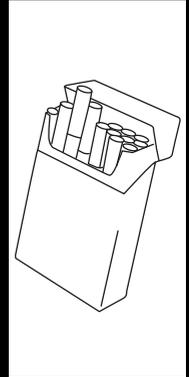
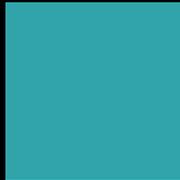
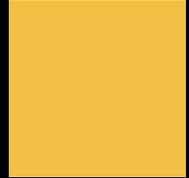


# The Behavioural Science Guide to Making and Breaking Habits

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The Behavioural Architects





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## SECTION 1: Introduction to habits

***“To uproot an old habit is sometimes a more painful thing, and vastly more difficult, than to wrench out a tooth.”***

Our habits make up a surprisingly significant proportion of our daily lives. In fact, the philosopher and psychologist William James believed that they formed a huge proportion of our daily lives, writing “99%, or possibly 99.9% of our activity is purely automatic and habitual”. Whilst this is a little over the mark, it’s still at least partially true – research by Wendy Wood and colleagues found that between one third and nearly half of students’ daily activity was habitual. Examining the diaries of students and community members they concluded that up to 45% of the activities and tasks we undertake in our day are habitual.<sup>1</sup>

Once formed, they become such second nature that breaking or changing them can be near impossible. The 19th century Scottish writer Samuel Smiles observed that “To uproot an old habit is sometimes a more painful thing, and vastly more difficult, than to wrench out a tooth.”<sup>2</sup>

In the last decade, after lying dormant for a long while, the science of habits has undergone something of a resurgence. Psychologists, neuroscientists, animal-learning researchers and behavioural scientists alike have all come to

understand the importance of habitual behaviour given they play such a huge role in our lives. Not only are researchers devoting time and energy to this field, but so too are practitioners – from tech companies to healthcare workers- and there is a growing interest among the public generated by popular, bestselling books such as Wendy Wood’s ‘Good Habit, Bad Habit’, BJ Fogg’s ‘Tiny Habits’ and Charles Duhigg’s ‘The Power of Habit’.

In this book, we draw on this knowledge to narrow down on a definition of habits; understand why habits are so hard to break; how we can best build new habits; why habits, not willpower are usually the driving factor behind successful people; and how we can most effectively measure habits to assess how strong they are. These points are even more important today, as habits have been hugely disrupted by the Covid-19 pandemic and remain in flux.



<sup>1</sup>Quinn, J.M., & Wood, W. (2005). Habits across the lifespan. Unpublished manuscript, Duke University; Wood, W., Quinn, J.M., & Kashy, D. (2002). Habits in everyday life: Thought, emotion, and action. *Journal of Personality and Social Psychology*, 83, 1281–1297.

<sup>2</sup>Samuel Smiles, ‘Character: The True Gentleman’, *Self-Help* (1856), Ch 13

## 1.1 WHAT IS A HABIT?

Whilst we all have some sort of understanding of what a habit is, it can be useful to define it more narrowly. Behavioural scientists Bas Verplanken and Henrik Aarts define habits as *“a learned sequence of acts that have become automatic, unconscious responses to specific cues or triggers around us”*<sup>3</sup>. More recently, others now define a habit as a process<sup>4</sup> that generates a particular behaviour:

*“a process whereby contexts prompt action automatically, through activation of mental context-action associations learned through prior performances.”*

Our habits are deeply engrained in our brain and muscle memory so much so that they become automatic. We can define this autopilot behaviour by three qualities:

- **Minimal awareness** – we can carry out the action without needing to pay much attention to what we are doing
- **Efficiency** – we can carry out a habitual behaviour in parallel with other activities demanding more attention
- **Lack of control and conscious intention** – we do things without actual conscious intention or desire and it’s actually difficult to stop yourself from doing them or to do them differently<sup>5</sup>

This means we can be quite unaware that some of our actions are habitual. For example, we might make a cup of tea and add a couple of biscuits on the side (not realising that we add that couple of biscuits every time we make a cup of tea), or we might unknowingly use particular expressions so often that we drive other people mad (if we were ever to read a transcript of our conversations we’d probably be horrified to hear the number of ‘you knows’ or ‘likes’ or ‘super-this’, ‘super-that’ that punctuate our everyday lexicon), or each morning at work we might find ourselves ‘unable to function’ without a first cup of coffee. These are all habitual behaviours that have become fixed in our neurological patterning. Sometimes our habits are so embedded in our subconscious that they get us running on autopilot. When we’re driving a familiar route, for instance, we might have no conscious recollection of any details of the journey, or trolleying our pre-ordained circuit of the supermarket we probably won’t notice anything about the other people we pass and we’re totally thrown if the layout of the store and product display has been altered.

## 1.2 HABITS – THE HOLY GRAIL OF MARKETING

Habits are in effect, the marketing ‘holy grail’. Around half of new products fail<sup>6</sup> and it is habits that can explain why – and crucially how and why the few that become embedded in our lives succeed.

<sup>3</sup>Verplanken, B., Aarts, H. Habit, Attitude, and Planned Behaviour: Is Habit an Empty Construct or an Interesting Case of Goal-directed Automaticity? European Review of Social Psychology, Volume 10, 1999 - Issue 1, Gardner, B. & Rebar, A. ‘Habit Formation and Behaviour Change.’ 2019, Oxford Research Encyclopaedia; Gardner, B. ‘A review and analysis of the use of “habit” in understanding, predicting and influencing health-related behaviour’, 2015, Health Psychology Review, 9(3) 277-295

<sup>4</sup>Gardner, B. & Rebar, A. ‘Habit Formation and Behaviour Change.’ 2019, Oxford Research Encyclopaedia; Gardner, B. ‘A review and analysis of the use of “habit” in understanding, predicting and influencing health-related behaviour’, 2015, Health Psychology Review, 9(3) 277-295

<sup>5</sup>Verplanken, B., Wood, W., ‘Interventions to break and create consumer habits’, 2006, Journal of Public Policy and Marketing, Vol. 25 (1), Spring, 90-103

<sup>6</sup>Andrew, J., & Sirkin, H. (2003). Innovating for cash. Harvard Business Review, 81, 76–83. doi:10.1225/R0309E

When new behaviours – new products or services – are not adopted, the real problem often lies not in a lack of awareness or knowledge on the part of the consumer, or even a lack of intention to use, but in the failure to change existing habits or adopt new ones. And this is where insights from behavioural science – the rapidly growing scientific study of our behaviour and decision making which acknowledges the inherent biases and distortions that characterise human judgement and decision making – comes in. Behavioural scientists call this phenomenon the ‘**Intention-Action gap**’. For example, there is a proven gulf between intending to exercise daily and actually doing it. Most adults know exercise is good for them and would like to do more, yet global studies have shown that between 36% to 55% of people never manage to convert intention into action.<sup>7</sup> Similarly, other research has identified intention-action gaps for handwashing before eating; a 2013 study found that whilst the majority of people know it’s important to do this, barely 20% actually did.<sup>8</sup>

A study looking at why consumers failed to adopt new products found that a quarter of the instances in which consumers failed to use a new product – in this case a new fabric refresher for clothing- were due to the interference of an existing habit.<sup>9</sup> Failure to use the new product was rarely due to disliking it or finding it did not work properly;

consumers simply forgot to use the product, and automatically reverted to existing habits. Take a look through your kitchen cupboard or your bathroom cabinet and you’re sure to find some relics that you bought enthusiastically but forgot to ever use.

“Marketers don’t always go out in the field and see what people are doing and how they would use a new product,” says Wendy Wood, professor of psychology and business at the University of Southern California and co-author of the study above. “But this is actually a critical part of new product launch. Even if consumers like a new product and want to use it, they won’t do so if it conflicts with their habits.” She emphasises that “The broad implication of our work is not to fight against consumers’ past behavior, but instead to enlist it as an ally to promote the successful adoption of new products.”<sup>10</sup>

Experienced marketers all know that changing behaviour once is not too difficult but changing it for good is much harder. Behavioural scientists Katy Milkman & Angela Duckworth agree: “...the biggest problem that needed solving was figuring out how to make behaviour change stick.”<sup>11</sup>

**“ Even if consumers like a new product and want to use it, they won’t do so if it conflicts with their habits. ”**

<sup>7</sup> Rhodes, R.E., de Bruijn, G.J. How big is the physical activity intention-behaviour gap? A meta-analysis using the action control framework. *Br J Health Psychol.* 2013;18: 296–309; Godin G, Conner M. “Intention-behavior relationship based on epidemiologic indices: an application to physical activity”, *American Journal of Health Promotion.* 2008 Jan-Feb; 22(3):180-2.

<sup>8</sup> Rabbi, SE, Dey, NC. Exploring the gap between hand washing knowledge and practices in Bangladesh: a cross-sectional comparative study. *BMC Public Health.* 2013 Jan 30;13:89. doi: 10.1186/1471-2458-13-89

<sup>9</sup> Labrecque, J.S., Wood, W., Neal, D., & Harrington, N., Habit slips: when consumers unintentionally resist new products, *Journal of the Academy of Marketing Science*, June 2016

<sup>10</sup> [https://www.eurekalert.org/pub\\_releases/2016-06/uosc-dit060816.php](https://www.eurekalert.org/pub_releases/2016-06/uosc-dit060816.php)

<sup>11</sup> <http://freakonomics.com/podcast/solving-one-problem-solve-others/>

Therefore, it's crucial for any marketer to be able to have a reliable and effective strategy for building new habits and making them stick. First, we need to develop a complete understanding of the habitual behaviour in focus, and then analyse how might it be built, maintained and broken or changed.

