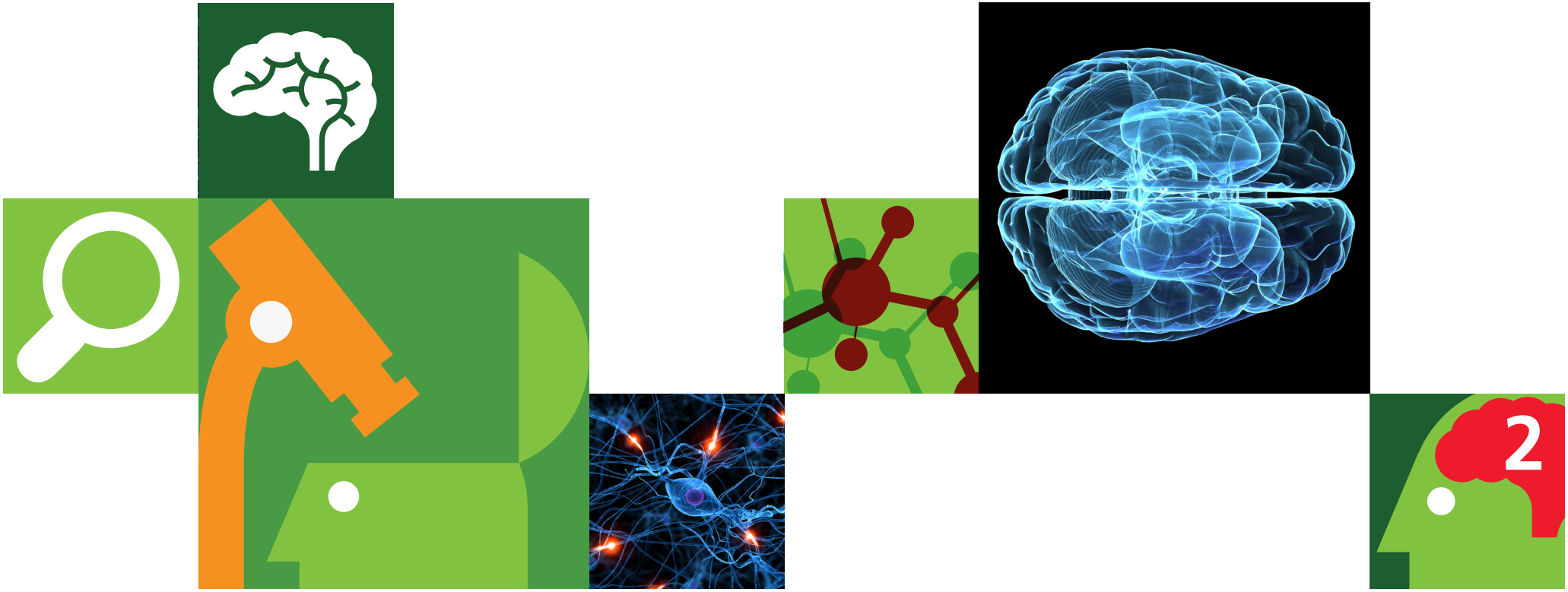
Brain Game

The secret life of the brain



The human brain has developed a hugely efficient way of getting us through life – but its management style means that we are often unaware of why we act the way we do.

The secret life of the brain

New discoveries revealing how the brain really decides have important implications for anyone involved in influencing and understanding human behaviour. In the first of a series of articles, we look at the challenge of understanding the unconscious rules of thumb that govern our daily lives.

Human beings like to think of other humans as rational creatures, that make logical choices and understand why they behave the way that they do. Fortunately for the survival and sanity of our species, we're wrong.

The human brain is certainly capable of spectacularly rational thought. Moments of supreme logical deduction have helped us to grasp the physical laws of the universe and our planet, expanded our understanding of ourselves, put men on the moon and much more besides. But if we spent our lives operating with the same parts of the brain that delivered such achievements, we'd have been wiped out long before they took place: gobbled up by lions and leopards whilst we balanced the relative merits of climbing a tree or running; or starving to death trying to work out which berries and leaves were safe to eat. Even if we'd somehow made it into the 21st century, a trip to the supermarket would be enough to finish us off, as we stood in aisles for hours on end attempting to figure out a rational way to compare breakfast cereals.

