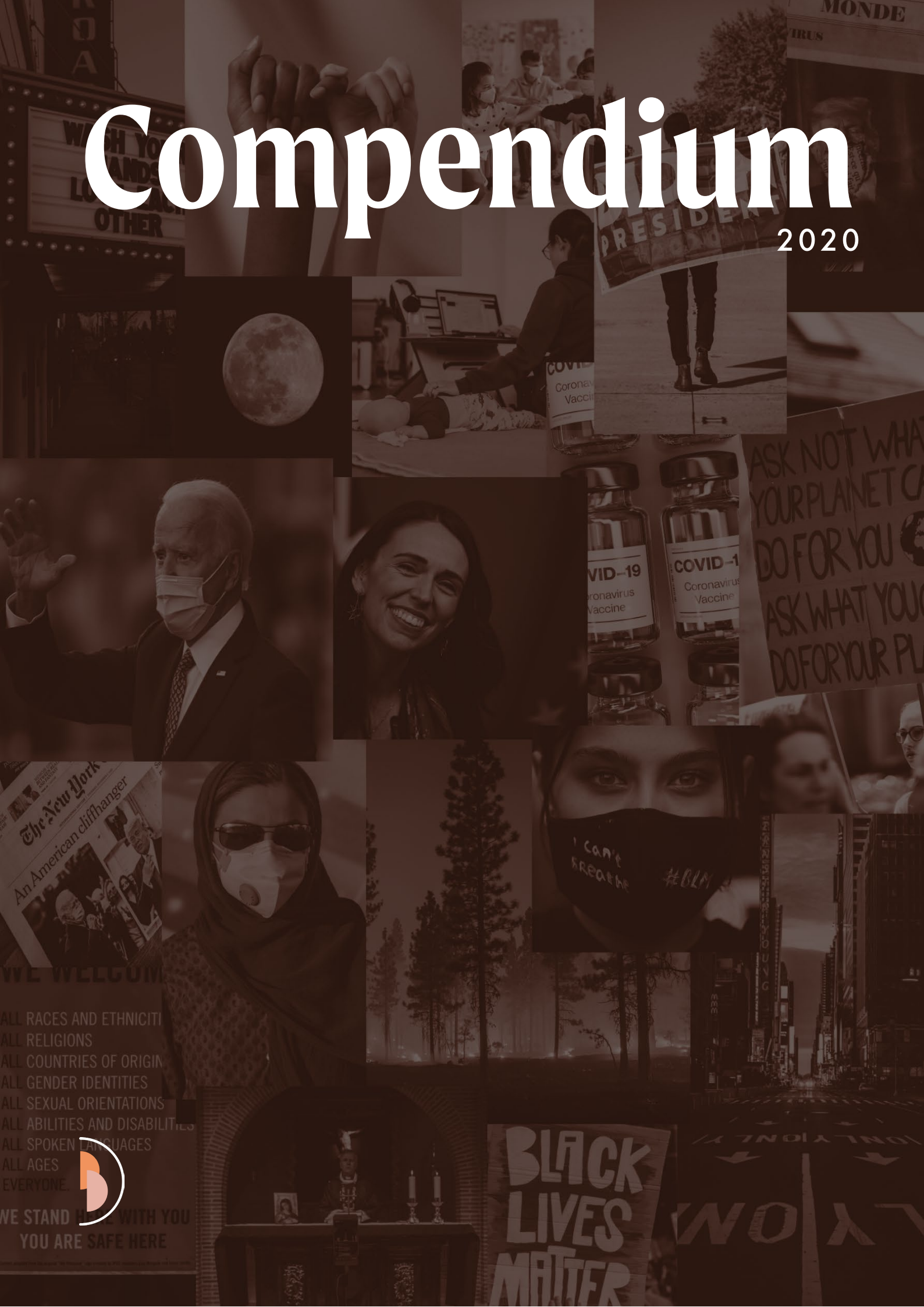
Compendium

2020



DIVERSIFI

Annual Compendium

volume 1

Introducing Diversifi

Diversifi, as the name suggests, aims to bring together diverse perspectives and voices from the world of Behavioural Science. Instead of focusing on a "one size fits all" approach, Diversifi seeks to embrace the multiculturalism and messiness in studying human behaviour. If there is one thing we have learnt from this tumultuous year, it is that culture-specific and personalised interventions are the future of BeSci. True to its name, the Diversifi compendium is an eclectic collection of case studies, opinion pieces and work summaries from BeSci practitioners in the UK, USA, India, Africa, South Africa, Australia, New Zealand and the Netherlands.

More details about the team and Diversifi can be found at: diversifiglobal.com.

If you would like to connect with the team or be involved in any future endeavours, please contact us at: jezgroom@cowryconsulting.com.

Letter from the editor

Diversifi celebrates difference.
Differences in the way we think.
Differences in the way we act.

There is no doubt that context sets behaviour and culture is fundamental to context. And that's why we think it's essential that as behavioural science grows in importance, we recognise the unique differences as well as similarities that we share across the world.

In this inaugural annual compendium from the members of the Diversifi network, we aim to bring a wide ranging collection of thought pieces, case studies and innovations from as many different places and authors as possible.

Weird Psychology, Weird Marketing: Society shapes us and how does a culture of individualism vs collectivism influence our decision making?

A Tale of Trash and Two Travellers: How zooming out of the problem at hand and understanding the larger cultural context helped identify effective strategies to encourage waste segregation in Indian households.

Bringing Behavioural Science to Ethics and Compliance:
What lessons have we learnt from the COVID compliance programmes around the world and how to solve human risk challenges in your organisation.

Lessons from COVID about Behaviour Change:
Authority Bias, morals and pratfall effects all combine to drive strong leadership behaviours in some countries across the world.

Zoom Zooms:
How minimising friction in video calls enabled Zoom to quadruple revenues and win out in a year of many losses.

Improving the Uptake and Adherence of Iron Folic Acid IFA Supplements:
Practical experimentation with women in India to understand how best to communicate the benefits and side effects of medication.

The Behavioural Fingerprint:
How human learning and machine learning combine to create a fingerprint for the factors that hinder behaviour and critically, the factors that promote us all to do better.

3 Little Cups:
Nudging sales back to growth in a Swedish smoothie bar from the other side of the world in Australia, Byron Bay.

Behavioral Grooves:
The top 5 podcasts highlighted from the hosts themselves - Kurt and Tim!

Helping Companies Communicate More Effectively (i.e., more humanly):
How employee focussed videos beat PowerPoint presentations to increase productivity and payouts.

How to Build an App That Practices Getting Rich:
Moneyverbs, the app that is growing at triple digit rates.

Advancing Global Evidence for Local Practice:
How voter turnout strategies in Maori culture was stress tested in New Zealand.

Is Behavioural Science Reaching a Local Maximum:
An essay on the evolution of Behavioural Science, whether innovation is stalling, and what we can do as practitioners to progress the field further.

And that rounds off the first year of Diversifi members' contributions to the progress of behavioural science into 2021 and beyond. As a collective we're looking to grow our network in LatAM and Asia, grow our combined knowledge through shared application and insights and grow our businesses and organisations to help create career opportunities around the world.

Jez Groom
Diversifi Secretary
& Cowry Consulting
Founder, CEO

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CHAPTER *One*

SQUARE PEG INSIGHT

WEIRD Psychology, WEIRD Marketing?

Elina Halonen
Netherlands

Although there are few experiences in history as truly global as COVID-19, we have seen from the differing reactions from governments and citizens around the world that there are significant differences in how we react to the situation. Cultural context affects us in a myriad of ways that go deeper than attitudes, beliefs and customs, influencing consumer behaviour in unexpected ways – yet it is not always addressed in marketing knowledge.

How psychological dimensions of culture influence consumer decision making

The goal of marketing is to change consumers' behaviour in ways that is beneficial to the company and as such, is fundamentally based on psychology. Much of marketing theory is created in the USA – many popular textbooks are by American authors, and new ideas frequently originate there.

In psychology, the story is similar: 96% of our knowledge of the human mind and behaviour are based on 12% of the world's population of so-called WEIRD samples – Western, Educated people living in Industrialised, Rich and Democratic countries – and 2/3 of the 12% are Americans.

Over the past 30 years, research in cross-cultural psychology has gathered a mountain of evidence on how we differ on even such fundamental things as what we pay attention to and how we perceive colour. Even though marketing strategies might be localised to some extent, they are based on an implicit model of universal human decision making which is typically Western.

Much of marketing theory is created in the USA – many popular textbooks are by American authors, and new ideas frequently originate there.

PART 1

Why Culture Matters

Culture has a profound influence on all aspects of human behaviour – it shapes our reality like a 'blueprint' that specifies an appropriate plan of action. Human decision making is influenced by ecology, economies, societal structures, language, social norms, pace of life as well as how we relate to others. As we navigate through the world from childhood onwards, we learn logical rules to solve recurring problems in our lives - and while our desired destination is often the same, the road we take might be different.

Many books have been written on how to negotiate or communicate across cultures, and it is not controversial to suggest people differ in their values, beliefs, and manners. Yet we tend to assume that the differences are mostly on the surface, and deep down our minds work the same way – in other words, there might be differences in the content of our minds, but the processes are similar.

PART 2

Individualism vs Collectivism

Cultural differences exist in many dimensions, but the most common and widely studied one is known as individualism vs. collectivism when describing countries or societies that promote two kinds of ways of relating to other people: independent or interdependent social orientations.

In Western countries, we tend to have a more independent view of the self, which means that we see ourselves separate from even those who are closest to us like our family – we might be close to them, but the boundaries between people are still strong. We prioritise our personal needs and goals – other people's views do matter, but personal preferences guide our choices above all else. We also have a strong desire to be unique and different. Our identities are based on our inner attributes – we are hardworking, creative, adventurous – which are the same in different situations and across our lifespan, directing our behaviour.

On the other hand, in non-Western countries people tend to have a more interdependent view of self which means that the boundaries between people are not as clear. Interdependent selves are more connected to others – people understand that their behavior is influenced by the perceptions of other people's thoughts, feelings, and actions, they pay attention to how their behavior affects other people, and they consider their roles within each social context.

The interdependent self is not a separate entity but instead embedded in a larger social group. Social norms are already integrated into their preferences, whereas for independent selves that is something external - and usually seen as negative. In other words, social norms and other people's expectations are often a stronger influence on behaviour than personal preferences in non-Western countries.

When we think of consumer behaviour, those with a stronger interdependent self are more interested in knowing what other people buy and naturally integrate the views of others into their own preferences - especially if they do not have strong views themselves. Adjusting to these norms is not a struggle, nor is it seen as a weakness to take others' views into consideration – you are not a doormat, because this helps to fit in with others and foster group harmony.

Those of us with a stronger interdependent self will be aware of social norms, but our behaviour is mostly influenced by what we personally want to do – we are subtly trained from childhood to pay a lot of attention to our needs and wants, and our societies continuously reinforce these beliefs.

PART 3

Society Shapes Us

These cultural differences in psychological processes are embedded in our minds and are a product of different societal structures: closely knit societies encourage harmony, loosely knit ones encourage looking out for oneself only. For example, countries with histories of a strong pioneering, self-reliant spirit like the US and Australia tend to foster more independent selves. People are not born with a particular self-concept – instead, the process happens when people interact with ideas, institutions, and other individuals from their cultural environments.

Self-view is the lens of culture: our social environment tells us who we are and who we should be, and subsequently directs our attention to information that seems most relevant, organises it, and prioritises what we want to do. In short, it helps us make sense of the world. These different mindsets are known as analytic and holistic modes of thought that accompany the different self-views.

