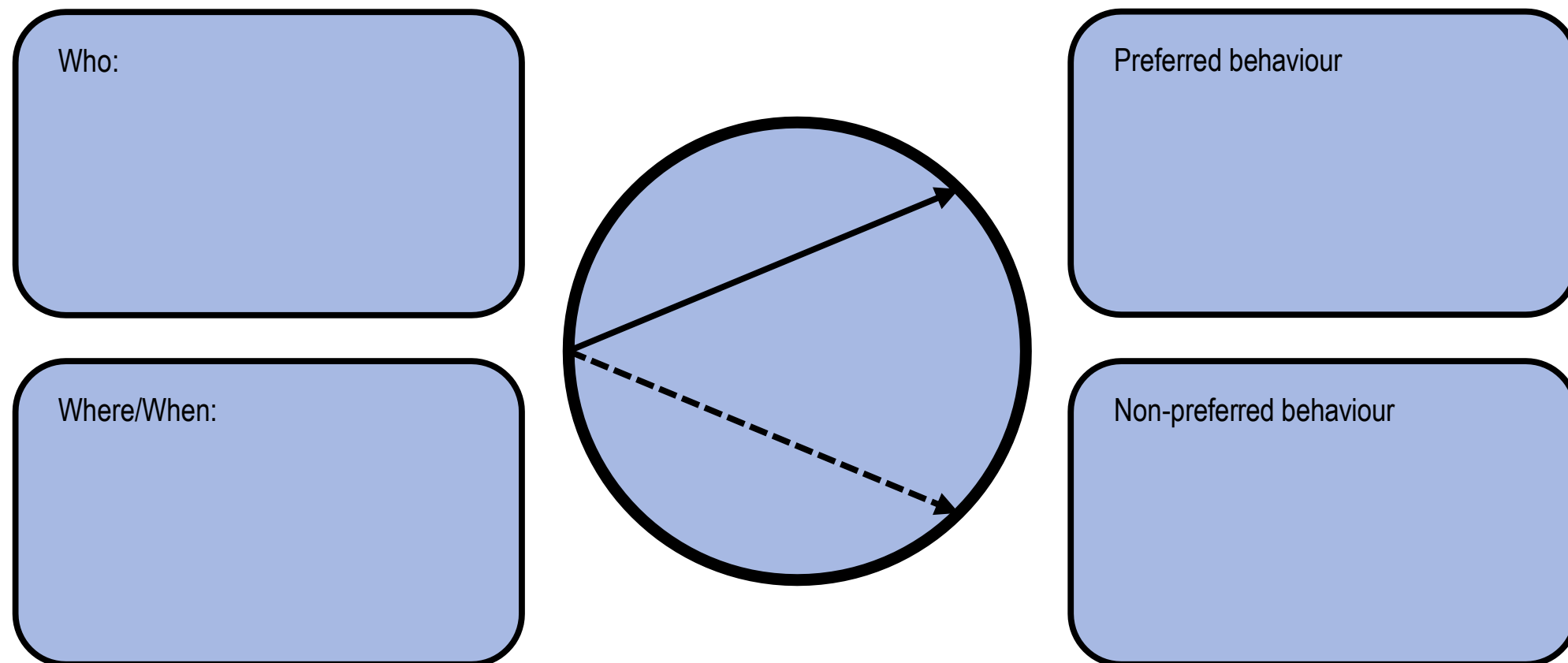
