



A Practitioner's Guide To
Nudging

Kim Ly, Nina Mažar, Min Zhao and Dilip Soman

15 March, 2013

Elizabeth Lyons and Julian House contributed research and analysis to this report.



Rotman School of Management
UNIVERSITY OF TORONTO



Research Report Series
Behavioural Economics in Action

Rotman School of Management
University of Toronto



Correspondence and Acknowledgements

For questions and enquiries, please contact:

Professor Dilip Soman
Rotman School of Management
University of Toronto
105 St. George Street
Toronto, ON M5S 3E6

Email: dilip.soman@rotman.utoronto.ca
Phone Number: (416) 946-0195

This report is inspired by the work of Richard Thaler and Cass Sunstein. We thank Liam Delaney, Marc-Andre Pigeon and Richard Thaler for comments on previous drafts.

We also thank Kelly Peters (BEworks Inc.), Chris Duvinage, John Ginter, Carmen Ho, Christine Heeah Lim, Poornima Vinoo and Leslie Wong for ideas and input. All errors are our own.



TABLE OF CONTENTS

1. Nudging: An Introduction	5
2. Nudging: An Organizing Framework	7
3. Nudging: Case Studies	9
4. Nudging: A Guide to the Process	15
4.1. Map the Context.....	15
4.2. Select the Nudge	16
4.3. Identify the Levers for Nudging	19
4.4. Design and Iterate	19
5. Conclusion	21
References	22
Appendices	25



1. NUDGING: AN INTRODUCTION

Nudge: *“to seek the attention of by a push of the elbow. to prod lightly. urge into action.”* [Merriam-webster.com](https://www.merriam-webster.com/dictionary/nudge)

Nudge: Improving Decisions about Health, Wealth, and Happiness is the title of a 2008 book written by Professors Richard Thaler and Cass Sunstein¹. The book introduces the notion of choice architecture and draws on findings from behavioural economics.

Consider two cafeterias that want to help students consume less junk food. One cafeteria decides to attack the problem by placing a “tax” on junk foods or by banning the sale of junk foods altogether². The other cafeteria decides to change their food display so that junk foods will less likely be chosen. Junk foods will be placed on higher, harder-to-reach shelves while healthy foods will be placed at eye level and within arm’s reach. Both cafeterias are trying to influence the behaviour but are using two entirely different methods. The first cafeteria is influencing behaviour by either financially incentivizing students to choose healthier options or restricting their options and thus, their freedom of choice altogether³. The second cafeteria does neither but uses a nudging strategy:



*“A nudge is any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic consequences. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level [to attract attention and hence increase likelihood of getting chosen] counts as a nudge. Banning junk food does not.”*⁴

Research in behavioural economics has shown that changes in the environment disproportionately influence behaviour. Rather than placing restrictions or changing economic incentives, nudges influence behaviour by changing the way choices are presented in the environment. While a significant change in economic outcome or incentives is not a nudge, a nudge may serve to highlight an economic incentive.



For instance, members of a gym may be nudged to exercise more frequently by framing their \$600 annual membership fee as \$50 a month or approximately \$12 a week.

Many people support the idea of organ donations but fail to follow through with their intentions. In many countries, potential donors need to sign up to be an organ donor at the department of vehicles and licensing, but the burden of asking for the forms to indicate that choice rests with the potential donor. In a “prompted choice” system, applicants for licenses are actively asked whether they would like to donate organs. This simple nudge has increased organ donation rates from 38% to 60% in the U.S. state of Illinois⁵. Another example of a nudge involves the compromise effect. When presented with three different options that vary with quality and price, most individuals will pick the middle option. Therefore, if a wine company would like to sell more of a particular brand of wine, they can surround the wine with higher-end and lower-end options to increase sales of the particular brand.

Both of these examples show that changes in the environment or context can influence behaviour without significantly changing financial incentives or restricting freedom of choice. Indeed, a recent paper by Chetty and colleagues in the domain of retirement savings compares a nudging strategy (automatic contributions) with a more active incentive (tax subsidies) and concludes that the former is significantly more effective than the latter⁶.

In this report, we use the term “nudging” to mean a deliberate change in choice architecture with the goal of engineering a particular outcome. This report is not meant to add to the rich discussion in Thaler and Sunstein's book (and elsewhere) on the appropriateness of nudging, its philosophy, and its pros and cons relative to other methods of inducing behavioural change (e.g., persuasion, economic incentives). Recent papers by Cass Sunstein and the U.K Cabinet Office in collaboration with the Institute for Government provide a framework for understanding and cataloguing the principles of psychology that underlie nudges. A second report by the Cabinet Office provides guidance on how to use randomized controlled trials in assessing the effectiveness of nudges. We have summarized and referenced these three excellent resources in Appendix 1.

The goal of this report is to add to and complement these resources by:

1. Providing an organizational framework that identifies dimensions along which nudging approaches could be categorized.
2. Presenting a number of short case studies.
3. Giving the practitioner (the choice architect) some process guidelines on how to develop a nudge (or a program that comprises of multiple nudges).