Ideas
Institutions
Interactions
Individuals

Individuals
Interactions
Institutions
Ideas

When your primary focus in life is on your own wants, needs and unique qualities and you strive for individual goals, freedom and self-sufficiency, you also tend to apply this way of thinking to everything else. The analytic way of thinking removes things from their context, evaluates them by their constituent parts and explains other people's behaviour like their own – with internal reasons and personal characteristics. If you are late for work, it is because you are lazy and disorganised.

If, on the other hand, you value group harmony and belonging above all and other people are an integral part of how you perceive yourself, it is natural to have a more holistic mindset and evaluate things relative to their context. You are also more likely to consider people's behaviour influenced more by situational factors instead of their personality – if you are late, you must have had a difficult commute.

PART 4

Psychology Applied to Marketing

These differences in seeing the world also influence how consumers evaluate brand extensions, emotional appeals, and what kind of advertising they find persuasive. More tenuous extensions under umbrella brands tend to be more easily accepted by consumers in Asian countries thanks to their holistic way of thinking, while in Western countries the analytic mindset tends to be stricter on acceptable product categories.

It also influences what emotions we think are ideal: research on example Facebook profile pictures, CEO pictures in annual reports and advertising has shown that expressions of high energy emotions like joy are more aspirational in USA whereas low energy emotions like contentedness are preferred in Asia because the primary focus is on group harmony, not the individual.

Finally, advertising aimed at more independent selves with analytic minds tend to focus on the benefits for the

individual themselves, while advertising that emphasizes connectedness and benefits to important others resonates more with those who have interdependent selves.

There are also considerable differences within countries in the form of "subcultures" such as social class, manifested in an exaggerated form by now-famous ads by Cadillac and Ford in 2014 where the former focused on individuality, uniqueness, and influence over others, while the latter emphasized relatedness and being rooted in a social context. Recent research suggests that, for example, attending university fosters a more independent self-view and a more analytic mindset through years of repeated conditioning, which means most people working in marketing are likely to view the world much like the Cadillac man, making it difficult to empathize with those who experience things differently. As a broad generalisation, the Cadillac view is one of a Western, white, middle-class business man in the global north, while the Ford view is more common with those who are non-Western, non-White, working class or women and those in the global south.

Our mental models provide us default assumptions about the people we interact with, the situations we face and the information we encounter. However, this automatic thinking only gives us a partial view of the world – it is deceptive because you might think you have the same view as someone else because you're both looking outside, even though the view is always slightly different. So, if we are from the 12% of the world's population, how do we ensure we truly understand those who are different from us?

The answer lies in an old anecdote about a meeting between two fish. The first one asks: "how's the water?" To which the second one answers: "What's water?" Like the fish, the first step is to become aware of the water and understand our own inherent WEIRDness.

SQUARE PEG INSIGHT

WEIRD Psychology, WEIRD Marketing?

A Tale of Trash and Two Travelers

Reshma Tonse
India

In old South Indian folklore, two travelers meet at the bank of a river.

They scan the shore and water when one asks, "I've never crossed this river before. Have you? If the current is too strong, we could lose our shoes!"

And he takes off his shoes and walks barefoot into the river.

The second traveler frowns in doubt.

"I've never crossed this river, either. If there are big-toothed fish, we could lose our feet!"

Then he walks into the river with his shoes on.

We meet these two travelers often. They tend to turn up every time you look for the 'why' of things.

According to reports, by 2050, Urban India's waste is expected to rise to 436 million tons upwards. Out of many, we looked into two challenges that lie in reducing the waste in the city and the load on landfills. The first and key challenge is people's resistance to segregation of wet and dry waste, leading to the generation of tons of non-recyclable garbage every day around metros. The second is illegal 'blind-spots', or dimly lit areas all around the city that aren't well maintained to begin with, where people dump their garbage when no one is looking. They make it impossible to process, recycle and compost waste efficiently. In fact, out of 95% of the waste in landfills, reports say that barely 4% is composted.

Shocking, considering urban Indians are familiar with the problem. The privilege of unfamiliarity is simply unavailable. It is muscle memory for most daily commuters to roll up their car windows or cover their noses before turning the corner into a blind-spot. As for segregation, most people we spoke to understood that composting organic waste and recycling paper and plastic was the best way to reduce waste in their cities. It just felt like too much work.

"Offices generate a lot of waste. Companies should be fined if they don't segregate." One respondent said, of the municipal's suggestion to make segregation mandatory in some parts of the city. "Ours is just one small packet everyday. It's not much." Her neighbour chimed in.

When we first approached the task of helping a Bengaluru municipality motivate its residents to segregate and pledge to stop littering, it was expected to be an exercise in awareness and education. Visuals of dry waste and wet waste on bins tested better than text did, but comprehension did not mean confirmation. Few residents welcomed their part in its success, but most felt that their contribution would just be a drop in the ocean. It was puzzling to the local RWA and municipal officials. It is expected of behavioural stategists, in these cases, to produce clever training kits, structure workflow for the organization and design clever communication to ensure success.

We didn't go there. There was a sneaking suspicion that there was something invisible here pulling the strings. We found it hiding within the significance of a morning in a traditional Indian household.

While looking at how garbage was discarded, we visited test wards in the municipality early in the morning. The average morning, like many neighbourhoods across the country, came alive between 6 a.m. - 8 a.m, unless it was a rental that housed students, young singles or married immigrant couples. Between 6 a.m. - 8 a.m., the woman of the house appeared outside at the front door. Usually elderly, occasionally middle-aged, hair wet from a bath and wrapped in a cotton towel, with the low whisper of a prayer on her lips.

The domestic help had already been or was inside, sweeping the rooms. The floors were being mopped with disinfectant. The foot of the front door and the ground up to the gate had been washed. On the wet ground, some mothers and some daughters squatted in deep concentration to draw geometric, often colourful shapes in intricate patterns called *rangoli*, to invite prosperity and auspiciousness into their homes as the day began.

Far away from the *rangoli*, the main door and the house, one lone garbage bag lay awaiting collection.

Dirt, segregated from the clean.

These visuals alongside our conversations, gave us insights into the linguistics and labels that subliminally build context for people. We learned that 'waste', 'filth' and 'garbage' as concepts are universal. They evoke feelings of disgust, stench, germs, ugliness and disease. 'Cleanliness' though, is a whole different story.

To the traditional Indian homemaker, the morning was not just a time of day, it was a ritual in itself. In some cases, the woman of the house would first bathe, pray and

only then enter the kitchen to prepare her family's breakfast. Similarly, in her mind, even a 'clean house' had a starting point in time - the morning. It was a symbol for the house's dusting, sweeping and mopping. "Clean" meant "pure," almost akin to holy. Which is why, the purification of the house was only complete when the trash was taken out. So who cleared the trash?

Not the woman, men or children of the house. Taking out the garbage and cleaning the bin were tasks that were seen as impure and dirty. So it was relegated to the help.

The domestic help or maids work for anywhere between four to seven houses everyday and are paranoid about being replaced by another maid for lesser pay or more work. They are under great pressure to finish their work and move on to the next. Interestingly, their work is not judged by how clean a house is, but how long they take to clean it. Conversations with other maids in the neighbourhood ascertained that in contrast to the woman of the house's idea of 'purity', for the maid, cleanliness meant 'working longer'.

At the end of sweeping, dusting, mopping, doing the dishes and occasionally also handwashing clothes, the maids have a universal cue for 'goodbye. They sign off by taking out the trash and lining the bin with a new bag.

"They won't call us back in after we take the garbage out." A young girl who had been working as help for six years tells us, smiling. What does she do with the garbage, we ask her. She smiles again.

It is the maid's job to get rid of the offending bag of trash, unless her employers are ok with leaving it outside the gate for the garbage van. She doesn't think too much about where to throw it. On her way to the next house, she looks for an unmaintained or littered spot, so she doesn't feel guilty about leaving it there. It well explained the propagation of blindspots.

The obsession with purity inside the house led to another issue for following waste segregation. Segregation needs more than one bin. More bins feel like more trash. It makes the woman incredibly uncomfortable. So unpleasant was the thought of the garbage already, that she had her maid stand in as a buffer between her and the bin. Now, she was being asked to be involved in it, think about what went into it.

The root of the behavior around waste segregation and blindspots in the municipal lay in the cultural context and the Indian relationship with home and purity. Suddenly, it all made sense. Why millions spent over years on interventions for urban homeowners, imposing hefty fines, clever awareness campaigns on radio, television and outdoor advertising instigating fear of the future, the state of the city, etc. were as useful as the garbage in the landfills they were working to reduce.

We could have suggested providing two coloured bins to each family, designing a training kit for the woman of the house and her maid, prompting segregation with visual cues and behavioural design, the placement of pick up cans at strategic locations, optimizing pickup schedules and many more. You will agree that these are sensible behavioural interventions.

None of these will work.

As governments, brand custodians, organisations, behavioural architects and practitioners, our bias for action trains our eyes on where we believe the problem is - in people's behaviour. But these behaviours are not actions. They are reactions to the patterns we see and judge in our environment, and then find our place within. Simply put, reactions to our context.

In cases like these, where behaviour is not just puppeteered by context but woven in its very fabric, architecting long-term behavioural change, requires architecting a new context altogether.

1001 Stories has been involved in the construction of a new context for the waste segregation problem in select wards. It has confirmed a long suspicion of behavioural science all along. Context is inseparable from human behaviour. In the midst of strategising solutions, this is where we must train our eyes as well.

In the tale of the two travelers, they both fear the river. But their fears are not the same.

The same river means different things to them because of their own past experiences and the collective memory of the societies they come from.

As strategists and researchers, our steadfast gaze on the travelers will never fail our predictions on whether or not they will take their shoes off at the shore.

The why though, will always remain in the river.

A Tale of Trash and Two Travelers

CHAPTER *Two*

coronavirus.

HUMAN RISK

Bringing Behavioural Science to Ethics and Compliance

Christian Hunt
United Kingdom


UNDERGROUND
ET UNDERGROUND STATION
Essential workers
You can travel, thank you
Everybody else
Go home
Don't travel
Save lives
MAYOR OF LONDON
TRANSPORT FOR LONDON
Central line
Hammersmith & City, Metropolitan and Circle

Human Risk is the term I use to describe the risks of human decision-making. You don't have to look too far to realise that it is the most significant risk facing organisations in 2020; with people either causing problems in the first place or making them worse in the way they react to them.

Human Risk is also the name of my company. Its focus is on helping clients 'Bring Behavioural Science (BeSci) to Ethics and Compliance'; two disciplines within organisations that are in the business of influencing human decision-making, but where BeSci usually doesn't get a look-in.

If there's one thing that 2020 has given all of us, it's an awareness of Human Risk and, as a result, what effective and ineffective Compliance regimes are. COVID-19 has become Compliance-20, as governments have made us all unwilling and sometimes unwitting, participants in the worlds' largest-ever behavioural experiment.

The pandemic brought out the best and worst in humanity; remember those people who, early in the year, tried to corner the market in hand sanitizer by bulk purchasing it to make a quick buck on eBay? Equally, it brought out the best and worst in governments and organisations as they tried their hand at managing Human Risk mitigation; sometimes well, sometimes not so well.

The consistent message we can take from what we've been experiencing is that managing Human Risk isn't just a case of telling people what to do and hoping they'll do it.

So what lessons can we learn? Here are just three of the many lessons from COVID that I'm sharing with my clients to help them identify how they can best solve their Human Risk challenges.

LESSON 1

Compliance Requires Trust

Governments who've been decisive in actually following the advice of their scientists and engaged transparently with their people have generally been better able to manage COVID, than those that prevaricated and blustered their way through it. It's probably no coincidence that its women like Jacinda Ardern and Angela Merkel, who have shown a more human response to the pandemic, than men like...well, you know. A lesson there in why Diversifi's aim of promoting cognitive diversity in BeSci is so essential.