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Who's in charge here?
Thankfully, the human brain works in a far more efficient way. As K.E. Stanovich and R.F. West first described in a seminal paper of the year 2000 (and Daniel Kahneman helped to make famous in his landmark book, Thinking, Fast and Slow), we have broadly speaking, two forms of consciousness, two ways of using our brain. We reserve the slow, resource-heavy and exhaustively rational part that Stanovich and West termed System 2 only for occasions when we really, really need it. It is to System 1, our intuitive, unconscious self, that the task of running our day-to-day lives is delegated – and System 1 performs it using our limited brain resources as efficiently and rapidly as possible. Fast and frugal heuristics, shortcuts that cut down on the need for brain time, epitomise the way that System 1 goes about things. A heuristic can best be understood as a rule of thumb; a means of approximating what the best course of action is likely to be, without the need to consider options in any more detail than is necessary: always run when you hear a noise behind you, eat red berries rather than green ones, cereals without cartoons on the box are better for your heart, and so on. The heuristics that System 1 uses form part of an ongoing model of the world that has a near-instant answer to most situations that we encounter. Only when System 1 encounters a new situation that doesn't fit into this model does it encourage the slow-moving, energy-intensive resources of System 2 to get involved.

Time's flying
One of the symptoms of this division of brain resources is particularly familiar for humans in their late 30s and beyond: the sense of time flying by faster as we get older. Depressingly, this happens because we encounter less that is genuinely new to us. The fewer novel situations that we encounter, the less System 2 gets involved in our daily lives, the less our rational consciousness is engaged with what we are doing and the less sense our brain has of time passing.

The economist Herbert Simon referred to this system of putting bounds on our use of reasoning as "satisficing" (a term coined from fusing "satisfy" with "suffice"). When satisficing, we focus only on finding a solution that's good enough for our needs, and avoid exhausting ourselves trying to find the best possible course of action. Rationing our brain resources in this way gets us through life incredibly efficiently whilst allowing System 2 to focus on the tasks that really require it, such as working out a complicated cost-benefit analysis for example. For much of the time, System 2 isn't actually involved in decision-making at all. However, it has a monopoly on the task of explaining what we do and why we do it – both to ourselves and others. This means that System 2 often has the job of coming up with explanations for decisions that it wasn't actually involved in.

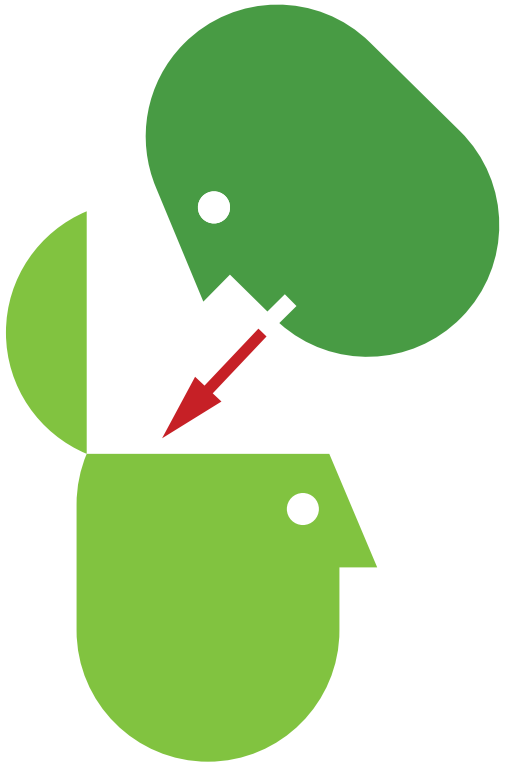
Rory Sutherland, the vice chairman of Ogilvy, has a handy metaphor that captures the relationship between the two elements of our consciousness. System 2 thinks it's the Oval Office, but it's actually the Press Office. It genuinely believes that it makes all decisions, whereas in many cases it is simply spinning them in a way that seems logical. A kinder analogy may be a company Chairman who has set corporate strategy in the past (since System 2's rational thought helps set the framework for the way System 1 operates) but has little idea how it is being executed in the present. System 2 monitors our unconscious behaviour and it can step in very effectively when needed. But it struggles to distinguish between the times it decided – and the times it simply fitted an explanation to a decision System 1 had already taken.

Talking to the wrong brain
This creates a huge problem for marketers and researchers because System 2 is the consciousness they invoke when asking consumers what they plan to do and why they did what they did – and therefore the consciousness that they build brand propositions and advertising strategies around. Yet in answering their questions, System 2 is often struggling to explain decisions that it had no immediate part in.