2. NUDGING: AN ORGANIZING FRAMEWORK

From slight changes in text to new product innovations, nudges vary widely in terms of implementation and characteristics⁷. Regardless of the method or medium used for implementation, nudges share characteristics that can be classified across four different dimensions:

1. **Boosting Self-Control vs. Activating a Desired Behaviour.**
2. **Externally-Imposed vs. Self-Imposed.**
3. **Mindful vs. Mindless.**
4. **Encourage vs. Discourage.**

The first dimension looks at whether a nudge is designed to **boost self-control** and help individuals follow through with a decision (such as contributing to a retirement plan). With certain behaviours, such as saving money or exercising, there is a discrepancy between what people would like to do and what people end up doing. Nudges that help boost self-control will correct for this discrepancy. In other domains such as littering, individuals might not always actively consider what the right behaviour should be. In this case, nudges are designed to **activate a desired behaviour or norm** and influence a decision that an individual is indifferent or inattentive to. These behaviours are not at the top-of-mind for the majority of people; hence people are unlikely to impose nudges that influence these behaviours upon themselves. Therefore, nudges that seek to activate latent or non-existent behavioural standards in people rely on exposing them to conditions in which those standards become more salient.

The second dimension considers whether a nudge will be voluntarily adopted. **Self-imposed nudges** are voluntarily adopted by people who wish to enact a behavioural standard that they feel is important. Such nudges may include using products, such as the well-known Save More Tomorrow™ Program⁸, or practices such as voluntarily asking for a reduction on one's credit limit. **Externally-imposed nudges** do not require people to voluntarily seek them out. Rather they passively shape behaviour because of the way they present available options without constraining them.

The third dimension considers whether a nudge will guide the individual to take a more cognitive, deliberate approach to decision-making and remove some of the effects of the often unconscious behavioural influences present in the context; or whether it will guide them towards a more automatic, implicit approach that utilizes well-established behavioural influences or heuristics. **Mindful nudges** guide individuals towards a more controlled state and help people follow through with a behavioural standard that they would like to accomplish but have trouble enacting. Such nudges influence the intention to eat healthier, stop smoking, exercise and save more. Mostly, these nudges help people make better intertemporal choices so that their behaviour in the present better reflects their wishes for the future.



Mindless nudges include the use of emotion, framing, or anchoring to sway the decisions that people make.

The fourth dimension considers whether a nudge encourages or discourages behaviour. **Encouraging nudges** facilitate the implementation or continuation of a particular behaviour. **Discouraging nudges** on the other hand, hinder or prevent behaviour that is believed to be undesirable.

These four dimensions combined result in twelve different types of nudges. Table 1 displays a taxonomy framework that has been developed based on the dimensions discussed above and lists specific examples for each type of nudge. More comprehensive programs might have multiple “nudges” embedded in them, and hence it is possible that these programs fall across multiple categories.

Table 1. Examples of Nudges

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED	Simplifying tax rules to make tax filing easier.	Placing signs to remind people not to litter.	Advertising that most people are recycling to increase recycling efforts.	Using fake speed bumps to discourage speeding ⁹ .
	EXTERNALLY-IMPOSED	Simplifying application processes for college grants to encourage higher-level education ¹⁰ .	Installing car dashboards that track mileage to reduce gas usage ¹¹ .	Automatically enrolling for prescription refills to encourage taking medication.	Placing unhealthy foods in harder to reach places ¹² .
BOOSTING SELF-CONTROL	SELF-IMPOSED	Maintaining an exercise routine by agreeing to pay a small penalty if a gym session is missed ¹³ .	Avoiding drunk driving by hiring a limo service beforehand ¹⁴ .	Joining a peer savings group to encourage saving money ¹⁵ .	Channelling money into a separate account to reduce the likelihood of it being spent ¹⁶ .



NUDGING: CASE STUDIES

In this section we describe a few representative cases to illustrate how nudges have been used to help individuals make better decisions.

1) USING DESCRIPTIVE SOCIAL NORMS TO INCREASE VOTER PARTICIPATION

Improving voter turnout is a common issue among many countries. A common strategy used by voting campaigns is to emphasize low voter turnout in the hopes that it will motivate citizens to vote and make a difference. Emphasizing the opposite – that voting is a common social practice - could be a more effective strategy.

The experiments conducted by Alan Gerber and Todd Rogers compared the effects of both strategies on voter intention during the 2005 New Jersey and 2006 California elections. A phone campaign was developed using two sets of telephone scripts – one emphasizing that voter turnout was expected to be low (low turnout-script), and another emphasizing that voter turnout was expected to be high (high turnout-script). After listening to the script, respondents were asked how likely they were to vote in the upcoming election.

The results showed that the high turnout-script increased the likelihood of receiving a 100% likely to vote response by 7%. In addition, researchers found that the high turnout-script was most effective on respondents who were occasional and infrequent voters.¹⁷

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED			X	
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED				
	SELF-IMPOSED				



2) A NUDGE TO THE GARBAGE BIN

Littering is a problem for many cities. While many people know the harmful effects of littering, they still continue to litter. In Copenhagen for example, it is estimated that 1 in 3 individuals will occasionally litter. To resolve this problem, a research team from Roskilde University tested a nudge to help pedestrians avoid littering.



The team placed green footprints that led to various garbage bins in the city and handed out caramels to nearby pedestrians. After handing out the caramels, they observed how many pedestrians would follow the footprints to the garbage bin and dispose of the caramel wrapper. The results showed that there was a 46% decrease in caramel wrappers littering the streets when the green footprints were in use.¹⁸

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				X
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED				
	SELF-IMPOSED				

3) INCREASING POST-SECONDARY ENROLMENT AMONG LOW-INCOME FAMILIES: AN H&R BLOCK PROJECT

Access to higher education is an important issue, especially among low-income families. Financial aid programs have been developed to alleviate tuition costs in order to make higher education more accessible. The United States federal application for financial aid (i.e., FAFSA) is a long and tedious process. It frustrates many students and families yet it is an important application that must be completed to qualify for many state and institutional grants.