Fortunately, over the past few decades, valuable new insights from the rapidly growing field of **behavioural science** – including from psychology, neuroscience, and behaviour change – have given us the concepts, frameworks and tools for us to not only better understand habitual behaviours but also to inform and inspire the development of a best practice approach to building or breaking habits.

**“Habit and routine free the mind for more constructive work.”**



### 1.3 WHY DO WE NEED HABITS? WHY DO HABITS FORM?

**“Habits form the bedrock of everyday life. Without habits, people would be doomed to plan, consciously guide, and monitor every action, from making that first cup of coffee in the morning to sequencing the finger movements in a Chopin piano concerto.”<sup>12</sup>**

#### Habits free up our minds:

Habits serve a significant purpose – certain behaviours become automatic mostly to make us more efficient. We can all recall being in a new, unfamiliar environment – perhaps working abroad, or visiting friends with a very different lifestyle. It's often disorientating and awkward, everything seems to take much longer because every single choice and behaviour requires conscious thought. This has been very noticeable during the Covid-19 pandemic. As Wendy Wood notes: **“The routines built up over time are gone, so we all have to make new decisions about how we live now. Everything we do requires a decision, takes more energy and feels uncertain.”**

So we build habits out of a desire for efficiency – rather than make 100+ decisions throughout our day, we single out any choices which we can automate so that eventually, new habits develop which make our lives much smoother and more fluid. These new habits actually free up our minds so that we can do other things in parallel. As Theodore Roosevelt said “Habit and routine free

<sup>12</sup> Neal, D., Wood, W., Quinn, J. ‘Habits – A repeat performance’ 2006, Current directions in Psychological Science, Vol 15, No. 4, p198

<sup>13</sup> James, W. “The Principles of Psychology”, vol. 1, 1890, New York; Henry Holt, p122

***“With a habit, you are never left without a response, even when stress, distraction or mental tiredness is derailing your conscious mind.”***

”

the mind for more constructive work.” Similarly, William James believed that “The more of the details of our daily life we can hand over to the effortless custody of automaticism, the more our higher powers of mind will be set free for their own proper work.”<sup>13</sup>

### **Habits can also be our friend in times of stress:**

Research has found that when we are put under stress, we fall back on habits even more than usual. Stress pushes our conscious reasoning and decision-making ability – our executive control or ‘System 2’ to the back seat, letting tried and tested unconscious habits come to the fore. Evolutionarily, this was to our advantage. As Professor Wendy Wood says “With a habit, you are never left without a response, even when stress, distraction or mental tiredness is derailing your conscious mind.”<sup>14</sup> Whether the response is good or bad depends on how many good...and how many bad habits you have though. If you’ve built good habits aligned to long term goals, it’ll be plain sailing. Bad habits AND stress could leave you in a mess though! Furthermore, if you are under stress, you’ll probably find it hard to break old habits and adopt new ones. During the Covid-19 pandemic, lack of routine and disrupted habits have been one factor behind increased stress and mental health issues. This creates a vicious circle as stress makes new habits

harder to build.

Habits also serve us well as we grow old:

Whilst younger people tend to rely more on their analytical skills – known as fluid intelligence – to make decisions, as people age they tend to draw more on their knowledge and experience – known as crystallised intelligence- to make decisions. Although older people are still capable of drawing on their fluid intelligence for decision-making, it takes more effort as it’s harder for them to ignore or sift through irrelevant information. They therefore tend to be more selective about using System 2, saving their cognitive resources for important decisions with significant consequences and relying more on habits, rules of thumb and oft-used mental shortcuts – System 1 decision-making – for less important, inconsequential decisions. For example, older people often stick to the products and places that they know which require little thought to purchase or to travel to. This helps them when they come across new, unfamiliar situations where it’s not possible to fall back on their experience, or a habit.

### **How habits, not self-control are the key to success:**

Many people assume that the key to becoming successful (by that, let’s define it broadly as ‘things going in our favour’) is high levels of self-control. This stems from an historic Protestant work ethic based mainly around hard work, but also of self-denial, fending off all impulsive urges. We have an image of a highly motivated person waking at the

<sup>14</sup> Wood, W. “Good Habits, Bad Habits” 2019

**“ Our prototypical model of self-control is angel on one side and devil on the other, and they battle it out... We tend to think of people with strong willpower as people who are able to fight this battle effectively. Actually, the people who are really good at self-control never have these battles in the first place. ”**

first alarm buzz and hopping out of bed, itching to go out for a jog before dawn before heading off to a twelve hour work day.

Kentaro Fujita, a psychologist at Ohio State University says “Our prototypical model of self-control is angel on one side and devil on the other, and they battle it out...We tend to think of people with strong willpower as people who are able to fight this battle effectively. Actually, the people who are really good at self-control never have these battles in the first place.”<sup>15</sup>

The latest research finds that what ‘successful’ people are actually good at doing is not resisting temptation, but simply building good habits. They aren’t born with any more self-control than the rest of us. By building good habits, they go through their day largely automatically, from one habit to the next, meaning they often don’t even face any need to draw on self-control to will themselves to do something.

**“ The chains of habit are too weak to be felt until they are too strong to be broken ”**

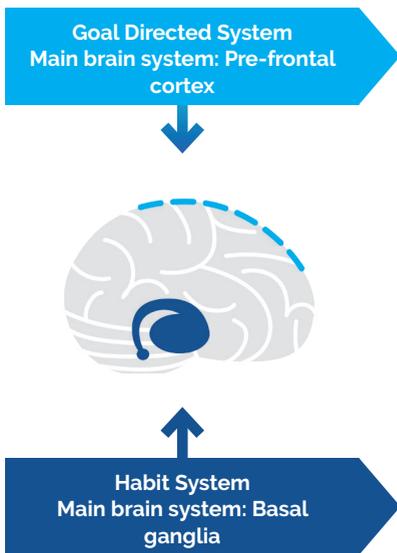
## 1.4 KEY FEATURES OF HABITS

So, if a habit is ‘a learned sequence of acts that have become automatic, unconscious responses to specific cues or triggers around us’<sup>16</sup> there are some key features of habits that warrant discussion.

- Firstly, let’s draw on [neuroscience](#) to look more closely at how habits are an ‘[automatic, unconscious response](#)’. The 18th century writer Samuel Johnson intuitively realised that “The chains of habit are too weak to be felt until they are too strong to be broken”, realising that habits are very much automatic behaviours.

<sup>15</sup> <https://www.vox.com/science-and-health/2016/11/3/13486940/self-control-psychology-myth>

<sup>16</sup> Verplanken, B., Aarts, H. Habit, Attitude, and Planned Behaviour: Is Habit an Empty Construct or an Interesting Case of Goal-directed Automaticity? European Review of Social Psychology, Volume 10, 1999 - Issue 1



Responsible for: new or infrequent behaviours, especially those performed in different ways or contexts each time (e.g., indoor residual spraying for malaria, IUD insertion, or vasectomy)

Features of process:

- Guided by attitudes/goals/values
- Conscious, deliberative
- Knowledge of steps can be verbalised
- Features of the action can be changed quickly according to rules
- Performance is relatively slow, via thought and attention

Responsible for: established/frequent behaviours, especially those performed in the same ways or settings each time (e.g., oral contraceptives, bed net use)

Features of process:

- Guided by "cues" or "triggers"
- Less conscious, more "automatic"
- Performance of steps is not conscious, harder to verbalise
- Features of the action cannot be altered quickly – only via experience/repetition
- Performance is quick, using heuristics and past behaviour as a guide
- Doesn't require thought or attention

Fig 1: Different brain systems control goal-directed actions and habits. These two systems influence behaviour independently of each other (Source: Neal 2015; Wood & Neal 2007)

Move forward 250 years and neuroscientific research now supports that observation. Any new behaviour begins with conscious deliberation and intention, drawing on what is known as our executive function or ‘System 2’ – the prefrontal cortex area of our brain. This is the brain area that does all our hard thinking- helping us do complex calculations, learn a foreign language or navigate our way to a new place. The prefrontal cortex sends input to the caudate within the striatum – providing input into the basal ganglia- which then helps to achieve a behaviour by both initiating the right movement(s) while at the same time ensuring that any wrong or unhelpful movements are inhibited. Neuroscientists have found that the striatum plays an important role when we are learning a new behaviour or task. The award-winning MIT neuroscientist, Professor Ann Graybiel and her colleague Scott Grafton describe it as “a sort of learning machine dedicated to achieving success in behaviour.”<sup>17</sup>

However, as we learn and repeat the behaviour over time, our brain rewires itself. We engage the prefrontal cortex less and less and the message inputs sent to the striatum fade. Eventually, we completely shortcut our executive function and instead rely on the putamen – another part of the striatum within the basal ganglia, a more primitive area of the brain which means that we are no longer conscious of the behaviour but perform it automatically without needing to think about starting it or continuing it.

This process is illustrated in recent research. Human brain imaging as people practice sequential finger movements - like playing the piano- has found that there is progressively reduced activity in the prefrontal areas as they practice. And further evidence shows that those who reduce activity in the prefrontal cortex sooner, seem to acquire that skill or embed a habit faster. Instead, the new habit is enacted automatically via other, more primitive parts of the brain.

We can now carry out the behaviour without needing to think about it consciously, saving us considerable brainpower. Of course, this is problematic for bad habits because it means we have little conscious control anymore. Graybiel says “Even if you really don’t want to, it’s hard to not do.”

