

# Nudging

– the new black in environmental policy?

**Therese Lindahl**  
**Britt Stikvoort**

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# About the study

**This study is published** in the framework of the Fores climate and environmental program. To ensure an acceptable scientific level, all Fores publications are reviewed by at least two external and anonymous experts. The author's alone account for the study's contents and conclusions.

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# Foreword

**In 2008, Cass Sunstein and** Richard Thaler published »Nudge: Improving Decisions About Health, Wealth, and Happiness«, a book about influencing people's behaviour without laws or financial incentives. The group name given to these measures was »nudges«.

A few years later, nudges became something of a buzzword for environmentalists. The possibilities seemed endless. With small nudges, people can be influenced to behave in a way that makes environmental goals possible. The concept is not about making it more expensive, limiting people's choices or to punish. Nudges just make it a little easier to print double-sided, buy organic products and reduce energy consumption. Everyone becomes environmentally friendly because it is easy to make the right choice.

The concept has been criticized for a number of reasons. Some believe nudges allow the state to trick people, and that it is typical of left wing environmen-

talists to provide some trusted and well-intentioned planners the mandate to determine how people should behave. It begins with smileys on the electricity bill to get people to save energy and to take small plates at the lunch buffet, and it will end with warnings of poisoned bananas and mockery of people who are not 100% eco-labelled.

However, between these extremes there is an important debate and field for further research. What role nudges can and should play is of course ultimately up to the decision makers in business, politics and civil society. However, there are many reasons to better understand the behavioural aspect as part of an effective environmental policy.

Instruments with the same long-term outcomes for consumers can have different effects depending on when, where and in what form the effect occurs.

With the help of insights from social psychology, psychology and behavioural economics, it is likely instruments can be designed that more effectively control the effects of climate change. And almost everyone agrees that behavioural changes are required for achieving climate goals.

To better understand how nudges fit into this mix of tools, we asked Therese Lindahl and British Stikvoort at the Beijer Institute to look more closely at the concept. We want to increase awareness of what nudging

actually means and how the phenomenon is defined. Additionally, we want to better understand when nudges are suitable, and how it complements or even replaces other policy instruments. The questions also relate to Swedish climate goals, which is the part of environmental politics we oversee the most.

After a thorough review of the academic literature and real examples, a complex but hopeful picture appears. Often it is possible, without too much effort, to persuade people to change their behaviour, without intruding on their freedom. Hardly anyone can be opposed to smaller food plates that reduce food waste at buffets or that the default printing mode is double-sided. People still have the choice to get more food or to print single-sided.

The researchers found evidence that nudges in certain contexts are effective, but recommended to test, evaluate and test again, as the concept is fairly undocumented. Policy makers also need to discuss the scope of nudges - when is it better to use economic instruments and legislation? Nudges are a fairly new field of research. It means that all the answers are not found in this report, or any other; however, we are taking one important step forward in our understanding of nudges and their possible effect on the environment.

*Mattias Goldmann,*  
*Director Fores*



# Summary

**Nudging is increasingly** receiving more attention from politicians, the media and academics. In 2014, the Swedish Environmental Protection Agency published a report on the subject and Vetenskapsrådet dedicated several programs towards the concept of nudging. In the United States, Britain and Australia, there are public institutions that actively work with nudging and researchers are trying to understand, criticize, reflect and review the concept; the number of scientific articles on the topic is constantly rising.

To use nudges in the environmental field has become more and more popular, as policies so far have been considered insufficient to achieve the environmental objectives, such as reducing greenhouse gas emissions.

Current instruments can be roughly divided into direct regulation that commends and orders a specific behaviour pattern that does not offer any flexibility,

and economic instruments such as taxes and subsidies (market-based incentives) that seek to change actors' behaviours. Economic instruments provide more flexibility and is therefore, more cost effective and easier to get political acceptance, but has often proved insufficient to change behaviour to the required extent.

Economic instruments are based on the principle that people behave rationally - they assume that people have all the information available and the cognitive capacity and time to process this information before making a decision. However, people have »limited rationality« and many other factors, such as social acceptance and status, can affect their choices. Instead of being utility maximizers, people usually are "satisfied" - they are looking for alternatives that are good enough, rather than what would be optimal.

Humans are affected by how a decision situation is presented. They have different rules of thumb when they make a decision. Many times, they are seeking to avoid losses rather than to win prizes, and feel, for example, completely different about the VAT that is clearly visible on the price tag compared to the VAT that suddenly appears when they pay. From a rational perspective, there should be no difference between the two ways taxes are presented because ultimately, the price tag is the same. But in reality, there is a great difference.



This insight justifies an approach that is more focused on people's actual behaviour. To solve the problems that other, more traditional instruments have failed, it is necessary to rely on experience gained from behavioural economics and other related fields such as cognitive psychology and social psychology. One of these methods is »nudging«, that might enhance and complement the current methods. But, what is a nudge?

## **What is a nudge?**

Based on Thaler and Sunsteins definition described in »Nudge: Improving Decisions About Health, Wealth, and Happiness« (Thaler & Sunstein, 2008), we have chosen three main principles to develop:

- Nudging involves some aspect of »decision architecture».
- Nudging is about changing people's behaviour and not as much about changing their attitudes. Attitudes can certainly be changed, but it is not the main purpose of a nudge.
- Nudging does not prohibit any alternatives. It respects people's free will and does not drastically change any financial incentives.

The study identifies several types of nudging techniques based on factors such as:

## **1. Information**

Puffing by informing means giving people a certain type of information. Information that will more likely make people behave in a certain way, but without limiting the freedom of choice. The idea behind the (targeted) information is to give a push in the right direction; the message of the information should work subconsciously, as a “rule of thumb”.

*Example:* Different types of eco-labelling have, in some cases, proven to affect people’s choices, if they identify themselves as environmentally conscious. However, it has also been shown that those who do not identify themselves as environmentally conscious may do the opposite out of pure spite.

## **2. Preset**

The default option - the default value, the pre-ticked box - is many people’s favorite type of nudging. The default option is the option that someone gets if they do not actively change it. Generally, people accept the default choice because they do not bother to change the settings or because they simply assume that the default option is the best option.

*Example:* Studies have shown that it does not mat-

ter if it is the »green« or »grey« electricity that is the standard option, consumers electricity choice is usually the default option. The same has been found to apply for organ donations.

### **3. Feedback and social norms**

This type of nudge is closely linked to information, but is more related to people's feedback and adaptation to social norms. Feedback means that people get information about their past behaviour, performance levels or changes in their behaviour. For example, "this month's energy consumption was higher (or lower) than the previous months". Standards are maintained by the sense of guilt, shame and embarrassment that affects humans when norms are not followed. These norms can help people in situations where they do not know what to do, and they can cause them to act in a different way than they would really like to, for the sake of social pressure.

*Examples:* In Zurich, Frey and Meier (2004) found similar results in their study. When study participants were told that many others had already donated money (descriptive social norms), this information increased the chance that they would donate. A US study on energy management examined what happened when customers got feedback on their energy consumption via text or emoticons, such as a smiley face

on their invoice. This feedback contributed, in some groups, to a reduction in energy usage.

#### **4. Changes in the physical environment**

On several occasions, a decision maker can notice physical changes in the environment. Because of the »position effect«, where people are more likely to remember the first and last items on a list, they are more likely to choose either the last or the first dish on a menu (Colman, 2009). In the same way, people tend to select the first suitable product that is at eye level, instead of carefully considering which product tastes the best or is the most useful one.

*Examples:* Kallbekken and Saelen (2013) systematically put out plates of different sizes at a hotel breakfast buffet. They concluded that smaller plates reduced the amount of food waste because visitors took less food and ate more of the food that was on the plate.

## **Conclusions**

From the academic studies we have read, it seems that nudges work more often than not. However, this may be due to bias in the reporting base where studies that have demonstrated a positive effect are more likely to be published than those that cannot demonstrate

any effect. Among all of the empirical studies in our literature review (including those that did not have an environmental focus), 28 articles demonstrated successful behavioural changes while four did not reach conclusive results. A study in which the default option was given to experts was the only nudges report that failed to show any significant results. The experts in the study were attending a climate conference and for them it did not matter if the default option was to climate compensate or not, the result was still the same.

There is evidence that social norms actually work to change the behaviour in regards to the environment. However, these nudges are very dependent on their context and are not always successful. As such, there is not definitive evidence that nudging has concrete effects on behaviour.

Nudging is context dependent, which means that the eventual success is also dependent on context. The literature shows that in the laboratory and in larger field studies, there is evidence that social norms and information can serve as a nudge. If they work or not should be individually assessed fcase by case. Therefore, more research is crucial and especially, more experiments should be conducted on various nudges (e.g., social norms, defaults, and environmental changes) in different areas (e.g., transport, consumption, and energy saving), and at various levels (e.g., local

shops, communities, municipalities, land ends and finally, nationally).

Because many nudges are context dependent, it is important that we test them (preferably on a small scale at first, then gradually scaling to a full implementation at a national level) before we trust and fully use them. For example, a social-norm nudge can be used to get some people to save energy; however, the result may be that the nudge causes others to consume more, depending on their current energy consumption and political position. As such, the results must be carefully monitored, even when they have been tested on a small scale. Furthermore, if the nudges are not working, there needs to be flexibility so that they can be adjusted.

Nudging is not always appropriate and is certainly not meant to replace traditional instruments such as laws, taxes, subsidies or extensive information campaigns. However, it can be a complement, and sometimes a replacement, for our current policy in our quest for greater efficiency when creating a greener world.







## Chapter 1

# Abstract

**Nudging is receiving** more and more attention, both from policymakers and media. For example, the Swedish EPA recently published an elaborate report on nudging titled “Nudging: Ett verktyg för hållbara beteenden?” (Mont et al., 2014)<sup>1</sup>. Not long after, the topic of nudging was also brought up during a radio broadcast by P1<sup>2</sup>. Interest in nudging is on the rise, both in the fields of policy and academia. Nudge policies are implemented in the United States, and in the UK and Australia there are even governmental departments dedicated to it. In the meantime, scientists study, critically reflect on and review the concept, resulting in scientific articles being published on the matter at an increasing rate.

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1. For those who have read that report (which is an excellent introduction to nudging), the material presented in this paper here can be seen as a supplement where we aim to provide a more in-depth and scientifically elaborated definition of nudging and the different nudging strategies as well as a more systematic review of the academic research on nudging.

2. Radio P1, “Om nudging – vänliga knuffar mot klimatsmarta val”, 5 November 2014, Accessible on: <http://sverigesradio.se/sida/avsnitt/456428?programid=3345>

However, despite all this attention, it is not particularly clear for many *what* nudging is, what it *is not* and *why* nudges are (sometimes) so effective in changing our behaviour. It is clear enough that it is a method for influencing behaviour, but this does not mean that all behaviour-influencing methods are nudges. This confusion is unfortunate when we think of the potential that nudges can have in encouraging people towards more environmentally friendly behaviour – a change this world is in need of – without *forcing* anyone to do, pay or refrain from doing anything.

Since nudging is quite popular in media and policy spheres right now, we think it is important to provide people with the scientific explanation and background to it. This will shed light on what nudging exactly is or means, and will also make the future use of nudging techniques more effective. A scientific understanding is essential for successful choice architects – or ‘nudgers’ – an argument that is endorsed by the Swedish EPA nudge report (Mont et al., 2014). Even just to *discuss* nudging fruitfully, discussants need to be ‘on the same page’ to share a similar idea about nudging. By providing an in-depth scientific explanation and background for nudging, we hope to help all relevant actors reach this same understanding. Moreover, we asked ourselves: for the intentional use of nudges in policy, are there today enough sound scientific grounds for

policymakers to base their policies on? What really is the current state of the art on nudging research, what lessons can we learn from these past experiences, and what are the biggest caveats in our current knowledge about nudging? We believe it is crucial to explore these issues, which we do not think was done as systematically before as is done here.

To this end, the report before you will introduce and provide a thorough explanation of the concept of nudging and the underlying psychological processes of several nudge techniques, and will provide the reader with examples. We will focus on environmental nudges, though in reality the scope of nudges is far broader. This environmental focus is in line with the Swedish EPA's generational goal – which is about changes that need to occur in society within one generation to bring about a healthy environment<sup>3</sup>. Environmental concerns such as consumption patterns and efficient energy use are examples of topics falling under this goal. This report aims to explain how nudging helps to accomplish this.

The report is divided into three chapters. In chapter one, the reader will learn about the need for nudging as an alternative approach to behaviour change. Further-

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3. From the website of the Swedish EPA: “The generational goal indicates the sorts of changes in society that need to occur within one generation to bring about a clean, healthy environment. It focuses environmental efforts on recovery of ecosystems, conserving biodiversity and the natural and cultural environment, good human health, efficient material cycles free from dangerous substances, sustainable use of natural resources, efficient energy use, and patterns of consumption.” (Naturvårdsverket, 2013)

more, we will explain the concept of nudging, discuss its origin and outline what the concept stands for. Different nudging techniques are described and their underlying psychological processes explained.

The second chapter will then provide a comprehensive overview of research and practice into nudging. We strive for an in-depth treatment of nudge strategies, and this chapter can therefore be seen as a deepening of the material presented in the recently published Swedish EPA report (Mont et al., 2014). The chapter firstly focuses on scientific support for nudges in general, and environmental nudges in particular. Which nudges are scientifically studied and which are proven effective or not? Thereafter, this chapter discusses real-life existing policies and practices where nudges have been implemented.

The third chapter will sum up the findings and provide a synopsis. Lessons learnt and suggestions moving forward are given in the final section of this chapter. Building on the synopsis, this chapter will also briefly speculate on new nudging techniques that could be useful additions to the portfolio of environmental nudges that is presented in an earlier chapter of this report. It argues for the need for sound experimentation in nudge policies, as well as a multidisciplinary approach to such experiments, and provides other policy recommendations that we believe are important to further our understanding of nudging.





## Chapter 2

# Nudging – in depth

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**In this chapter we will:**

- » Introduce the concept of 'nudging' as a potential tool for solving environmental issues such as climate change, waste and resource depletion.
- » Define the concept of 'nudging'.
- » Discuss which kind of behaviour change methods and techniques are nudging techniques – and which are not.
- » Provide examples, where possible from environmental cases, to give flesh and blood to the concepts used.

## Environmental issues and the need for behaviour change

**Humans are strong drivers of** global environmental change on scales ranging from global to very local. We are faced with problems concerning climate change, scarcity of resources, degrading of ecosystems, and a reducing capacity of the world to absorb our ever-growing stack of waste. Society and environment are entwined in a complex interdependent system. To cope with this complexity, and avoid potentially irreversible damage to the environment, the Swedish EPA – and the European Union on a hig-

her level – are urging for policy and other actions that reduce the negative impacts that we as human beings have on our environment. Among other things, the Swedish EPA has set several environmental quality objectives, one of which, for example, focuses on greenhouse gas emissions. This emissions objective strives for the absence of net emissions from Sweden to the atmosphere by 2050 (Boberg, 2013). They state, for example, in relation to greenhouse gas emissions:

*“In accordance with the UN Framework Convention on Climate Change, concentrations of greenhouse gases in the atmosphere must be stabilised at a level that will prevent dangerous anthropogenic interference with the climate system. This goal must be achieved in such a way and at such a pace that biological diversity is preserved, food production is assured and other goals of sustainable development are not jeopardised. Sweden, together with other countries, must assume responsibility for achieving this global objective”. (Boberg, 2013)*

Part of the strategy to reach this specific goal – and this goes for many other environmental goals as well – is to have both individuals and companies and organizations strive for behaviour change. Changing trans-



port and consumption habits and increasing recycling behaviour are good examples of individual behaviour that will help Sweden reach its quality goals for a better environment<sup>1</sup>. In a nutshell, people need to change their behaviour in their everyday lives in order to reduce human impacts on the environment through greenhouse gas emissions, waste and exploitation of non-renewable resources. However, behaviour is not simply changed overnight. Not only do people need convincing about the *necessity* for them to change, they also often need incentives, motivation or assistance in changing their actual behaviour. For people to change their behaviour of their own free will, the desirable end behaviour should preferably be easier, more attractive, more reasonable and cheaper – or at least not more expensive – than their current behaviour.