A team of researchers partnered with H&R Block – a tax filing service company – to design an intervention to reduce the complexity of the application process. Researchers designed software that worked with H&R Block's tax filing software to extract information from an individual's income tax form and use the information to automatically fill in the FAFSA form.



Approximately two thirds of the form could be completed with the tax information provided and the remainder could be completed in less than ten minutes with the help of a tax professional and the researchers' software.

Results of the research showed that families with high school seniors or recent graduates were 40% more likely to submit an FAFSA application and were also 33% more likely to receive a Pell Grant – a major needs-based federal grant.¹⁹

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED	X			
	SELF-IMPOSED				

4) A PLANNING AID TO INCREASE SAVINGS PARTICIPATION

Increasing participation in a retirement savings plan has been a common topic in behavioural economics. A team of researchers from Dartmouth College worked with a not-for-profit institution to help increase participation in their supplementary pension program. After conducting in-depth interviews, surveys, and focus groups, three barriers were found. Individuals:

1. Felt they did not know where to start or did not have enough information.
2. Did not think they had enough money to start saving.
3. Did not have enough self-control.

One of the major reasons for individuals not reaching their savings goals is a lack of planning. Coupling this insight with the barriers identified, the team designed a planning aid that reduced the complexity of opening an account and contributing to the pension program. The aid simplified the steps so that the process would take no more than 30 minutes. In addition, the planning aid also highlighted a range of contribution amounts from as little as \$16/month to a maximum of \$1666.67/month, suggesting that it does not take much money to open an account and contribute to a pension program.



The planning aid was quite successful and doubled enrolment within 60 days of implementation.²⁰

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED	X			
	SELF-IMPOSED	X			

5) GYM-PACT: USING MOTIVATIONAL FEES AS A COMMITMENT DEVICE FOR EXERCISING

Exercising is a common New Year's goal many people make but fail to follow through with during the year. One reason, according to Yifan Zhang, co-founder of Gym-Pact, has to do with gym memberships. Gym memberships are usually paid at the beginning of the year. Once that hurdle has been taken, for the individual, the money is spent (sunk), and missing a gym session does not hurt any more than it would to attend. Yifan Zhang and Geoff Oberhofer developed Gym-Pact to counteract this problem by using what they call "motivational fees". Participants set a target number of gym visits each week and need to pay a penalty fee when they miss a gym session.



In Gym-Pact's initial trial phases, Zhang and Oberhofer purchased memberships on behalf of the participants. Participants did not pay for their membership but committed to exercising four times a week. If they failed to follow through, the participants would need to pay \$25. If participants left the program, they would need to pay \$75.²¹

Gym-Pact has become a full-fledged business and while the business model has been adapted slightly it still uses the concept of motivational fees. Specifically, participants still pay a penalty for missing their commitments, but the penalties are now distributed back to the participants, who managed to follow-through, as a small reward. The program is quite successful and in its first five months, participants have followed through with their commitments 90% of the time.²²



Gym-Pact has been featured in the press and has expanded their business to help individuals not just track workouts at the gym, but also at home and outdoors.²³

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED				
	SELF-IMPOSED	X			

6) SELF-HELP AND PEER PRESSURE AS A SAVINGS COMMITMENT DEVICE

A group of researchers studied the effects of peer pressure and self-help groups on savings behaviour and found that it was effective at helping individuals save money. The experiments were conducted in Chile with low-income micro-entrepreneurs who earned an average of 84,188 pesos (175 USD) per month. Sixty-eight percent of participants did not have a savings account prior to the study and were required to sign up for an account based on the savings group they were assigned to:

1. Savings group 1 - a basic savings account with an interest rate of 0.3%.
2. Savings group 2 - a basic savings account with an interest rate of 0.3%. The participants were also part of a self-help peer group, where they could voluntarily announce their savings goals and monitor their progress on a weekly basis.
3. Savings group 3 - a high interest rate account with a rate of 5% (the best available rate in Chile).

The study found that participants that were a part of the self-help peer group (Savings group 2) deposited money 3.5 times more often than other participants and their average savings balance was almost double of those who held a basic savings account. The high interest rate had very little effect on most participants.

To further understand why self-help peer groups work, a second study was conducted a year later. The participants were divided into two groups – one group received text messages that notified participants of their progress and the progress of other participants. They were assigned a savings buddy with whom they would meet on a regular basis and who would hold them accountable to their savings goals. The other group only received text messages that notified participants of their progress and the progress of other participants.



The results of the second experiment found that having a savings buddy made very little difference and that receiving text messages was just as effective. As noted by the researchers, having peer groups was an effective commitment device to achieving savings goals but meeting in-person was not necessary. Receiving text messages indicating their progress and the progress of their peers was just as effective.²⁴

		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED				
	SELF-IMPOSED	X		X	

7) THE WATERPEBBLE: A WATER CONSERVATION DEVICE

The Waterpebble is an inexpensive device designed to help individuals conserve water when showering. The device memorizes the length of the first shower and uses it as a benchmark for subsequent showers. Rather than displaying the amount of water being used, the Waterpebble automatically reduces the shower length and uses a series of traffic light signals to suggest when it is time to get out of the shower.