Once a habit loop is formed, it is also fixed in our neurological patterning forever. Over time, these wiring shortcuts don’t disappear, even if we drop the habit over time. A recent study by Lee Smith and Ben Gardner, drawing on longitudinal data from the 1970 British Cohort Study, found that children aged 10 who often participated in sports were more likely to participate in sport or physical activity at aged 42. Habits formed in childhood can continue into adulthood, even if they are ‘dormant’ for periods of time.<sup>18</sup>

Similarly, some of our old habits may return post-Covid-19, if the context is similar enough, although some may have been displaced by new habits.

<sup>17</sup> Graybiel, A., and Grafton, S.T. The Striatum: Where Skills and Habits Meet” Cold Spring Harbour Perspectives in Biology 2015;7

<sup>18</sup> Smith, L, Gardner, B, Aggio, D & Hamer, M 2015, ‘Association between participation in outdoor play and sport at 10 years old with physical activity in adulthood’ Preventive Medicine 74 ( 2015 ) 31-35

- **Habits need a cue:** A second key feature is that habits are always **triggered by a cue**, typically in a context that is stable and consistent in our lives. The cue triggers our memory of doing the same action or routine previously and helps to initiate it again. Take making a cup of coffee, a familiar habit for many. We might be cued by a particular time of day (waking up), an object in our surrounding environment (a cafetiere) or being in the environment as a whole (the kitchen), a preceding behaviour (turning on the kettle), or even a person or sound (an alarm clock). When such an environment is stable and consistent – when we are in the same place at the same time of day- we are more likely to carry out a particular behaviour, deeply embedding a habit.



- **Repetition:** For a behaviour to become a true habit, it needs to be performed frequently and repeated many times over. Exact figures for how long it takes to build a habit vary, depending on the complexity of the behaviour, but a study conducted by Philippa Lally and

colleagues at the Health Behaviour Research Centre at UCL in 2009 found that it took anywhere between 18 days (2.5 weeks) and 254 days (over 8 months) to embed a new habit. The average time was 66 days.<sup>19</sup> And this assumes it is performed regularly – daily, or at least a few times per week. For example, a 2015 study looking at the time taken to embed exercise habits found that it took 6 weeks of going to the gym 4 times per week before the new habit was embedded.<sup>20</sup> A 2017 study found it took between 106 days and 154 days to fully embed a habit depending on what time of day the routine was performed- morning was better than evening.<sup>21</sup> So when starting a new habit, what can we do to drive and ensure repetition?

- **Rewards:** We can be motivated to repeat a behaviour if we experience a reward and then associate this reward with the behaviour. This element can often help to fix a behaviour in place so it becomes a habit – to the extent that we might not even need the reward once the behaviour has become automatic. We can be motivated by many different types of rewards – from intrinsic to extrinsic, conscious and subconscious, physical to physiological, short-term or long-term, one-off or a reward that is cumulative and builds up over time. We may build a habit with just a single reward, or with a mix of different types of rewards.

With these three key features in mind – a behaviour that is automatic, initiated

<sup>19</sup> Lally P, van Jaarsveld CHM, Potts HWW, Wardle J. How are habits formed: modelling habit formation in the real world. *Euro J Soc Psychol.* 2010;40:998–1009

<sup>20</sup> Kaushal, N., & Rhodes, R. E. (2015). Exercise habit formation in new gym members: a longitudinal study. *Journal of behavioral medicine*, 38(4), 652-663

<sup>21</sup> Fournier, M., d'Arripe-Longueville, F., Rovere, C. Easthoope, C.C.Schwabe, L., El Methni, J., Radel, R. Effects of circadian cortisol on the development of a health habit. *Health Psychology*, 36 (11), 1059-1064

by a cue or trigger, often repeated and embedded via a reward – we can now construct a simple model of habits. The ‘Habit Loop’ illustrated below helps to keep in mind the essential elements which are needed to set about building a new habit.

With this definition, key features and the Habit Loop model outlined, we will now outline some evidence-based strategies and techniques which can be used to build and embed a habit into people’s routines.

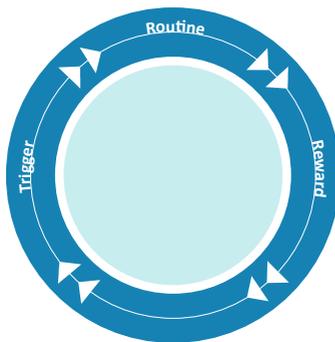


Figure 2: The Habit Loop, illustrating how the trigger initiates the routine which is followed by the reward. Source: The Behavioural Architects, based on a model by Charles Duhigg, ‘The Power of Habit’, Random House, 2012.

## SECTION 2: Six strategies to build a new habit:

**How can we steer people to build a new habit that is sustained over time?** We've looked at several different models and frameworks from practitioners such as Nir Eyal, B.J. Fogg and Charles Duhigg to academics such as Bas Verplanken, Wendy Wood and Ben Gardner. All of these aim to aid understanding and/or build habitual behaviours. For us though, the best practice approach comes from David Neal, a psychologist at Duke University's Center for Advanced Hindsight, who outlines [six strategies](#), each grounded in evidence from the behavioural sciences, which are effective for forming a new habit.

### 2.1 SIX STRATEGIES FOR BUILDING HABITS:

Each of the six strategies are tiered in terms of their importance [with a colour key].

- **Precondition** - these strategies are an important foundation for building any new habit
- **Acceleration** - these strategies can help people adopt a new habit faster
- **Maintenance** - these strategies can help a new habit stick



Figure 3: Six Strategies for Building Habits. Source: The Behavioural Architects 2017 based on Neal, D. "The Science of Habit", 2015.

### Strategy 1: Ensure a stable, supportive environment (Precondition)

As we discussed above, a supportive environment enables the creation of consistent cues which will begin to automatically initiate a new habit. This element is an important precondition – if the context or surrounding environment is not set up for the desired habit, even the most determined, obstinate characters are going to struggle to start a new habit, let alone embed it! Research shows habits are best promoted by combining the first strategy with others – a multi-pronged strategy.<sup>22</sup>

Take the example of an avid music fan, who listens to music via his long-accumulated CDs and records. An online streaming service would love him to develop a new listening habit via streaming, but unless he has the supportive technology (a good quality tablet or laptop) with a fast, unlimited, reliable Wi-Fi connection, he is unlikely to make the switch.

Or there might be the health conscious who would like to cut down on drinking on a weekday evening. Success might come from making sure there is no alcohol in the home and finding a different drink – such as sparkling mineral water – to substitute. Making these small but effective changes to the context can



help promote a new habit.

Another example is the would-be gym-goer, but whose life is unpredictable, involving frequent travel. This means many changes of context and irregular leisure time, if any. Studies of exercise and healthy lifestyle habits have shown that having a regular and stable place to exercise – a regular class or club or a tried and tested running route will bed down any new sporting or physical activity the best. For some, the Covid-19 pandemic has actually created a much more stable home context for doing exercise due to being at home more.



Another illustration of this strategy might be the child encouraged by their schoolteacher to read more. Here, having suitable books available at school and in the home, as well as having an allotted time to read – perhaps before bedtime – would help to build the habit.

### Strategy 2: Leverage the context (Precondition)

This strategy is all about making the best use of natural opportunities already existing, or soon to exist, in a consumer's environment or life – meaning we marketers don't need to do so much of the heavy lifting! This means

analysing the specific context – are there opportunities to develop new habits if a) old ones are temporarily disrupted by a change or b) by piggybacking to existing habits?

***“It’s about intervening at the right time. If you contact people within three months of them moving into a new house, it’s highly effective – because behavioural patterns haven’t re-established themselves yet.”***

**a. Leverage a disruption in the status quo:**

One of the best opportunities to promote new habits is to intervene during a major or permanent life change, such as a new job or career, moving house or the start of a new life stage such as going to university, having a baby or retiring. Scientists use a very technical sounding term for this - ‘habit discontinuity’ - but regardless of the name given, these occasions usually involve a disruption or change in our context. For example, a change in the surrounding environment and/ or changes in daily routines, or changes in the social environment which mean existing habits are not as automatic as they might have been previously. David Halpern, of the Behavioural Insights Team in the UK notes that successful behaviour change is often “...about intervening at the right time. If you contact people within three months of them moving into a new house, it’s highly effective – because behavioural patterns haven’t re-established themselves yet.” A study published in 2016, which analysed the commuting habits of over 18,000 people in the

UK, found that people were more likely to switch to more environmentally friendly means of transport after moving house – and if they already had environmental concerns- but that the effect decayed over time, so after a year they were more likely to commute by car. “People have about three months, and then the opportunity for new habits diminishes,” says Gregory Thomas, lead researcher in the study. Another study found that people who had attempted a life change were more likely to have succeeded if they had recently moved to a new location or consciously altered their existing environment in some way. Notably, failures tended to be characterised by efforts to engage willpower only or keep the status quo, making no changes to the context. Both these studies highlight the window of opportunity to change behaviour after a change of context.

The Covid-19 pandemic has disrupted many people’s lives and routines, creating a unique, once in a generation ‘life change’. Many no longer commute, some have moved house, out of choice or necessity, whilst others have changed job or lost their jobs. Consequently, this ‘strategy’ has driven many new habits to form and disrupted older ones.