Our present-day situation shows that current policy measures are insufficient to reach the climate change goals mentioned above, nor are they sufficient to avoid other environmental issues (Hatch, 2005). Although humanity has managed to solve some envi-

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1. Sweden is a front runner in some green behaviour, but definitely not in all. For instance, in a self-report study conducted by the Eurobarometer, Swedes, together with our Finnish neighbours and the Dutch, were highest in the environmental action of 'choosing environmentally friendly alternative means of travelling', and the single best country (self-reported) in buying eco-labelled produce, but scored less in terms of reduced consumption of disposable items ([http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_295\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_295_en.pdf)). However, a current WWF report on ecological footprints put Sweden in the number ten position of countries with the largest ecological footprints (WWF, 2014).

ronmental problems (e.g. the ozone layer is 'healing'), we are not solving all problems in the time period we have set for ourselves; for that, additional measures are needed. Many of our current policy tools are designed in a command-and-control regulatory fashion – which means they prescribe and demand one uniform behaviour of those at whom the policy is aimed, offering no flexibility for people to do as they themselves consider right. These rigid policies are often met with resistance. Market-based incentives, i.e. economic instruments such as taxes, and subsidies offer more flexibility but have also been found insufficient for changing behaviour to the extent needed to deal with the current society's environmental issues.

One reason for the suboptimal effect of policy measures may lie in the fact that the instruments assume people behave perfectly rationally. In other words, they assume man is a *Homo economicus* who knows and aims to achieve the highest possible well-being for him/herself with full knowledge of opportunities and constraints (Grüne-Yanoff, 2012). This assumes that actors have all the information required, as well as the cognitive capacity and time to process every single bit of information before making a decision. The realization that man is not always capable (or willing) or does not have all the information has inspired behavioural economists to think of people

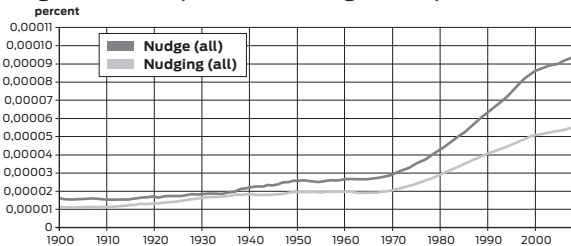
as having ‘bounded rationality’ and sometimes even being ‘not quite rational’. Instead of using their brain to maximize utility or gain the most benefits, people are ‘satisficing’ – they are looking for the first option that is satisfactory, rather than optimal (Simon, 1955), and they are sensitive to other systematic biases such as heuristics, loss aversion and framing (which are nicely summarized in Kahneman’s (2003) review). In conclusion: people are affected by more than just their ‘rational thoughts’ when performing behaviour or making decisions. For instance, Chetty et al. (2009) found that consumers respond to taxes that are directly visible in products differently to when these taxes are only implemented at the cash register (and so not visible on the product’s price tag). Rationally, there should not be a difference between the two, as in both situations the resulting bill is the same. In reality, with ‘real’ human beings, though, there is a difference.

There are situations in which we are perfectly capable of making a fully rational choice (e.g. when one sits down and thinks about which house to buy), but in other situations we are more prone to being affected by non-rational heuristics or other contextual influences (e.g. when one buys a packet of rice, this is often done by instinctively grabbing the first package positioned within sight in the supermarket aisle, not

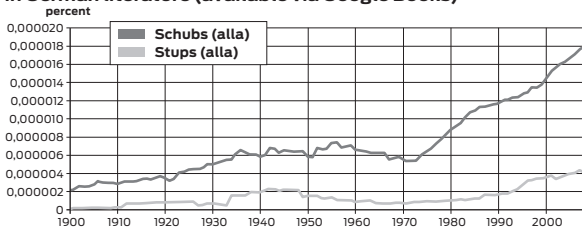
**Box 2: Dictionary definitions and origin of the term**

The Merriam-Webster definition of 'nudge' is 'to touch or push (someone or something) gently especially to seek the attention or urge action of someone by a push of the elbow'. The origin of the word is not completely known, but one of the very first mentionings of it occurred in 1670. There are arguments in favour of linking the word to the Norwegian word 'nugge' or 'nyggje', which means 'to jostle, rub', and the Icelandic 'nugga', which means 'to rub, massage'. In Swedish it can be translated by either 'puffa till' or 'att knuffa'. The use of the term 'nudge' is on the rise, as the illustrations below shows.

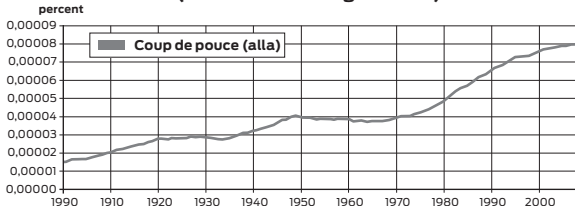
**Figure 1. The occurrence of the word 'nudge' or 'nudging' in English literature (available via Google Books)**



**Figure 2. The occurrence of the word 'schubs' or 'stups' in German literature (available via Google Books)**



**Figur 3. The occurrence of the word 'coup de pouce' in French literature (available via Google Books)**



as a result of careful rational thinking). The divide between fully rational and quite irrational behaviour is often described in dual-processing theories, of which Kahneman's System one (fast, automatic and intuitive thinking) and System two (slow, deliberate, reasoned (rational) thinking) is an excellent example (Kahneman, 2003).

We people are not only motivated by utility optimization. Instead, many other factors, such as social approval and status, play roles as motivators of our behaviour (Carlsson et al., 2014). The end result is that many market-based, top-down policy instruments do not work as they are expected to because people are not behaving as rational actors, but are possibly influenced in their behaviour by other factors, that policy-makers do not know of or anticipated. This realization warrants the enhancement of policy instruments with a more behaviourally oriented approach, one that takes into account that there are many diverse factors influencing our behaviour. Insights from behavioural economics, and related fields such as cognitive and social psychology, are used to help tackle the issues that top-down regulations have failed to solve. One of these behaviourally oriented approaches is called 'nudging'. Nudging could enhance and complement current policy instruments. But what is this nudging specifically?

## Defining nudges

Nudging is not one specific new marketing tool or mechanism. It is not a ‘thing’ in itself but more an umbrella term for many different methods and strategies of behaviour change, most of which had been tried and tested by commercial businesses and salesmen long before academia started to take note of them (see, for instance, the work of Cialdini, 1984). Salesmen might not call it nudging, default choice or appeals to social norms (we will explain these terms later on in the chapter), but many practices used by successful sales representatives are in essence forms of ‘nudging’. This, however, does not mean that all their ‘tricks’ are nudges. Nudges are ways of inducing behavioural change, but not all things inducing behavioural change are nudges.

A quick scan of the scientific literature dealing with nudges reveals that most definitions used refer back to the definition coined by Thaler and Sunstein. According to their 2008 book *‘Nudge: improving decisions about health, wealth and happiness’* – from here on referred to as the ‘nudge book’ – a nudge is:

*“... any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly*

*changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not” (Thaler & Sunstein, 2008).*

There are three main tenets of this quote that are important and that we will elaborate on:

- Nudging involves any aspect of **choice architecture**.
- It is about altering people’s **behaviour**, not so much their attitudes (attitude change may occur, but it is not the central aim of a nudge).
- Nudging does **not allow the forbidding** of options (or drastic change of economic incentives). Thus it respects people’s freedom of choice.

In their definition, Sunstein and Thaler refer to the term ‘choice architecture’, which is a pivotal term in the field of nudging. Choice architecture is the context in which a person is going to make certain decisions. Take, for instance, the environment of a foodstore, or that of a fast-food restaurant. This physical environment will shape the decisions a person makes in such situations. Just like in real architecture, there is no

such thing as *neutral* choice architecture. The context always influences a person's decision in one way or another. To be an *active* choice architect means to be deliberately engaged in the process of changing this context to influence the outcomes of people's decisions. Choice architects – people who influence the choice architecture – are, for example: a) doctors who describe the options of disease treatment to patients in a specific order, b) politicians stating that you are either with them or against them on the topic of public health care (omitting a third option), c) grocery store managers making decisions on what products to put on eyesight levelled shelves. Another striking example is computer installation wizards that ask users whether they want to subscribe to weekly newsletters or not. Many installation wizards ask this question at the end of installation procedures and to opt out of this, users have to uncheck a box. Unchecking a weekly newsletter box is far more time-consuming than checking such a box, and it also requires extra reading, so it is often forgotten by users. We automatically choose the default option (we will come back to this nudge later), and click the 'next' button before we even realize we are subscribing to newsletters. In contrast, in other situations software installers ask users to actively check a box to subscribe to a newsletter, in which case many people do not sign up.



The second aspect we highlight is that nudging is about behaviour, not about attitudes. In other words, nudging focuses on getting people to *act* differently, not to *think* differently. *Attitudes* are favourable or unfavourable opinions about some thing, object, or individual. *Behaviour* is about performing physical action. *Action* here should be interpreted broadly; choosing one product over another in a store is considered a behavioural act just as much as taking the bus or recycling waste is. Such behavioural actions can range from the very subconscious – for instance dodging an object that is coming at you at high speed – to the very conscious – deciding on the purchase of a new car.

Of course, having said that nudging is not about attitudes, we do make a side note that nudging people to behave in certain ways can also affect the way they think about some things. There is a two-way link between attitudes and behaviour: not only do our thoughts influence our actions, but our behaviour can also influence our thoughts. In other words, we base our opinions about what is happening around us on the behaviour we observe in ourselves. If you are buying only eco-labelled products, you conclude – or strengthen the conclusion – that you are in fact an environmentally friendly person. This happens because, most often, people strive for consistency

between mind and action. If attitudes are not in line with behaviour, we feel uncomfortable. We experience what is called ‘cognitive dissonance’ (Festinger, 1957). This makes us either change behaviour or thoughts, or come up with excuses for why there is an inconsistency, like putting the decision out of your control (“*he made me do it*”).

In the end, with a more sustainable future in mind, it is the behaviour of people we want to see changed, not just their thoughts. Nudging is oriented towards influencing behaviour itself, and one of the reasons for focusing directly on behaviour instead of attitudes is that the connection between attitudes and behaviour is not always as strong as is not always as strong and unambiguous as behavioural insights such as ‘cognitive dissonance’ suggest. In fact, there are many other factors influencing our behaviour apart from our attitudes. How much influence these other factors have depends on the situation, the person and the level of thinking involved. Thus, changing attitudes is a less effective entry point if the end result is behaviour change. Directly changing behaviour can therefore be a more effective approach.

Using nudges is not always the best way to change behaviour, however. A human mind can roughly be separated into two systems, a heuristic (fast) system and a reflective (slow) system (Kahneman, 2011). The

slow reflective system is used when you contemplate something, consider the pros and cons, and then make an informed decision. Like when you buy a car. The fast heuristic system, however, is involved in most everyday activities, such as choosing a route to work. Your travel route is not set in stone, so in essence people ‘decide’ each and every day which route to take to work. However, we do not see such decisions as proper ‘decisions’, because they are made by our heuristic system, which is fast, and mostly subconscious. It is, in this case, also very habitual, it follows the same route it always did, because it is the ‘habit’. When buying groceries, if you pick up two differently branded packets of rice, read the full labels, contemplate the nutritional values, price and origin of the product, before deciding to go for parboiled, or organic wholegrain, then you are using your reflective system. But if you are like most people, then at least most product decisions you make on your grocery tour will be made more quickly – for instance, because you have done the comparison already some time ago, or because you care only about the taste, or because you want to save time and take the closest at hand. For many shoppers, ‘get rice’ equals grabbing the first packet they see – the one in their eye line level – and recognize, and then tossing it into the trolley. The process has little to do with attitudes towards rice; it is more a matter of habit. You’re

not consciously aware that you are following decision rules or heuristics, you merely pick up the rice. It is exactly this kind of ‘mindless’ behaviour that nudging is able to influence.

Another very important tenet of nudging comes into play here: nudging does not impinge on freedom of choice. Coming back to our example above, no one is keeping you from bending down and grabbing the cheap unbranded packet of rice from the floor shelves. The options, in other words, are not restricted. This characteristic of nudging separates it from certain other methods of behaviour change. If the government *prohibits* something, then the alternatives are in essence restricted. Suppose, for the sake of health, the government decides to ban white rice. This means that normal customers are restricted in their choice. If the same government goes for a nudge approach, however, an example of an approach could be to banish white rice to the lowest shelves, as shelf height was found to affect consumer preferences in a study by Sigurdsson and colleagues (2009). Prohibition will, of course, be more effective in reducing white rice consumption, but there are (at least) two problems with this. First of all, it is an assault on people’s freedom of choice. Secondly, it limits flexibility. What if you are allergic to wholegrain rice? In such a case, the first approach would leave you very hungry, whereas the second

approach just forces you to bend a bit further. People are, in most cases, perfectly capable of taking care of themselves, as long as they have the right options available. The pivotal point here is that where restrictions actively limit people's freedom of choice, a nudge by *definition* does not.


This touches on yet another important term: 'libertarian paternalism'. This term was coined by Thaler and Sunstein (2003) and repeated in their later nudge book as a characteristic of nudging. In essence, all it says is that the idea of nudging is to try to influence the choices of people towards choices that are better for people individually, or society at large (paternalistic aspect), but also preserve people's freedom to opt in or out of arrangements as they themselves see fit (libertarian aspect).


These tenets of the definition are all essential ingredients, but not enough on their own to make a nudge. What is and what isn't a nudge is clear in some cases, but blurry in most (we will go more deeply into this in the next chapter). For instance, footsteps on the floor that lead people to take the stairs instead of the escalator are fairly easy to categorize as a nudge. However, information panels in a shop informing you of the environmental impact of products can be a border case. Whether they are a nudge or not depends on people themselves. As discussed above, nudging

## Box 1: What do others say?


The concept of nudging was coined and inspired by the work of Richard Thaler and Cas Sunstein, but what about the opinions of other experts in this field? We have asked assistant professor at Roskilde University (Denmark) Pelle Guldborg Hansen and senior research fellow at CICERO (Centre for International Climate and Environmental Research – Norway) Steffen Kallbekken. These two gentlemen are the initiators of the Danish nudge Network and the Norwegian 'GreeNudge', respectively. What do they have to say about nudging?


### What is your 'favourite' nudge?

 **Steffen:** My favourite nudge is reducing the plate size at restaurant buffets in order to reduce food waste. It is such a simple and cheap nudge, yet very effective. It can reduce the amount of food waste by around 20%.