Rather than having individuals monitor their water usage and adjust their consumption accordingly, the Waterpebble removes much of the effort required to reduce water consumption and makes the process effortless. It is also possible that over time, individuals will get into the habit of taking shorter showers.²⁵

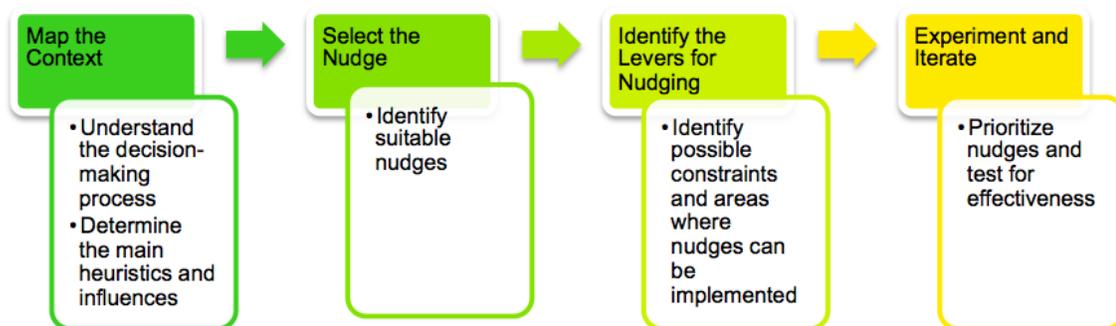
		MINDFUL		MINDLESS	
		ENCOURAGE	DISCOURAGE	ENCOURAGE	DISCOURAGE
ACTIVATING A DESIRED BEHAVIOUR	EXTERNALLY-IMPOSED				
BOOSTING SELF-CONTROL	EXTERNALLY-IMPOSED				
	SELF-IMPOSED				X



4. NUDGING: A GUIDE TO THE PROCESS

The first step in the process of designing an effective nudging strategy is to audit the decision-making process of the end user. This requires an analysis of the context and the task (how do people make decisions, what are the typical circumstances in which they do that, etc.) followed by identifying the key heuristics and influences that may affect the decision outcome. Figure 1 identifies a process approach to the design of a nudge.

Figure 1. Outline of the Nudge Development Process



4.1. MAP THE CONTEXT

Auditing the decision-making process will identify factors that prevent individuals from following through with their intentions. These factors (bottlenecks) represent areas where a nudging strategy might yield quick dividends.

Appendix 2 presents a worksheet listing a set of questions that should be answered when performing an audit. The questions address four different aspects of the decision-making process:

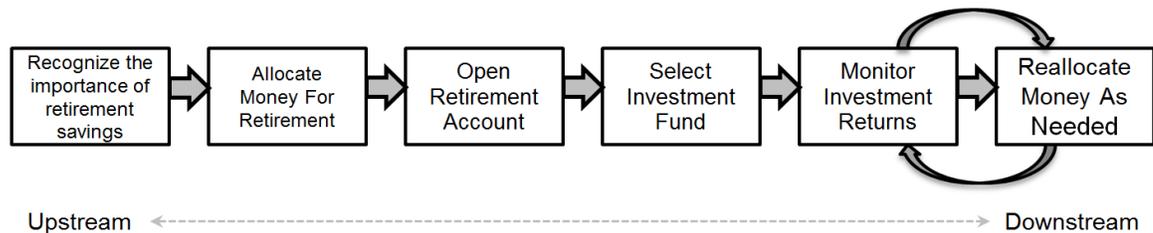
1. **The properties of the decision** including understanding the incentives and motivations associated with the decision, and how much attention the decision receives. It also includes identifying the choices presented to the individual, especially the default option.
2. **Information sources** and how information related to the decision is gathered and presented.
3. **Features of the individual's mindset** and whether emotions influence the outcome of the decision.
4. **Environmental and social factors** such as peer pressure and lengthy application processes. These factors can also influence the outcome.

After auditing the decision, a map of the decision-making process should be made. This decision map outlines the critical actions involved with following



through with a decision. Figure 2 shows a decision map for contributing to a retirement savings plan.

Figure 2. A decision map for retirement savings



Typically, the outcome that a practitioner is aiming to influence is the culmination of a number of smaller decisions and actions. One of the biggest challenges in this domain (and indeed, domains like health where the outcomes are distant and seemingly irrelevant to a young person) is to trigger the importance of health and wealth management²⁶. The desire to achieve an outcome (e.g., savings for a family home, children's education expenses) could be the result of a life event (e.g., marriage, birth of a child) that motivates an individual to complete the needed actions (e.g., open an account, purchase a fund). These life events are good moments to nudge people to action.