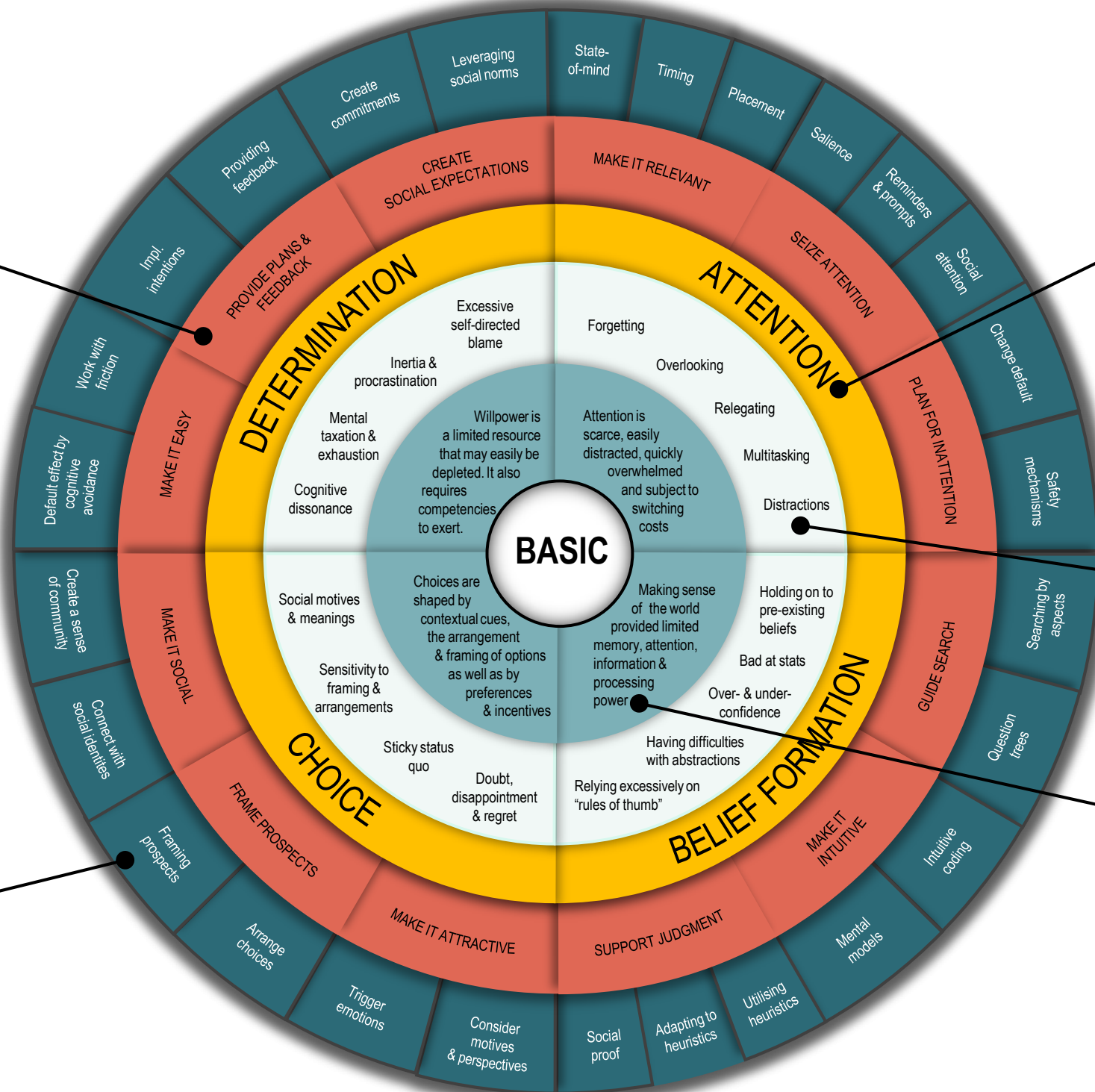