 **Pelle:** Personally one of my favourite nudges is the apple vs. cake nudge we did in the Opera... However, in policy we recently finished three experiments of larger interest. Here one of them was a letter that was changed in four ways. The result was a 17% increase in answers and a 36% increase in compliance with the duty described in the letter.


### What is the single most important aspect of a 'nudge'?

 **Steffen:** The most important aspect of a nudge is that it does not limit people's freedom of choice. People are still free to make decisions that are bad for their health, economy or for our environment, but they are helped to make wiser decisions.


 **Pelle:** A rooting in a good behavioural diagnosis. Most people think that nudge is mostly about applying nudges to behaviours. But applying the nudge is the easy part and the view is not correct. Ninety per cent of the work is about building a proper diagnosis of the behaviour taking place. Without it you misfire most of the time because you'll be working in the blind. This is where the science comes in and it is what protects citizens from becoming experimental rats.


### What makes nudging better than regulating?

 **Steffen:** I believe nudges should be seen as a supplement, and not an alternative to other policy instruments. Nudges are a very useful policy tool when it is either politically difficult to introduce other instruments, when maintaining freedom of choice is of the essence, or when other instruments are unable to influence the target behaviour.

 **Pelle:** I don't think nudge should be perceived in general as an alternative to regulating, so the question is about comparing apples to oranges. But when a nudge may work instead of regulation it preserves freedom of choice (not only in a principled way); works without monitoring and monitoring costs; allows for personal judgement among citizens; improves the perception of quality in the task being carried out; saves a lot of money; have fewer, if any, non-intended effects.

### How would you feel if you found out you were nudged by the government?

 **Steffen:** I would be happy if the government helped me save money on my electricity bill or go to the gym more frequently. I would, however, want to know that such policies were in place.

 **Pelle:** We're being nudged by the government all the time (but that doesn't mean that we're always being nudged) as part of communication, letters, campaigns, etc. The problem is that few of these attempts are based on anything looking like a proper diagnosis and are based on really poor behavioural insights if any. That makes me annoyed. The question seems to imply that nudges work without us realizing it. But that would be wrong. Most nudges work in the field of awareness and one should be careful not to push the concept into an ethical debates based on the wrong premises. Besides that, there isn't a single emotional response attached for anybody to realizing being nudged. Being nudged is so many different things.

is not supposed to change (drastically) the perceived incentive structure of options. However, information that is carefully scrutinized and deliberated by people will possibly change how they value their options, and thus cannot be called a nudge. Yet, if people are merely guided by the large arrow on the panel that points towards a product, be it good or bad, or the colour of the package – with green indicating eco products, for instance – then the 'info' panel would be a nudge.

What defines a nudge is related to choice architecture, and it is this architecture that is its distinctive feature. The colour of the packaging, the height of the product, footsteps leading to a place, the order of options on a menu and default settings in tax return papers – all these are part of the architecture around the choice that can influence behaviour. Information

panels can do this too, but they can also induce deep and careful contemplation, in which case we would suggest not calling the architecture a nudge, but ‘thought-provoking’<sup>2</sup>.

In essence, then, the working definition of a nudge in this text shall be: any change in the *choice architecture* that is purposively made by the architect that affects the *behaviour* of people without impinging on their *freedom of choice*.

## What is and what isn’t a nudge?

Just as the amount of decisions we have to make during a normal day is staggering, so are the possibilities for changes in the choice architecture to nudge you in directions other than the status quo. Listing these would be a daunting task, but presenting rough strategy approaches or methods of nudging is possible, with the emphasis on the fact that this list is not nearly complete. However, for practical use, we restrict ourselves here to nudges that have received academic attention or alternative thorough evaluations (as will be described in Chapter two). In the final chapter we also discuss some approaches or mechanisms that could potentially also be seen as nudges, but which

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2. Yet there is the issue that in reality, people rarely do either fully conscious or fully subconscious processing, so there really is no way we can tell whether someone is nudged or convinced in other ways.



have currently not yet received the attention of nudge researchers. Note that the concepts printed here in *italics* are also explained in Table 1.

## **Information disclosure**

*Information disclosure* as a nudge means giving people just the right piece of information that may make them more likely to carry out one behaviour rather than another, but without affecting existing choice incentives or options. The idea behind (targeted) information giving as a nudge is not to induce in-depth thinking, but for the message to act as a heuristic, a ‘rule of thumb’. That said, however, there are many ways in which an information message may ‘nudge’ a person in one way or another, and many more ways in which it may have effects that go beyond mere nudges.

Informative messages can work in many different ways, and depending on how a specific piece of information works in a particular situation, it can be called a nudge or not. For instance, information panels that change the choice options of an individual considerably are not nudges, as a nudge is held to keep the options of an individual intact. An extreme example is threatening information – for instance a panel that reminds people of the imminent danger of not wearing seatbelts, by means of vivid images. If such a reminder makes people cognitively and deliberately reconsi-

der the value of their options, then this information panel can be very effective, but is not a nudge. However, if the reminder is a mere environmental cue that reminds people that they forgot to do the action they intended to do all along (fasten seatbelts), this could be considered a nudge.

It may be clear from this example that, when designing an information disclosure ‘intervention’, it can sometimes be difficult to say beforehand that it will be a nudge. Certain ‘pieces’ of information lend themselves very well to being a nudge – such as a red (or differently coloured) line on the floor in front of the bank counter to remind people that the customer ahead requires some privacy. There are very few people who will actively contemplate the meaning of this line, and who will compare obedience to it with the consequences of the alternative behaviour of crossing it. The information the red line provides is definitely a nudge – it makes one kind of behaviour more likely than another, without actively preventing anyone from performing the alternative behaviour without any extra effort. Not all information disclosure interventions, however, are so very clearly a nudge, e.g. eco labels, which can be a gentle reminder but also an important factor in careful consideration of alternative options. Moreover, whether something is an information nudge depends on the personality of an individual, as

well as the particular state that person is in, at the time of receiving the intervention (Turner & Oakes, 1986).

That said, information disclosure can be a very powerful nudge in certain situations, due to diverse psychological mechanisms, for instance via identity or the ‘*self-concept*’ – the knowledge we have of ourselves (Kenrick et al., 2005). Our behaviour is guided by how we think of ourselves, and what we think is the behaviour that fits that ‘self’. We humans identify our own selves with various groups on various levels (e.g. our personal identity, or our national identity). Everyone has multiple ideas of what they *are* – for instance student, teacher, friend, mother, child, leader – but these roles or ‘identities’ do not all at the same time dominantly guide our behaviour. The social identity approach, first developed by Turner and colleagues, suggests that whichever identity is ‘active’ at a particular time – the so-called *salient* identity – influences which set of behaviour and beliefs is actively guiding a person (Haslam et al., 2011). In other words, a person with the salient identity ‘mother’ will likely respond to her environment with a completely different set of behaviour and beliefs compared to the same person with a salient identity of law officer. Which identity or ‘role’ people choose as salient is, according to the pioneers in this field of research, “inherently variable, fluid and context dependent” (Turner et al., 1994). In

fact, a sub theory to the social identity approach originally rejected the idea that self-concepts were entities stored in our mind altogether; identification of the self with others on different levels and with different roles was considered a process solely dependent on social contexts (Turner et al., 1994). Whether this is true or not, it is clear that there are many factors influencing which identity we hold out for ourselves in a specific situation, and aspects of our surroundings are certainly among these factors.

Our own identities, but also other concepts and thoughts that are actively ‘buzzing around’ in our head, are all part of a ‘*schema*’ – an organized pattern of thoughts (DiMaggio, 1997). *Accessibility* (or *prominence*) indicates that a certain schema – which can be a salient identity, or just a set of thoughts – is more in the forefront of our attention than other schemas, which are more to the background. With that in mind, here is how information disclosure *may* work: information messages may affect the accessibility of thoughts in our minds; cues in the environment of an ‘information nudge’ can activate certain schema. It can make your self-concept as a sustainable person accessible (see Example 1 below), or it can highlight the notion that you are a responsible person who looks after your future (Example 2). It can make you aware of alternatives you did not consider before (such as

using beans for a taco dinner instead of minced meat), or remind you of things you planned to do but may have forgotten (fastening your seatbelt).

There is an abundance of ways in which information can nudge people, but neither we nor the reader have time to adhere to them all, so we have selected two appealing examples as simple illustrations:

### **Example 1: Eco labelling**

Eco labels inform consumers about the fact that a particular product is environmentally friendly. One way for this to work as a nudge is when a consumer has a self-identity that relates to being an environmentally friendly person and the eco label reminds this person of his or her identity. In this case, the small chunk of information makes a certain schema available, that of sustainable consumer behaviour. This activation only occurs if there is a self-identity in one's mind to activate in the first place, and the information 'nudge' does nothing more than merely remind people of it. And part of the identity of sustainable consumers is buying eco products. There may also be spillover effects towards other products, since once the schema is activated, it does not dissolve into the background immediately. Once eco-friendliness is activated for one product, it may therefore also influence the procurement of other products. Thus, labelling can

activate certain (eco) identities and by providing this tiny piece of info (in the shape of a logo or label) induce behaviour change.

Note that it is not necessarily this process that makes people buy eco-labelled products. Some people might actually be looking for information in terms of labels, and we would not call these people ‘nudged’ by the label, rather more informed by it. However, with information disclosure nudges, where the nudge ends and more elaborate thinking starts is always a difficult (and personal) point.

## Example 2: Employee participation (actual field experiment)<sup>3</sup>

Recently, Clark and colleagues (2013) found that information on the value of lifetime contribution to the 401(k) savings plan among young workers increased the likelihood of these young workers joining the plan. In a way, this is a ‘good’ example of a ‘bad’ information disclosure study, as it is not clear whether employees were thoroughly informed or whether they just got small chunks or aspects of info that nudged them. The authors call their intervention a nudge, but since

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3. In this report we use the term ‘experiment’ to indicate studies that have thoroughly randomized their subjects and that compare measurements after exposing at least one group to a treatment, and not to a control group. Laboratory experiments are those conducted within the confined area of the researcher (e.g. a lab) and field experiments are experiments conducted within the everyday life setting of people (in this case participants are still randomized). Studies that are not randomized (e.g. time series) are nearly always observational studies, often time series (Collier et al., 2004).

their study does not check what effect the information in the intervention had on its participants, it cannot be ascribed to nudging with confidence. This study is therefore not so much an example of information disclosure nudges, but of the difficulties arising with this particular method of nudging<sup>4</sup>.

## Framing

Apart from providing information, a message can also persuade people towards any direction merely by its appearance. A seminal study by Tversky and Kahneman (1981) found that people's preferences and choices between alternative options can be influenced by the way options are presented. The so-called decision *frame* – the way the outcomes of options are presented – can be affected by norms, habits, personal characteristics and the environment the choice is presented in (its 'frame'). The authors found that when they asked participants to choose between a health-care programme that would definitely save 200 out of 600 people, or one that had a one-third chance of saving all 600 people, most participants went for the 'safe' option of saving 200 people. However, when the question was framed as 'definitely letting 400 people die, or having a one-

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4. On the other hand, one can argue that it is not methods, but results that matter. The study was in fact effective in that young workers were more likely to begin contributing to the savings plan (Clark et al., 2013)

third chance that nobody will die', most participants actually chose the latter option, where chance was involved. In essence, these choices were identical: whether you save 200 people or let 400 people die out of a group of 600 is the same in terms of losses of lives. Tversky and Kahneman's prospect theory explains this phenomenon as the tendency for people to consider losses more severely than gains. On average, we prefer probabilistic losses over definite losses, but prefer certain gains over probabilistic gains (Tversky & Kahneman, 1981).

The prospect theory and related research in framing biases<sup>5</sup> is important to nudging because it highlights the effects of framing of a message, and its power to change behaviour. In a way, the frame can be seen as the package of a message, just as milk is contained in a packet or carton. Just as the shape, size, colour and text on the carton can persuade you to buy the milk (or not), so can the frame of a message make it easier for a person to adhere to the message content. Even when people do not pay active attention to the real content of the message, the framing of that same message can still be influential. In fact, even more so, for frames are more influential when we do not actively think about them.

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5. Levin and colleagues (1998) give an excellent overview of research in this field.



### Example: Lean tastes better (actual field experiment)

Consider, for instance, the results of a study by Levin and Gaeth (1988), who found that beef was judged to taste better and be less greasy when labelled as being 75% lean than when it was labelled as containing 25% fat (which is, in effect, exactly the same thing). A simple change in framing may make all the difference, without limiting anyone's freedom, or misrepresenting information.

### Feedback and social norms

Information disclosure is often linked to a form of feedback and to pressure from social norms – striving for social approval. Although in reality information disclosure, feedback and the use of social norms will often go hand in hand, we like to make an analytical distinction here, so that it is clear that there are different mechanisms at work.

*Feedback* occurs when people receive information concerning their previous behaviour, based on their level of accomplishment or change in a certain direction (Kazdin, 2013) – for instance, the small chunk of information that this month's energy expenditure was higher (or lower) than the expenditure of last month. *Social norms* are rules for behaviour and conduct that people impose on themselves either

because this is what most other people do (descriptive) or because they believe this is the approved way of behaving, the morally or socially ‘right’ way of acting (injunctive) (Kenrick et al., 2005). Norms induce feelings of guilt, shame and embarrassment when not followed. They can be informative in situations where we do not know what to do, and they can be compelling enough to force us to act differently to how we’d like to, for the sake of social approval. By *social approval* we mean the inborn urge that people have to be accepted in their group or culture, or to ‘belong’. The combination of feedback and social norms can be a powerful tool in persuasion, and if it does not affect a person’s freedom of choice, we can call it a way of nudging.

### **Example 1: Donating to charities (actual field experiment)**

Providing people with information about the amount of donations other people have given to charities before them could affect a person’s own donation. A study in Zurich by Frey and Meier (2004) found just that: exposing participants in a study to the information that many other students had already donated (descriptive social norm) increased the chance of students donating themselves.

## Example 2: Smiling feedback (actual field experiment)

A study on energy conservation in the United States tested the effects of feedback on households' energy consumption (Schultz et al., 2007). In this study, half of the participants received *only* feedback on being above or below the average energy expenditure (descriptive), whereas the other half received both that descriptive message and a 'judgemental' (injunctive) emoticon (either a happy or sad smiley according to whether they were below or above average). Participants were further divided into a high and low energy user group, dependent on whether they were using above or below the mean in terms of energy expenditure. Those who were above the mean lowered their energy use, regardless of whether they received just the descriptive or both the descriptive and injunctive (emoticon) message. But the most interesting result is that participants who were below the mean expenditure, and who *only* received the descriptive feedback message (telling them they were below the mean), actually increased their expenditure. Those with the injunctive and descriptive feedback message did not increase their consumption, they remained low users in terms of energy expenditure. Moreover, the study found that these effects lasted for a longer period of time (longer than four weeks).

One important aspect of social norms is that the reason people conform to the group matters. If someone is sensitive to the group's opinion, they will be likely to conform to the descriptive social norms if they believe the group will notice their behaviour. On the other hand, if someone conforms to a social norm because they do not trust their own knowledge, the visibility of their behaviour may be less important. Usually, social norms are most effective if they combine descriptive with injunctive norms. It is, however, not known which type of norm in isolation is more effective in behaviour change. This ambiguity highlights the need for studies and evaluations of implemented nudges before relying fully on them as panaceas for behavioural change.