4.2. SELECT THE NUDGE

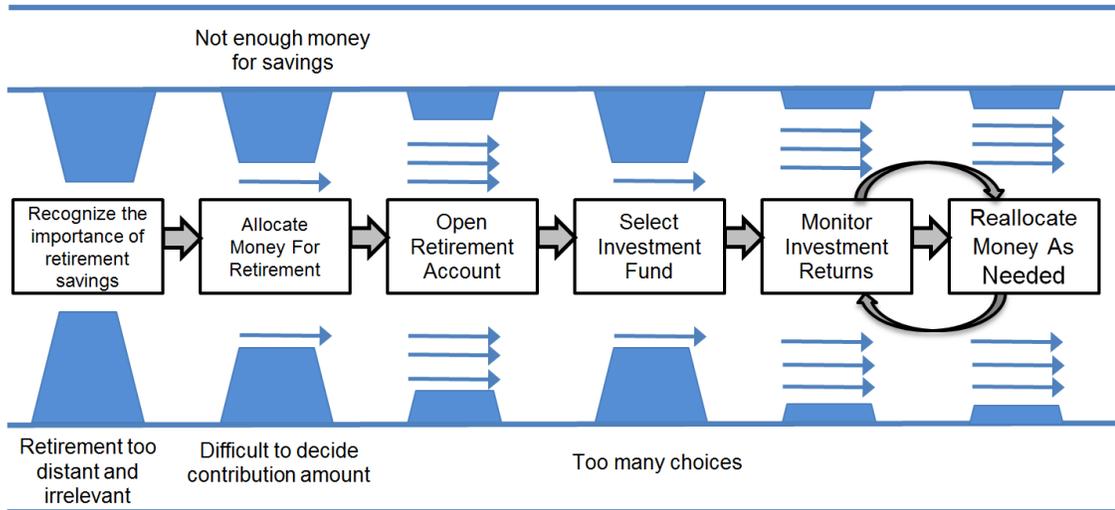
Bottlenecks in the process are good starting places to implement a nudge. For example, determining a contribution amount requires two evaluations; determining how much money is available for retirement savings and how much is needed for retirement. Understanding how much money is needed for retirement can be a bottleneck because individuals may not have the appropriate calculation tools. Another bottleneck is related to emotion – individuals may not feel they have enough money to contribute to retirement and do not bother to investigate their options. An additional bottleneck that exists further down the process occurs when selecting an investment fund. Too many investment funds are available as options and the individual does not have the capability to analyse all options.

In thinking through a solution to the bottlenecks that an individual might face, we recommend that the choice architect think through these four questions that map onto the factors in our taxonomy:

1. Is the individual aware of what they need to do but are unable to accomplish it, or does a desired behaviour / action need to be activated?
2. Are they motivated enough to impose a nudge on themselves?
3. Is the action more likely to be taken with increased cognition, or are individuals currently hampered by cognitive overload?
4. Is the desired action not being accomplished because of a competing action, or due to inertia? Consequently, should we aim to discourage the competing action or encourage the target action?



Figure 3. A decision map with bottlenecks identified



Perhaps the biggest bottleneck in solving the retirement savings problem is the need recognition – the fact that people seem to believe that retirement is still some time away and that it is too early to start thinking about it. Other bottlenecks might include cognitive difficulties, ability to get things done (e.g., open the relevant accounts) or be dazed by too many options.

Table 3 lists various behavioural influences and heuristics that could cause bottlenecks.

Table 3. Behavioural Influences and Heuristics

BEHAVIOURAL INFLUENCES	
Status Quo	An individual's preference to maintain their current state even if a change in their circumstances would provide better options.
Endowment Effect	The inclination to value and pay more for an item that is already in possession than for an item that has yet to be attained.
Loss Aversion	A tendency of individuals to be more attuned to losses than to gains.
Confirmation Bias	A predisposition to accepting information that confirms one's opinions or conclusions rather than information that is contradictory.



BEHAVIOURAL INFLUENCES	
Mental Accounting	Money is mentally allocated to several “accounts” such as clothing or entertainment rather than being perceived as fungible.
Willpower	The fact that individuals only have a certain amount of willpower at any given time and that willpower needs to be replenished periodically.
Hyperbolic Discounting	To value benefits that are reaped now more than benefits reaped in the future. Consequently, costs that are paid in the future are not felt as deeply as costs that are paid now.
Choice Overload	The presence of too many choices for a particular decision, making it difficult to evaluate and decide.
Information Overload	The presence of too much information in the environment, preventing the individual from evaluating and making a good decision.
HEURISTICS	
Availability Bias	Information that readily comes to mind is used to make a decision rather than using a comprehensive set of facts that evaluates all options.
Representativeness	The use of similar attributes to judge the likelihood of an event occurring. This is in contrast to using a more comprehensive approach that would utilize statistics (e.g., base rates) to determine likelihood.
Anchoring and Adjustment	To make an estimate by applying adjustments to a particular reference value (i.e., the “anchor”).
Social Proof	When an individual looks to the behaviour of their peers to inform their decision-making, and their tendency to conform to the same behaviour their peers are engaged in.



4.3. IDENTIFY THE LEVERS FOR NUDGING

Identifying constraints such as cost and resource availability, as well as potential levers for nudging will quicken the development process. While this step heavily depends on the type of nudges identified, it is useful to determine whether the following options are available:

1. Implementing an automatic enrolment process.
2. Offering a default option or changing the current default option.
3. Modifying or changing the current choices that are available to the individual.
4. Simplifying the process that facilitates the decision-making process.
5. Using technology to reduce the cost (per individual) or improve scalability.

Moreover, the responses to the four questions posed in Section 4.2 will allow the choice architect to align the problem areas with the taxonomy (and cases) we presented in Sections 2 and 3. This alignment might provide specific ideas on how the bottlenecks were “cleared up” in other situations.