**b. Piggyback to an existing habit:**

Whilst life changes are invaluable for promoting habit change, they don’t occur that often! So other strategies which bolt a new behaviour onto an existing behaviour or routine can be easier and more effective than trying to replace a habit with a new one. For example, people were more successful at flossing their teeth when they did

it after brushing their teeth. Another study looking at factors associated with the adoption of innovative, new consumer products, such as a roasting bag for the oven, found that variables such as compatibility with existing habits and previous experiences predicted adoption far better than consumers' personal characteristics. Cast your mind back a few decades and you might remember the craze for Kellogg's 'Pop tarts' – the ready-made breakfast snack which just needed heating in the toaster. By piggybacking onto British people's existing toast-making habit (or obsession), Kellogg's were able to build a new breakfast habit. Making a mental connection between the existing and new habit can aid our memory and help us to remember to perform the new behaviour. It follows that any new habit which conflicts with an existing habit or routine is unlikely to be successful without careful consideration or change to the context.

B J Fogg of Stanford University's Persuasive Technology Lab is fond of pointing out the benefits of piggybacking or paralleling one habit onto or alongside another. One of Fogg's own practices, based on his 'Tiny Steps' approach, is described by him here and it shows how you can parallel a new behaviour with an existing one: "One practical habit is, as soon as the phone rings, I put on my headset and I start walking. This has grown to lifting kettlebells or doing little one-leg squats while I'm on the phone. The desired behavior is to be active and working out in these small ways. I'm on the phone two to three hours a day, and now it's a habit that I probably can't stop. When I take

calls, I'm up and walking around. I've created all these tiny habits in my life, from really practical to kind of crazy." He describes the genesis of a piggybacking/ tiny steps habit which began with a simple intention to do two push ups each time he used the bathroom . The push up habit not only became routine, it evolved into a full blown work out with Fogg routinely hitting 100 push ups. As a result of a tiny habit, hitched to a very routine behaviour, a consolidated, committed practice was born- and the reward? Fogg lost weight and gained stamina. A possible mantra for instilling the piggybacking habit could be 'After I ..... ' or 'When I ....'[insert routine behaviour], 'I will ..... [insert new habit to engender]'.

### c. Substitutes:



A similar strategy to piggybacking is when we substitute a new behaviour into an existing habit we have. For example, rather than a glass of wine when we arrive home, we might substitute a glass of sparkling water. Or tea might substitute for our usual coffee. A study by Jennifer Labrecque and Wendy Wood found that people tended to have more success adopting new products if they were ones they could easily substitute into their

existing routines and habits. They asked survey participants to nominate two products they had purchased in the last 6 months, one they now used regularly, and another which they had thought they would use, or had intended to use, but now use very rarely. Regularly used products were more likely to have completely replaced a previous product (63% of participants) than rarely used ones (25% of participants). Additionally, people were more likely to use the new product when they had made a plan to use it every time they were carrying out relevant routines or habits.

### Strategy 3: Make it easy to do (Acceleration)

Behaviour change experts emphasise the importance of making any desired behaviour easy to do; this is no less important for habitual behaviours, especially when they are very new.

When learning a new behaviour, we have to think a lot more, which takes more effort and so it can already seem harder to do. So, minimising barriers, making it feel less daunting or simplifying choice can steer someone closer to starting and continuing a new habit.

This is especially important when the desired new habit needs to take place in an already demanding situation, where the cognitive capacities of the consumer are already stretched, perhaps with other distractions or limited mental bandwidth. The Covid-19 pandemic is a good example as it has created huge uncertainty and disruption in our lives. More specifically, changing work habits can be difficult when people are already overloaded with work and often stressed.

Whilst some of the strategies in the section above – piggybacking and substituting can automatically help to make building a new habit easier, there are other strategies too. Specifically, it's useful to think about three elements that help to make a new habit easier to establish:

#### a. Eliminate friction by reducing the number of decisions a consumer needs to make:

The easier the set-up is, the more likely we are to at least start the new behaviour. How many decisions are you asking someone to make before they can begin? Are they likely to know or easily find the answers or will the decisions just confuse and put them off?

#### b. Chunk or reduce the steps to carry out the behaviour:

New behaviours and actions can seem daunting due to their unfamiliarity. If we can make the steps required for the routine simple and minimal (say no more than three), it's more likely a consumer will try and adopt it.

#### c. Reduce the perceived effort or any other potential barriers:

Changing the status quo and starting a new behaviour is always going to feel like more effort, but if we can reduce any known barriers to the routine, we have more chance of success. For example, if you wanted to get citizens cycle commuting rather than taking the car, it would be a good idea to ensure that cycle lanes are in place and bike racks near workplaces are sufficient. More cycle infrastructure has certainly helped drive cycling during the pandemic.



### Strategy 4: Develop cues and rewards (Acceleration)

We've already talked about the importance of cues in a stable context. These can often be strengthened further by encouraging people to consciously identify a trigger that will help them to recall and initiate the new routine. Equally, rewards are also critical in building new habits.

#### a. Establish unique or personalised cues:

This draws on a highly effective area of behavioural science called implementation intentions – simple 'if-then' plans which can signal when to take action. Setting out a rule of thumb 'If X, then do Y', can aid memory and make us feel more committed to carrying out a new behaviour. This strategy has been successfully applied in many different contexts.

Take dental flossing again. People who first outlined when and where they would floss each day flossed more frequently over the four-week study than those who did not. In another experiment, office staff were encouraged to recycle their plastic cups and old paper by considering when, where and how to recycle. Two months after making this simple plan, recycling levels were still

higher than before and compared to the control group. During the Covid-19 pandemic, this strategy has also helped people plan to wear a mask, and make sure they have one on them at all times.

This approach is similar to the piggybacking strategy outlined above, but more explicit, conscious and personalised. As such, it can help someone to develop a feeling of commitment to embedding the new habit. Conversely, piggybacking may occur naturally without the individual being consciously aware of it or may be created by the marketer or behaviour change practitioner.

#### b. Ensure there is a varied mix of rewards:

Research suggests that experiencing some sort of reward during or after a new routine is essential for embedding a new habit as it helps to incentivise and motivate us to do it again- and keep on repeating it. Best practice is to ensure there is a varied mix of rewards: some immediate, short term rewards, and also some more long term rewards, which accumulate over time as we repeat the behaviour. Some will be simple rewards – perhaps your daily coffee when you get up in the morning; others less tangible and more subconscious, such as social interaction with friends, or physiological – for instance the 'runner's high' after exercise.

However, Professor Wendy Wood believes that the most effective rewards are immediate because it is these which help to build the neural connections which establish a habit.

**“ People change best by feeling good, not by feeling bad. ”**

This is due to dopamine which plays a key role in how we respond to rewards – particularly unexpected ones- and ultimately helps us to build a new habit. Dopamine is a neurotransmitter – a chemical signal sometimes known as the ‘feel-good’ chemical – which helps to transfer information from one neuron to the next. The bigger an unexpected reward, the bigger the dopamine release, which then facilitates information transfer between involved pathways to become more efficient. In a sense, dopamine helps us learn what behaviours are worth repeating, and what behaviours we should avoid or not bother with.

Similarly, BJ Fogg’s Tiny Habits approach also rests on a type of immediate reward – that of instantly celebrating your success at completing your tiny new habit to generate positive emotions and make you feel good about yourself for doing it. He says “People change best by feeling good, not by feeling bad.”

Once a habit has been firmly established, there is less need for a reward to continue to exist since the cue and context will ensure we start doing it automatically. For example, a study looking at what determined whether and how much people exercised found that for those new to exercise, intrinsic rewards were important, but those for whom exercise had become habitual, rewards were less necessary, if at all.

In fact, Professor Wendy Wood believes that the key test for whether a habit has been fully established is whether a

reward is still needed for the behaviour to happen: “insensitivity to reward is the gold standard for identifying a habit.”

### **Strategy 5: Practice and repeat (Maintenance)**

As we mentioned above, we form habits as we repeatedly perform a specific behaviour. Therefore, creating opportunities to practice a new behaviour so it can be repeated often is highly important.

This is particularly true if we are learning something entirely new to us, a skill such as a martial art, how to use a new smartphone, or even make a new drink or meal. A new task can seem daunting and a big effort as it feels so unfamiliar, so even if the intention to start is there, we may not ever begin. Therefore, opportunities to practice and try out the task in a supportive environment can help to get us on our way.

Neuroscience and reinforcement literature shows that for new skills we learn better through doing, and through trial and error, than by merely watching. Studies have shown that those who get to practice a new skill or behaviour actually engage the habit system parts of their brain and master the behaviour better. Those who only watch and observe don’t engage those habit parts of their brain.

This has many implications for the successful adoption of new products and services which may require the development of new skills – for example, using a smart meter, making a new type of breakfast, or learning a new language. Creating easy opportunities for consumers to practice a new skill may

“ *we...grow to love the things we repeatedly do* ”

help to start embedding a new habit. Apple stores, which let consumers use and play around with their products are great examples of how a learning space can be created. In 2016, Samsung opened a new flagship store in New York, designed as a ‘living lab and digital playground’, enabling consumers to see and try out the latest technology. For food and drink products, we often see sample stands in retail stores inviting us to try a new product, but retailers are now moving to more experiential stores, such as those where people can cook in a ‘do-it-yourself’ restaurant.

New technology is even developing wearable neuro-stimulators which will guide and correct people’s movements and actions, improving their performance by using electrodes to stimulate the motor cortex in the brain to produce temporary mental states primed for learning. Think of a neurosurgeon in training, artists wanting to perfect their brush strokes, an elite athlete honing their technique, musicians wanting to improve their technical ability or a patient recovering from injury needing to complete intense physio exercises. These technologies could be invaluable to the formation of new habits and skills.