## **Changing physical environment**

This is a catch-all term for many different nudges that share one thing: there is an actual physical change in the environment of the decision-maker that is not part of the other nudging method categories. This leaves an abundance of different nudges in this category – for instance, the sequence in which a menu list is offered. Due to the serial positioning effect – the tendency of people to remember the first and last items on a list best, and those in the middle the least

– people will be more likely to go either for the last or the first item (Colman, 2009). Of course, such a thing only works if people are quite indifferent about their food choices, which could be the case for a daily visitor to the canteen, but perhaps less so in the case of a romantic candlelit dinner (although then perhaps other thoughts are more salient). The way these nudges work are as manifold as the changes themselves, but it is important that in all cases alternative options must remain available. Thus, our examples below *are* nudges allowing for alternatives to be utilized as well, but closing off an escalator to promote stair walking, for instance, would not be a nudge.

### **Example 1: In the footsteps of..** **(real-life example)**

People often look at the floor just in front of them. Subconsciously many people tend to follow footsteps on the floor, especially if they do not have a very determined goal ahead. Some supermarkets make use of this concept (for instance the Coop on the train station in Stockholm). In Copenhagen, the nudge network has implemented green footsteps that guide people towards rubbish bins, in order to increase the amount of rubbish that is thrown into bins rather than on the streets.

## Example 2: Bite-sized chunks

People who live alone often face a problem of portion size, e.g. it is sometimes nearly as expensive to buy a kilo packet of chicken as it is to buy a separately packed fillet. In other words, even if a person has the incentive to reduce his/her consumption – whether it is out of health concerns or for the sake of preserving the environment – he/she is not allowed to do so due to the portions offered (within reasonable price ranges). Moreover, four-person households who end up buying the kilo packet of chicken may split this into four, giving each member a 250-gram fillet, which is far above the daily requirement. One nudge that could help reduce these overconsumption issues is to reduce packaging to smaller portions. For instance, chicken could be packaged in 150-gram packets, and multiples thereof, carefully indicating how many portions they contain. This still leaves open the option for hungry families to buy a kilo for just four people, while at the same time making it easier for individuals who want to just eat their daily requirement to buy the right amounts without excess.

## Default options

Default options are the pet nudge of Thaler and Sunstein, and much of their research is done into these. The *default option* is the option someone gets if he/she

does not actively decide on another option (Johnson & Goldstein, 2003). In Denmark, for instance, people who do not decide otherwise are *not* donors. In Austria, citizens are donors, unless stated otherwise. In general, people follow the default, because they do not want to make the extra effort to change the setting, or because they assume the default must be the best option. It is pivotal here that, in order to be a proper nudge, a change in default options should never reduce the alternatives available, nor should it make other options unnecessarily difficult to obtain.

The reasons for people to ‘go with’ default options over alternative options are manifold. As Pichert and Katsikopoulos explain in their study on default options (2008), the default setting can be the cheapest option, and choosing an alternative option costs time, commitment and sometimes even money. Another reason for sticking to default options is the belief that the default is the recommendation from the policymaker or company that provides the choice. One can easily imagine that companies providing a standard installation package alongside an advanced one have investigated the needs of most of their clients and built the standard package for that large group. A third reason for sticking to the default option is that it circumvents the time-consuming and sometimes difficult decision that is required in some cases, for instance when

having to choose between cheaper grey electricity and more costly green electricity. Finally, people tend to follow habits, which means following the status quo or default settings merrily without experimenting with alternatives.

### **Example 1: Organ donation (real-life example)**

The default choice of donating your organs can make a big difference. In Austria, for instance, there is a so-called 'presumed consent', which means that citizens donate their organs unless otherwise stated. Austrians must therefore opt out of donation if they are opposed to it. In Austria, this resulted in a staggering 99 per cent of the population being organ donors. Denmark, on the other hand, has an opt-in system and less than 5 per cent of its citizens are currently organ donors<sup>6</sup>.

### **Example 2: Green electricity (actual study)**

Pichert and Katsikopoulos (2008) examined defaults in laboratory experiments and observational studies and found that people tend to use the default setting for electricity, rather than actively choosing an alternative. Those provided with green electricity as the

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6. A brief side note to this needs to be made: not everything depends on organ donation percentages. Some countries have high percentages of organ donors but still have low organ transplant scores, whereas some countries with low percentages of organ donors have high organ transplant scores. Policy defaults help, but are not the complete story!



initial default setting were more likely to end up with green electricity than a group that had grey electricity as the default. Both groups were equal in their choice alternatives; both green and grey were available. This shows that defaults can be a powerful influence on human behaviour without infringing on anyone's freedom of choice.

## Critical reflections

So far we have explained the term 'nudging' and its different techniques, but we have not yet properly discussed critiques. As it would be an improperly balanced report if we omitted what nudge sceptics have to say, we will spend some short time here mentioning dissenting voices. For more elaborate critical reflections we would like to suggest Wells (2010) and citations therein, and Sugden (2009).

One critique of nudging is that it interferes with people's capacity and opportunity to conduct careful deliberation. According to John, Smith and Stoker (2009), deliberative democracy – a 'think think' approach compared to nudging – can at times be a better approach to collective decision situations than the use of nudging, particularly if people do not have fixed preferences, but 'develop' them through taking part in discussions with others. Aligned to this is Prabhakar's

critique that nudges interfere with the role of education and learning, which is not the case in a deliberative democracy (Prabhakar, 2010). That said, these authors both acknowledge that both approaches have their merits in certain situations, which is still in line with what we are suggesting here too: nudging can *in some cases* be a sound policy alternative.

Amir and Lobel (2008) point out that people might respond adversely to nudges because they might feel manipulated. We agree that such backfiring may occur (in fact it has, as was shown in the above section on social norms) and suggest rigorous testing of nudges before continued application of them in a real-life setting.

An urgent critique of Sugden (2009) is related to the ideology of libertarian paternalism. Sugden rails against the notion that in Thaler and Sunstein's idea of choice architects, these architects are supposed to be benevolent and all-knowing selfless beings that have only the benefits of those they nudge in mind. Since people do not always have the cognitive capacity to make decisions rationally, choice architects have to design the environment in such a way that it stimulates people to make the decision they would make if they did have the cognitive capacity (Sugden, 2009). This benevolent role of the architect is, of course, not always the case, nor is it possible, even for a willingly benevolent choice architect, to *know* all the choices

people would like to have made, if only they were not cognitively limited. People sometimes do not have preferences, even if they are attending to a decision with their full attention. Moreover, decisions are very often uncertain, and the outcomes are at least partially, if not fully, unpredictable, especially so on aggregated levels of society (the effect of every individual's behaviour together). All in all, it is very difficult, if not impossible, for choice architects to know the direction in which people would like to be nudged.

Another critique of nudges, says Sugden, is the notion of freedom of choice. Although the notion is naturally appealing, it is difficult to define. Thaler and Sunstein suggest that reasonable alternative options must always be given, next to the desirable choice option, and with minimal costs. But what are these minimal costs? Is a minimal cost the same per individual, say an unemployed single mum versus a rich CEO? And how many alternatives ought to be given? Which alternatives are reasonable? “The main critique here is that it is tremendously difficult to strictly define notions as ‘reasonability’ of alternatives. Yet by not defining them we risk certain choice architects to steer our behaviour by simply only considering certain alternatives as ‘reasonable’. A clear definition of what alternatives are reasonable would safeguard against this.”

We have no ready answers to these critiques, and

furthermore want to add that there might be more critical viewpoints not mentioned above. The purpose of this section, however, was to give voice to dissenters. Not everyone agrees readily to the desirability of the libertarian paternalism that nudges proscribe, and this should be acknowledged and explored as well.

## Reader's guide

Before reading on, we would like to underline the fact that nudges are pervasive in everyday life. Nudge techniques (such as the use of social norms) were 'discovered' by private advertisement companies long before social psychologists even began thinking about explaining them. Moreover, choice architecture is everywhere by default, and nudging only means making small changes in such architecture, without impinging on freedom of choice. This latter characteristic deserves underlining. The nudging that Thaler and Sunstein (and other proponents of nudges) argue in favour of and which are central to this report are the *consciously* applied nudges by governments and organizations that influence people in ways that add to the *welfare* and *well-being* of people, society and/or the environment without impinging on anyone's *freedom of choice*. We are not trying to help commercial enterprises sell more shoes, or beauty products, but to help benevolent orga-

**Tabell 1. Table of definitions**

<b>Information disclosure</b>	Giving people just the right piece of information that may make them more likely to behave in one way or another.
<b>Self-concept</b>	The knowledge (set of beliefs) we have of ourselves.
<b>Schema</b>	An organized pattern of thoughts and sometimes behaviour in our brains. One concept part of a schema can activate other concepts in the same schema, so that if one is thinking about recycling, concepts related to this such as waste disposal and green consumption might also be activated (which means they are more accessible).
<b>Accessibility</b>	The process of having a certain set of concepts more in the forefront of our attention versus other sets of concepts that are pushed more to the background.
<b>Framing</b>	Frames influence how our mind interprets the world around us. A frame is all about the way the outcomes of options are presented to us – which can be about social norms, habits, personal characteristics and the environment the choice is presented in.
<b>Feedback</b>	Giving people information that is based on their previous behaviour.
<b>Social norms</b>	Rules for behaviour and conduct people impose on themselves either because this is what most other people do (descriptive) or because they believe this is the approved way of behaving (injunctive).
<b>Social approval</b>	The innate feeling people have of being more accepted in their group or culture, or 'belonging'.
<b>Default options</b>	The option someone gets if he/she does not actively decide on another option

nizations to achieve their goals of improvement of life on earth, now and in the future. This is the nudging we endorse.

Because nudges are such a promising (additional) policy tool for environmental conservation, the following chapter will delve into a) scientific research into effects on environmentally friendly behaviour, and thereafter will look into b) potential effects of nudging, supported by research into other behavioural fields, and c) proof from the real world, where nudges have been used in real policy settings and proven to be effective. The third chapter wraps findings up and reflects on them in a way that shows future pathways.







## Chapter 3

# Nudging: evidence and practice

We conducted a literature search in academic databases to uncover the frequency and content of articles mentioning nudging. As was illustrated above, specific methods that could be called ‘nudges’ were explored long before the term was coined by Thaler and Sunstein. Our review, therefore, does not represent all that is ‘out there’ concerning specific techniques, it merely represents the state of the art in nudging as a concept.

**In this chapter we will:**

- » Begin with a brief summary of what we have found.
- » delve into scientific evidence regarding nudges specifically designed for environmental purposes and evidence about nudges from other fields.
- » highlight some examples of nudges implemented in real life by policymakers, and discuss their effectiveness.

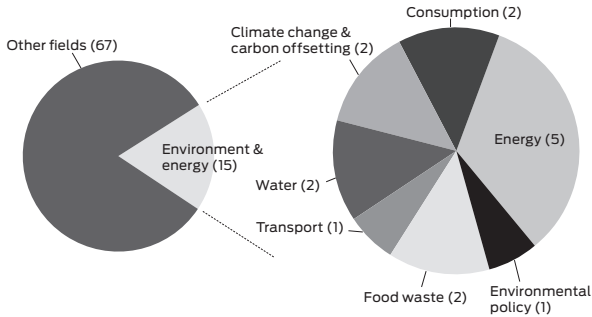
## Literature search

**The literature search was** conducted in Web of Science (a scientific database) for articles mentioning the term ‘nudge’ or ‘nudging’. This search gave over 1900 hits, but many of these were irrelevant; the fields of chemistry, physics and material science all use the term ‘nudge’ for technical phenomena completely unrelated to human behaviour. Filtering out such natural

**Figure 2.**

**Left:** Distribution of articles investigated, comparing environmentally oriented articles (light grey) with other fields (dark grey). Total articles = 82.

**Right:** Distribution of articles about environment into subcategories

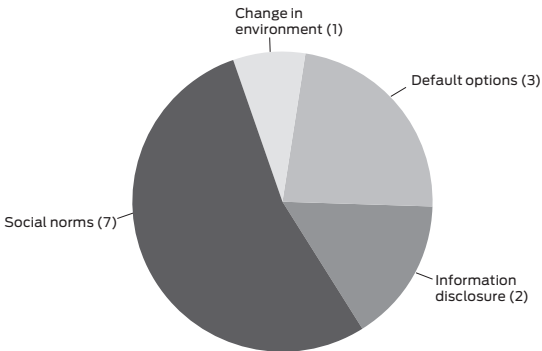


science articles reduced the number of relevant articles down to fewer than a hundred (including reviews, commentaries and books). We complemented this list with some excellent examples of nudge technique studies that pre-dated the actual ‘birth’ of the term (and so they do not use the term ‘nudging’). We took this liberty as the goal here is to explain nudges as best as we can, rather than to present an all-encompassing literature review. In total, 82 articles were incorporated in this ‘overview’.

Figure 2 illustrates the distribution of these articles. We assigned them to categories and found that only 15 articles were about environmental issues (see Figure 2). Most of these concerned energy saving, although diverse other fields also received (some) attention,

**Figure 3.**

Distribution of evidence-searching articles (experiments, surveys, case studies et cetera) according to the specific nudge they investigated (total = 13).



such as water saving (two articles), consumption of non-food (two) and food (two) and transportation. Suffice to say that, when it comes to nudge-specific studies, environmental issues have not been the subject of many studies.

Of the 15 environmentally oriented papers, 13 were experiments, surveys or other evidence-seeking studies. Of these (see also Figure 2), over half were oriented towards social norm nudges, which were all to a certain extent successful in influencing behaviour for the good of environments. The only study that was not successful in eliciting behavioural change used default settings among experts (Löfgren et al., 2012). This study varied between default options for CO<sub>2</sub> compensation (the default was either 'yes' or 'no' by default).

This study found that the effects of default options are reduced with experience and expertise in an area of concern.

Success seems to occur more than failure with nudges, although this might be due to publication biases – the fact that successful studies have a higher chance of being published than unsuccessful ones (Song et al., 2010). Among all evidence-seeking studies in this review (including non-environmental ones), 28 articles decreed successful behaviour change, whereas four did not. These were twice in default settings, once in changes in the environment and once in social norms. The above-mentioned study on default effects on experts was the only unsuccessful nudge study focusing on environmental issues.

## **Environmental nudges in depth**

In the environment category, all except for one review and one survey study were experiments (field, lab or combinations). In this section we will focus on the results of these experiments. We'll take social norms and information disclosure first, and combine these nudges, as they are closely related. Thereafter, we will look into default settings and changes in the physical environment/tools, before broadening our scope by looking at nudges from other fields (health care et cetera) in the following section.

## Social norms and information

An important example of nudging experiments – although the term itself is not used – is the study by Schultz and colleagues (2007); they argue that social norms – particularly descriptive ones – have often been used in social marketing without taking into account the possible boomerang effect, i.e. backfiring of the message resulting in undesirable behaviour. They tested this for a message about people’s energy use, and concluded that merely using descriptive norms may in some situations backfire, but not if injunctive social norms are added to the intervention. If anything, the study showed that nudges can be useful behavioural change tools, but are not *necessarily* always so. Careful testing and evaluation are required if nudges are to be sound policy tools.