Leaders who role modelled the behaviours they asked of their people were perceived to be trustworthy messengers. As a result, they've found it easier to earn an effective social licence to impose what, for peacetime, are extreme compliance requirements. Those who, to pick two of many examples, allowed their Senior Adviser to blatantly break the spirit, if not the letter, of the rules, or who deliberately downplayed the severity of the virus

because they didn't want "to create a panic", didn't. Very often, companies make the mistake of assuming that they can simply tell their employees what to do because they employ them. In some cases, like food safety or nuclear power, that's entirely appropriate. But in many others, mainly where there's a qualitative element to compliance, it's a dangerous presumption. As governments have discovered, people are sentient and will take a view on rules and the people who are imposing them. If there's little or no trust, you might get what I call 'visible compliance'; people doing the things you can monitor. But you risk them not doing the things you can't. Or at least doing them badly.

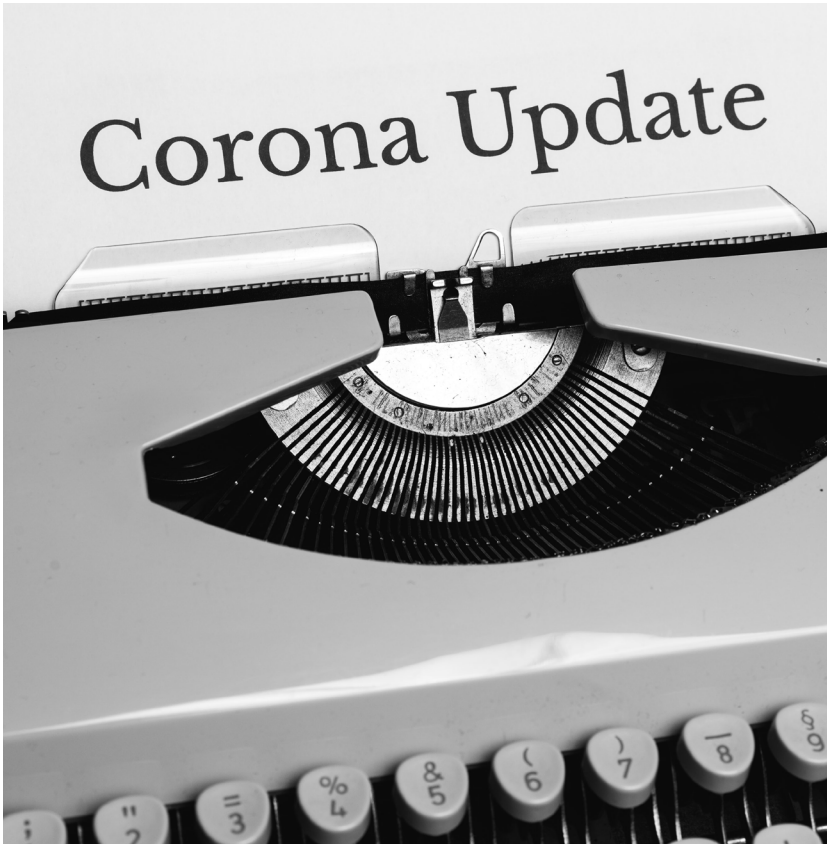
LESSON 2

Make Things Salient for Your Audience

COVID has also provided a lesson in quite how far you can get people to change their behaviour if you get the interventions right. The overall levels of compliance with COVID rules have been astonishingly high when you think about the significant changes they required people to make to their daily routines. Though you'd be forgiven for thinking that there had been widespread non-compliance if you just paid attention to media reports. But you don't have to be a BeSci-expert to know that "people comply with rules" isn't a newsworthy headline; what we get to hear about are the behavioural exceptions rather than the norms.

What worked well were simple rules and language to meet clearly understood objectives. We can argue whether 'Social Distancing' is the best way to describe the requirement to stay away from other people, but everyone understands the idea. Equally, easily understandable phrases like 'Lockdown' or 'Shelter In Place', helped keep people at home in the early phases.


Il aura fallu une crise sanitaire
mondiale pour constater la fra-
gilité et notre hyperdépendance
u continent du Soleil-Levant. Et
pas dire enfin, au bout du
de la mondialisation, à
rémité de ce broyeur d'au-
mies et de différences, de
arité : NON, tout n'est pas
ble et interchangeable
ète, pas même le riz
s les champs de


Corona Update

Where it got a little more complicated, was in re-opening. Countries, like the UK, found that a virus that spreads locally doesn't lend itself to being communicated via a 5 level national alert system. Particularly when you've got a scale ranging from the "extremely optimistic" (unless you're New Zealand) Zero of no COVID to the "feels like it might not go high enough" Five; the health service is about to be overwhelmed. So it wasn't surprising when the UK soon switched to a more local four-tier system.

Though, of course, the lagging nature of Covid testing means numbers we see now are outcomes of the past, rather than current behaviours. A clear danger then, that people living in "lower risk" areas, misjudge the risks they face and behave accordingly.

Of course, the lagging nature of COVID testing means numbers we see now are the outcome of past, rather than current behaviours.

The lesson for Compliance programs is that people respond to simple messages that they can easily understand and which feel salient to them. Just as looking at things from a national position makes sense if you're a Prime Minister, talking about things from the company's perspective makes sense when you're sitting in the C-Suite. But for the people on the frontline, what matters are the things that impact their day-to-day existence. They care less about the big picture and more about what risks and rules mean for them.

LESSON 3

We Don't Always Know What We Want

My client discussions around COVID have also served to remind me of another critical BeSci lesson: we don't always know what we want. I'm reminded of the quote attributed to Henry Ford that if you'd asked his customers what they'd wanted, they'd have said faster horses.

As many of my clients are new to BeSci, at least in the context of Ethics & Compliance, a lot of my work involves doing training and giving presentations. What I've found resonates most with my audience, aren't things that relate to their work. Instead, it's 'real world' examples; situations we all recognise, which can highlight what effective or ineffective compliance approaches can be. You won't find me talking about employee attestation processes when I can instead talk about the awful experience we go through when we rent a car. Both require us to say we've read and understood some terms and conditions. Yet neither is negotiable, and both need us to sign to proceed. So why do we use attestations as evidence our employees are compliant when we know

they're as unlikely to have read what they've signed up to, as they are when they rent a car?

I suggested to several clients that COVID would be the perfect case study for Human Risk. But many of them told me that everyone was suffering COVID-fatigue and that no-one would want to hear about it. Fair enough, I thought.

But what was remarkable was that, in every case, that very same client's curiosity would get the better of them before the end of the planning conversation. We'd end up talking at length about the very COVID case studies they thought would be of no interest to anyone else. Which meant I ended up including them after all. And guess which parts of my presentation resonated the most?!

we don't always know what we want

A neat reminder that the traditional, logical approaches people adopt to manage Human Risk within organisations, often don't reflect the realities of how people actually think.

To manage those, we need to focus on how people are likely to behave, rather than the way we would like them to behave.

HUMAN RISK

Bringing Behavioural Science to Ethics and Compliance

WDC

Lessons from Covid about Behaviour Change

John Owen
United Kingdom

There has been plenty of discussion in 2020 about how behavioural science has informed government policy in the coronavirus crisis. But perhaps now it is time to take stock and ask a different question: what lessons can we, as practitioners in behaviour change, take from the policies that were enacted around the world – and from the resultant behavioural responses?

While the answers to this question are enough to fill a whole book, I want to focus on just one here, which I believe is highly relevant for leaders everywhere: *how to maintain the necessary authority to drive change over time*.

Leadership is, of course, vital for success in most contexts. But managing change is a particular challenge. Behaviour change is notoriously hard, even at an individual level, but when we are asked to change collectively, it is often made more difficult by the counterforce of the existing culture.

Mass, counter-cultural behaviour change is a challenge which governments around the world suddenly and unexpectedly found themselves tasked with, when the pandemic hit. Liberal politicians balked at the prospect of limiting the freedoms they value so highly and as a result some were slow to take the necessary measures.

When they did act, the changes most governments commanded were clearly designed to benefit their populations – in that they would keep people safe from the deadly virus – but the changes also involved a great deal of personal sacrifice for everyone concerned. They would curtail not only their basic freedom of movement, but also their incomes, their contacts with family members and their ability to maintain both their physical and mental wellbeing.

So why is it, that some governments succeeded admirably, in such challenging circumstances, while others fared less well? What were the critical factors in managing radical, real world behaviour change that the successful leaders relied upon?

The initial reaction to the pandemic, particularly as it hit an unsuspecting and rather complacent Europe, underlined the basic premise of what Behavioural Scientists call "Authority Bias". In essence, this is our hard-wired instinct to follow orders. For all the apparent loosening of institutional trust and deference to figures of authority in western democracies, in this time of great certainty, we were in thrall to our leaders. We wanted them to take charge – and were predisposed to follow the rules and guidelines they set.

Accordingly, during early 2020, most people in the affected countries complied strictly with the rules and guidelines communicated by their governments. Over time, though, pure formal authority of position proved insufficient to sustain these levels of compliance in more liberal cultures. Uncertainty gave way to experience, accompanied by a little more knowledge. As it did so, the basic competence of governments – based on whether their measures worked or not – was undoubtedly a factor. But in a situation that was so uncertain and so without precedent, no government got everything right.

A second, more psychological factor helped determine the way governments were perceived and therefore the extent to which they succeeded in carrying their people with them. It boiled down to the way the governments themselves behaved, both individually and collectively, and the moral authority this conferred on them.

Governments who earned sufficient moral authority continued to have their message heard and their behavioural guidelines adhered to, in large part; but a lack of moral authority undermined the message and reduced compliance. We saw this clearly in the different scenarios which played out around the world. Let's take a look at some examples together:


TRUMAN
BEERS
AND ALES
LONDON BREWERS
SINCE 1666
Ales & Lagers

NEW ZEALAND

In New Zealand, Jacinda Ardern imposed one of the strictest lockdowns seen anywhere in the world. At the same time, the Prime Minister volunteered to share the sacrifice, taking a 20 per cent pay cut. This gave her undeniable moral authority to make such stringent demands of her people. She built on this by communicating regularly, expressing empathy and solidarity throughout lockdown, referring to the nation as "our team of five million."

The message of unity and shared sacrifice cut through and, by late September, New Zealand had recorded just 5 deaths per million people. Even in Australia, which pursued a similar border-shutting 'eradication' strategy, the number was 34. To achieve this, New Zealand had locked down for just 50 days, Australia for more than 70. It's worth noting that Scott Morrison, the Australian PM, had refused to take a pay cut when asked. While Morrison's popularity ratings suffered, Ardern was re-elected in a landslide in mid-October.

INDIA

India was another nation whose government acted early and decisively to impose a lockdown. Unfortunately, the effects were not so successful and by October, India had the third highest number of Covid-related deaths in the world, behind the US and Brazil.

Why? In part, because the lockdown policy ordered the mass movement of migrant workers from the cities back to their villages, which accelerated the spreading of the virus. But when this mistake became

apparent, the government "made things worse" according to Shahid Jameel, chief executive of the Wellcome Trust/DBT Alliance, a biomedical charity. He told the FT that the government "massaged numbers" to produce an apparently low fatality rate, desperate to show their policies were actually working. "There's a narrative based on cherry-picking of data, which has made people tired and complacent," he said.

In this way, the loss of moral authority undermined trust and depleted the willpower necessary to comply. Having the strength to admit mistakes – or, in the words of Brené Brown, the courage to show vulnerability as a leader – is another vital source of moral authority.

Of course, as I've already noted, it's also true that basic competence is a requirement for maintaining authority. Too many mistakes destroy confidence. Too much vulnerability can look like weakness.