A 2017 study also found that we might learn and embed a new habit faster if we perform it in the morning. They recruited students to perform a simple stretching routine over the course of 90 days. Some were asked to stretch in the morning, others in the evening. Whilst both groups developed strong habits, those who



Figure 4: Halo Neuroscience enhances learning of physical movement skills in elite athletes to hone good habits. Sprinter Hafsatu Kamara of Sierra Leone training for the Rio Olympics with Halo Sport. Source: Power Ten Production via Inc.com

stretched in the morning had a stronger habit after 90 days than did the evening group. The morning group also made more rapid gains in the first few days, developing a stronger habit quicker. Extrapolating beyond the 90 days of the study, the researchers estimated that it would take the morning group 106 days to fully embed their stretch routine, compared to 154 days in the evening group. The researchers believe that circadian rhythm can affect how fast we embed habits. Cortisol- which makes us more alert and able to embed habit memory formation- is typically higher in the morning.<sup>23</sup>

There’s another benefit to repeating a behaviour we want to make a habit; it’s all about making something feel familiar. Crucially, as something becomes more familiar we often grow to like it more too, something which psychologists have termed the ‘mere exposure effect’. Professor Wendy Wood translates this to our habits and routines, saying “we...grow to love the things we repeatedly do”. They often provide a sense of ease and comfort, something highly desirable in times of stress, which is why falling back on habits in difficult times can be so reassuring.

<sup>23</sup> Fournier, M., d’Arripe-Longueville, F., Rovere, C. Easthoope, C.C.Schwabe, L, El Methni, J., Radel, R. Effects of circadian cortisol on the development of a health habit. *Health Psychology*, 36 (11), 1059-1064

### Strategy 6: Build meaning and motivation (Maintenance)

The final strategy is aimed at the individual who is now starting to form a weak habit. Their new behaviour is being prompted by a cue, is performed in a stable context and where there is some kind of reward in completing the routine. But to really embed the habit, it can help to build greater personalised meaning around the behaviour, so that an individual identifies with it.

This is because we like to rationalise any behaviour we do; linking it to our identity and giving it meaning in our life. As David Neal says: “People do not embrace the idea that we are creatures of habit. Instead, they prefer to view their actions as products of choices, conscious motives, preferences, and goals.” So, if people can be encouraged to view their new habit as something with a deeper purpose- to try to post-rationalise and come up with explanations for why they do a new behaviour- it can act as a buffer against relapse. Practitioners can harness this tendency and encourage people who are on their way to building a new habit to give it a sense of clear purpose.

Take someone who has taken up running purely to help them lose weight, but now they have lost the desired weight, their motivation is waning. Before they started their running regime, they may not have identified with being a runner or realised the other benefits of running such as clarity of thinking, improved productivity at work, better physical health, enhanced mood and happiness as well as potential social rewards if they run with a friend or group. So, looking

“ *People do not embrace the idea that we are creatures of habit. Instead, they prefer to view their actions as products of choices, conscious motives, preferences, and goals.* ”

for opportunities to engage the new runner and provide them with further explanations for why they run can help to embed the habit further.

This strategy can help to keep motivation levels high, since often motivation to build a new habit flags after a while, frustratingly before the habit is fully embedded. So, if we can just eke out motivation a little more we are likely to have more success in creating sustained behaviour change and preventing relapse. A new behaviour needs to be repeated until it is fully subconscious – until those cobwebs become chains.

### In Conclusion

These six strategies apply the latest insight and understanding to how to effectively build a new habit or routine. Grounded in findings from the behavioural sciences they provide a complete toolbox for the marketer or behavioural change practitioner to go out and build a new habit in virtually any area. And if you are still not quite convinced, test them on yourself! You could change your life!

# Reminder checklist for building a new habit

- Q1** Have you ensured or created a **stable, supportive environment or context** for your new habit?
- Q2** a) Are there any **opportunities to leverage life changes or teachable moments**?  
b) Are there any **opportunities to piggyback the new habit to existing habits** and routines?
- Q3** Have you **made the new behaviour as easy as possible to do**?
- Q4** a) Have you **enabled people to create any unique cues, plans or reminders**?  
b) Have you ensured a **mix of short-term and longer-term rewards**?
- Q5** Have you created **opportunities for people to try out or practice** the new behaviour?
- Q6** Have you **given people new meaning(s) they can attach** to their desired habit?

## 2.2 CASE STUDIES

Below we have outlined six case studies which leverage one or more of the six strategies outlined above.

### 1. Building an exercise habit for children by ensuring a consistent context

#### Applying Strategy 1: Ensure a stable, supportive environment

Both the WHO and the UK government recommend that children get a minimum of 60 minutes of physical activity per day. Not only does it increase fitness, but also improves physical and mental health and cognitive development. Yet a third of children aged 2 to 15 in the UK are overweight or obese. And the UK is one of the lowest ranked out of 38 countries for children's physical activity levels with only 15% of girls and 22% of boys achieving the recommended 60 minutes per day.

In 2013, St Ninian's School in Scotland initiated a rapidly growing scheme to improve these levels, realising that their schoolchildren were very unfit. They have built a new exercise habit called 'The Daily Mile', getting children to run a mile in the school grounds each day – an activity that takes no more than 15 minutes during the school day. Teachers marked out a 'track' – a series of laps around or near the school – which the children can follow. Children are encouraged to run, jog or walk. No kit is needed – children run in their school clothes in almost all weathers. Not only does the children's physical fitness improve, but teachers report that their concentration levels are higher

#### Daily Mile Habit

- **Cues:** Presence of track in school grounds providing a stable context. Additional cues: time of day / restlessness of children
- **Repeated:** Daily, five days a week
- **Reward(s):** Intrinsic – love of movement, being outside with friends
- **Strategy used:** Ensuring a stable, supportive environment, Make it easy, Practice & repeat

immediately after the 15-minute session and throughout the day.

The initiative owes part of its success to the fact that the run is always in the same place – in the school, on the pre-marked track – providing the stable, supportive environment required to build a habit.

*Children running the Daily Mile at St Ninian's School. Source:*



*SWNS.com via Daily Mail*

Sometimes teachers draw on **additional cues**. Although teachers can take their class for the run at any time during the school day, some choose a specific time – adding more stability to the habit, whilst others draw on a more subjective and flexible cue- if they feel the class is losing focus.

The rewards for the children are self-evident in their enthusiasm and the reward is undoubtedly mostly **intrinsic** – running is enjoyed for the experience of moving fast and freely outside with their friends. Teachers report that the Daily Mile is now something that the children look forward to each day.

Over 2500 schools now take part in the Daily Mile across the UK, Belgium and the Netherlands. Rigorous evaluations assessing outcomes in schools are currently taking place.

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## 2. Building a payment habit, by making an online payment mechanism easier to use

### Applying Strategy 3: Make it easy

The Behavioural Architects worked with an online payment platform to strengthen usage of their payment mechanism and help build a stronger payment choice habit. Even though consumers intended to use the platform, their behaviour showed that they often used other payment mechanisms. By analysing and observing the user experience and asking consumers to describe their varied online payment experiences, we were able to identify recommendations to convert intention into action. We were able to promote greater use of the payment platform by **making it easier to select and use**, and in the process strengthening the cues to use the platform. We also identified how to make the rewards of use more self-evident.



### Payment Mechanism Habit

- **Cues:** Consistent, salient, visual cues in online stores, leading up to payment
- **Repeated:** For any online payment
- **Reward(s):** Ease and quickness of use. Secure payment.
- **Strategy used:** Make it easy (to pay)

For example, one recommendation was to **create a more salient online cue** to use the platform when choosing how to pay. Webpages can be very cluttered and overwhelming and often important features and choices are not noticed by the customer. But making choices stand out better on the page and catch people's attention can increase use and reduce confusion. A good example of another salient payment process would be Amazon's 'one click' buy button.

A second recommendation was to **make the payment mechanism easier to use**, chunking up the process into clear, simple stages, to ensure customers understood what they needed to do next and feel less daunted by the process. This increased ease served as a reward too – consumers were motivated to use the platform because it allowed them to make quicker and easier payments with little effort. Both these recommendations helped to **reduce perceived barriers** for consumers.

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### 3. Improving sanitation habits by piggybacking a chlorine dispenser to a water collection point

#### Applying Strategy 2 & 3: Leverage the context & Make it easy

The Poverty Action Lab based at MIT wanted to improve water sanitation in Kenya by encouraging households to use chlorine tablets to purify their drinking water, thereby reducing contamination and disease. Households had access to the chlorine tablets; in fact they were given out for free, but adoption was poor as people forgot to use them or weren't sure how to use them.

Researchers from the Lab managed to build a new habit to get households to use the chlorine tablets in any water used for cooking or drinking. This was achieved by identifying a consistent cue, finding more immediate rewards than the longer-term health rewards and making the tablets easier to use.



#### Water Purification Habit

- **Cues:** Dispenser at local water collection point
- **Repeated:** At least daily
- **Reward(s):** Short-term social approval from peers. Long-term health rewards.
- **Strategy used:** Leverage the context, Stable context and Make it easy

Through in-context exploration, research and initial trials they discovered one of the most effective ways to promote use of chlorine purification was to install the dispenser at the local water source, **piggybacking** the new behaviour to a well-embedded routine. All households visited the water tap on a daily basis. By positioning the dispenser at the local tap, they created an **immediate social reward** for using chlorine. Desire for approval among peers motivated households to use the chlorine.

Further, by designing the dispenser so it gave out the exact amount of chlorine needed to purify the water contained in a household's typical water container, they **made the chlorine easy to use**, removing any need for calculating and measuring.