Allcott (2011) also investigated social norms (both descriptive and injunctive) in a field experiment about electricity consumption containing more than 600,000 participants in total. Like Schultz and colleagues (2007), they provided users with feedback on their electricity consumption compared to neighbours, and found that those who were above the average had the strongest tendency to lower their consumption. Unlike Schultz et al., Allcott found no boomerang effect; those consuming less than average did not increase their consumption after the inter-

vention. Moreover, Allcott could not underline the effects of injunctive norms with his data.

Costa and Kahn (2013) investigated similar social norm nudges with explicit mention of individuals' political ideologies. They found that such ideologies matter greatly; liberals and environmentalists were more responsive to nudges than conservatives. Moreover, conservatives seemed to suffer from the boomerang effect, whereas liberals didn't. Their study therefore highlights how context dependent nudges are, and how important it is to test nudges in every single context. It also illustrates that despite being context dependent, nudges are still a valid tool for behavioural change in certain situations.

Carlsson and colleagues (2010), who investigated the effect of descriptive social norms on the choice of consuming fair-trade products, take a different environmentally friendly behaviour to previous energy conservation studies. They found such descriptive messages – e.g. that most people consider buying these over normal products – were effective for increasing consumption of such products among women, but not for men. Again, this shows how context dependent nudges are, while it still underlines their potential effects.

Other studies focused on water saving, and found that information alone was a weak incentive for

people to reduce their water consumption, but adding to this an expression of injunctive norms (which they refer to as a normative appeal) and descriptive social norm comparisons (via peer feedback) led to a significant reduction in water use, which lasted for as long as four months after the treatment (Ferraro et al., 2011; Ferraro & Price, 2013). High end users, who were least price sensitive, responded most to these messages (Ferraro & Price, 2013).

Finally, we found a recent study about the effects of the injunctive norms of a bonus-malus (reward/punishment) tax system for transportation in France. Hilton and colleagues (2014) found that such injunctive norms had effects above and beyond the effect of the price – where desirable behaviour is subsidized and thus cheaper.

Information disclosure was investigated by Cason and Gangadharan (2002) in two different nudges – although they themselves do not mention the term ‘nudging’ specifically. Firstly, they investigated the effects of ‘cheap talk’ of sellers about the quality of their sold items, and secondly they investigated the effects of (costly) external third-party labelling of sold items. The effects of cheap talk were non-existent, but external labelling did increase both the quality of products sold and the amount bought by buyers. The study was not explicit about this but the results could indicate

that labelling is a nudge buyers use to assert quality, whereas cheap talk is a far less effective nudge for this. Trust is at the base of this, as consumers do not trust companies boasting about their own products, but do trust a third-party evaluator.

Kallbekken, Saelen and Hermansen (2013) studied the effect of information labels and staff training concerning the environmental and financial benefits of energy-efficient household appliances (fridge freezers and tumble dryers). They found that information labels independently were not effective in changing purchasing behaviour, but a combination of labels and knowledgeable trained staff did have an effect (although the effect faded with time). Their conclusion was that information may ‘nudge’, but not all types of info will do so, and not in all products – their study found results only for tumble dryers.

One thing that becomes clear from these studies, as is corroborated in a meta-analysis that summed up information strategies and campaigns from 1975 to 2012 – including more than 150 studies (Delmas et al., 2013) – is that the type of information and its context are important determinants in the success of nudge interventions. Remarkably enough, this meta-analysis also concludes that neither low-level information – e.g. information labels or printed tips for consumers – nor feedback – from prior activities or



from the neighbourhood – were effective in changing energy-conserving behaviour. Even more worryingly, they found that giving information about prices actually increased the energy expenditure of households. Information nudges may suffer from crowding-out effects<sup>1</sup> or licensing effects<sup>2</sup>. With regard to both individual feedback (an information nudge) and peer feedback (a social norm nudge), their success seems dependent on the style and privacy of the feedback giving.

Conclusive evidence of the absolute effects of social norms or information nudges cannot be given, but this – as was discussed before – is not to be expected. Nudges are context-dependent and so their success is context dependent. What the literature shows is that both in laboratory and in field experiments, there is evidence that social norms and information disclosure *can* work as a nudge. Whether they *will* work in certain specific cases has to be evaluated for every separate case.

## Default settings

Default settings in environmental issues were tested in three articles (Campbell-Arvai et al., 2012; Löfgren

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1. Crowding out occurs when an individual's internal motivation is replaced by an external monetary one.

2. The licensing effect occurs when people who learn that their own expenditure is relatively small compared to the average interpret this as a 'licence' to consume more in the future.

et al., 2012; Pichert & Katsikopoulos, 2008). Pichert and Katsikopoulos investigated (in two natural field experiments, and two lab experiments) how green energy versus grey energy as a default had an effect on which energy German people chose. They concluded that the default mattered, a lot!

Löfgren et al. (2012) studied the effect of experience with a topic (in their case climate change) in relation to default settings. They compared a default option that preselected carbon offsetting against a default option that did not have carbon offsetting preselected, for flight bookings of scientists to a climate conference in Gothenburg. The study found that carbon offsetting decisions did not significantly differ, nor did they differ from a third group that received no defaults at all. The assumption behind the attenuation for default effects among experts lies in the fact that inexperienced people are more sensitive to the default setting because they have weak preferences that are only formed at the moment of decision, when the default is already known, and because lay people might see the default, more so than experts, as a recommendation.

Finally, Campbell-Arvai et al. (2012) showed how the default option of having only vegetarian dishes on a canteen menu – with meat options displayed on a wall at the edge of the dining room – affected guests' food choices. Note that the choice of the guests was not

limited: they could order both what was on the menu (the default option for most people) and what was displayed on the walls. The study found a significantly increased choice in favour of vegetarian options.

### **Changes in physical environment (or tools)**

Changing the physical environment can also contribute to pro-environmental behaviour, as is shown by Kallbekken and Saelen (2013), who systematically varied the plate size of hotel guests at a hotel's breakfast buffet. They conclude that reducing the plate size reduced food waste, because 1) people took less food in total and 2) they ate more of the food that was on their plate. In addition to the plate size, the authors investigated a nudge that does not really fit well into one category; they had put up signs saying it was OK to get food more than once, inducing people to take smaller portions a few times in a row, rather than one plateful at the first go. This latter nudge, which could be called an information nudge, but also a social norm, also had a significant waste-reducing effect.

## **Other fields**

We've seen now that within the field of environmental science there is some proof of the effectiveness – although that does not mean nudges are *always effective*

– of nudging in eliciting behavioural change. This section further explores which nudge techniques have been investigated and which were or were not successful in other fields of science. Findings from other fields could supplement the findings from the above-presented environmental nudges.

We saw a strong preference in environmental studies for the use of social norms, often accompanied by feedback and sometimes other information disclosure methods. Also touched upon were default settings, but studies using other nudges, for instance a change in the physical environment or tool used, were rare. We therefore look beyond evidence from environmental fields to say something about other nudge techniques and their potential viability. We will limit this current section to implementation intentions and changes in the physical (tool) environment, as these were nudge techniques that are hardly found in a pro-environmental setting. We will also highlight a few studies that we could not neatly fit into a category, but that have an interesting ‘nudge’ approach nonetheless. For new avenues of nudging techniques that have, to our knowledge, not yet been tested ‘as a nudge’, we refer to the following chapter, where we make some suggestions. But first, implementation intentions.

## Implementation intentions

Another ‘type’ of nudging that *could* be (successfully) applied to environmental contexts is that of implementation intentions. An implementation intention is about articulating when, where and how to follow through with an intention (Nickerson & Rogers, 2010). These researchers tested the effects of asking people to formulate implementation intentions for voting and found that this increased the turn out by 4.1 per cent.

Another study found that employees of a large firm, who had a chance of free-on-site vaccination against influenza, were 4.1 per cent more likely to come to such a vaccination session if they were asked to write down both a date and time for visiting the clinic upon being given the information about this opportunity (Milkman et al., 2011). Finally, even environmentally friendly consumption behaviour – e.g. shopping in an organic shop – was increased with the use of implementation intentions (Bamberg, 2002). Participants received a voucher they could redeem at the local organic shop and received instructions that asked the treatment group (not the comparison group) if they could write the day and time point at which they planned to visit the shop (implementation plan).

When it comes to ‘nudges’ as a term, only the study of Nickerson and Rogers and that of Milkman and colleagues explicitly mentioned implementation

intentions as being a ‘nudge’. There are many other examples, such as the study by Bamberg, that study implementation intentions, even in environmental behaviour, however these do not explicitly make the link between the behavioural-change method and nudging per se. That is not to say that these implementation intentions are not nudges, but that they merely weren’t considered academically in this light, and so it is difficult to assume the results of other studies as evidence of nudging.

**Potential green nudges:** how could implementation intentions be used in a pro-environmental way? This is not the place to discuss this extensively, and we would like to highlight again that due to the context dependence of nudges it would be wise to test any application first in a study. That said, one could apply implementation intentions in situations where people are already oriented positively towards the right behaviour, but just seem to forget to do it at the right times. Implementation intentions can prepare their minds for such situations, and make it more likely for them to remember their intentions at the right moments – for instance, planning to go to a bio-market next week, planning to separate rubbish by putting out separate rubbish bins at home, planning to take public transport more often by printing out timetables and alternatives and sticking them to the front door.

## Changes in the physical (tool) environment

We saw one example of changes in a tool that led to pro-environmental behaviour in the previous section, but more academic studies have investigated this nudge and its effects. Two food-related ones – which mention such changes in choice environment specifically as a nudge – are indirectly also relevant for the environment, since an added side effect of healthier eating could entail eating less. One of them is particularly compelling as it is a systematic review of previous studies (Skov et al., 2013). Unfortunately, these authors concluded that the majority of studies they found were done poorly – some studies did not even report participant numbers, or whether they had applied random allocation – and there was a lack of studies in a ‘real-life setting’ or, in other words, field experiments: nearly half were conducted in food labs. What they did find was that there were inconclusive effects of plate and cutlery size manipulations, but that assortment manipulation<sup>3</sup> mattered for healthier options<sup>4</sup>.

Van Kleef and colleagues (2012) studied whether the manipulation of assortment structure and shelf

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3. An assortment manipulation is, for example, the arranging of certain products within eyesight, and others on bottom shelves, or the amount of colours or variations of the same product (e.g. jelly beans) that are presented.

4. Technically, the studies contained in this meta-analysis were not part of our review since they do not explicitly mention investigating a nudge. However, given their topics and experimental set-up, we can claim they engaged in a nudge nonetheless, and more importantly are an excellent illustration of ambiguity in results. Wansink and colleagues (2006) found associations between bowl size and ice cream consumption, whereas Rolls and colleagues remarkably found no link between plate size and energy intake (2007).

**Figure 4.**



Photo by author, 23rd January 2015. Brussels International Airport.

layout in the display of a canteen checkout counter could affect customers' healthy food choices, and found both in a laboratory and in a field setting that consumption of healthy snacks went up with an assortment that contained healthier snacks compared to unhealthy ones (although both options were still available!). Remarkably, consumers also felt an *increased* freedom of choice when healthy snacks were displayed on top shelves. Another study tried to manipulate healthy food choices by changing the order in which food was presented on a menu (Thunström & Nordström, 2013), but they did not find any effects of this on sales of the items on the menu.



Nudges of this sort have not only been applied in health. Shu et al. (2012) show that having people sign a self-report at the beginning rather than at its end increases the salience of the ethics of cheating, and reduces dishonesty in self-reporting.

**Potential green nudge:** any of the above-mentioned studies that reduce consumption are also beneficial for the environment, as they reduce consumption and waste. Other applications could include product-shaped rubbish bins that promote recycling – for example, in Figure 4 we see a trio of rubbish ‘bins’ at Brussels International Airport where people can see straightaway from the shape of the slot on top of the bin which kind of rubbish goes in which bin. Note that there are also illustrations of which type of rubbish goes where, so that even if people have no time to read, they might still be able to dump their rubbish in the right bin. Another example of changes in the physical environment is the green footsteps leading to rubbish bins – a tried and tested application in Copenhagen.

## **Other nudge techniques**

Some studies used nudges that were difficult to classify, but which are nevertheless worth mentioning. For instance, a study by Stutzer et al. (2011) found that rather than using default settings as a nudge, *forcing* participants to actively choose (thereby removing the

default altogether) might nudge people into prosocial behaviour. Their field experiment found that an active decision intervention increased the blood donations given by participants who had not previously thought of doing so, whilst leaving unchanged the donations of those who had reflected upon such decisions before. In other words, asking people to reflect changed into a win-win situation; those who had previously made up their mind did not change their behaviour – thus their freedom of choice was not compromised – and some of those who hadn't before made up their minds decided to donate.

A study by Luoto and colleagues (2014) is one of the few studies that explicitly investigated the effect of nudges in developing countries. They investigated the effect of a *commitment reminder* – a nudge very similar to that of the above-mentioned implementation intentions. Commitment to a certain idea makes people more likely to remain consistent to this commitment, even more so if such commitments are verbal and public (Greenwald et al., 1987; Luoto et al., 2014). This is a rudimentary form of implementation intention, as it does not ask for an elaborate plan of 'how to' go about achieving one's goal, but does require participants to stop for a moment and contemplate their decision. Particularly in cases of 'easy' behaviour that does not require an elaborate 'how to' plan, this could be a useful nudge. Moreover,

Luoto and colleagues used *framing* – a specific variant of ‘change in the decision-making environment’, namely a change in the wording (could be visual framing as well) of that environment. It is, in other words, a ‘glass half full or half empty’ issue. There is much evidence to back up either the benefit of positive or negatively framed health messages and much seems to depend on the context – e.g. whether it is about prevention behaviour or promotion behaviour<sup>5</sup>. Luoto and colleagues found that the commitment treatment was quite successful; participants who were asked to verbally commit to using a new low-cost water filter, and to hang up a poster in their homes as a reminder, were more likely to make regular use of this new product. Whether this was due to the commitment itself or the reminder, however, was not clear from this study set-up. The framing of a message mattered as well: those with a more negatively framed message (expounding on what one can lose by not using this product) were more likely to use the filter product than those who only received a positively framed message (expounding only on what was to be gained from usage).

**Potential green nudges:** one suggestion for the forced-choice nudge – in other words the removal of

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5. More specifically, in a so-called prevention setting – where bad behaviour such as smoking is to be avoided – a negative ‘loss frame’ message is most effective, whereas in a promotion setting – where good behaviour such as exercising is to be awarded – a positive ‘gain frame’ message is more effective (Lee & Aaker, 2004).

defaults – would be to apply this to an energy provision setting; make people choose between green and grey energy, without giving them the chance to just ‘stick’ to whatever the status quo is. However, people sometimes quite fervently dislike making decisions and *want* to rely on the status quo, or feel that the time it takes to make the decision is not worth the effort. Forcing people to make choices may risk having them avoid the entire decision situation altogether, also not a desirable state. Such potential backfiring underlines the ever-present need for pre- and- post-evaluations and monitoring of implemented nudges.

Commitment could be applied to an environmental issue by asking people to show their commitment to nature by signing up for green energy and making this public by sharing it online – e.g. via Twitter or Facebook. This is, in fact, already done by many NGOs and other (non-)profit organizations.