Figure 2.6. The ABCD framework

Categories of Behavioural Insights strategies: For practical convenience behavioural insights strategies are sorted into broad categories that function as easily identifiable keys to more specific behavioural insights strategies.

Behavioural Insights strategies: In the outermost ring one finds examples of behavioural insights strategies that contains specific behavioural insights that may be used to understand as well as influence target behaviours.

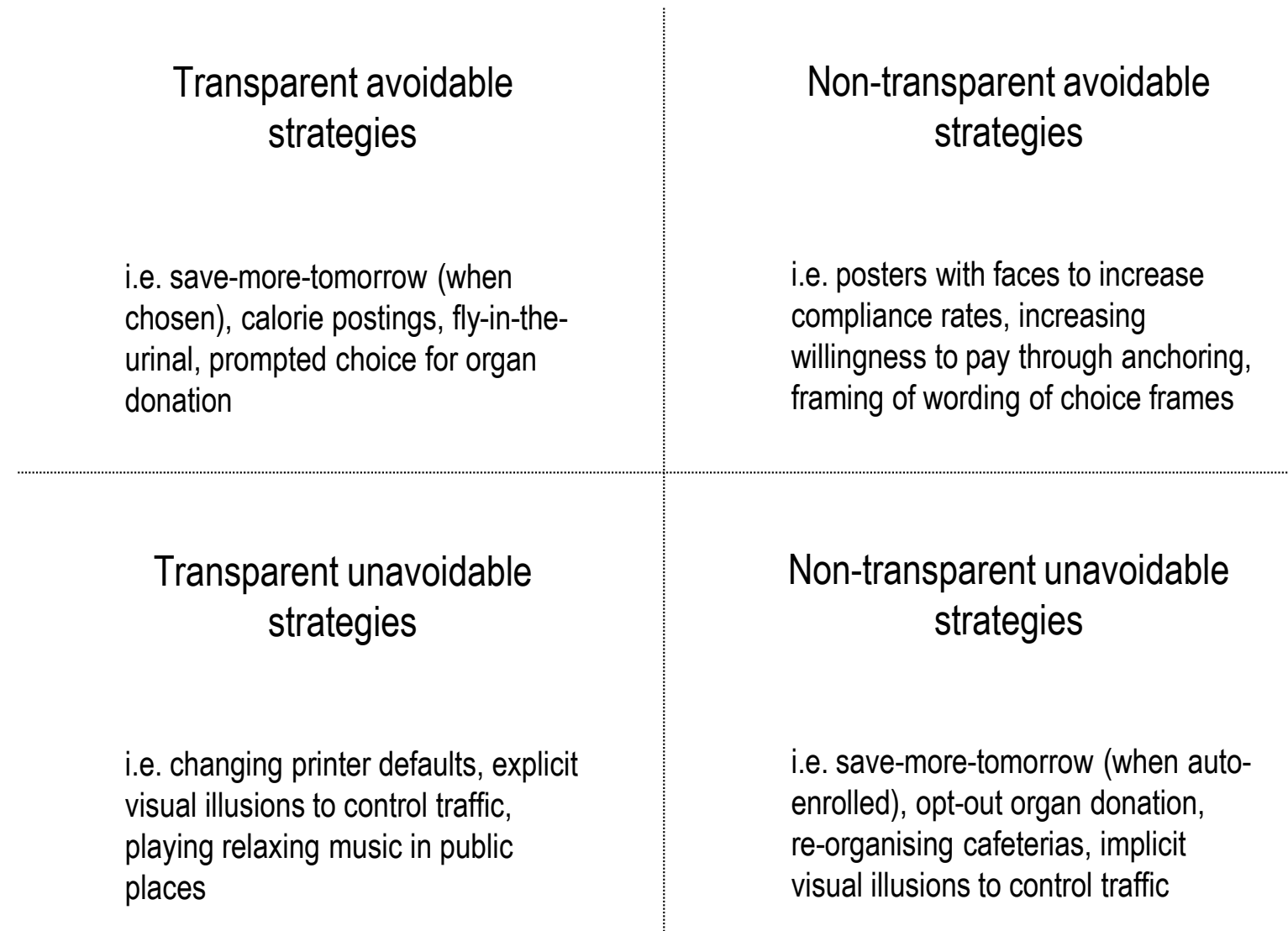


Aspects of behavioural problems: ABCD distinguishes between four aspects of behavioural problems – Attention, Belief formation, Choice and Determination. A behavioural problem may be caused by several factors within one aspect as well as by factors from several aspects. ABCD allows the practitioner to conduct a systematic inquiry into each aspect as well as a matching of strategies to problematic aspects.

Diagnostic indicators: Certain phenomena indicate the relevancy of each diagnostic domain. These phenomena are referred to as diagnostic indicators.

Diagnostic aspect: The diagnostic aspect contains the broader psychological theories that have been developed to account for a particular aspect of behaviour as defined by the ABCD. Thus, the aspect contains psychological theories of attention, belief formation, choice and determination.