GERMANY

The fates of two of Germany's regional leaders illustrate the point. In the federal German system, much of the decision making is devolved to State level and thus both Armin Laschet, the governor of North Rhein Westfalia, and Markus Söder, his equivalent in Bavaria, had to make the calls on what measures to impose and when. According to Der Spiegel, Söder was decisive in ordering a lockdown and remains unapologetic for some of the mistakes made along the way, including the botching of tens of thousands of test results. Laschet is more self-reflective and readily admits that he now rues the decision to close schools. Going into the pandemic, Laschet was one of those in line to replace Angela Merkel as the conservative candidate for the chancellery. Today, it is Söder who is ahead of him in the polls.

Der Spiegel's analysis is that "in a crisis, Germans apparently prefer the appearance of certainty and a tendency toward the authoritarian." This finding is not, in truth, limited to Germans. It testifies to the enduring power of Authority Bias – and the instinctive emphasis we place on the appearance of authority, or what Robert Cialdini calls its "trappings." Söder's "strong, decisive state" contrasted with the "tortured" appearances of Laschet, for whom "self-doubt was a constant companion."

We all want our leaders to look like they know what they're doing. The trouble is that change is inherently uncertain and so we also need them not to be too rigid or stubborn in their responses to it.

Moral authority therefore demands a delicate balancing act between decisiveness on the one hand and a

willingness to learn on the other. The humility required for the latter extends to the admission of failures or the embrace of one's own human foibles. In behavioural science this is consistent with what is known as the "pratfall effect", which demonstrates that, once basic competence is established, we like someone more when they show their human side and make a mistake.

Another advantage of acknowledging mistakes is that it permits you to learn from them. At a national level, Germany's immediate predisposition to learn from others enabled them to invest early in testing (following South Korea's example). With this openness to learning came a similar openness to dialogue, one key example being the way the regional government in Berlin worked effectively with the hospitality industry, particularly around capturing the identities of customers, which contributed to a contact tracing rate of more than 90 percent.

Support for the national government's approach remains high in opinion polls, according to Der Spiegel. This suggests that openness to dialogue and to learning, together with a highly devolved decision-making structure, helped maintain moral authority. As one leading German doctor told Vox: "They didn't lie in the beginning and [they] built up trust, following science, not denying it." All of this has contributed to Germany maintaining one of the lowest death rates in Europe.

Of course, you could argue it the other way round: that relatively positive outcomes are what maintained authority and garnered public approval, rather than hard-earned moral authority being the cause of the positive outcomes. Examples from elsewhere do indeed show that positive results are possible without moral authority – at least for a time. But they also point to the difficulty of maintaining this.

"The courage to show vulnerability as a leader - is another vital source of moral authority."

THAILAND

The army-backed government in Thailand, for example, succeeded in avoiding a predicted public health crisis after hundreds of thousands of Chinese tourists visited the country over the Lunar New Year holiday, a time when the virus was beginning to spread uncontrollably in that part of the world. The prime minister and former coup leader, Prayuth Chan-ocha, acted swiftly to impose a strict lockdown – invoking emergency rule, sidelining elected politicians and putting bureaucrats and medical professionals in charge of coordinating the national response.

According to the Asia Times, some cultural factors would have contributed to the successful repression of the virus, including the Thai custom of greeting without touching and the "consensus compliance" which underpins Thai nationalism. But there

can be little doubt the government's actions saved lives. By the end of May, only 57 deaths had been recorded.

Unfortunately, such is the government's authoritarian reputation, the precision of the statistics measuring its success is disputed. And the stringency of the lockdown tactics has done disproportionate harm to the economy, which shrank by 8% over the year (compared to 4% for the South East Asia region as a whole).

The perceived absence of moral authority enjoyed by the authoritarian regime has meant many Thais are focusing on these economic grievances, rather than giving credit for the health-related successes. According to the Economist: "weeks of lockdown nurtured a social-media ferment, which exploded in July after restrictions were eased." Street protests grew, calling for the resignation of the PM and the creation of a new constitution. On October 15th, a new state of emergency was declared – this time, to quash the protests, not the virus.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UNITED KINGDOM

The UK also endured protests against the national government in the autumn – from regional politicians, as they refused to accept heightened restrictions for their regions in the face of the virus' second wave. This disaffection was a far cry from the widespread support the government received for its initial lockdown in March – the only criticism at the time being that it may have acted too late.

Public compliance was high in the first UK lockdown – the streets emptied, offices and shops shut and, even in the absence of widespread policing, or the heavy sanctions threatened in other European nations, the vast majority of Britons stayed at home, save for the one short exercise outing they were permitted each day.

Critically, when public officials, such as the Chief Medical Officer of Scotland and a prominent member of the scientific advisory group, SAGE, failed to uphold the standards they demanded of others, they were removed from their positions. Moral authority was thus maintained.

However, under pressure from the media, the government started to falter when, like their Indian counterparts, they massaged some of the figures, not least the number of tests administered in order to hit their own target.

And then, in May, it went very badly wrong when the PM's special advisor, Dominic Cummings, drove his family over 250 miles to his parents' property in Durham during lockdown. This clear breach of guidelines was defended by the government and he remained in post - causing media and public outrage in late May, followed by an immediate and

lasting loss of trust, as documented in University College London's COVID-19 Social Study, published in the Lancet in early August.

The correlation of trust to compliance in public health behaviours is also well documented. Fortunately, by the time of the Cummings affair, the government in the UK was lifting restrictions in any case. However, the loss of moral authority was reflected in falling confidence levels in the PM and paved the way for the resistance to regional controls in the autumn. And, in the wider population, the disciplined self-policing of the spring was a distant memory as, by October, the self-isolation rate among people testing positive was calculated to be as low as 20% At the time of writing, it remained to be seen whether the national lockdown, imposed in early November, would be as faithfully observed as the first one.

CONCLUSION

Looking at evidence from all around the world, the lessons seem pretty clear for leaders seeking to maintain their authority as they usher in behaviour change - wherever in the world they may find themselves.

The formal authority which stems from their position in the hierarchy needs to be bolstered by not only proof of basic competence, but also a moral authority. This can be established in two important ways: (1) a clear and unambiguous commitment to conduct themselves in the way they are demanding of others; and (2) a willingness to be decisive, but also open – humble, even – to the extent of listening, empowering others and admitting mistakes in order to learn from them.

This should not only prove valuable for political leaders, but for any other business leader navigating times of change and uncertainty.

WDC

Lessons from Covid about Behaviour Change

CHAPTER *Three*

global studies.

global stories.

BRAINFLUENCE

Zoom Zooms:

How Minimizing Frictions Disrupted an Industry

Roger Dooley
United States

In the midst of the economic devastation caused by the Covid-19 pandemic, some businesses saw gains. Amazon hired hundreds of thousands of new workers. Home Depot braced for losses, but ended up a winner when locked-down customers began home improvement projects.

There was only one company, though, that grew so quickly and became so ubiquitous that its brand became a generic name for its category. It may have taken years for "Google" to become synonymous with search, but it took only months for "Zoom" to become shorthand for video conferences and web meetings.

What drove Zoom's explosive growth in the face of competition from giants like Cisco, Microsoft and Google? It was a relentless focus on minimizing friction (or, for economists, "frictions") for its users.

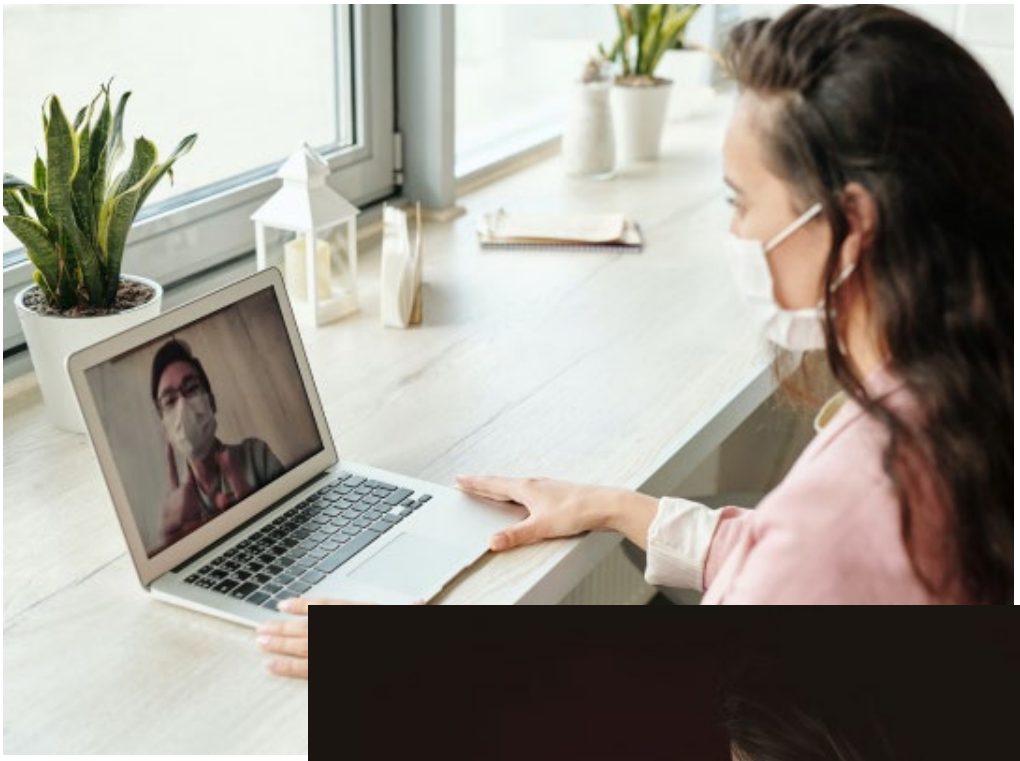
PART 1

Pre-Pandemic Success

With in-person meetings impossible, the Covid-19 crisis caused an enormous surge in demand for video. But, Zoom was growing rapidly long before Covid-19 shut down offices, events, and travel. The firm had actually surpassed its larger competitors in the years preceding the pandemic.

The 2020 Businesses @ Work report from Okta notes, "Zoom was the #1 fastest growing video conferencing app in 2016, and it hasn't slowed down since. Over the past three years, Zoom has enjoyed an astounding 876% growth in number of customers in our network. For comparison, second-place Cisco Webex grew 91% over that same period."

As with Amazon, the pandemic crisis simply accelerated Zoom's already robust growth. They added more than 100,000 paying customers and quadrupled their revenue in the first half of 2020.



PART 2

Zoom's Mission is 'Frictionless'

Zoom's mission statement is remarkably simple and straightforward:

> "Make video communications frictionless."

At a time when most corporate mission statements try to acknowledge every priority and multiple stakeholders, this short, direct message stands out.

Most importantly, this statement provides clarity to every team member. Every developer, network engineer, or other Zoom employee knows they should never increase user effort or increase complexity. Doing so would doom Zoom's reason for existence.

PART 3

Friction, Effort, and Sales

BJ Fogg's eponymous Behavior Model states that three factors determine whether a behavior will happen: motivation, ability, and a prompt (or trigger). "Ability" is a lack of difficulty. If the other two factors are equal, reducing the effort involved increases the probability that the behavior will take place.

Countless commercial experiments in the form of A/B and similar tests have proven the FBM's merit. When you make signing up for a service easier, more people will sign up.

In Thinking Fast and Slow, Daniel Kahneman notes that there is a "law of least effort" for both cognitive and physical exertion. Humans tend to make the choice that minimizes effort.

In addition to cognitive and physical effort, researchers have also identified time effort and emotional effort as drivers of customer behavior.

Mike Krieger, a student of Fogg's, co-founded Instagram, the now-ubiquitous photo sharing app acquired by Facebook for a billion dollars. A hallmark of the app was its ease of onboarding users and enabling them to enhance and post photos.