## **Intermediate conclusion**

The above literature overview reveals gaps in our current knowledge that require further academic attention. Before summing up these findings, we want to highlight that we also found a lack of long-term studies on nudging. The behavioural effects of implemented nudges are often measured in either immediate or very recent reactions (within a week) and seldom are effects

observed or measured in periods later than a month. However, if we want nudging to change people's behaviour for the better of society and the environment, it is often important that the behaviour is not a single event, but an ongoing change in lifestyle. We thus think a focus on long-term studies is warranted.

The above literature review also shows that there is ample proof of the effectiveness of social norms in environmental (energy) nudges, but also that it is very context dependent and does not always result in success. This once again underlines the need for testing and monitoring nudges before implementing them on a full scale. This same recommendation concerns other types of nudges too.

We noticed a lack of studies into environmental nudging techniques beyond social norms and information interventions. For instance, we found only one study into changing environments and no clear-cut 'nudge' study into implementation intentions (although Bamberg (2002) did find interesting results for implementation intentions on environmentally friendly consumption). There are many more possible nudge techniques that remain uninvestigated (examples are given in the next chapter).

Another thing that could strengthen the support for nudging is interdisciplinary studies. We will come back to this in the next chapter, but briefly: nudging

was born in an interdisciplinary collaboration (economics meets psychology) and is supposed to operate in an ‘interdisciplinary’ reality; therefore it cannot be more important for experiments and other research approaches to be done in a similarly interdisciplinary way. Only then can we say things about how in reality nudging can be applied.

Finally, what is quite striking is the absence of that focus on developing countries (with the exception of Luoto and colleagues (2014)). There really is no logical reason why nudges should be restricted to high-income countries; in fact, there may be a lot to learn and gain from using and testing them in middle-income and perhaps even in low-income countries as well. Currently, however, such experiments are very rare.

With these conclusive remarks in mind, let’s now turn to what nudge experiments have been about outside of the scientific scope. What have governments or NGOs been doing with, about and around nudging in the last few years?

## **Evidence from the field**

There have been a lot of studies done and described so far, but there are also instances – many of them – where policymakers have taken up the task of trying and testing nudging themselves, in everyday policy plans. In

general, such implementations, which could be seen as large-scale experiments, tend to not get reported in scientific journals, but that does not mean they are less interesting. In fact, because such implementations are happening in real life, they can be the best kinds of field experiments (if done with randomized groups and careful monitoring). Here we highlight a few of the findings from already implemented policy plans that were conducted in real life, and which were carefully monitored and evaluated.

### **Behavioural Insights Team – UK**

The currently most institutionalized nudging initiative is the Behavioural Insights Team in the UK (also known under the acronym BIT). They were initiated as a part of the UK government, but have since then been developing as an independent think tank – though still closely affiliated to the Home Office. Among their applications of nudges in real-life policy measures are organ donation registration, charitable giving, combating fraud, energy use and consumer choices. We give two examples here.

BIT tried to increase the number of donors registered among people who had just registered for a driver's licence, by sending them messages with different content, varying how the social norms were expressed, and the frame in which the text was put (loss or gain

frames). They found that small textual (and figure) changes could have an impact on the percentages of people registering as a donor. Putting the message in a reciprocal frame was most successful, whereby people were asked: *“if you needed an organ transplant would you have one? If so, please help others”* and the loss-framed question (*“three people die every day...”*) Rather interesting is their finding that social norm messages were effective (*“every day thousands of people who see this page decide to join”*) except for when this social norm message was accompanied with a picture of a group of people. This again highlights the need for testing nudges in the field before blindly applying them, as results seem very context dependent and unpredictable. In numbers, BIT found that 1203 more people registered under the best working message compared to the control group. This would amount to roughly 96,000 more registrations than normal over the entire year (BIT, 2013b).

Another intervention by BIT focused on charitable giving (BIT, 2013a). They combined social norms, default settings and information disclosure at exactly the right time into a couple of interventions in different settings. They found, for example, that automatic enrolment of people in a donation scheme (with opt-out options) increased the numbers of donations, as did peer effects (messages from colleagues who had already donated).



## **InudgeYou – Denmark**

In Denmark, a network called the INudgeYou network has also strived to implement nudges in society, both by testing them in the field and by doing lab experiments. The best example of nudges implemented in the field are the Green Footsteps all across Copenhagen, nudging people to throw away their rubbish in rubbish bins. They found a 46 per cent reduction in littering across the street when the rubbish bins were indicated by green footsteps pointing towards them (Jespersen, 2012). Within the same study set-up, they found that arrows pointing towards the stairs rather than escalators in Central Station at Copenhagen increased stair use only by 2,3 per cent. The research team suspects this was due to the fact that there is a social norm against littering (as the littering behaviour of one person affects the aesthetic experience of others), whereas taking the stairs rather than escalators has no social norms surrounding it (no other person is worse off because of one individual's choice between stairs or escalator, therefore no social norms regulate the behaviour).

## **GreeNudge – Norway**

In Norway, GreeNudge is trying to get people to be more environmentally friendly by applying nudges in a scientific way. They strive for studies, but only studies that are relevant to society (natural field studies). We

discussed one of these earlier – the electricity labels for household appliances (Kallbekken et al., 2013), and a second study studied the effects of reduced plate size (Kallbekken & Sælen, 2012). They conducted a field experiment in a real hotel chain (Nordic Choice Hotels) and found that with a smaller plate size food waste was reduced by nearly 20 per cent. Maybe more importantly for businesses, consumer satisfaction was unchanged, so guests were not negatively affected by the intervention.





## Chapter 4

# Conclusions

**One of the biggest problems** with our current lifestyle is its huge impact on the environment, due, among other things, to a large contribution to greenhouse gas emissions, but also due to excessive waste and (unsustainable) resource extraction. There is a lot of improvement to be made within the policy area that is aimed at changing people's lifestyle behaviour to reduce the environmental impact. Yet traditional policy instruments have been insufficient to influence these often habitual behaviours. For instance, in the transportation sector, the reduction of car use, and increase of other means of transportation, such as taking the bike, train or electric cars to work, are good examples of behaviour that can lead to better environments – and in some cases also better health. It is clear enough that reduced car use will drastically lower greenhouse gas emissions. Further efforts to

reduce emissions, waste and resource extraction can be made in electricity and energy saving in and around the house, by saving energy or by buying more energy-efficient appliances. Our food consumption patterns can be changed too, by eating less meat and fewer dairy products, or by buying more locally produced food. Finally, natural resources can be saved by being more efficient in the use of our current produce, and by recycling more and more efficiently what we already have. Increased recycling as well as a reduction in (food) waste can help to reduce the pressure on primary resource extraction. In all of these examples, nudges could play a role in bringing about behavioural change. It is evident from the many organizations, (non-)governmental reports and scientific as well as news articles that both policymakers and the private sector are increasingly interested in the applicability of nudging. Both Fores and the Swedish EPA worked in parallel, independently, on reports about this, and both have presented their results (you are reading the Fores report now, and can find the Swedish EPA report in the reference list (Mont et al., 2014)). It is because of this interest, and the potential for behavioural change, that we suggest ‘ways forward’ here in this conclusions section, along with some examples of nudge ideas for the future.

In Table 2 we summarize some of Sweden’s more

urgent environmental problems that can be tackled by behavioural change. The table also suggests which particular behaviours could be changed and where the largest responsibility or possibilities for inducing such change lie – in other words, who is most likely to implement a nudge. Finally, we have added some examples of nudges for each problem; in some cases tried and tested nudges – which were discussed in the previous chapter – in other cases potential future solutions.

All the nudging techniques elaborated upon in this report are tools that can help in reaching the desirable state of behaviour. At all times, of course, nudges ought to keep the freedom of choice of people intact. Some environmental issues already have nudges that seem to fit neatly – previous studies have tested them in similar fields elsewhere. All that needs to be done is to test these nudges in the Swedish context. Other environmental issues require nudges that are more in a phase of testing – these nudges seem to have worked in other fields but not so much in the field of environmental issues themselves. Such nudges should be tested in a Swedish context as well, but with more care, and so preferably starting on a smaller scale – possibly even with laboratory experiments. A third group of nudges is those that have not been tested anywhere yet, but that are theoretically viable to work. We will discuss a few of those below. This latter group deserves inten-

sive investigation before they can be implemented, preferably both with laboratory and field experiments. As nudges are context dependent and context tends to change over time, any policy instrument making use of nudging techniques should always maintain careful monitoring and evaluation to see whether the nudge keeps its effectiveness and does not backfire.

## **Potential future nudges**

Social and cognitive psychology as well as behavioural economics have been around longer than the term ‘nudge’, and so it is quite logical that there are many potential behaviour change methods out there that haven’t been used explicitly as a nudge yet. In this section we mention a few, in relation to the caveats we uncovered in the behavioural change needed in Sweden, compared to the evidence of successful nudges that we have from across the world.

Earlier in this report we discussed how a person has a certain web of concepts (schema) salient at a given moment in time, and such a schema can be changed by actively making certain concepts more accessible or salient over time. We can also call this *priming*, the process of making a schema more salient, thus changing the perspective and perceptions of an individual to be ‘seen’ from a different lens. Priming students with the concepts of a library, for instance, made them



quieter in class (Aarts & Dijksterhuis, 2003), and priming experiment participants with concepts of God and religion resulted in them allocating more money to anonymous strangers in a dictator game (Shariff & Norenzayan, 2007). Priming is not a stand-alone nudge technique, but a psychological principle that underlines some (though not all) nudge processes.

An example of the salience of certain schemas lies in the use of *primacy effects* – our tendency to remember best what is first on any list. The primacy effect works the way it does because the first (few) items on a list make salient other concepts in our minds. We use those as a starting point, or in psychological terms, our ‘anchor’. Such *anchoring* is done by us because we want to be right, and fast at the same time. As cognitive misers – people with a limited capacity to contemplate everything around us – we cannot thoroughly investigate everything and therefore use anchors to make decisions and act. Although not ‘rational’, such anchors can be extremely strong, as has been shown in courtroom experiments, where a fully experienced and educated jury varied in sentencing based only on assimilation to a randomly determined sentence demand (the jury was made aware of the randomness of this demand) (Englich et al., 2006). In this situation, ‘aim high, shoot low’ does not apply. If you want low sentences, the best strategy is to ‘aim low, shoot low’.

From anchoring and priming, a few ‘*new*’ ideas for nudging could arise. We put new in quotes here because the methods themselves are hardly new, they have been investigated by social psychologists for decades and before that applied by advertisers even farther back in time. But as gentle freedom-retaining nudges, these terms are new to the field.

### **Decoy effect**

Given two options, people tend to compare between the two. However, when we are given three options, one of which resembles another one but is worse in all but costs, we compare only these similar ones, and are more likely to pick the better of these two. In a less abstract price example (taken from Josiam and Hobson, 1995), participants either received two travel options to Las Vegas (one simple and cheap option, one expensive and luxurious) or three (these options plus an expensive but simple option). In the three-option situation, none of course decided for the last (decoy) option, but many more people decided for the more expensive luxury option than in the two-option situation.

Example (see also Table 2): It may be difficult for people, even those who are trying to be more environmentally friendly, to purchase environmentally friendly vehicles when the only alternative is (often cheaper) fossil fuel-based vehicles. However, if an

eco-friendly vehicle is compared to an equally priced but slightly less good alternative (e.g. less fuel efficient but with the same price and perks), then the decoy effect might result in more people selecting the green vehicle, without anyone's freedom of choice being infringed – all options, of course, need to be as available as always.

### **Door-in-the-face technique**

This quite famous technique was first investigated in a seminal study by Cialdini and colleagues (Cialdini et al., 1975), who asked people on the streets to volunteer to counsel juvenile delinquents for two hours a week for the next two years. Unsurprisingly, nearly everyone declined. A small request ensued, asking the people if they would join a group of delinquents on a short trip to the zoo instead. They compared these results to a group of people who only got the small request. In the first group, 50 per cent agreed to join the zoo trip, whereas only 17 per cent of the people in the second group joined.

The door-in-the-face technique basically works by asking people for a big favor first, which they will almost certainly decline. The psychological process behind this effect isn't exactly clear yet (Turner et al., 2007) but the effect itself is often reproduced and effective in eliciting compliance.

Example (see also Table 2): People may be reluctant to go to great lengths to recycle, and will oppose putting four to five separate rubbish bins in their homes, but this may change once people are first confronted with an even larger request, such as spending four hours a week as a volunteer at a recycling and sorting site. Such an initial request might stimulate people to agree more willingly to a second request, namely to separate their rubbish. Offering people separate rubbish bins for different types of rubbish with colour indicators for which rubbish goes where, or rubbish-shaped lids for paper, bottles and cans can also nudge people in the right direction (change in the physical environment). Finally, having people make implementation intentions on their plans (how) to recycle can strengthen the link between their initial decision and their later actual behaviour.

### **Mere exposure effect and availability heuristics**

There is a scientific saying that goes 'familiarity breeds liking', which supposes that humans have the tendency to like things that they are familiar with. Mere exposure effects are exactly this: we create a liking for a certain thing or topic merely because we are exposed to it. It works for a very diverse range of things, such as art, human faces and sounds (Zajonc,

2001). It is important to note, however, that familiarity does not always work towards a positive evaluation (Brooks & Highhouse, 2006).

Exposure also brings about another heuristic. Not only do we have the tendency to like things we know better than those that are unknown, but we also base judgments on frequency of exposure. For example, we hear much more often about homicide (in the news) than about suicides. In our memory, therefore, the availability of instances we have heard about homicide are far more frequent than those on suicides. Our minds automatically add one and one together and conclude that homicide is far more likely to occur than suicide. In fact, this is not the case (according to USA statistics, in Thaler and Sunstein, 2008). Similarly, as aeroplane crashes are far more vivid in one's memory, many people are afraid to fly but do not think twice about crossing a road, whereas road crossing is statistically far more dangerous.

Example (see also Table 2): Many people have public transport at their disposal, but refuse to take it, or rather prefer to use a car, even for short distances. There may be many reasons for people to take the car instead of public transport, of course, but a nudge could be used to persuade some people, those who may not have the most urgent reasons or preferences for using the car, to consider other means of transport.

This could be done by making certain ideas about public transport more available (for instance by putting up advertisement signs near roads). This advertisement would probably not persuade anyone ‘on the spot’ to change vehicles, but what it can do is make the idea of public transport more available in one’s mind. This could have the effect that, next morning, when a person is considering their means of transport, the idea of public transport more easily arises. If it arises even before the use of a car does then behaviour change might be an outcome. Alternatively one could make the danger of driving a car more available in people’s minds, by reminding them of the traffic accidents that occur, and comparing these with accidents on public transport<sup>1</sup>.

## Spotlight effect

Imagine you find yourself on your way to work and suddenly realize your socks are not a matching pair, your hair looks unkempt or you have accidentally put on your shirt inside out. As you continue to work you see people stare and even point at you, and in any case talk behind your back about you. Many people recognize this situation and have at least once encountered

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1. In general, traffic accidents on public transport are fewer than in personal car transport. On the European level, for instance, over 30,000 people were killed in road accidents in 2010, whereas only 62 passengers died in train accidents (EU, 2012). In Sweden, 296 people died on the road, whereas none died in train accidents (though some people did die after colliding with a train, most often due to suicide attempts) (Transportstyrelsen, 2013).

a similar scenario. However, in most cases it is not really true that the rest of the world (or at least all those on the train platform) are looking at you. In fact, no one is.