4.4. DESIGN AND ITERATE

Prioritizing Nudges

Several nudges may have been identified as being possible intervention devices. While it is always possible to combine nudges, it is useful to prioritize. One factor that needs to be considered is the operational costs associated with implementation. In addition to the operational costs, one should consider:

1. What bottlenecks the nudges address. Nudges should be prioritized based on where the bottlenecks lie in the decision-making process. Choose nudges that resolve bottlenecks that are further upstream in the decision-making process.
2. Relative reach. Self-imposed nudges such as pre-commitment may not reach as many people compared to defaults or automatic enrolment. Although it may be in their best interest, an individual may not want to make an upfront commitment.
3. Interventions like automatic enrolment have a high adoption rate but lead everyone to accepting the same terms and benefits²⁷. An automatic enrolment program, for example, may require an individual to contribute \$200/month to a pre-determined retirement savings plan. A significant portion of the target audience may not benefit from such a program, perhaps because the contribution amount is too high or because the investment fund does not match their risk appetite. What may be preferable is to allow everyone to determine their own contribution amount and select from a small assortment of investment funds. Determining whether segments of the target audience have different behavioural preferences will provide answers to this issue.
4. The long-term effectiveness of the nudge and whether the intervention could lead to the development of new, more beneficial habits.



Test for Effectiveness

Given that behavioural economics is still a relatively fledgling field and that much of the research done is theoretical in nature, it is important for the choice architecture to test and document the effectiveness of nudging strategies. Richard Thaler provides two mantras for testing nudging strategies; a) if [one wants to] encourage some activity, make it easy and b) [one can't do] evidence based policy without evidence²⁸. To these two mantras, we offer a third mantra – document the results and share them widely. This will allow for the creation of a database of what works and under what conditions.

We recommend that the testing of nudges incorporate both a process evaluation and an outcome evaluation. An *outcome* evaluation merely confirms that the nudge has produced the desired outcome. For instance, an outcome evaluation of the “Planning Aid to increase Savings Participation” would simply demonstrate that people who were randomly assigned to have access to the nudge participated at a greater rate than people who did not. A *process* evaluation seeks support for the underlying mechanism. For instance, people who were nudged should report a greater ease in comprehending materials and a shorter time in completing the necessary forms.

Randomization is critical to testing the effectiveness of nudges. The individuals participating in the testing should be representative of the population the nudge is targeting and should not suffer from demographic biases (age, race, gender). Also, the testing-population should not suffer from biases such as self-selection, where individuals who participate in the experiment skew the group to represent only a particular subset of the population (e.g., highly involved or informed participants that do not need the nudge in the first place). Finally, also the assignment of participants to different testing groups should be random.

False positives occur when the results indicate the nudge was effective but were actually due to factors unrelated to the nudge. Controlling for false positives is important and the experiment should be designed to control for these factors.

We believe that it is very important to attempt to ensure that the people doing the interventions are not the same people evaluating them, particularly in situations in which they might be direct beneficiaries of any rollout process. While we recognize that this is not always possible, we recommend that this should be a general rule particularly for bigger studies. We also recommend that the evaluations be conducted by a team that has expertise in the domain of inquiry, the psychology and therefore the variables that need to be tested in evaluating the nudge, and also in statistics and measurement techniques.



5. CONCLUSION

Nudging has been effectively used in both for-profit and individual welfare domains²⁹. While there are many subtleties and nuances associated with developing effective nudges, outlining a general approach to nudge-development provides structure that makes the process more accessible. In addition, developing nudges is an interdisciplinary process that is project-based and experimental in nature. A work culture that supports these qualities and takes a project-management approach to nudge implementation would greatly support the nudge development process.



REFERENCES

- ¹ Thaler, R., & Sunstein C. (2008). *Nudge: Improving Decisions about Health, Wealth, and Happiness*. USA: Penguin Books.
- ² Libertarian Paternalism and School Lunches: Guiding Healthier Behavior While Preserving Choices. (2013, February 26). *Science Daily*. <http://www.sciencedaily.com/releases/2013/02/130226172506.htm>. Retrieved February 27, 2013.
- ³ Adapted from Thaler & Sunstein.
- ⁴ Thaler & Sunstein, p. 6.
- ⁵ BBC News (31 December 2010). Organ Donation Bid to Target New Drivers. <http://www.bbc.co.uk/news/health-12097225>. Retrieved March 1, 2013.
- ⁶ Chetty R., Friedman J., Petersen S.L., Nielsen T. and Olsen T. (2012), *Active versus Passive Decisions and Crowd-out in retirement Savings Accounts: Evidence from Denmark*, NBER working paper No. 18565, <http://obs.rc.fas.harvard.edu/chetty/crowdout.pdf>. Retrieved March 7, 2013.
- ⁷ Lyons, Elizabeth and Julian House (2012). *Towards a Taxonomy of Nudging Strategies*. Research Report, Rotman School of Management: University of Toronto.
- ⁸ Thaler R., & Benartzi S. (2004). Save More Tomorrow Program™: Using Behavioral Economics to Increase Employee Saving. *Journal of Political Economy*, 112(1): 164-187.
- ⁹ Another visual trick to nudge drivers to slow down. (2008, July 14). *Nudge Blog*. <http://nudges.org/2008/07/14/another-visual-trick-to-nudge-drivers-to-slow-down>. Retrieved February 26, 2013.
- ¹⁰ Bettinger E.P., Long B.T., Oreopoulos P., & Sanbonmatsu L. (2009). *The Role of Simplification and Information in College Decisions: Results from the H&R Block FAFSA Experiment*. NBER Working Paper No. 15361. <http://www.nber.org/papers/w15361>. Retrieved February 28, 2013.
- ¹¹ Rosenwald, M.S. (2008, May 26). For Hybrid Drivers, Every Trip Is a Race for Fuel Efficiency. *The Washington Post*. <http://www.washingtonpost.com/wp-dyn/content/article/2008/05/25/AR2008052502764.html>. Retrieved February 26, 2013.
- ¹² Thaler & Sunstein, p.1.
- ¹³ Johnson, S. (2011, January 24). Harvard grads turn gym business model on its head; fitness plan members pay more if they don't workout. *Boston.com*. http://www.boston.com/business/articles/2011/01/24/gym_pact_bases_fees_on_members_ability_to_stick_to_their_workout_schedule/?p1=Upbox_links. Retrieved February 6, 2013.
- ¹⁴ Thaler & Sunstein, pp. 266-267.
- ¹⁵ Kast, Felipe, Meier S, & Pomeranz D. (2012). *Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device*. Harvard Business School Working Paper No.12-060. http://www.hbs.edu/faculty/Publication%20Files/12-060_4073be1c-88ba-4d5e-9fca-d5275baf3355.pdf. Retrieved February 2, 2013.
- ¹⁶ Soman D., & Zhao M. (2011). The Fewer the Better: Number of Goals and Savings Behaviour. *Journal of Marketing Research*, 48(6): 944-957.
- ¹⁷ Gerber, A.S., & Rogers, T. (2009). Descriptive Social Norms and Motivation to Vote: Everybody's Voting and So Should You. *The Journal of Politics*, 71(1):178-191.