In my book Friction, I describe an even bigger success story. Whatsapp, one of many messaging apps when it was introduced, enabled new users to sign up, verify their phone, and invite their friends remarkably quickly: it took just over two minutes. This near-frictionless signup and invitation process created a cascade effect that exploded their user count to 100 million in just two years. In another year, Whatsapp grew to 450 million users and was acquired by Facebook for $22 billion.

Whatsapp grew to 450 million users and was acquired by Facebook for $22 billion.

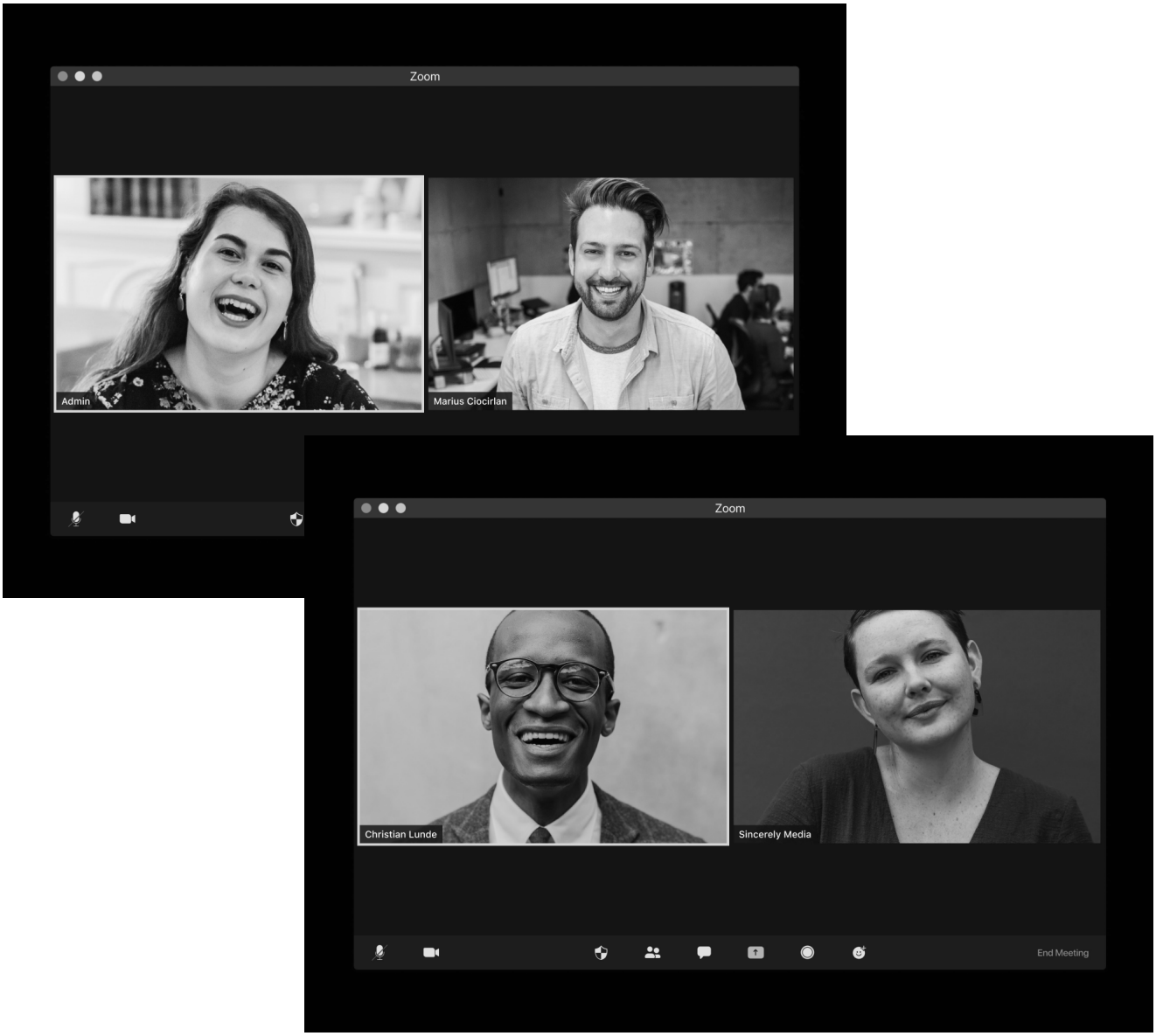
PART 4

How Zoom Zoomed

Zoom was founded by Eric Yuan, who left Cisco's Webex unit to focus on mobile-friendly video conferencing. Yuan's emphasis on a frictionless user experience drove its growth in its early years.

Zoom was easy to set up and easy to use. Changing one's background was easy. For most users, the app was (and still is) free – no payment process was needed. All this made for maximum simplicity and minimum effort. By 2016, a sort of network effect was further accelerating growth – every non-user invited to a Zoom meeting went through the ultra-quick app install and became a new user.

But, Zoom's early product may have been a little too frictionless. In striving to make onboarding a user as simple as possible, Zoom skipped some security precautions. One of these lapses made Mac computer webcams vulnerable to hackers. Another security hole allowed "zoombombing," in which a hacker could enter and disrupt an ongoing meeting.



Not unlike other digital unicorns, Zoom initially focused on exponential growth, not perfection. After it had been almost universally adopted, Zoom improved its code and processes to beef up security. Some of these changes introduced a tiny bit of friction, like password and waiting room options, but greatly reduced the possibility of hacks or disruption.

PART 5

The Zoom Lesson

Taking on giants like Cisco, Microsoft, and Google might have seemed like a fool's errand in Zoom's early days. But, Yuan let one principle drive the firm's efforts: make video conferencing as easy as possible for everyone. Minimize user effort. Eliminate complexity.

When the pandemic hit, business, schools, and other organizations had to establish how web meetings would be conducted. This had to be done very quickly and with minimal need for technical support for onboarding novice users. Zoom's frictionless experience fit these requirements perfectly. Even non-technical users could be active in minutes, and the intuitive interface minimized calls for help.

Within a few months, we were all on daily "Zooms." Terms like "Zoom fatigue" and "Zoom shirt" became part of popular culture.

CONCLUSION

Fogg and many other behavior researchers show us that reducing effort increases action. And, history shows that nimble startups who are relentless about creating an effortless customer experience can surpass far larger competitors. Large organizations can do the same, of course, but only if their leaders can exhibit the same clarity of purpose as Zoom's making "frictionless" their core value.

BRAINFLUENCE

Zoom Zooms:

How Minimizing Frictions Disrupted an Industry

BUSARA

Improving the Uptake and Adherence of Iron Folic Acid IFA Supplements

Ruth Canagarajah
India

PARTNER

Ashoka University Center for Social and Behaviour Change

SECTOR MATERNAL

Child health

PROJECT TYPE

Field and lab experiments

SAMPLE SIZE

1,150 participants

Anemia is a pervasive public health problem in India, with 53% of women aged 15-49 years being anemic. It is estimated that 20% of maternal deaths are anemia related and the condition can cause low birth weight and cognitive issues for children.

In order to address this concern, there is a strong commitment from the Indian government to reduce anemia prevalence amongst pregnant women and adolescent girls. In partnership with the Centre for Social and Behavioural Change (CSBC), Busara worked on narrowing down and refining interventions aimed at driving uptake and adherence of IFA pills amongst pregnant and lactating women in India.

PART 1

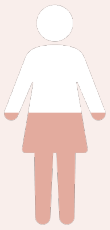
A Behavioural Science Approach

Adherence to a (sometimes difficult or painful) regiment is subject to a number of behavioral barriers. The WHO estimates that adherence to long-term therapies in the general population is around 50% in developed economies, and is likely much lower in developing countries.

People's tendency to have limited attention, to discount the future heavily in favor of the present, and to overweigh the potential risk of side effects all factor into low adherence rates. We also know that small changes to factors such as self-efficacy and perceived control appear to strongly correlate with improved adherence, indicating that there may be strong psychological drivers that can be leveraged.

This project aimed to explore how a behavioral science approach might lead to more effective design of interventions to support adherence to IFA pills for childbearing women.

> The WHO estimates that adherence to long-term therapies in the general population is around 50% in developed economies, and is likely much lower in developing countries.



53% of women aged 15-49 years being anemic

20% of maternal deaths are anemia-related

PART 2

Interventions and Findings

For the first set of experiments we had two primary outcomes:

1. UNDERSTANDING

We asked participants a series of questions evaluating their understanding of the side effects, measures for avoiding them, and the relative ease of getting sufficient iron from non-supplementary needs.

2. VALUATION

We asked participants to contribute their lab earnings to a IFA public good fund. This fund was framed as a public health for their community that would support women in getting access to IFA pills. By measuring their willingness to contribute it allowed us to get a concrete, continuous measure of their value of the supplement.

COUNSELLING CARD

Women are provided with information on the side effects associated with IFA pills.

In this experiment, we wanted to test whether visual representations of the potential side effects could reduce the perceived risk among women. Further, we wanted to explore whether an endorsement of the treatment by an authority (i.e. doctor) might further reduce perceived risk.

CONTROL

ASHA explanation of side effects only.

TREATMENT 1

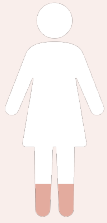
ASHA explanation of side effects only + images visually representing those side effects.

TREATMENT 2

ASHA explanation of side effects only + images visually representing those side effects + doctor endorsement

FINDINGS

Visual images are more memorable and increased the recall and comprehension of information shared. The doctor's endorsement appeared to cancel out the positive impact of the simple image.



8% of participants were more likely to recall information

FOOD EQUIVALENCY

Women are provided with information on the food equivalency of IFA pills.

In this experiment, we wanted to test whether visual representations of the potential food inputs required to meet iron needs could increase valuation of the IFA supplements. We selected foods that were common in the diet in the sampled areas to make it more relatable.

CONTROL

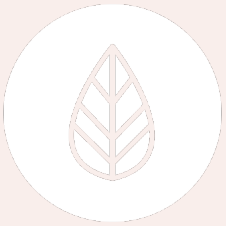
Standard information on IFA pill benefits.

TREATMENT 1

Information on IFA benefits + Graphics of food equivalency with accompanying audio.

FINDINGS

Showing the food equivalency increases the value perception of IFA pills. Surprisingly, it does not alter the perceptions of food substitution, i.e. women still believed that you can get enough iron from food, even without IFA pills.




IRON

TESTIMONIAL VIDEO

Women are shown a video of a woman they can relate to, talking about IFA pills.

In this experiment, participants were exposed to either a standard government information video describing the benefits of IFA supplements or a more personalized testimonial video of a woman who had used IFA supplements.

CONTROL

Standard Government Video.

TREATMENT 1

Testiominal Video.

FINDINGS

Testimonial videos are just as effective as standard government advertisements, in terms of recall and IFA pill perceptions

PART 3

Interventions and Findings

"Before you leave, we would like to invite you to participate in another task, that you can easily do from your homes, and for free. We would like you to missed-call / flash a specific number. The goal in this task is to see if you are able to complete this task every day for the next 20 days.

Here is the number for you to missed-call/ flash. If you missed-call/ flash this number over the next 20 days, you stand a chance to earn 5000 INR. Of the people who missed-call this number, some will be randomly chosen to receive 5000 INR. For every day that you missed-call this number, you increase your chances of receiving the 5000 INR."

This missed call was intended to simulate remembering to adhere to a regiment on a daily basis, and was used as a proxy measure in our lab experiment.

For the second set of experiments we had the following outcomes:

CALENDAR

Women are provided with a calendar to track their daily IFA pill usage.

In this experiment, respondents were given a tracking calendar that they could hang up in their homes to serve both (a) as a salient reminder of their intent to dial the missed call every day over the 20 days, and (b) to demonstrate their progress towards the final goal.

CONTROL

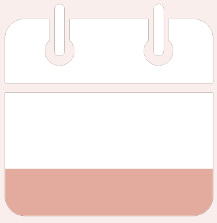
Standard script explaining the bonus from dialing the missed calls.