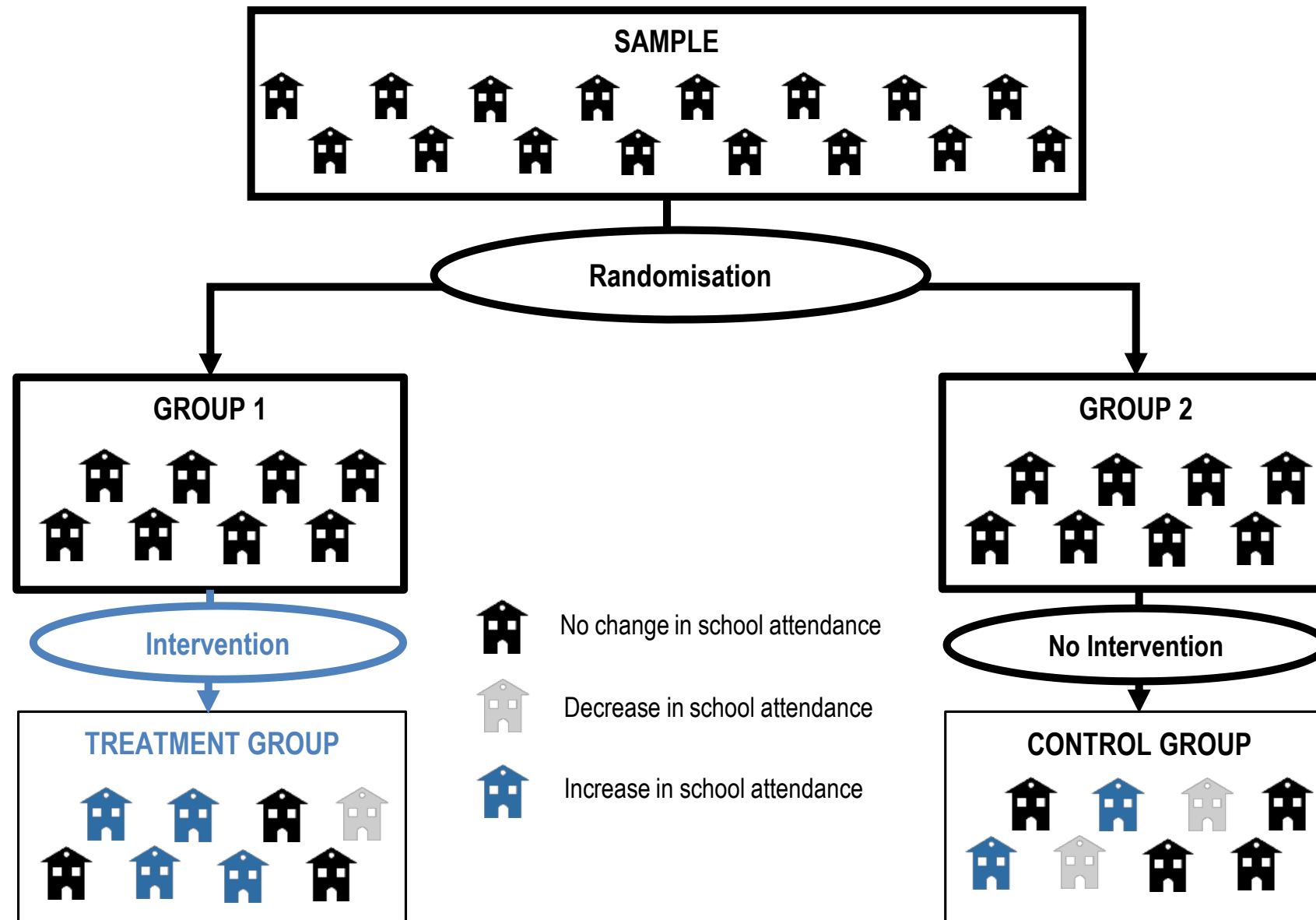
Figure 2.21. A framework for thinking about the responsible use of BI in public policy



Source: Adapted from Hansen, P.G. and A.M. Jespersen (2013), “Nudge and the manipulation of choice: A framework for the responsible use of the nudge approach to behaviour change in public policy”, *European Journal of Risk Regulation*, Vol. 4(1), pp. 3-28.

Figure 1.6. Simple randomised controlled trial (RCT) example

Visualisation of an RCT to test the effect of the new school breakfast policy on school attendance



Source: Icons obtained free of copyright from www.thenounproject.com.

Figure 2.1. The BASIC framework