The feeling that we are ‘in the spotlight’ is very human, and often very wrong. The term ‘spotlight effect’ was coined by Gilovich and colleagues (2000), who found that people consistently overestimate how others take note of their actions or appearance. This was found in diverse things ranging from appearance to sports activities and success or failure in playing computer games (Gilovich et al., 2000; Gilovich et al., 2002), to name but a few examples. It sounds quite like a negative phenomenon, but in fact it need not be. Gilovich and colleagues (2002) found that asking participants to wear embarrassing t-shirts had just the same spotlight effect as asking them to wear images of their own choosing (consequently positive representations).

Example: when people are doing a socially acceptable or even applauded action (such as buying eco-friendly products at a supermarket), one particularly important process that can stimulate the repetition of this behaviour is positive feedback. Since governments cannot reward every single eco-product consumer, other means of positive feedback have to be in place. Spotlight effects could help here. If consumers expe-

**Table 2. Overview of environmental issues in Sweden, how behaviour can help, and potential nudges**

Problem	Behavioural solutions	A job for...		Examples of nudges
		Private	Public	
Fossil fuel used for <b>transportation</b> is emitting GHG into the atmosphere	Reduce car transport		X	<ul style="list-style-type: none"> <li>» Implementation intentions (potential, see text) – have people write and sign that they plan (and how) to take public transport more</li> <li>» Availability effect (potential)</li> </ul>
	Increase public transport	X	X	Social norm messages (Hilton et al., 2014)
	Increase transport driven by alternative energy (e.g. electric vehicles or bikes)	X	X	Decoy effect (potential, see text)
	Travel less or use carbon offsetting for long trips		X	Default options (Löfgren et al., 2012)
Fossil fuel used for <b>electricity and heating</b> is emitting GHG into the atmosphere	Reduce energy use in households (electricity and water)	X		<ul style="list-style-type: none"> <li>» Default options (Pichert &amp; Katsikopoulos, 2008)</li> <li>» Social norm messages (Allcott, 2011; Costa and Kahn, 2013; Ferraro et al., 2011; Ferraro and Price, 2013; Schultz et al., 2007)</li> </ul>
	Increase share of environmentally friendly appliances in households	X	X	Information provision (Kallbekken et al., 2013)



Increased <b>consumption</b> of products (e.g. certain types of food) with high impact on climate change	Increase consumption of locally produced food	X		Default options could be local foodstuff within eyesight (potential, see text)
	Reduce meat and dairy consumption	X		Social norm messages about injunctive and/or descriptive norms about meat consumption (potential, see text)
	Increase consumption of products with environmentally friendly packaging/production process	X		Information provision by labelling food for certain traits (Skov et al., 2013)
	Reduce food waste	X		Change in physical environment/tools e.g. reduced plate size (Kallbekken and Sæten, 2013)
Consumption without <b>recycling</b> is depleting the world's resources (e.g. aluminium, plastics)	Increase recycling of products		X	Door-in-the-face technique (potential, see text) combined with implementation intentions and changes in the physical environment/tools
	Reduce (food) waste in households as well as public places	X		Change in physical environment/tools e.g. reduced plate size, (Kallbekken and Sæten, 2013)

rience their own actions to be much more noticed than they really are, then the social reward of buying eco-friendly becomes more pronounced. Self-awareness increases the spotlight effect ( Gilovich et al., 2002). Moreover, Dahl found that when people have to buy an embarrassing product, both real and imagined presence of others add to this feeling of embarrassment (Dahl, 2001). In a similar vein, seeing or imagining onlookers can increase the rewards felt by buying the 'right' products. Being exposed to a 'nudge', such as a set of eyes observing you (which could cue your subconscious thoughts into thinking you are being observed), may lead to more self-awareness and, either due to the spotlight effect or due to the following of a heightened self-concept schema, eventually lead to more pro-environmental behaviour. As a concrete example, an 'eyes' nudge above the meat counter at a supermarket may (possibly) lead to an increase in organic meat consumption and a reduction in the regular meat.

As goes for all the above-mentioned examples, this is a potential idea that merits experimentation and investigation before it can actually be said to be effective and implementable on larger scales. That said, we believe that with a sound psychological underpinning, as these examples have, the chance of their success is high.

## Way forward

Most suggestions we have made will be initiated and implemented by companies, but that does not mean the government has no role to play whatsoever. In fact, the role of the government is vital, although it has more of a supportive nature. For instance, by making non-meat and non-dairy alternatives more appealing through subsidies, governments could stimulate companies to focus more on those markets, and divert away from the meat and dairy markets. This could stimulate companies to use nudging techniques to further both healthier and more environmentally friendly options. The role of governments in the transport section can be more visible and direct. For instance, they could take a leading role in discouraging people from using a car, and actively encourage other means of transportation. Taxes on gas are the most common way of doing this, but there are less intrusive ways of changing people's behaviour. One example would be to ask people – many of whom are at least on paper in favour of environmental conservation – to write down implementation plans for their intentions to take alternative means of transportation (and how to do this, for instance by printing out bus timetables). Such interventions can be tested on local scales and when successful scaled up to national levels quite easily.

As the table shows, there is a lack of studies into

ways of reducing or ‘making green’ people’s consumption patterns, and changing transportation habits. Moreover, none of the studies mentioned in the table or anywhere in this report were specifically designed or tested for behaviour change in Sweden, and since nudges are often context dependent, such studies are certainly beneficial before starting implementation of nudges on a larger scale. It is therefore pivotal to involve not just companies, but also municipalities and other local authorities, in order to set up field experiments on various levels – from small-scale local initiatives to large-scale national interventions – that enable testing and evaluation of nudges in the fields of transportation, consumption, recycling and waste reduction. Both small-scale and large-scale experiments are required to find out which nudges are most effective in what situations and contexts, and with what costs. The actual task of setting up and managing such studies is one academia can do in close collaboration with willing companies and municipalities, but most initiatives and funding will likely come from national governments.

## **Policy recommendations**

Nudging is not (always) ideally suitable for all circumstances and certainly not meant to replace traditional command-and-control regulations such as laws, taxes,

subsidies or extensive information campaigns. However, it is meant as a complement, and sometimes a replacement, for our current policy, in order to strive for greater effectiveness in our endeavours to create a more environmentally friendly world. In line with this, we would like to propose the following policy recommendations.

### **Check, double-check and check again**

Checking or testing various different nudges (social norms, default settings, changes in the environment) in different fields (transportation, consumption, energy conservation) and on different scales (local stores, communities, municipalities, provinces and eventually nationwide). Because of the context dependency of many nudges, it is pivotal that before we assume and fully rely on them, we test them first, ideally starting on small scales and gradually scaling up, and fanning out to other areas. For instance, a social norm nudge might push some people into energy conservation, but others into more expenditure, given their current energy use and their political viewpoints, for instance. Such a backfire might in the end be only a small sacrifice in the whole picture, but it might also create a huge problem with the nudge, and it is difficult to know this in advance. It is therefore important to try to test nudges. Moreover, carefully monitoring the

outcomes of nudges – even after they have been tested on smaller scales – and maintaining flexibility to adjust when they start to backfire is important. Variations of the same nudge should be tested, so that if one fails in a certain context, not all hope is lost, but other variants can be inserted. One often forgotten aspect that we would like to emphasize as well is that testing should also incorporate and assess long-term effects, their ‘durability’. In short: do more lab and field research, test, retest and retest again.

### Interdisciplinary approaches

As we mentioned in the previous paragraph, testing and experimenting is of pivotal importance for the successful use of nudge techniques. We would further like to add the tremendous importance of an interdisciplinary approach to this. The history of the concept of nudging itself is already multidisciplinary; it has a bit of social psychology, cognitive decision sciences, as well as behavioural economics. This multidisciplinary background is one of the things that makes nudging so useful for real life; it is a concept that is rooted in many different scientific viewpoints. Society and reality are notoriously difficult entities to explain scientifically, but many scientific disciplines endeavour to do so, to a certain degree. And equally many scientific disciplines fail to *fully* explain or describe what is actually going on

in reality. This is nothing to be ashamed of, nor does it make science redundant, for science is able to explain parts of the whole excellently. There are at least two things that we must always keep in mind. One is that one single scientific discipline cannot grant us the ultimate answers to what reality is all about. Second is that though it seems impossible to know it all, knowing part of the story still helps.

That said, it is not difficult to imagine that the more parts we know, the more we know about reality. There is a small problem in this bold assertion. Sometimes insights from different disciplines do not seem to add up, or even seem to contradict one another. Disciplinary findings may not be easily matched with findings from other disciplines. It is only in truly interdisciplinary approaches and scientific endeavours that the insights of more than one discipline can be synthesized into useful contributions.

The point here is not to scrutinize disciplinary science. In fact, such endeavours are very useful. We however, highlight that particularly in a field like nudging, which lends itself excellently to scientific scrutiny from multiple disciplinary approaches, interdisciplinary research is important. Only when we combine different scientific disciplines (regardless of whether it is natural or social sciences) can we get the most insights out of the experiments and testing around

nudging. And only then can we truly make educated guesses about their usefulness and effectiveness.

## Set the stage

Our current policy tools (e.g. subsidies, taxes, laws) can all help to stimulate companies to use nudges for a better environment more. Companies obviously do not hold the mandate governments hold to ‘force’ people, and are therefore very attuned and suited to nudging strategies. However, most companies focus mostly on profit, not so much on environmental concerns. Governmental policy can help companies focus more on environmental concerns, and can at the same time inform companies on how to do this, i.e. by using nudge strategies. An example of this could be to tax meat sold to customers, which will give supermarkets an incentive to nudge people to buy more replacement products. It is important to combine the policy with assistance for companies to nudge consumers, so that they will in the end develop environmentally friendly nudges.

## Walk the talk

Governments also have a task as a role model. They can only expect companies and citizens to adopt environmentally friendly behaviour if they engage in such activities themselves. However, governmental employees



are human as well as everyone else, and so they could themselves also benefit from behaviour-facilitating nudges. Internal information and advice structures to inform all levels of the organization of what nudges are and how they can be used (and are used, ideally) should be available and easily accessible. Moreover, there should be ample education in what proper nudges are, and how they can (but should not) be abused (freedom-impeding false nudges). One possibility for this is to set up a separate nudge team, as the UK government did with the Behavioural Insights Team. Among their tasks should be both internal and external education and dissemination of nudges that improve people's lives and the environment.

Finally, there should be use of nudges on one's own work floor (e.g. default settings of printers can be double-sided, lights can switch off after ten minutes of inactivity, rubbish bins can be installed with lids containing openings shaped according to the waste they should contain (bottle-shaped opening for bottles, et cetera)). Teaching others by setting the right example is the main idea.

### **To nudge or not to nudge: active (de)nudging**

Possibly an unexpected ending for a report devoted to nudging, but we would like the last recommendation to be that policymakers should also consider situations

where a sort of de-nudging is more in place. By discussing various forms of nudging in this report, we started to realize, and we hope the reader did too, that nudges can be used for ‘good’ behavioural change, but inevitably they can also be used for less good behavioural change. In fact, there are many marketing strategies out there that nudge people in all the wrong directions. Automatic enrolment in newsletters on websites is the least of these, but it does not stop there. A fair number of companies make active use of our cognitive biases, for instance when they claim that there are only a limited number of tickets or products available or when the customer is primed with the highest prices at the entrance to the store, only to have him or her think the offers at the exit are absolute ‘bargains’. Governments and other organizations that hold the freedom of choice of citizens, consumers and customers in high regard ought to be aware of the effects of nudging, and when possible, ought to prevent people from being nudged without their knowing, and against their own benefits.

Fortunately, de-nudging and nudging require the same thing: a sound insight into what nudging is and the kinds of situations where it can be useful (and the situations where it cannot). Unfortunately, there is no clear-cut rule for when to apply nudging; the evaluation of when it is ‘good’ to use nudging is up to the decision-maker. One particularly difficult part of

polycymaking will be this choice of appropriateness for nudges or other policy tools. In some situations, it will be a question of whether an added nudge could help people achieve more beneficial behaviour (for instance, adding information about social norms to energy bills). In other situations, it would be a question of whether old policy instruments should be replaced by nudges (for example, a nudge could replace subsidies given as enticement to solar panel users). Sometimes, it may be a choice for policy to intervene and prevent other companies from using nudges in the first place (for instance, certain things are prohibited from being written down in the ‘terms and conditions’ texts that we mindlessly scroll through whenever we install new software). In situations where nudging is used to the detriment of the person being nudged, it could be the role of policymakers to protect people. In other cases, it might be the role of the policymaker to provide people with the right nudge in the right direction. Whichever is the case, *careful consideration* is always required before such decisions can be made. One cannot ‘be nudged’ into developing a nudge.

With this overview of nudges and these recommendations we hope to have given the reader an interesting introduction into the concept of nudges, its uses and its benefits for the environment.



# References

- Aarts, H., and Dijksterhuis, A.** (2003). The silence of the library: Environment, situational norm, and social behavior. *Journal of Personality and Social Psychology*, 84(1), 18–28. doi:10.1037/0022-3514.84.1.18
- Allcott, H.** (2011). Social norms and energy conservation. *Journal of Public Economics*, 95, 1082–1095. doi:10.1016/j.jpubeco.2011.03.003
- Amir, O., and Lobel, O.** (2008). Stumble, predict, nudge: How behavioral economics informs law and policy. *Columbia Law Review*, 2098–2137. doi:10.2307/40041817
- Bamberg, S.** (2002). Effects of implementation intentions on the actual performance of new environmentally friendly behaviours — Results of two field experiments. *Journal of Environmental Psychology*, 22(4), 399–411. doi:10.1006/jevps.2002.0278
- BIT.** (2013a). Applying behavioural insights to charitable giving. Retrieved from <https://www.gov.uk/government/publications/applying-behavioural-insights-to-charitable-giving>
- BIT.** (2013b). Organ donor registrations: trialling different approaches. Retrieved from <https://www.gov.uk/government/publications/organ-donor-registrations-trialling-different-approaches>

- Boberg, P.** (2013). Reduced climate impact. Retrieved, from <http://www.swedishepa.se/Environmental-objectives-and-cooperation/Swedens-environmental-objectives/The-national-environmental-objectives/Reduced-Climate-Impact/>
- Brooks, M. E., and Highhouse, S.** (2006). Familiarity breeds ambivalence. *Corporate Reputation Review*, 9(2), 105–113. doi:10.1057/palgrave.crr.1550016
- Campbell-Arvai, V., Arvai, J., and Kalof, L.** (2012). Motivating sustainable food choices: The role of nudges, value orientation, and information provision. *Environment and Behavior*, 46(4), 453–475. doi:10.1177/0013916512469099
- Carlsson, F., García, J. H., and Löfgren, Å.** (2010). Conformity and the demand for environmental goods. *Environmental and Resource Economics*, 47, 407–421. doi:10.1007/s10640-010-9385-2
- Carlsson, F., Johansson-Stenman, O., and Nam, P. K.** (2014). Social preferences are stable over long periods of time. *Journal of Public Economics*, 117, 104–114. doi:10.1016/j.jpubeco.2014.05.009
- Cason, T. N., and Gangadharan, L.** (2002). Environmental labeling and incomplete consumer information in laboratory markets. *Journal of Environmental Economics and Management*, 43, 113–134. doi:10.1006/jeem.2000.1170
- Chetty, R., Looney, A., and Kroft, K.** (2009). Salience and taxation: Theory and evidence. *American Economic Review*, 99, 1145–1177. doi:10.1257/aer.99.4.1145
- Cialdini, R. B.** (1984). *Influence: The Psychology of Persuasion*. New York: Collins (Vol. 55).
- Cialdini, R. B., et al.** (1975). Reciprocal concessions procedure for inducing compliance: The door-in-the-face