The dilemma is this: when we ask System 1-related questions of the System 2 brain, we risk inviting unreliability; yet it is no easy matter to get answers out of System 1 instead. System 1 does decisions – it doesn't really do self-expression. As a result, the vast majority of brand research engages System 2, whilst lots of brand decisions don't engage System 2 at all.

We see the symptoms of these difficulties throughout brand tracking research. One example is mutually compensating error by which aggregate measures of purchase intent appear roughly correct thanks to roughly equal numbers of respondents giving the opposite wrong answers. The inherent dynamism of markets is another clue. Consumers constantly shift spend between a repertoire of brands rather than making the consistent choices that we might expect if decisions were based on applied, reasoned thought.

In order to get to the truth about how the brain works – and therefore the real strengths, weaknesses and opportunities for brands – we need to adapt our approach in two ways. Firstly, we must avoid asking questions in ways that invite System 2 to explain our unconscious decision processes; secondly, we have to grapple with the chemical and biological processes taking place within our System 1 brain in order to get to the bottom of what's really going on.



Cutting out the spin doctor

The first task is potentially the simplest. And TNS has already done extensive work re-engineering brand tracker surveys to avoid System 2 giving well-intentioned but misleading answers. This involves ruthlessly focusing on the metrics that actually relate to the way the brain works, and therefore correlate better with actual behaviour.

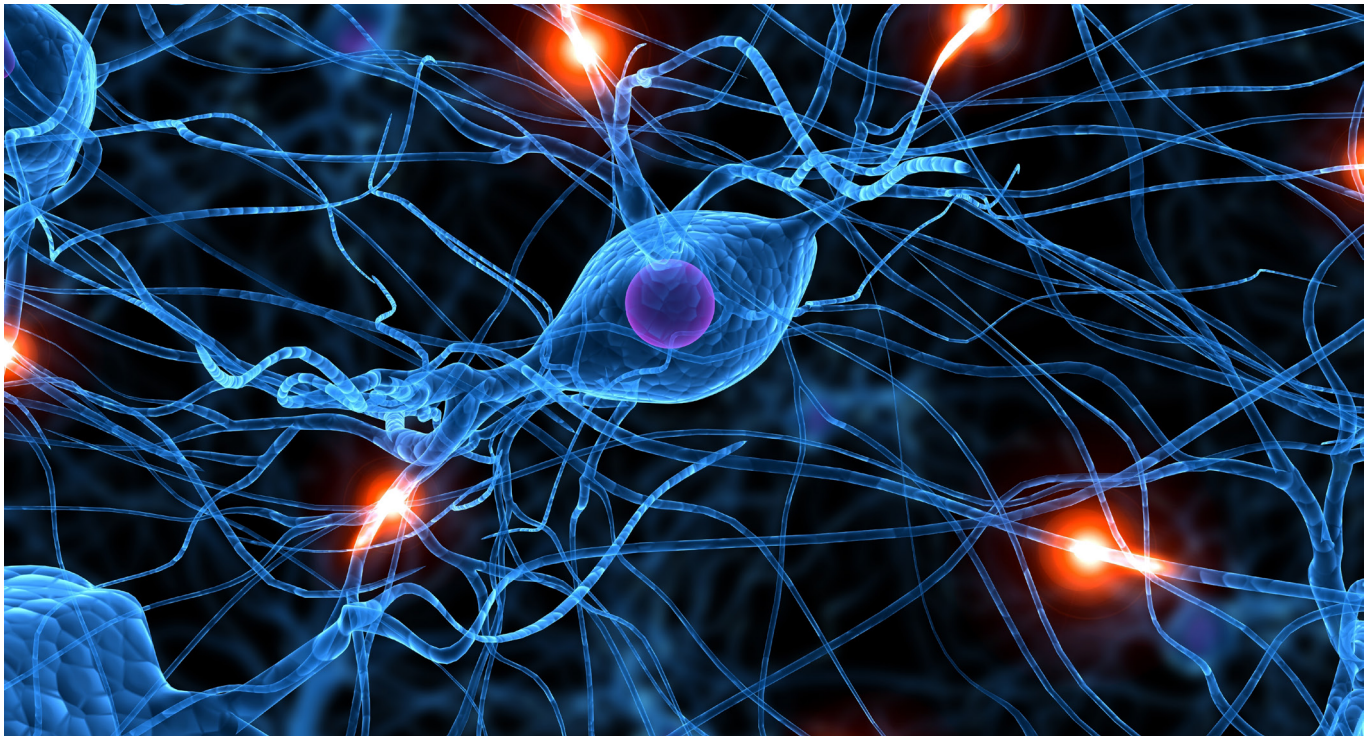
A great example is measurement of brand awareness, a staple of brand tracker surveys. Unprompted awareness tells us a great deal more about consumers' likely recognition of brands and the purchase decisions they will make than aided awareness, which relies on System 2 activity in order to bring a brand to mind. Unsurprisingly, spontaneous awareness correlates far better with actual behaviour than aided awareness. The simple and obvious solution is to cut aided awareness questions out of tracker surveys – and not give System 2 the chance to start spinning about decisions it has little immediate role in. We find the same pattern when respondents are asked to rank brands: knowing which brand is ranked number 1 on satisfaction is far more valuable in predicting future behaviour than knowing which brands are ranked 2, 3, 4 and lower. System 1 is far less likely to consider such options when making its rule-of-thumb decisions, and by carefully amassing such marginal information, researchers are simply diluting the data that actually matters.