TREATMENT 1

Take-home calendar to track progress.

FINDINGS

Having an interactive daily tracking tool increases adherence by 14%.



14% increase in adherence

IVR

Test to see if an IVR call increases pill adherence.

In this experiment, respondents were called daily with a short interactive-voice-response service that either (a) had a simple reminder of the daily-missed call obligation, or (b) introduced a the reminder in advance of a radio soap opera that had 20 days of episodes that aimed to provide a more entertaining complement and hook to encourage participants to use the service.

CONTROL

No IVR call.

TREATMENT 1

IVR Reminder call + Soap Opera.

TREATMENT 2

IVR Reminder call.

FINDINGS

For the small sample that we were able to reach via IVR, the calls made little difference to adherence levels and whilst cheap, it is difficult to administer for this group.

DISCUSSIONS

VISUAL INFORMATION MOST EFFECTIVE WHEN SIMPLE

The counselling card intervention was effective at increasing recall and comprehension of the information shared. Interestingly, the effect wasn't nearly as strong in Treatment 2 where an image of doctor endorsement was added; this might be because people who saw this image suffered information overload which inhibited their recall of the information they listened to. Health information should be simple and relevant, with key elements clearly communicated to enhance recall and long-term salience of the information.

TESTIMONIALS WERE SURPRISINGLY LESS EFFECTIVE, BUT UNCLEAR WHY

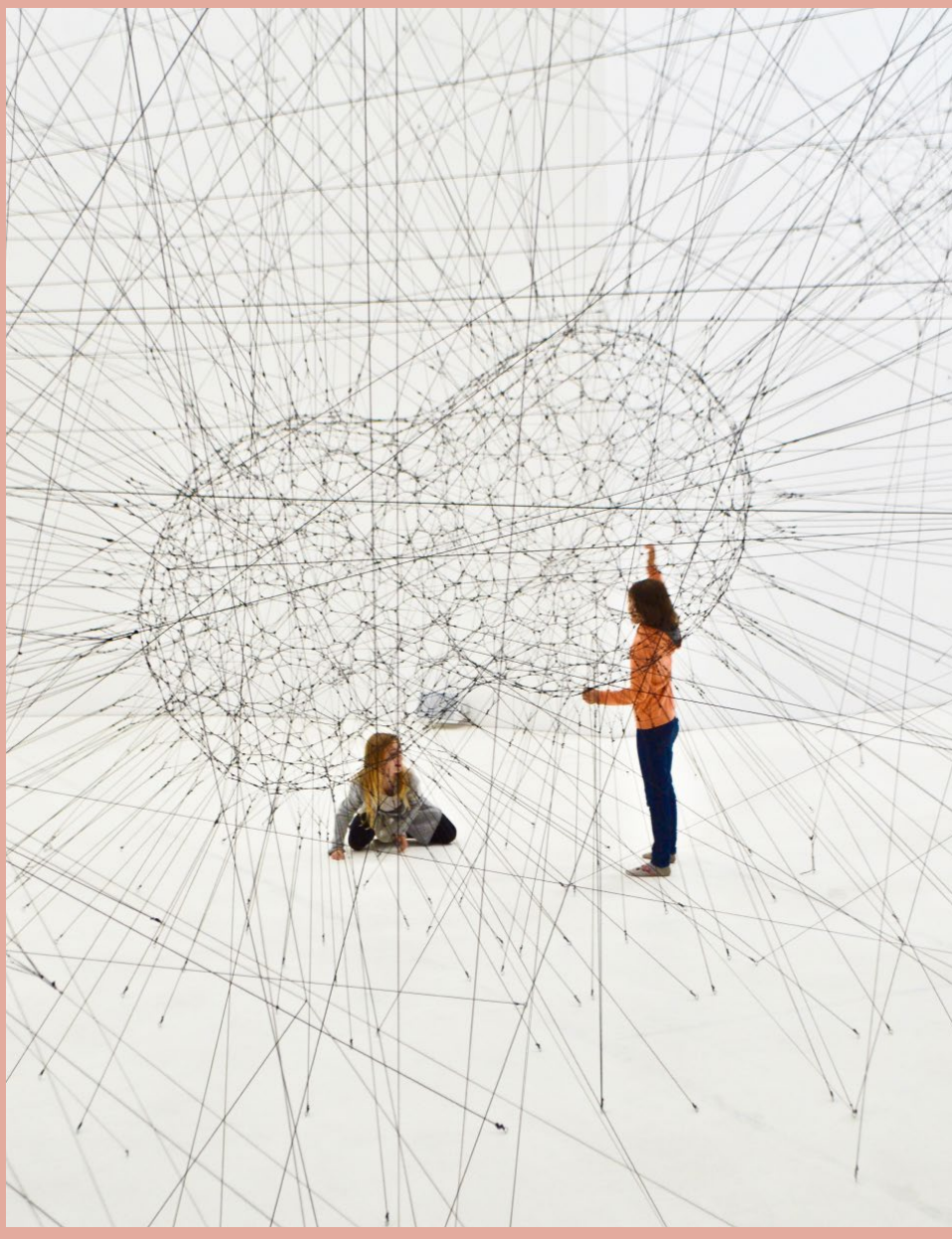
When comparing the effectiveness of testimonial videos over TVCs we found that women responded similarly in terms of recall and IFA perceptions. The findings suggest that perhaps the respondents were inattentive and/or disengaged from the message and therefore did not recall the information they heard. Pre-testing would need to be done in future to determine which messages the audience appears to engage with.

BUSARA

Improving the Uptake and Adherence of Iron Folic Acid IFA Supplements

COWRY CONSULTING

The Behavioural Fingerprint



Ziba Goddard
United Kingdom

Behavioural scientists have a unique bias: the Bias Blind Spot. This means that as practitioners of applied Behavioural Science, we're great at spotting biases amongst others, but can sometimes be blind to our own.

Knowing this, we began to develop a way to replace subjective and analogue approaches of understanding how to approach behavioural challenges with a more objective and dynamic means of understanding human behaviour.

For the first time in Applied Behavioural Science, we've used machine learning and predictive analytic techniques to produce a systemised, empirical and integrated algorithm. The result is a Behavioural Fingerprint.

This shows the behavioural landscapes that are preventing behaviour; and the optimised landscapes that promote behaviour. This has removed the most fatal bias of all - our opinion. The result is not what we think, but rather what we know.

Over the past 5 years, working with some of the biggest brands and businesses in the world, we've contributed to a growing body of evidence from different business sectors and across various channels, including UX, business communications, contact centres and physical environments.

For every behavioural change assignment we've been challenged with, we've populated a growing database with 40+ different use cases, focused on the financial services and retail sectors. For each use case, we've detailed the cognitive biases that create friction and inhibit behaviour, and the biases that promote fluent behavioural interventions that significantly change behaviour and drive business success. We now have a rich database from which to identify patterns that exist in the financial and retail sectors and within contact centres and UX.

We wanted to share this innovative approach with our clients and the Applied Behaviour Science community. For businesses, these findings offer several benefits:

1. ABILITY TO BENCHMARK

The ability to quickly and confidently benchmark your existing customer experience against the channel fingerprint.

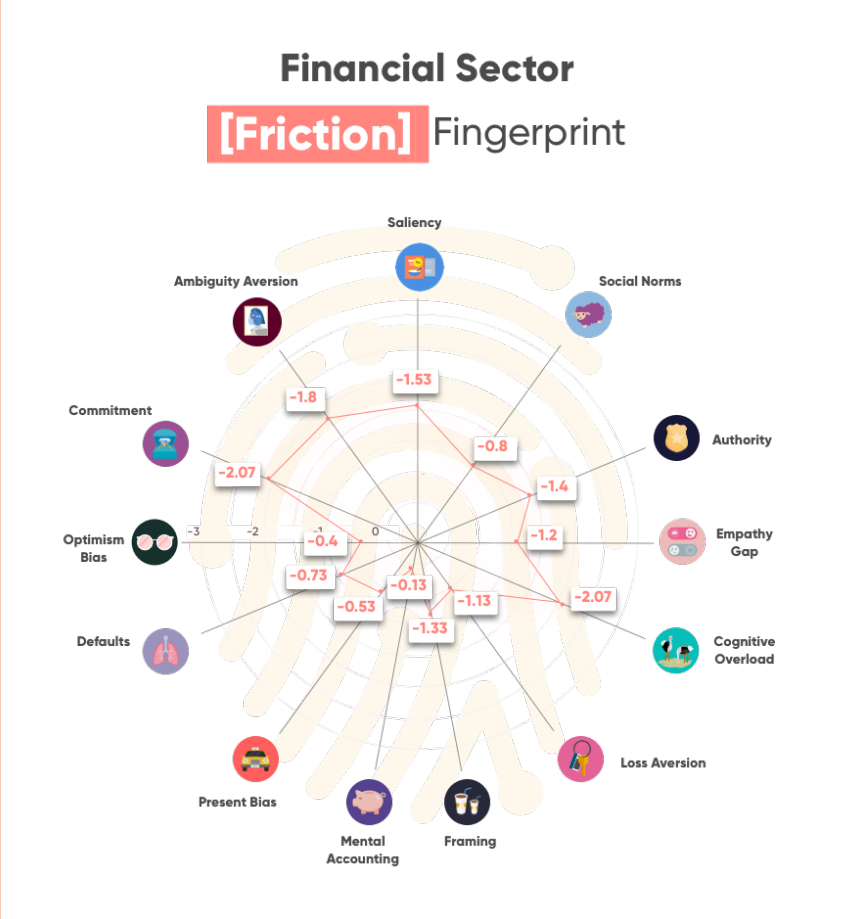
2. KNOWLEDGE

The knowledge of which C-Factors are needed to transform your current customer experience.

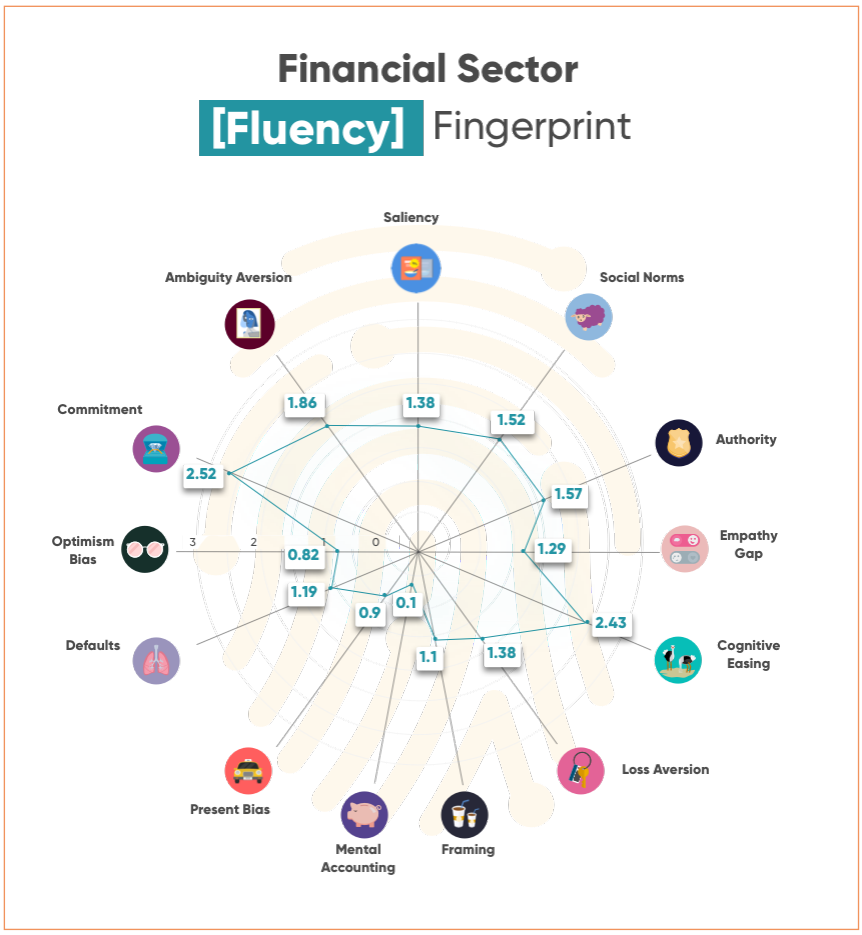
3. ABILITY TO VISUALISE

The ability to visualise and communicate to stakeholders how your newly optimised customer experience has shifted positively.