- technique. *Journal of Personality and Social Psychology*. Vol 31(2), 206-215. doi:10.1037/h0076284
- Clark, R. L., Maki, J. A., and Morrill, M. S.** (2013). Can simple informational nudges increase employee participation in a 401(k) plan? *Southern Economic Journal*, 130605132423005. doi:10.4284/0038-4038-2012.199
- Collier, D., Brady, H. E., and Seawright, J.** (2004). Sources of leverage in causal inference: Toward an alternative view of methodology. In H. E. Brady & D. Collier (Eds.), *Rethinking Social Inquiry: Diverse Tools, Shared Standards* (pp. 229-271). Lanham, Maryland: Rowman & Littlefield Publishers.
- Colman, A. M.** (2009). *A Dictionary of Psychology*. Oxford Paperback Reference (Vol. 3, p. 896). New York, Oxford University Press. doi:10.1093/acref/9780199534067.001.0001
- Costa, D. L., and Kahn, M. E.** (2013). Energy conservation »nudges« and environmentalist ideology: Evidence from a randomized residential electricity field experiment. *Journal of the European Economic Association*, 11, 680-702. doi:10.1111/jeea.12011
- Dahl, D. W. A.** (2001). Embarrassment in consumer purchase: *Journal of Consumer Research*, 28(3) 473-481.
- Delmas, M. A., Fischlein, M., and Asensio, O. I.** (2013). Information strategies and energy conservation behavior: A meta-analysis of experimental studies from 1975 to 2012. *Energy Policy*, 61, 729-739. doi:10.1016/j.enpol.2013.05.109
- DiMaggio, P.** (1997). Culture and cognition. *Annual Review of Sociology*. doi:10.1146/annurev.soc.23.1.263
- Englich, B., Mussweiler, T., and Strack, F.** (2006). Playing dice with criminal sentences: The influence of

- irrelevant anchors on experts' judicial decision making. *Personality and Social Psychology Bulletin*, 32, 188–200. doi:10.1177/0146167205282152
- EU, E. U.** (2012). *EU Transport in Figures*. doi:10.2832/52252
- Ferraro, P. J., Miranda, J. J., and Price, M. K.** (2011). The persistence of treatment effects with norm-based policy instruments: Evidence from a randomized environmental policy experiment. *American Economic Review*. doi:10.1257/aer.101.3.318
- Ferraro, P. J., and Price, M. K.** (2013). Using nonpecuniary strategies to influence behavior: Evidence from a large-scale field experiment. *Review of Economics and Statistics*, 95(1), 64–73. doi:10.1162/REST\_a\_00344
- Festinger, L.** (1957). A Theory of Cognitive Dissonance. *Scientific American* (Vol. 207, p. 291). doi:10.1037/10318-001
- Frey, B. S., and Meier, S.** (2004). Social comparisons and pro-social behavior: Testing »Conditional Cooperation« in a field experiment. *American Economic Review*. doi:10.1257/0002828043052187
- Gilovich, T., Kruger, J., and Medvec, V. H.** (2002). The spotlight effect revisited: Overestimating the manifest variability of our actions and appearance. *Journal of Experimental Social Psychology*, 38, 93–99. doi:10.1006/jesp.2001.1490
- Gilovich, T., Medvec, V. H., and Savitsky, K.** (2000). The spotlight effect in social judgment: An egocentric bias in estimates of the salience of one's own actions and appearance. *Journal of Personality and Social Psychology*, 78, 211–222. doi:10.1037/0022-3514.78.2.211
- Greenwald, A. G., Carnot, C. G., Beach, R., and Young, B.** (1987). Increasing voting behavior by asking people



- if they expect to vote. *Journal of Applied Psychology*. doi:10.1037/0021-9010.72.2.315
- Grüne-Yanoff, T.** (2012). Paradoxes of rational choice theory. In *Handbook of Risk Theory* (pp. 499–516). doi:10.1007/978-94-007-1433-5
- Haslam, S. A., Reicher, S. D., and Platow, M. J.** (2011). *The New Psychology of Leadership: Identity, Influence and Power*. Hove, East Sussex: Psychology Press.
- Hatch, M. T.** (2005). Assessing environmental policy instruments. In M. T. Hatch (Ed.), *Environmental Policymaking: Assessing the Use of Alternative Policy Instruments* (pp. 1–16). Albany: State University of New York Press.
- Hilton, D., Charalambides, L., Demarque, C., Waroquier, L., and Raux, C.** (2014). A tax can nudge: The impact of an environmentally motivated bonus/malus fiscal system on transport preferences. *Journal of Economic Psychology*, 42, 17–27. doi:10.1016/j.joep.2014.02.007
- Jespersen, S. M.** (2012). Green nudge: Nudging litter into the bin. Retrieved from <http://www.inudgeyou.com/green-nudge-nudging-litter-into-the-bin/>
- John, P., Smith, G., and Stoker, G.** (2009). Nudge nudge, think think: Two strategies for changing civic behaviour. *Political Quarterly*, 80, 361–370. doi:10.1111/j.1467-923X.2009.02001.x
- Johnson, E. J., and Goldstein, D.** (2003). Do defaults save lives? *Science*, 302, 1338–1339. doi:10.1126/science.1091721
- Josiam, B. M., and Hobson, J. S. P.** (1995). Consumer choice in context: The decoy effect in travel and tourism. *Journal of Travel Research*, 34(1), 45–50. doi:10.1177/004728759503400106
- Kahneman, D.** (2003). Maps of bounded rationality: Psy-

- chology for behavioral economics. *American Economic Review*. doi:10.1257/000282803322655392
- Kahneman, D.** (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.
- Kallbekken, S., and Sælen, H.** (2012). Redusert matavfall: Resultater fra eksperimentet (p. 11). Oslo. Retrieved from [http://www.greenudge.no/uploads/Endelige\\_resultater\\_-\\_redusert\\_matavfall.pdf](http://www.greenudge.no/uploads/Endelige_resultater_-_redusert_matavfall.pdf)
- Kallbekken, S., and Sælen, H.** (2013). »Nudging« hotel guests to reduce food waste as a win-win environmental measure. *Economics Letters*, 119, 325–327. doi:10.1016/j.econlet.2013.03.019
- Kallbekken, S., Sælen, H., and Hermansen, E. A. T.** (2013). Bridging the energy efficiency gap: A field experiment on lifetime energy costs and household appliances. *Journal of Consumer Policy*, 36, 1–16. doi:10.1007/s10603-012-9211-z
- Kazdin, A. E.** (2013). *Behavior Modification in Applied Settings: Seventh Edition*. Long Grove IL: Waveland Press.
- Kenrick, D.T., Neuberg, S.L., & Cialdini, R.B.** (2005). *Social psychology: Unraveling the mystery* (3rd edition). Boston: Allyn & Bacon.
- Lee, A. Y., and Aaker, J. L.** (2004). Bringing the frame into focus: The influence of regulatory fit on processing fluency and persuasion. *Journal of Personality and Social Psychology*, 86, 205–218. doi:10.1037/0022-3514.86.2.205
- Levin, I. P., and Gaeth, G. J.** (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of Consumer Research*. doi:10.1086/209174
- Levin, I. P., Schneider, S. I., Levin, I., Schneider, S., Gaeth, G. J., and Gaeth, G.** (1998). All frames are not created

- equal: A typology and critical analysis of framing effects. *Organisational Behaviour and Human Decision Processes*, 76, 149–188. doi:10.1006/obhd.1998.2804
- Löfgren, Å., Martinsson, P., Hennlock, M., and Sterner, T.** (2012). Are experienced people affected by a pre-set default option: Results from a field experiment. *Journal of Environmental Economics and Management*, 63, 66–72. doi:10.1016/j.jeem.2011.06.002
- Luoto, J., Levine, D., Albert, J., and Luby, S.** (2014). Nudging to use: Achieving safe water behaviors in Kenya and Bangladesh. *Journal of Development Economics*, 110, 13–21. doi:10.1016/j.jdeveco.2014.02.010
- Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., and Madrian, B. C.** (2011). Using implementation intentions prompts to enhance influenza vaccination rates. *Proceedings of the National Academy of Sciences of the United States of America*, 108, 10415–10420. doi:10.1073/pnas.1103170108
- Mont, O., Lehner, M., and Heiskanen, E.** (2014). Nudging: Ett verktyg för hållbara beteenden?. Bromma. Retrieved from <http://www.naturvardsverket.se/Om-Naturvardsverket/Publikationer/ISBN/6600/978-91-620-6642-0/>
- Naturvårdsverket.** (2013). The generational goal. Retrieved December 02, 2014, from <http://www.swedishepa.se/Environmental-objectives-and-cooperation/Swedens-environmental-objectives/The-generational-goal/>
- Nickerson, D. W., and Rogers, T.** (2010). Do you have a voting plan?: Implementation intentions, voter turnout, and organic plan making. *Psychological Science : A Journal of the American Psychological Society / APS*, 21, 194–199. doi:10.1177/0956797609359326

- Pichert, D., and Katsikopoulos, K. V.** (2008). Green defaults: Information presentation and pro-environmental behaviour. *Journal of Environmental Psychology*, 28, 63–73. doi:10.1016/j.jenvp.2007.09.004
- Prabhakar, R.** (2010, March 9). Nudge, nudge, say no more. *The Guardian*. Retrieved from <http://www.guardianpublic.co.uk/nudge-behavioural-economics-osborne-prabhakar>
- Rolls, B. J., Roe, L. S., Halverson, K. H., and Meengs, J. S.** (2007). Using a smaller plate did not reduce energy intake at meals. *Appetite*, 49, 652–660. doi:10.1016/j.appet.2007.04.005
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., and Griskevicius, V.** (2007). The constructive, destructive, and reconstructive power of social norms: Research article. *Psychological Science*, 18, 429–434. doi:10.1111/j.1467-9280.2007.01917.x
- Shariff, A. F., and Norenzayan, A.** (2007). God is watching you: Priming God concepts increases prosocial behavior in an anonymous economic game. *Psychological Science*, 18, 803–809. doi:10.1111/j.1467-9280.2007.01983.x
- Shu, L. L., Mazar, N., Gino, F., Ariely, D., and Bazerman, M. H.** (2012). Signing at the beginning makes ethics salient and decreases dishonest self-reports in comparison to signing at the end. *Proceedings of the National Academy of Sciences*. doi:10.1073/pnas.1209746109
- Sigurdsson, V., Saevarsson, H., and Foxall, G.** (2009). Brand placement and consumer choice: an in-store experiment. *Journal of Applied Behavior Analysis*, 42, 741–745. doi:10.1901/jaba.2009.42-741
- Simon, H. A.** (1955). A behavioral model of rational choice.

The Quarterly Journal of Economics, 69, 99–118.

doi:10.2307/1884852

**Skov, L. R., Lourenço, S., Hansen, G. L., Mikkelsen, B. E., and Schofield, C.** (2013). Choice architecture as a means

to change eating behaviour in self-service settings: A systematic review. *Obesity Reviews*. doi:10.1111/j.1467-789X.2012.01054.x

**Song, F., Parekh, S., Hooper, L., Loke, Y. K., Ryder, J., Sutton, A. J., ... Harvey, I.** (2010). Dissemination and publication of research findings: An updated review of related biases. *Health Technology Assessment (Winchester, England)*, 14, iii, ix–xi, 1–193. doi:10.3310/hta14080

**Stutzer, A., Goette, L., and Zehnder, M.** (2011). Active decisions and prosocial behaviour: A field experiment on blood donation. *Economic Journal*, 121. doi:10.1111/j.1468-0297.2011.02477.x

**Sugden, R.** (2009). On nudging: A review of nudge: Improving decisions about health, wealth and happiness by Richard H. Thaler and Cass R. Sunstein. *International Journal of the Economics of Business*, 16, 365–373. doi:10.1080/13571510903227064

**Thaler, R. H., and Sunstein, C. R.** (2003). Libertarian paternalism. *American Economic Review*, 93(2), 175–179. doi:10.1257/000282803321947001

**Thaler, R. H., and Sunstein, C. R.** (2008). *Nudge: Improving Decisions about Health, Wealth, and Happiness* (p. 293). Yale University Press.

**Thunström, L., and Nordström, J.** (2013). The impact of meal attributes and nudging on healthy meal consumption. *Modern Economy*, 04(10), 1–8. doi:10.4236/me.2013.410A001

- Transportstyrelsen.** (2013). Minskat antal dödade på väg och på sjön – ökning inom järnväg och luftfart. Retrieved December 18, 2014, from [http://www.transportstyrelsen.se/sv/Nyhetsarkiv/Minskat-antal-dodade-pa-vag-och-pa-sjon--okning-inom-jarnvag-och-luftfart-/](http://www.transportstyrelsen.se/sv/Nyhetsarkiv/Minskat-antal-dodade-pa-vag-och-pa-sjon--okning-inom-jarnvag-och-luftfart/)
- Turner, J. C., and Oakes, P. J.** (1986). The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. *British Journal of Social Psychology*, 25, 237–252. doi:10.1111/j.2044-8309.1986.tb00732.x
- Turner, J. C., Oakes, P. J., Haslam, S. A., and McGarty, C.** (1994). Self and collective: Cognition and social context. *Personality and Social Psychology Bulletin*, 20(5), 454–463. doi:10.1177/0146167294205002
- Turner, M. M., Tamborini, R., Limon, M. S., and Zuckerman-Hyman, C.** (2007). The moderators and mediators of door-in-the-face requests: Is it a negotiation or a helping experience? *Communication Monographs*, 74(3), 333–356. doi:10.1080/03637750701543469
- Tversky, A., and Kahneman, D.** (1981). The framing of decisions and the psychology of choice. *Science (New York, N.Y.)*, 211, 453–458. doi:10.1126/science.7455683
- Van Kleef, E., Otten, K., and van Trijp, H. C. M.** (2012). Healthy snacks at the checkout counter: A lab and field study on the impact of shelf arrangement and assortment structure on consumer choices. *BMC Public Health*, 12, 1072. doi:10.1186/1471-2458-12-1072
- Wansink, B., van Ittersum, K., and Painter, J. E.** (2006). Ice cream illusions bowls, spoons, and self-served portion sizes. *American Journal of Preventive Medicine*, 31(3), 240–3. doi:10.1016/j.amepre.2006.04.003

- Wells, P.** (2010). A nudge one way, a nudge the other: Libertarian paternalism as political strategy. *People, Place and Policy Online*. doi:10.3351/ppp.0004.0003.0004
- WWF.** (2014). *World Planet Report* (p. 180). Retrieved from [http://wwf.panda.org/about\\_our\\_earth/all\\_publications/living\\_planet\\_report/](http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/)
- Zajonc, R. B.** (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science*. doi:10.1111/1467-8721.00154