#### 4. How one brand created a unique social reward for a cleaning product

##### Applying Strategy 4: Develop cues and rewards

The Behavioural Architects China worked with a consumer goods company to better understand how consumers might form an improved kitchen cleaning habit. Housewives in China mostly clean up after cooking the meal by wiping down surfaces using the soapy dishwater. Whilst adequate, it often did not fully remove grease and cooking smells. Housewives did not enjoy the task and found it a chore.

We asked housewife respondents to try using the product and tell us about their experience. Ethnographic research in the home revealed a new reward from using the kitchen surface cleaner – after cleaning with the product the housewife’s family were drawn into the clean and fresh smelling kitchen creating [an immediate social reward](#) for her. Not only was her kitchen now much cleaner, but she was less lonely doing her housework and felt more appreciated. The brand went on to use this insight in their marketing.

##### Kitchen Cleaning Habit

- **Cues:** After family meal, after washing the dishes
- **Repeated:** At least daily
- **Reward(s):** Social rewards, pleasant smell, cleaner kitchen
- **Strategy used:** Stable context, Develop cues and rewards



## 5. Improving handwashing habits by providing short term rewards

### Applying Strategy 4: Develop cues and rewards

With the advent of the coronavirus crisis, hygiene and specifically regular handwashing have become one of the strategies encouraged to limit the spread of the disease. We can pick up the virus on our hands when we touch infected surfaces – doorknobs, other people’s hands, taps – and infect ourselves as we touch our face, which makes it easy for the virus to get into our respiratory system through eyes, nose and mouth. Washing hands with soap though breaks down viruses and certain microbes. Therefore, it is one of the most effective ways to limit transmission of disease.

With the global pandemic in mind, a recent study by a team from Harvard and MIT provides useful insight into how to build handwashing habits. The team conducted a large long-term randomised controlled trial to improve rates of handwashing with soap before eating in households in West Bengal in India. To do this, they drew on insights from habit theory, particularly how rewards can motivate behaviour change.



Source: Reshmaan Hussam

### Handwashing Habit

- **Cues:** Before eating at dinnertime
- **Repeated:** At least daily
- **Reward(s):** Pleasant but subtle smell, foaming soap to enhance clean feeling, tickets that could be accumulated to exchange for goods and gifts; long term rewards of improved health of children
- **Strategy used:** Stable context. Easy to use, Develop cues and rewards

They designed a straightforward soap dispenser that was fixed to the wall of houses. This helped to ensure a stable context since the soap was always in the same place, typically near where the family ate their meals. They also made sure to fix it at a height that children could reach, so they could clean their hands without adult supervision. Finally, the researchers encouraged handwashing at a specific time – before dinnertime - making the habit simple and easier to remember. Typical programs to promote handwashing tend to focus on washing hands at as many as five different occasions, often too much to remember.

Next, they motivated households to build and sustain handwashing habits either through providing incentives or monitoring use of the dispenser. One incentive came in the form of tickets that could be accumulated and cashed in for prizes. A coveted one was a school backpack for their children. Those being monitored were informed that their handwashing and dispenser use would be tracked, and they would receive feedback reports on how frequently and when they used the soap.

Both initiatives improved handwashing, and crucially before dinnertimes. Households were 23% more likely to use the dispenser if they knew they were being monitored. In the incentives group, 70% of households used the dispensers throughout the 8-month trial, compared to only 30% of households with dispensers only.

Importantly, there were longer term gains from the improved handwashing; children became healthier with lower rates of respiratory infections and diarrhoea, and by the end of the 8-month period, they were heavier and taller.

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## 6. Increasing ‘tapping on and off’ behaviour amongst commuting school students

### Applying strategy 4: Develop cues and rewards

The Behavioural Architects worked with Transport for New South Wales (Australia) in 2018 to try to build and strengthen the daily ‘tapping on and off’ habit for public transport amongst school students. School students do not have to pay for travel in NSW (unlike other states), yet the government still needs students to tap on and off using their Opal card, to collect comprehensive data so they can plan for services.

Student tapping on and off was often inconsistent, with a wide range of usage across schools. Some students failed to tap on regularly – a weak habit- whilst others never used their Opal card – no habit.

We tested four different interventions using a Randomised Controlled Trial across 30 different schools in NSW, analysing the changes in Opal taps on school buses across a school term. We compared results pre- and post-trial, and compared each intervention condition to a control group in which no interventions were implemented.

The intervention which generated the highest uplift in tapping on and off behaviour (13.4%) was one which put in place a reward using a prize draw system. There is good evidence that lotteries or prize draws can help to drive up participation rates in many activities –

### ‘Tapping on and off’ Habit

- **Cues:** Boarding any public transport
- **Repeated:** Weekdays, twice daily
- **Reward(s):** Lottery/ prize draw
- **Strategy used:** Stable context, Easy to use, Develop cues and rewards

from commuting during off-peak hours to increasing savings. Whilst we like certain rewards, received after every time we do a behaviour, we are attracted by uncertain rewards even more.

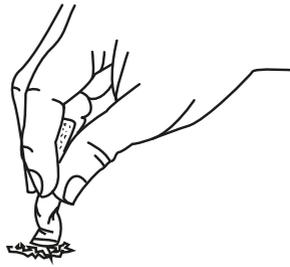
In this study, tapping behaviour increased whilst the prize draw was offered and continued post draw, only returning back to control levels by end of the school term.

Further, it mostly seemed to strengthen weak habits of tapping on and off, making students more consistent. The prize draw did not change the behaviour of students who had not been using their Opal card at all prior to the trial.

**Win \$500**  
by simply  
**tapping on and tapping off**  
your School Opal card

We'd like you to use your School Opal card travelling to and from school. Every time you tap on and tap off between 15 October to 16 November 2018, you go into the draw to win.  
Visit [transportnsw.info/studentcomp](http://transportnsw.info/studentcomp)

## SECTION 3: Why habits are hard to break



Much of our lives are governed not by our conscious decisions or thoughts, but by our habits. Once embedded the very stickiness of habits means they're tenacious and hard to dislodge. And even if we are aware that they are bad for us we find it difficult to stop doing them. In 1954, Iain Macleod the UK Health Minister of the time and habitual smoker, famously chain-smoked through a press conference about the dangers of smoking and lung cancer, despite being convinced of the link between the two.

We can also be quite unaware that some of our actions are habitual. For example, we might make a cup of tea and add a couple of biscuits on the side (not realising that we add that couple of biscuits every time we make a cup of tea), or we might unknowingly use particular expressions so often that we drive other people mad (if we were ever to read a transcript of our conversations we'd probably be horrified to hear the number of 'you knows' or 'likes' or 'super-this', 'super-that' that punctuate our everyday lexicon), or each morning

at work we might find ourselves 'unable to function' without a first cup of coffee. These are all habitual behaviours that have become fixed in our neurological patterning. Sometimes our habits are so embedded in our subconscious that they get us running on autopilot. When we're driving a familiar route, for instance, we might have no conscious recollection of any details of the journey, or trolleying our pre-ordained circuit of the supermarket we probably won't notice anything about the other people we pass and we're totally thrown if the layout of the store and product display has been altered.

There are strategies we can apply to help to break habits and change our ways for the better once we understand the trigger, routine and reward looping of our habits. And our awareness of unconscious, habitual behaviour can also be heightened by the use of clever, innovative design which can surface our habits- moving them from our subconscious to our conscious mind. We look at a few innovations below.

### 3.1 CASE STUDIES OF BREAKING A HABIT

#### 1: The honking habit

Anyone who has visited India will know that the urban roads are crazy and chaotic. Drivers are in the habit of using car horns frequently (for almost every occasion in fact) often ‘honking’ to signal driver intention or simply their presence on the road, rather than in anger, and this obviously creates a noisy, frustrating driving experience. Decibel levels are often well past the threshold for human pain. Anti-honking campaigns to raise awareness have failed in the past and Audi responded to the honking problem by making their car horns both louder and more capable of withstanding the driving demands of the Indian consumer. Audi’s India head Michael Perschke said “You take a European horn and it will be gone in a week or two. With the amount of honking in Mumbai, we do on a daily basis what an average German does on an annual basis.”

Whilst drivers may well feel safer on the road if they can honk to announce their presence on it, there is a growing problem of hearing loss in urban centres in India and traffic noise is responsible for much of it. One study into the problem showed that 75% of traffic officers in Southern Indian cities had permanent damage to their hearing caused by their daily exposure to traffic. So no harm then in the work of Indian branding and behavioural design consultancy, Briefcase, who tested a more behaviourally orientated solution to this problem by attempting to reduce honking. Their aim was simply to make drivers more aware when they had



honked. They worked with Honda to add a simple red button to the dashboard. When drivers honked their horn, this button beeped and flashed continuously until they turned it off. They also printed a little frowning face on the button. They added this design to a set of Honda City and Honda Swift cars which they then tested with 30 drivers over 6 months. The Horn Reduction System reduced honking for all drivers by an impressive 61% on average. The designers speculated that this removed much of the indiscriminate, unnecessary honking from the driver. (Watch Briefcase’s own animated film below: <http://www.behaviouraldesign.com/2013/06/03/bleep-horn-reduction-system-video/>)

Their design worked, not because it required drivers consciously to reduce the frequency with which they used their car horns, but because it brought the action of honking to the driver’s conscious attention and then disrupted the honking behaviour by making drivers turn off the (annoying) beeping and flashing button in the car. The presence of the frowning face also made use of injunctive social norms – things we know we shouldn’t do in society – to remind drivers that honking their horn was



largely an anti-social action. The device also cleverly tracks how much drivers use the horn – silently observing and tracking behaviour – so usage analysis can rely on actual behaviour rather than subjective self-reports, providing the designers with far more accurate records of behaviour.