So much for reducing System 2's influence on our understanding of System 1 decisions; the second part of the challenge is the more complex one: getting to the bottom of how System 1 actually works. This requires researchers to leave the rational consciousness behind and look in more detail at the chemical processes that take place in the brain.

Into the System 1 world

The heuristics through which System 1 makes many decisions are reinforced by affective memory structures; networks of neurons that are associated with things the brain recognises in the outside world, and with the emotions that it feels in response to them. Because the connections between neurons in the brain decay over time, these patterns are inherently unstable and potentially unpredictable. However, not all neural connections are created equal; some are both stronger and more durable than others. This is particularly true of connections between neurons that are activated together over a longer period of time (a process known as Long Term Potentiation) or during arousing or emotive experiences that release connection-strengthening chemicals (fear, anger and sex are good examples).

The relative strength of neural connections matters, not just because stronger neural connections last longer, but because they transmit faster. This triggers a faster activation of the memories or experiences associated with them, and ensures they get more attention from the brain. It's a natural neurological platform for heuristic decision-making, because it inevitably prioritises one form of pattern or association over another in a given situation.



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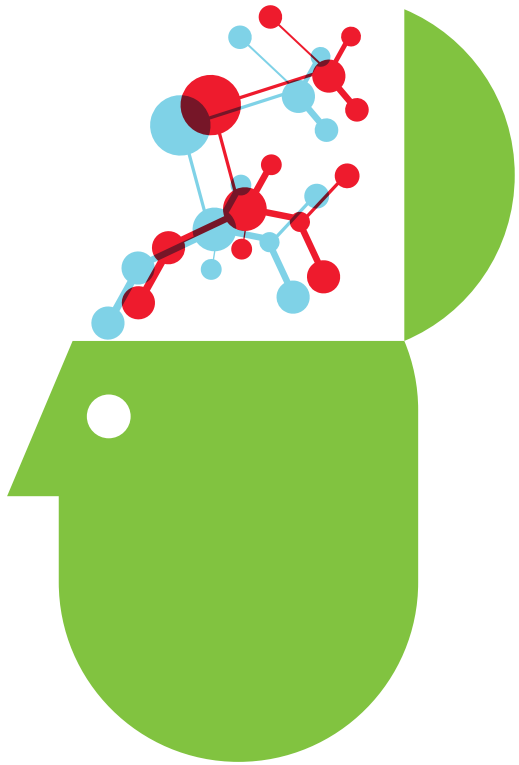
Brain chemistry in action

We see the relative strength of neural connections at work in many of the most frequent heuristics followed by consumers. Familiarity bias is a heuristic that results from the regular reinforcing of neural connections through repeated exposure or the regular repeating of an action. Over time, this favours the activation of specific associations over other, less familiar ones. For a shopper in a supermarket, this might involve buying exactly the same brand and type of shampoo every time that they visit – something that sales data tells us happens 45 percent of the time. However, because the neural connections biasing this choice are not permanent, familiarity bias cannot be relied upon if the reinforcement is not maintained. While the most regular users of a brand are most likely to maintain their level of usage the following year, consumers who use the brand on a less frequent basis are more likely to drop it from their repertoire altogether. We see the results of this in shifting share of wallet patterns.