-
- ¹⁸ Jespersen, S.M. (2012, February 16). Green nudge: Nudging into the litter bin. *iNudgeyou.com*. <http://www.inudgeyou.com/green-nudge-nudging-litter-into-the-bin>. Retrieved February 6, 2013.
- ¹⁹ Bettinger, Long, Oreopoulos, & Sanbonmatsu. (2009).
- ²⁰ Lusardi A., Keller P.A., & Keller A. (2009). *New Ways to Make People Save: A Social Marketing Approach*. NBER Working Paper No.14715. <http://www.nber.org/papers/w14715>. Retrieved January 24, 2013.
- ²¹ Johnson, S. (2011, January 24).
- ²² Gyms and behavioral economics – 10 questions for the Gym-Pact duo. (2011, May 18). *Nudge Blog*. <http://nudges.org/2011/05/18/gyms-and-behavioral-economics-gym-pact-answers-your-questions>. Retrieved March 8, 2013.
- ²³ Gym-Pact | Never Miss Another Workout. (n.d.). <http://www.gym-pact.com>. Retrieved February 6, 2013.
- ²⁴ Kast, Meier, & Pomeranz. (2012).
- ²⁵ Waterpebble – your little water saver. (n.d.). <http://www.waterpebble.com>. Retrieved February 6, 2013.
- ²⁶ Benartzi, S. and Thaler R. (2013). Behavioral Economics and the Retirement Savings Crisis. *Science*, 339 (1152-53).
- ²⁷ Carroll, G.D., Choi, J.J., Laibson D., Madrian B.C., & Metrick A. (2009). Optimal Defaults and Active Decision. *The Quarterly Journal of Economics*, 124(4):1639-1674.
- ²⁸ Thaler, R. (2012). Watching Behavior Before Writing the Rules. *The New York Times*, July 7, 2012. <http://www.nytimes.com/2012/07/08/business/behavioral-science-can-help-guide-policy-economic-view.html?pagewanted=all&.r=0>. Retrieved February 15, 2013.
- ²⁹ Soman, D. & Mazar, N. (2012, November 26). Financial literacy is not enough. *The Hill Times*. <http://www.hilltimes.com/opinion-piece/politics/2012/11/26/financial-literacy-is-not-enough/32950>. Retrieved February 28, 2013.



Appendices





APPENDIX 1

SUMMARIES OF RELATED DOCUMENTS

Choosing between default rules, active choice, and personalized default rules: A brief note from *Impersonal Default Rules vs. Active Choices vs. Personalized Default Rules: A Triptych*

Default rules are a powerful nudge that can have a large impact and does not limit freedom of choice. While it is a powerful nudging device, implementing default rules may not be helpful when individuals have varying sets of preferences and needs and “one size does not fit all”. An alternative to using default rules is to implement active choosing, requiring individuals to make a mindful choice. One of the benefits of active choosing is that it promotes learning. However, it can lead to errors if the individual lacks the knowledge to make a good decision or feels that choosing is too burdensome. An alternative to both nudges is to implement personalized default rules that are customized to an individual’s needs and preferences.

To help decide which of three nudges to implement, Sunstein makes some recommendations:

Default rules are preferred when:

- Individuals prefer not to choose.
- The context is confusing and unfamiliar to the individual.
- Needs and preferences do not differ across the population.

Active choosing is preferred when:

- Individuals prefer to choose.
- The context is familiar to the individual.
- Needs and preferences vary across the population.
- Choice architects are not well informed.
- Learning is promoted, feasible, and beneficial.

Personalized default rules are preferred over general default rules when heterogeneity exists and the needs and preferences of the population vary. It is also preferred over active choosing when choice architects are well informed of the population’s needs and preferences and a suitable default rule can be chosen. Compared to active choosing, personalized default rules requires less effort and time from the individual yet still preserves freedom of choice.