Similarly, in Mumbai – one of the most congested cities in the world- Mumbai Police implemented an ingenious initiative to punish honking. Their initiative helped to make drivers more conscious of how much they honked whilst waiting at traffic lights. In Mumbai, a timer counts 90 seconds down to when the lights go green again. So the police installed a decibel sensor to the timer, which reset when honking became too loud – over 85 decibels, making drivers wait even longer for the lights to change. This initiative helped to break drivers' honking habit, by punishing them for it. Rather than any reward, drivers received negative feedback which, if continued for long enough, may help to rewire their habits.

## 2: Mindless eating

Another study looked into the **absent-minded eating of popcorn** at the cinema.

We often eat mindlessly, even when we aren't really hungry. Researchers David Neal and colleagues conducted an experiment to identify the factors that disrupted or maintained the habit of eating popcorn. They took 158 participants into a cinema to watch movie trailers whilst also giving each of them a bucket of stale popcorn to eat. Participants agreed that eating stale popcorn (as opposed to fresh) gave limited satisfaction, but researchers found that how much of the popcorn they ate was dependent on another factor. One group was told to eat the popcorn normally (using their dominant hand) and a second group were asked to eat using their non-dominant hand (so if someone was a right-handed eater, they had to use their left hand to eat the popcorn). They found that those using their non-dominant hand ate significantly less popcorn than those using their dominant hand. It worked because eating with their non-dominant hand was not an automatic, habitual behaviour and so required conscious attention. "Habit change may require interrupting fluid habit execution," the researchers said.



### 3: Let there be light!

Not only do we sometimes mindlessly over eat, but we often needlessly waste energy in the home simply because we are not in the habit of turning off appliances. We habitually leave the TV on standby or forget to turn off a lamp. Design can help by alerting our conscious minds to our neglectful behaviour.

Dr Marc Hassenzahl is Professor for Experience Design at the Folkwang University of Arts in Essen, Germany. He studies non-coercive design and has developed a number of solutions to make us more conscious and aware of our unconscious behaviour.

- One is the ‘Forget-me-not’ light: a reading lamp that has to be periodically touched to stay on, making users conscious of the fact that the light is providing light for them. After being switched on the lamp gradually closes its petals like a flower (see image), and its light slowly dims. If one of the petals is touched the lamp re-opens and shines brightly again.

**“Contemporary design is not used to making things troublesome. We are used to making things convenient. We are used to meeting the needs of our clients whether it is good for them or not. But what we actually need to instil change is ‘friction’.”** ”



Source: Marc Hassenzahl and Matthias Laschke

- Another is the ‘Never Hungry Caterpillar’ - an extension cable that remains still when a TV or similar device is on, but goes nuts when switched to standby, twisting and turning and appearing to writhe in pain and agony. The movement is intended to catch our attention and bring our neglectful behaviour into our consciousness, and it’s a far more effective method than the passive red standby light on the TV. This alternative design creates a visible, movement-based, highly emotional cue to tell us that we are wasting energy. We can almost feel the caterpillar’s pain.

Hassenzahl says “Contemporary design is not used to making things troublesome. We are used to making things convenient. We are used to meeting the needs of our clients whether it is good for them or not. But what we actually need to instil change is ‘friction’.”

## SECTION 4: Just how strong is that habit? How can we measure habit strength?

“ *Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it, you can’t improve it.* ”

H. James. Harrington

We often can’t help but point out the irritating habits of others...‘You never turn the lights off.’, ‘Could you put your dirty plate in the dishwasher once in a while?’, ‘Stop fiddling with your nails, it’s really annoying..’ and so on. Perhaps though, we are less aware of our own habits and couldn’t begin to guess at the routine behaviours that drive people we don’t know particularly well. And that’s not surprising because sticky habits tend to be bedded down deep into automaticity. So how can we measure the strength of a habit and how embedded it is in our routine? Would it shift easily if we tried to dislodge it or is it deeply locked in?

### 4.1 WHY MEASURE HABITS?

Experts involved in behaviour change have realised that it is often useful to be able to measure habit strength- for two main reasons:

- **To obtain a behavioural benchmark:** It’s useful to measure the baseline and get a benchmark of existing behaviour and the strength of habits in order to assess the effectiveness of any behaviour change

intervention to amend (by increasing or decreasing habit strength) or break those habits. Does someone’s behaviour change as a result of a particular intervention and by how much? To what extent can an intervention weaken or strengthen an existing habit? To what extent does it create long-lasting change?

- **To understand how hard we might need to work to shift an habitual behaviour:** What type of intervention is required? How much effort needs to be put into an intervention and for how long? For some individuals it might take more effort to change or bed in new habits – for instance, people living alone often have more habits which are more deeply embedded than those living with other people, probably because the latter have to adapt their routines to others and are simply not able to be so set in their ways. Another crucial question might be when can the intervention be discontinued? For example, a recent working paper by Hunt Allcott and Todd Rogers looked at the energy saving behaviours of households receiving Opower’s Home Energy Reports to see when the changes people make in their energy usage behaviour become fixed. They have found that long term behaviour change usually becomes embedded after a number of months, meaning the specially designed energy reports – which are a little more expensive than standard ones – could be phased out once household energy use habits have been changed for good.

## 4.2 WHAT MEASURES CAN GIVE US AN IDEA ABOUT HABIT STRENGTH?

To measure habits effectively, it helps to look back at the definition of what makes a habit. Behavioural scientists usually define a habit as multifaceted with three key features: **automaticity**, **frequency of repetition** and a **stable context**. And out of all the features, automaticity is – currently at least- considered to be the key determinant of habit strength by behavioural scientists. So these three indicators could be a good starting point. Beyond these, there may be a couple of other useful things to look at: the existence of a **reward** and whether someone considers a routine or habitual behaviour to be part of their **identity**.



- **Automaticity** – How automatic a behaviour becomes is now considered to be a far better indicator of habit strength than frequency of past behaviour and whether a behaviour is fully embedded. Automaticity exists when the behaviour is unintentional or uncontrollable and if we do not consciously initiate it but simply find ourselves doing it or having done it. Automaticity is also present when other tasks and actions are able to be performed alongside the habitual behaviour in such a way as to make us

more efficient (automaticity enables multi-tasking), or if we can think about other things whilst performing that behaviour. So measuring these indicators is an essential part of estimating habit strength.



- **Frequency of repetition** – This usually means the frequency of past repetition, or the number of times daily or weekly the behaviour is carried out. The first measures of habit relied solely on a history of repetition or frequency of past behaviour, but experts now generally agree that this is a limited and potentially misdirecting measure. For example, a doctor might send many patients to the operating table, but you'd hope that the doctor doesn't make a habit of this behaviour, and rather, is making a conscious, carefully-thought out decision. Habit strength might also vary even though the frequency of behaviour remains the same. For example, someone taking a daily pill might initially take the medication as a conscious and deliberate action (ie with no habit), but after several weeks they may have developed a strong habit so that the behaviour has become automatic. The frequency of behaviour- the regular daily pill- has stayed constant throughout, however.



- **Stable context** – Performing a behaviour in the same context each time is often a key feature of habit. The context might be the physical location or environment, the social context, or a particular time of day. The context acts as the trigger or cue to initiate the behaviour and so can help to build or be indicative of a habit and therefore worth recording. However, it may not always indicate habit strength. There are plenty of engrained habits that are prompted by the context- finding ourselves in the kitchen in the morning we might automatically fill the kettle, once we get to the gym we set about our standard routine without giving it much thought (most likely heading for the same machine if we can get it), we also tend to route ourselves repetitively around the supermarket aisles, and there are undoubtedly myriad other activities we embark upon triggered by context. It may still be useful to collect or record this information, but relying on it as a sole indicator for habit strength could be misleading.



- **Reward or feedback**- The presence of a strong reward, motivation or some sort of feedback created by the behaviour can help to build a habit. However, like context, the presence of a perceived reward may not reliably indicate habit strength. Trying to gauge the size or strength of reward may not translate to strength of habit. There are some habits where the reward may be small or perceived as small by the respondent, or even be subconscious and unrecognised by the respondent. There may be other behaviours with large (perceived) rewards, yet the behaviour may not yet be a habit if the context is unstable or if the rewards are not yet recognised by the respondent. Rewards are often very complex – there could be several which overlap, making them difficult to measure and single out.

As with context, it may still be useful to record this information, but relying on it as a sole indicator for habit strength could be misleading. And measuring rewards is problematic (for the same reasons as we discussed above), particularly for self-report. It may be more effective to simply gauge what rewards exist.



## IDENTITY

- **Identity** is sometimes thought to be influenced by habitual behaviours. We carry out a behaviour, speak in a particular way, or even have certain thought processes or reactions to events which we define as ‘typically us’ and might feel strange if we did not do, or did something else. Moreover, we often seek to be consistent with our past behaviours in order to avoid what psychologists call cognitive dissonance – when we feel discomfort when our attitudes and beliefs do not match our behaviour. For example, research has found that people are more likely to vote if they are reminded of their identity as a past voter. As Bas Verplanken and Sheina Orbell point out “habits are part of how we organize every-day life and thus might reflect a sense of identity or personal style.” Whilst this may not be a factor in all habits, some could define someone and, in their eyes, express their identity, so getting a sense of how much a habit or behaviour is considered part of someone’s identity could be useful. However, some researchers believe that self-identity is not a useful component of habit to measure. Moreover, it could be a tricky thing to assess through self-report – are we really aware of what is ‘typically me’?