The relative strength of different neuron networks can create an attentional spotlight that focuses on one element in decision making to the exclusion of others. This can happen unconsciously, as when our brain is primed to focus on different things in different environments (making us unable to see items that are out of place in a supermarket shelf, for example); or consciously, when we have made a decision to focus on a heuristic such as price.

When focusing on a single heuristic, we invoke Gigerenzer's Stopping Rules, whereby our decision-making uses a small, manageable combination of attributes to differentiate our choices – and then stops as soon as it finds the choice that wins on that basis. When comparing prices, for example, we don't waste brain time weighing up the detailed characteristics of each product; instead, we quickly approximate which seems to offer the best relative value. Given the speedy nature of this decision making, tactics such as anchoring to lower numbers (pricing at £3.99 rather than £4, for example) can be highly effective.



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System 1 strategy

Once brands and marketers are armed with an understanding of how the System 1 brain operates, they can start to develop effective strategies for influencing it. This can involve ensuring competitiveness on the heuristics that are most influential for their category – or alternatively, hijacking the heuristic process by creating and triggering powerful affective memories in the brain that demand even more attention.

The importance of repeated experience in reinforcing neural connections means that factors such as availability, affordability and distribution are hugely important to brands' true strength in the market. Products that consumers see and have the opportunity to buy regularly have far more opportunity to reinforce relevant networks of neurons and benefit from cognitive biases like familiarity. On the other hand, a product that is out of sight through lack of distribution, or never bought through lack of affordability, could easily drop out of mind.

Reinforcing affective memory structures through repeated use is far from the only means of strengthening them, however. Flooding the brain with relevant chemicals, known as neurotransmitters, helps to build strong and durable connections – and ensures that a brand grabs more of System 1's attention when it is encountered. Let's take an unashamedly sexist approach to lager advertising as an example. A brand's ads show its lager alongside scantily clad young women, firing off neurotransmitters in sex-sensitive areas of the brains of the young men who see the ad, and creating stronger affective memory patterns as a result. When these same young men next walk past the brand in a bar or supermarket, these affective memories fire up far faster than those triggered by rival brands thanks to the benefits of heavily reinforced neural connections. The brand leaps out at the consumer and stands an increased chance of ending up in their shopping basket or pint glass.

Firing the chemicals that can create stronger affective memory structures can and should be a priority for creative briefs: agencies that can consistently develop TV ads with sexy casts and terrifyingly, unpredictable and hilarious endings (releasing neurotransmitting chemicals through fear, humour and surprise) should be worth their weight in gold.

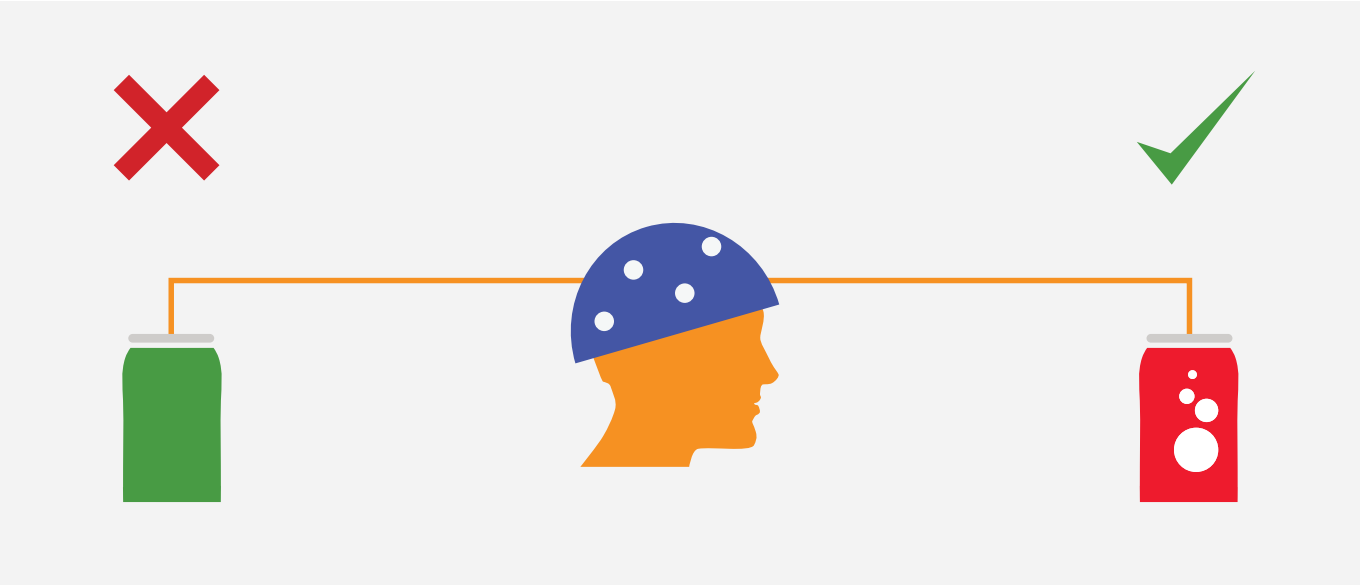
Personal experience remains the most powerful force for creating neural connections, however – and the impact of strongly positive personal experience is generally likely to bias consumers towards choosing the same brand again. This