Source:

Sunstein, Cass R. (November 5, 2012). *Impersonal Default Rules vs. Active Choices vs. Personalized Default Rules: A Triptych*. Social Science Research Network. <http://ssrn.com/abstract=2171343>. Retrieved March 7, 2013.



MINDSPACE: INFLUENCING BEHAVIOUR THROUGH PUBLIC POLICY

Traditional interventions in public policy are based on what people consciously think about and behaviour can be shaped by providing information or altering incentives. It is assumed that individuals will analyze the information and incentives presented to them and act in their best interest. Behavioural science suggests that policymakers can shape behaviour by focusing on the individual's automatic processes of judgment and influence. A behavioural approach recognizes that people can behave irrationally, are inconsistent with their choices, and are affected by factors in their environment. Information and incentives can be effective instruments for shaping behaviour. However, behavioural science offers tools that can enhance these instruments and offer alternative options when information and incentives are not appropriate.

The Behavioural Insights Team has developed the MINDSPACE framework that summarizes nine of the most robust behavioural influences. These nine influences should be understood by policymakers and if appropriate, used for policy. The MINDSPACE framework is shown below:

Messenger	We are heavily influenced by who communicates information
Incentives	Our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
Norms	We are strongly influenced by what others do
Defaults	We "go with the flow" of pre-set options
Salience	Our attention is drawn to what is novel and seems relevant to us
Priming	Our acts are often influenced by sub-conscious cues
Affect	Our emotional associations can powerfully shape our actions
Commitments	We seek to be consistent with our public promises, and reciprocate acts
Ego	We act in ways that make us feel better about ourselves

Excerpt from Mindspace: Influencing behaviour through public policy

Source:

Dolan, P., Hallsworth, M., Halpern, D., King, D., & Vlaev I. (March 2, 2010). Mindspace: Influencing behaviour through public policy. Institute For Government.
<http://www.instituteforgovernment.org.uk/publications/mindspace>. Retrieved March 8, 2013.



TEST, LEARN, ADAPT – USING RANDOMIZED CONTROL TRIALS

Randomized control trials utilize control and test groups to evaluate interventions. Alternatively, one can evaluate the effectiveness by implementing an intervention and measuring the results. However, it would be difficult to evaluate whether it was the intervention that made the difference or another factor in the environment that contributed to the results. The use of a control group helps eliminate this uncertainty by providing a set of results that represent what would happen if no intervention was applied. Comparing results of the control group with the test group (where the intervention is applied) gives a more accurate representation of the intervention's effectiveness. Multiple test groups can also be used in order to measure different aspects of the intervention.

The other key factor is randomization. Participants are randomly assigned to test and control groups so that the population of each group is fairly similar and biases are minimized.

The Behavioural Insights Team identified nine steps to setting up a randomized control trial. This framework is central to the team's Test, Learn, Adapt research methodology for testing policy interventions and can also be applied to testing interventions elsewhere. The nine steps are listed below:

TEST

1. Identify two or more policy interventions to compare (e.g. old vs. new policy, different variations of a policy).
2. Determine the outcome that the policy is intended to influence and how it will be measured in the trial.
3. Decide on the randomization unit: whether to randomize to [sic] intervention and control groups at the level of individuals, institutions (e.g. schools), or geographical areas (e.g. local authorities).
4. Determine how many units (people, institutions, or areas) are required for robust results.
5. Assign each unit to one of the policy interventions, using a robust randomization method.
6. Introduce the policy interventions to the assigned groups.

LEARN

7. Measure the results and determine the impact of the policy interventions.

ADAPT

8. Adapt your policy intervention to reflect your findings.
9. Return to Step 1 to continually improve your understanding of what works.

Excerpt From: Test, Learn, Adapt: Developing Public Policy with Randomized Control Trials

Source:

Haynes, L., Service O., Goldacre, B., & Torgerson, D. (June 2012). *Test, Learn, Adapt: Developing Public Policy with Randomized Control Trials*. Cabinet Office Behavioural Insights Team. <https://www.gov.uk/government/publications/test-learn-adapt-developing-public-policy-with-randomised-controlled-trials>. Retrieved March 7, 2013.



APPENDIX 2

DECISION MAP CHECKLIST

PROPERTIES OF THE DECISION
1. Is the decision important to the individual or does it receive little attention?
2. What moments or events motivate an individual to act on the decision?
3. Is this an active or an automatic, passive choice?
4. How many options are available? What is the default option if an individual decides to do nothing?
4. Is feedback available and is it received immediately?
5. What are the incentives? Which ones are most prominent, which ones are not?
6. What are the associated costs (financial, social, psychological)?
INFORMATION SOURCES
1. What knowledge or expertise is needed to make a decision?
2. How is information or knowledge communicated to the individual (visually, verbally, in text)?
3. Does the information flow sequentially? What information is presented first? Presented last?
FEATURES OF THE INDIVIDUAL MINDSET
1. Are the benefits of making a good decision delayed or experienced immediately?
2. Is the decision usually made when the individual is in an emotional state?
3. Does the decision require exertion of willpower or self-control (such as in the domains of smoking, dieting, exercising)?
ENVIRONMENTAL FACTORS
1. Is the decision made in isolation or in a social environment?
2. Is the decision influenced by what is presented in the media or by expert opinions?
3. Are peers a major source of information?
4. Is there an application process and is it difficult to navigate?