“habits are part of how we organize every-day life and thus might reflect a sense of identity or personal style.”

### 4.3 SIMPLE TOOLS TO MEASURE HABIT STRENGTH - THE SELF-REPORT HABIT INDEX

Armed with the five indicators we outlined above- frequency, automaticity, stable context, reward and identity- we can begin to think about how best to measure some or all of these in order to gauge habit strength. Observation can be a reliable and unobtrusive way of measuring, but can sometimes be limited since we can only identify how often something is performed and have to infer from this if a behaviour is actually a habit. Whether the action is automatic is much harder to measure from observation only. So non-obtrusive, simple self-reporting which can get respondents to think reflectively about daily activities can sometimes be a better approach.

One of the most widely recognised self-report measures used by behavioural scientists currently is the Self-Report Habit Index (SRHI). The 12-point SRHI is comprised of questions which assess three of the five elements outlined above:

- 1) Frequency or history of repetition
- 2) Automaticity
- 3) Identity

For each question, respondents answer the degree to which they feel it affects them using a 7-point Likert scale ranging from agree (1) to disagree (7).

## Self-Report Habit Index

	Behaviour X is something...	Habit definition subscale
1	I do frequently	History of repetition
2	I do automatically	Automaticity
3	I do without having to consciously remember	Automaticity
4	that makes me feel weird if I do not do it	Identity
5	I do without thinking	Automaticity
6	that would require effort not to do it	Automaticity
7	that belongs to my (daily, weekly, monthly) routine	History of repetition
8	I start doing before I realise I'm doing it	Automaticity
9	I would find hard not to do	Automaticity
10	I have no need to think about doing	Automaticity
11	that's typically 'me'	Identity
12	I have been doing for a long time	History of repetition

Source: Verplanken and Orbell (2003)



### Automaticity only: The argument for a simpler measure than the SRHI

As with any measure, there are limitations. Respondents are highly likely to get tired of answering a 12 point questionnaire, especially if it needs to be done daily or for different activities. Moreover, because new habits take on average 66 days to form, any measurement of new habit formation needs to be tracked for at least this length of time. This is a long time to engage with respondents! As Phillippa Lally and her colleagues observed during a three month study of habits “It is difficult to assess the extent to which completing the same questions every day affects people’s responses.” Fewer questions (like those testing only for automaticity) might therefore be easier and quicker to answer which could lead to more reliable results.

One solution to this problem could be to measure habits simply through testing a subscale of the SRHI. Several studies and pieces of analysis have revealed that we can get the same results using various subscales using some or all of the 7 items which measure automaticity. For example, Benjamin Gardner at UCL and his colleagues have developed a 4 item automaticity subscale called the Self-

“It is difficult to assess the extent to which completing the same questions every day affects people’s responses.”

Report Behavioural Automaticity Index (SRBAI) and found it to be reliable. They asked seven different social or health psychology researchers with expertise in social cognition (but little knowledge of habit theory) to give their views on which of the 12 elements were most crucial. Items 2, 3, 5 and 8 were most confidently and consistently judged to capture automaticity:

- I do automatically
- I do without having to consciously remember
- I do without thinking
- I start doing before I realise I’m doing it

They then took four existing studies of habits (car commuting, cycle commuting, snacking and alcohol consumption), using the full datasets from the SRHIs and compared the full 12-item score with their 4-item SRBAI score. For all four datasets, the SRBAI score was strongly correlated with the original SRHI and was deemed to be a worthy and equal substitution.

### Measuring habits in practice

Of course, the SRHI is quite long and whilst it may be suitable for an academic study, in practice, it may be too time consuming to use in an applied setting. So in 2016, The Behavioural Architects worked with Sport England to develop and adapt a version of this shortened questionnaire in order to measure physical activity habits of responders



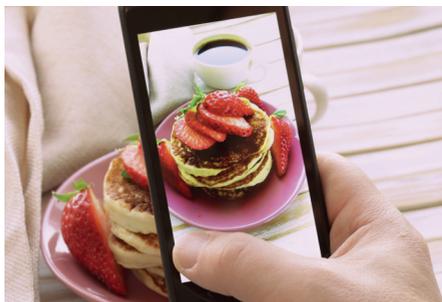
to the organisation's Active Lives survey. This survey assesses how much exercise and physical activity is part of people's lives. Including questions to measure the strength of people's exercise habits would allow Sport England greater insight into what can aid and support people to develop a strong habit.

We suggested adapting the SRHI into a shorter version, measuring automaticity, identity and history of repetition in just 3 or 4 questions. After testing, Sport England settled on the following three questions:

To what extent do you agree or disagree with these statements?

- A. The activity is part of my routine (history of repetition).
- B. I don't need to think about whether to do the activity – I just do it (automaticity).
- C. The activity is typically me (identity).

Using only these three, simple questions, Sport England has been better able to gauge the strength of people's exercise habits, and better understand them so they can work towards Sport England's mission to get more people active and reduce health inequalities.



### Can we build an even better measure? Food for thought

At The Behavioural Architects we take the tools described above as a starting point, and have been applying other techniques used in behavioural science to increase the reliability of self-reporting. For example:

- Could the SRHI questionnaire be 'chunked' into a number of more manageable sections? Just changing the layout and way the questions are asked could improve responses
- Could the 7 point Likert scale be simplified and narrowed, reducing choice overload, yet still produce the same results?
- A specially-designed smartphone or tablet app might also improve ease of use and reduce any potential barriers to reporting.
- Online and mobile research could also be an advantage in increasing the reliability of self-reporting. Prompting respondents as they are performing the behaviour in the moment could likely lead to more accurate and regular reporting.

As any good researcher knows, self-report may also be a problem. Respondents might want to appear consistent or

committed to building the habit or provide answers which they believe to be socially desirable or fit with the perceived norm.

In this case, ways in which we can simply observe the level of repetition and frequency may be better. For example, simple ethnographic observation might be a good solution or via video recording and analysis. These are good for open environments – airports, shopping centres, roads, but are more difficult to run in-home.

For in-home tracking we might instead use technological devices to track behaviour and measure habit strength. For example, Unilever designed a toothbrush containing an accelerometer and gave this to a set of consumers to track how often and for how long they brushed their teeth.



Similarly, Dr Val Curtis at the London School of Hygiene and Tropical Medicine carried out a study to observe the habit of handwashing. She installed wireless sensors in motorway service station toilets – a movement sensor at the doorway and a second sensor in the soap dispenser – and found that of the 330,000 people using the toilets, a disturbing 32% of men and much more heartening 64% of women washed their hands with soap. By observing the regularity by

which consumers were brushing their teeth or washing their hands, we might well be able to deduce the strength of habit, or at least whether a habit was firmly established – all without asking people a single question. This type of research also allows for much larger sample sizes too. There is also more advanced technology. Curtis and her colleague Bob Aunger have also been developing Real-Time-Location-System (RTLS) Monitors – a ‘smart home’ system that enables detection of behaviours in the home and other frequently visited places.

Technology in the form of smartphone apps may also be able to start observing behaviour unobtrusively and yet accurately too. Apps are increasingly capable of achieving all sorts of things – from measuring our exercise behaviour and sleep routines to being able to tell us whether we have anaemia, skin cancer or breathing problems. So the possibility of tracking and recording other behaviours – and even measuring automaticity- is not unrealistic.

## Conclusion

Thinking more deeply about the strength of habits or, put another way, the potential difficulty of achieving the behavioural change we desire, will allow us to look at a behavioural task with our eyes wide open and will also deliver deeper behavioural insight. The framework around repetition, automaticity and identity empowers us with a meaningful architecture within which to explore habits and measure them. Good measurement is the first step to understanding, providing us with a benchmark and reference point for comparison, as well as enabling us to gauge what factors might be driving a routine.

## FURTHER READING

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# The Behavioural Architects

The Behavioural Architects (TBA) is an award-winning global insight, research and consultancy business with behavioural science at its core. It was founded in 2011 by Crawford Hollingworth, Sian Davies and Sarah Davies.

The company was one of the first agencies built around the new insights coming from the behavioural sciences. This new thinking has inspired them to develop powerful frameworks that fuel deeper understanding of consumer behaviour and behaviour change.

TBA has offices in London, Oxford, Sydney, Melbourne, Shanghai and New York and has worked with many global corporations, NGOs and governments, reinvigorating traditional research methodologies alongside pioneering new ones. Their aim is to make behavioural insights both accessible and actionable for clients.

The Behavioural Architects invests heavily in its core intelligence team dedicated to supporting its global teams, keeping them up to speed with developments in the behavioural science field; from both the academic arena and among top practitioners.

In 2019 TBA won Best Presentation at the Market Research Society's (MRS) Annual Conference Awards and ESOMAR's Best Global Paper, as well as being a finalist for AURA's 2019 Award for Most Inspiring Agency Speaker. Previous awards include winning the AQR Prosper Riley-Smith Qualitative Excellence Award in 2018, the highly competitive MRS Best Place to Work in 2015 and MRS Best New Agency in 2013.

For more information, please visit [www.thebearchitected.com](http://www.thebearchitected.com)

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Crawford Hollingworth is co-Founder of The Behavioural Architects, launched in 2011 with co-Founders Sian Davies and Sarah Davies. He was also founder of HeadlightVision in London and New York, a behavioural trends research consultancy. HeadlightVision was acquired by WPP in 2003. He has written and spoken widely on the subject of behavioural economics for various institutions and publications, including the Market Research Society, Marketing Society, Market Leader, Aura, AQR, London Business School and Impact magazine. Crawford is a Fellow of The Marketing Society and Royal Society of Arts.



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