a systemised, empirical and integrated algorithm



A Friction Fingerprint for the Financial Sector



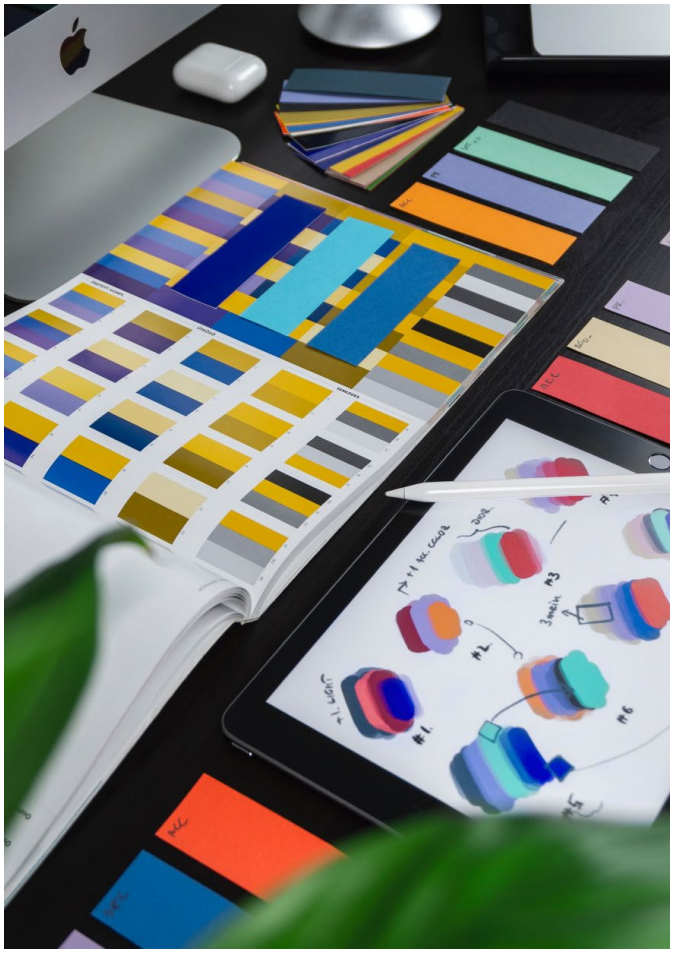
A Fluency Fingerprint for the Financial Sector

We used colour and saliency to direct people's attention to the most important information.

We know how important design is when communicating information, which is why we have psychologically designed the Behavioural Fingerprint so that it is easy to process. Over 50% of our cortex is dedicated to visual processing and as a result we rely on our visual system heavily to help us interpret the world. Therefore, our Behavioural Fingerprints are designed using our SLICE framework – which is used to embed behavioural design techniques.

For example, we use icons rather than text because we know people are much quicker to recognise what a picture is conveying, than what text is conveying. This is because the level of visual complexity and cognitive overload has a much lower impact when people view images.

Moreover, we used colour and saliency to direct people's attention to the most important information. Research shows that humans have two distinct types of attention: top-down and bottom-up. Top-down attention is voluntarily controlled by our conscious goals and desires, for example when we are searching for bread in the supermarket. This differs from our bottom-up attention which is involuntary and driven purely by our environment.



For example, our attention is very quickly attracted when we hear a loud bang or see visually distracting stimuli. It is our bottom-up attention we have harnessed by altering the colour of our Behavioural Fingerprints. Specifically, using attention-grabbing colours such as green and red when we want people to focus on the project Fingerprint and low contrast colours, such as grey, for contextual channel and/or sector information.

This is just the first of three stages of this project. This First Stage allows us to identify the behavioural barriers characterising current business challenges, and generate empirically evidenced recommendations, quickly and systematically, to drive business success. The Behavioural Fingerprint will continually improve with an increasingly diverse input from different sectors and business challenges.

The richer the input, the more powerful the output will be. The Second Stage will be conducted by the end of 2020, and will allow us to identify which words, phrases and design features within the C-Factors are predictive of business success. And the third stage, which will ultimately be completed in 2021, will look to automate the database, creating a closed loop diagnostic and solution based tool that combines both human and data science insights seamlessly.

COWRY CONSULTING

The Behavioural Fingerprint

SONIA FRIEDRICH CONSULTING

3 Little Cups

Sonia Friedrich
Australia

Who would have thought, over a coffee in Byron Bay, Australia, a behavioural science solution for the decline in Franchise sales for Naked Juice Bar, Sweden would unravel?

This seems to be how a lot of clients find Sonia Friedrich, over synchronistic meetings from word of mouth recommendations, anywhere, anytime.

Sonia Friedrich, Behavioural Economics Strategic Consultant, was sharing the concepts of behavioural science to Maria Collyer, Founder and Board Member of Naked Juice Bar, Sweden. Naked Juice Bar (NJB) are the leaders in selling creamy smoothies, fresh juices and all-natural food, handmade with love and sunshine in bars across Sweden. The light bulb switched on for Maria when behavioural science examples of system 1 and system 2 thinking, loss aversion, choice architecture, product and pricing decoys and the power of 3 (Goldilocks Effect), among others, struck a chord.

"I think you have just solved why we are losing sales." Maria exclaimed excitedly. "We've been losing sales and thought it was due to a market downturn. We also deleted the kids cup size because it wasn't performing so well. I've had a niggle this wasn't the right decision. I need to go and call the Board, now! They need to hear this. When can we meet?" A rewarding collaboration began.

By the end of the week Sonia and Maria were sitting in a board room in Byron Bay with Sonia presenting virtually to the Board and Senior Management in Sweden, on the 19 aspects of why Irrational Pricing Wins! It's a programme she shares with many and it's an amazing introduction to Behavioural Science because its aim is to make and save client's money...within a month. She has the proof points to show that this works too.

PART 1

Putting the Nudge Brakes On

The Board and Management were no exception. They loved it. Within days the NJB team had excitedly applied 13 nudges to their menu and redesigned it! This is when Sonia and her team had to immediately put the brakes on, without destroying the client's enthusiasm.

The goals were:

1. To prove that the deletion of the kid's cup size (the little green cup) had resulted in an overall sales decline, and show a causal relationship.

2. To understand the financial impact of the cup size deletion across the franchises.

3. To design the right first nudge experiment to reverse the sales decline, and prove its effectiveness.

Critically, they were able to use two franchises as experimental stores. This would provide enough data for statistical proof. It was also a deliberate decision because these franchises were owned by the Founders, meaning there was complete control over what was introduced, without interrupting other franchisees, until they were certain of proof points.

PART 2

Mining for Gold in the Drinks Data

The credit goes to Brita (CEO) and Hanna (Supplier and Marketing Manager) of NJB for their tireless work in collecting the data. NJB was in the process of introducing electronic POS, but that did not help for this project. This historical data had to be gathered manually. It took three months for the data to be available for analysis.

Now the question could be solved. Was the sales decline really a result of the kid's cup deletion? Was it causal, correlated, coincidental or just convenient for everyone to think?

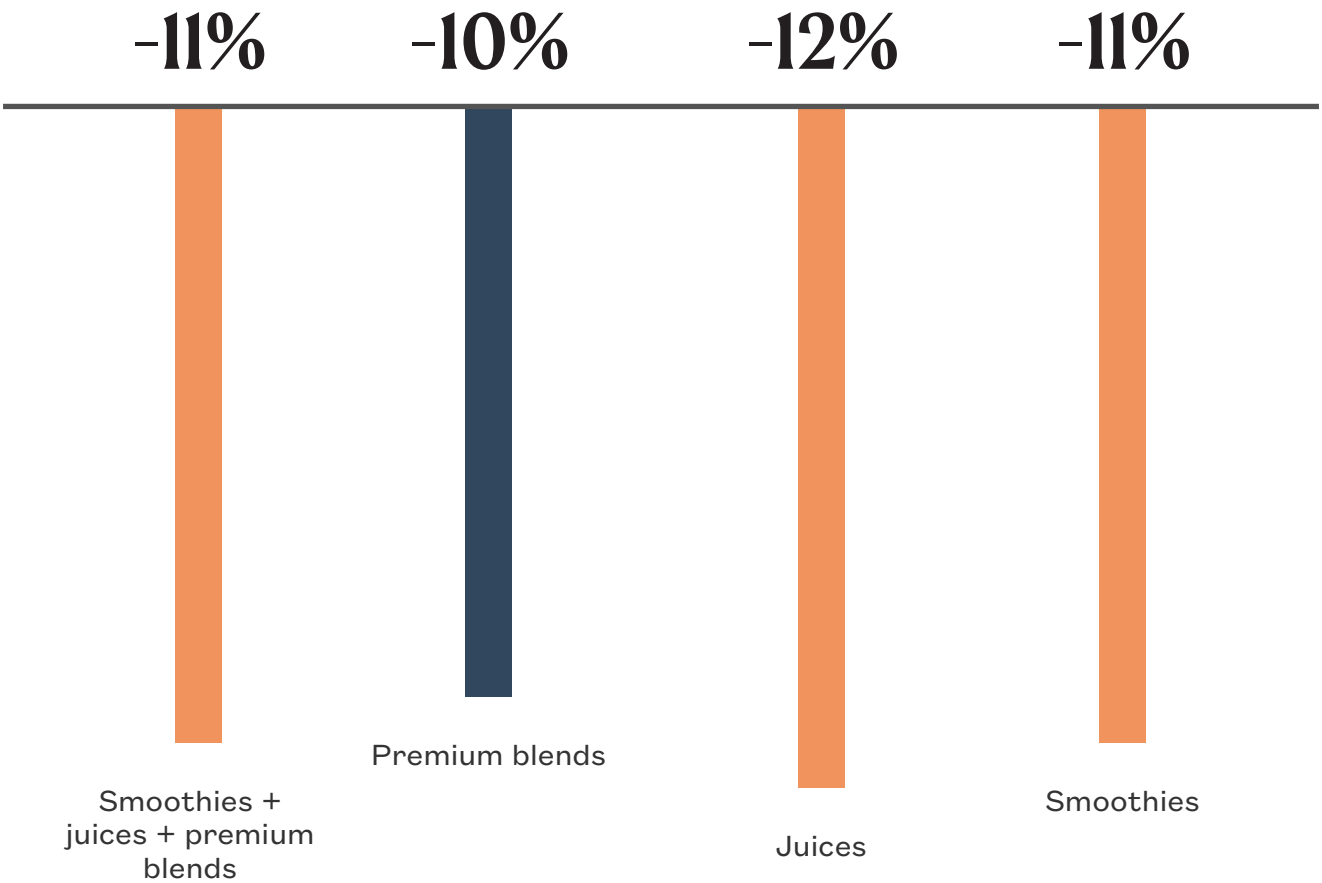
Chief Statistician, Ricardo, went to work and his team were able to prove that this little green cup had had a significant impact across the entire drinks business.

Not only was there a causal relationship in the loss of sales across smoothies and juices, there was an unanticipated 10% decline in premium blend sales. This shocked everyone because premium

blends didn't have a kid's cup size offering. This piggyback effect made complete sense in hindsight.