interaction between brands and experience can work in both directions, with the presence of a brand itself firing off networks of neurons that cause a consumer to enjoy it more. EEG analysis shows that drinks really do taste better in the brains of consumers when they come from a branded container, for example. Interestingly, the experiences of other people, particularly trusted friends or family, can themselves help to form stronger affective patterns, attaching considerable value to positive word-of-mouth from these sources. The experience that guides System 1 decisions isn't always a consumer's own.

Which thumb are you using?

Despite the tools that brands have at their disposal for influencing the System 1 brain, the importance of heuristics in day-to-day decision-making still leaves them with a dilemma. We know that in many situations, we unconsciously prioritise one rule of thumb over all others; the trick is in establishing which rule of thumb is likely to predominate for a given brand, consumer and context. Research has a crucial role to play in establishing the heuristics that brands should be focusing on in their relationships to consumers and the most effective means of establishing affective memories that can bias choice in their favour.

However, to do so successfully, it must commit to looking beyond the traditional approach, avoid engaging in rational dialogue about instinctive choices – and remember that the real action is often taking place elsewhere in the brain. We will look at further implications of such brain activity for brands in later articles in this series.



Glossary of key terms

Affect:
Affect refers to the perceptible and imperceptible physical processes in the body that are brought about by the release of specific chemicals in response to particularly arousing or salient stimuli, or by the recollection of emotive memories. Affect generally helps us make efficient decisions by helping our brains focus on the stimuli, memories and experiences that are important for our survival.

Cognitive bias:
A consistent mental deviation from purely rational judgement in the interpretation and storage of information and experiences; sometimes due to evolutionary predispotions that have evolved over millennia and sometimes due to individuals' limited processing power.

Emotion:
A response of the brain to circumstances and events, which involves a more conscious, identifiable mental feeling than affect. Many psychologists describe emotions as resulting from the interplay between affective reactions and cognitive thought processes.

Heuristic:
A heuristic is a rule of thumb. They are often applied used in problem solving to limit the amount of detailed reasoning required by making decisions based on a limited set of criteria (or heuristics). Heuristics can be useful for rapidly approximating what the best course of action is likely to be in a specific scenario. Decision makers can adopt heuristic techniques both consciously and unconsciously.

Long-term Potentiation (LTP):
The process by which "neurons that fire together, wire together". Long-term Potentiation occurs when neurons that are stimulated together over an extended period of time develop a long-lasting, enhanced ability to transmit impulses to one another in the future.

Neuron:
A nerve cell, within the brain or elsewhere in the body, that is involved in the processing of information and the control of body functions, amongst other things. Also known as a 'nerve'.

Neurotransmitter:
A chemical substance that plays a pivotal role in transferring impulses from one neuron to another within the brain (as well as between other nerve cells in the body). The neurotransmitter is released by a nerve impulse and diffuses across the tiny gap (or synapse) between neurons, to trigger the same impulse in other neurons.

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About the author

Kyle Findlay is a Senior R&D Executive at the TNS Global Brand Equity Centre (GBEC) in Cape Town, South Africa. The GBEC develops and supports brand and communications thinking and solutions within TNS. Kyle has been intimately involved in the development of solutions such as the ConversionModel and models of consumer influence.

Kyle's work feeds his passion for uncovering what makes people tick and sharing it with others. He has a strong desire to bring the hard sciences to bear on the question of why people do what they do. This passion has encouraged him to delve into specific scientific areas such as neuroscience, network theory and big data to produce international award-winning papers in some of these areas.

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