Parents didn't just buy a smoothie or juice because their child did. They bought premium blends and other products too. There was a reverse effect in play that had not been anticipated. It now led to a further question, "what other product sales were in decline as a result of this deletion?" While this would be interesting to understand, this would never be solved because manually collecting that data would cost more than the outcome would be worth. Everyone knew there was a sales decline and the reason why. It had nothing to do with a market downturn. It was a direct result of a management decision. Next was to solve it as fast as possible.

> There was a reverse effect in play that had not been anticipated. It now led to a further question, "what other product sales were in decline as a result of this deletion?"


-11%
-10%
-12%
-11%
Smoothies + juices + premium blends
Premium blends
Juices
Smoothies

PART 3

Nudging Sales Back

The logical step for some would be to re-introduce the kid's cup. However, this was not the recommendation provided by Sonia. There was an assumption that with a 10% loss in premium blends across the business, these customers - parents and their kids - were no longer coming to the franchise at all. NJB had lost these customers. Reintroducing the kids cup may not have been enough to bring them back as quickly as was needed. There was a need to think strategically.

The recommendation was to nudge existing customers to reverse the lost revenue.

Planning for this nudge was considerable. People may think that changing choice architecture and using decoys is easy. *Let's just give them 3 options.* However, this is not how you design nudge experiments. It takes considerable thinking and planning to optimise outcomes.

PART 4

Business Reality Impacts Nudge Design - Twists and Turns

NJB had their finger on the pulse on everything that would impact costs and therefore, profitability – every extra ml of volume impacted profitability. They knew their margins for every product. In the middle of this the franchise needed to place an order of cups, otherwise they were going to run out. One million cups were ordered and they now needed to be used as part of the nudge experiment. These were not the size originally wanted for the experiment, but the impact on new recipes and training of staff also needed to be considered. Separate to this, the client wanted to change their cups so all cups could have the same lid size. While this provided other internal benefits for the business, it also limited the size of cups that could be purchased.

With all of this in mind, along with margins, lead times, volumes and pricing, Sonia worked collaboratively with NJB to come up with nudge decision. Their expertise was not only necessary, but it was critical

to the success of the nudge. They knew their business backwards, while Sonia guided them on the impact of choice architecture, decoys, asymmetrical dominating effect, compromise effects and pricing interventions.

They were running out of time to roll out the nudge as the end of year was creeping up and environmental, seasonal and external factors would impact results. If they didn't begin soon, it would be another six months before they could consider this nudge again.

When everyone was happy with the decision, they rolled out the nudge in the two experimental stores.

choice architecture, decoys, asymmetrical dominating effects

NJB NUDGE SUCCESS

Within 6 weeks the results were an astounding 8.2% increase in revenue and a 4.8% increase in units. The client was ecstatic.

Did they get statistical proof? No, because there was insufficient evidence for statistical proof. Why? The client saw revenue increase and wanted to roll this out as quickly as possible. They had a franchise conference coming up and didn't want to miss this opportunity with their franchisees. The Christmas season was fast approaching and that would mean waiting 6 months for statistical proof. When you are losing money...that is simply not possible...and the decision was right - the NJB nudge worked. Welcome to the street smarts of behavioural science.

SONIA FRIEDRICH CONSULTING

3 Little Cups

Behavioral Grooves' Top 5

Kurt Nelson & Tim Houlihan
United States

Sometimes our gut impulses can lead to good things. In the Summer of 2017, we, Kurt Nelson and Tim Houlihan, decided to launch a meetup group in our hometown of Minneapolis, Minnesota. The first one was a success. The second meetup was to feature a prominent researcher, James Heyman, PhD, whose research was influential in laying the foundation for the way we separate social markets from financial markets in behavior. We decided – without any forethought – to record the speaker from the meetup and publish it as a podcast.

At this writing, we've averaged more than 1 episode per week since October 2017. By recording conversations with hundreds of researchers, practitioners and authors, we have augmented both their own knowledge base and enhanced the efficacy of the consultancies they operate.

PART 1

Our Work

Meetups under the Behavioral Grooves brand are based in Minneapolis, Philadelphia, and Dallas. With more than 1,000 members combined and with monthly gatherings since October 2017, Behavioral Grooves hosts interactive meetups with TED-style talks followed by workshop-styled problem solving and discussion.

The Behavioral Grooves podcast has listeners in more than 120 countries spanning the globe. The guests can be classified into each of these four areas: Researcher guests include George Loewenstein, Roy Baumeister, Linda Babcock, Wendy Wood, Gary Latham, Max Bazerman and John Bargh, to name a few.

Practitioner guests include leaders such as Artem Petakov, the founder of weight-loss app, Noom, and Bloomberg podcaster, Barry Ritholtz.

Author guests include Annie Duke, Roger Dooley, Ori Brafman, and Liz Fosslien among others.

The last group is Accidental Behavioral Scientists, who apply the insights but without the fancy nomenclature. They include founders of non-profit organizations from Nairobi to Minneapolis.

PART 2

Our Podcasts

We can't review all our podcasts, but here are five that stand out. We talked with Gary Latham, PhD about his groundbreaking work as the co-founder of Goal Setting Theory and his more recent work on priming. Gary shared stories of how he started researching the influence of goals on performance while working with loggers in the Pacific northwest. This research started him down the path of developing Goal Setting Theory with his long-time collaborator, Ed Locke, PhD. Goal Setting Theory has become the de facto standard for individuals and businesses. We also discussed the mysterious ways that seemingly random images or experiences unconsciously influence our behaviors to help us achieve goals that are otherwise unobtainable.

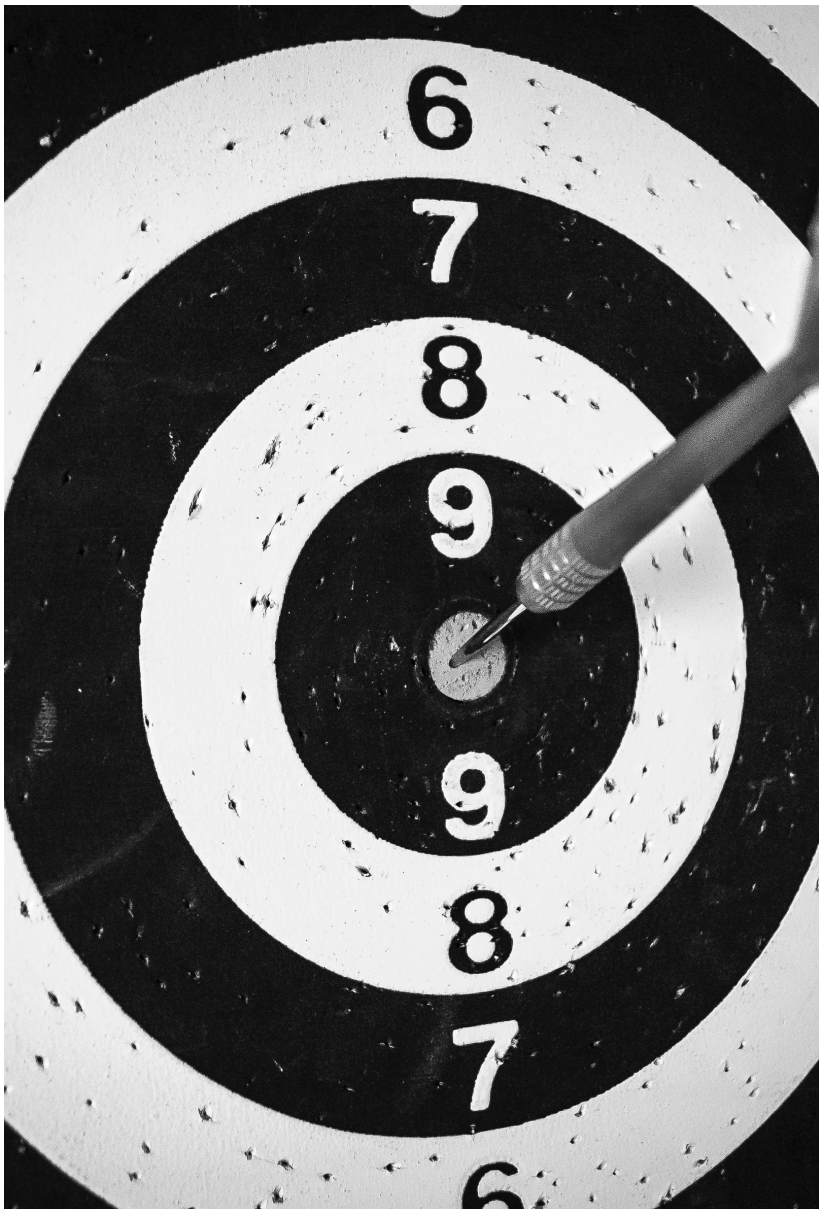
When we spoke with **Chiara Varazzani, PhD**, she was leading the behavioral science team for the Victorian Government in Australia. She's a neuroscientist whose work reminded us that between a stimulus

and an action, there is brain activity that we can measure. She studies the tradeoff between reward and effort, which is crucial for incentives. We also discussed the need for integrating more neuroscience with behavioral science.

And we can't talk enough about our conversation with **Eric Oliver, PhD** from the University of Chicago. His work on the connection between magical thinking and political conspiracies is outstanding. His big question was, "Would you rather pick up a nickel from a parking lot and put it in your mouth or sleep in Charles Manson's (completely sanitized) pajamas for a night?" Hint: Magical Thinking is most prevalent when we are more afraid of dry cleaned pj's than a nickel that's been on the ground for who knows how long.

We had a riveting discussion with **Aline Holtzwarth**, the head of Behavioral Science at Pattern Health and a principal at the Center for Advanced Hindsight. This was part of our COVID-19 series, where we looked at how behavioral science could be applied to understanding and improving our reaction to the pandemic. Aline reminded us that our behavioral immune systems are excellent when we can see, smell or touch something, but they get compromised when it comes to invisibilia, such as a virus.

We couldn't do an overview without mentioning our 4-time guest, **Annie Duke** (our most interviewed person by far). Recently, we reviewed her book, "How to Decide". This highly practical playbook builds on the greatest research of the ways we make decisions and applies innovative insight on how we can improve our life with better tools. She introduced us to the Archer's Mindset to remind us that missing the bullseye is not nearly as bad as missing the target altogether. We need to understand the boundaries of the target in order to make our best decisions.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PART 3

Case Study

Behavioral Grooves is not just a podcast, but also a consultancy – applying insights from our interviews and combining them with our communication acumen (particularly podcasting).

Working with a global telecommunications firm, we were tasked with helping leaders be more effective using behavioral-science-informed tools. We mixed soundbites from interviews with a couple of dozen company leaders with our insights on behavioral science for a fun, engaging, and insightful series of internal podcasts that was distributed to the division's 2,500 leaders.

Topics included goal setting, recognition, rewards and incentives. Each 10 to 15-minute episode featured soundbites from leaders, an instructional narrative and editorial content from Kurt and Tim to provide the behavioral science backbone to the series.

The podcast was hailed as a terrific way to share best practices in addition to the learning that came from the behavioral science content.

Behavioral Grooves' Top 5

LANTERN GROUP

Helping Companies Communicate More Effectively

Kurt Nelson
United States

Many companies have a problem with building engagement and trust with their employees. The problem doesn't have to do with their processes or procedures or even management behaviors – instead it has to do with how they communicate. We've found that companies often don't communicate effectively with their employees in a way that helps them understand and buy-in to the very programs that are designed to engage them.

While some companies have significantly improved their ability to create professional looking presentations and graphically appealing brochures, they still have not fully embraced bringing a behavioral science approach to their internal communications

This is where we help.

Our work utilizes behavioral science insights to implement exceptional copy writing and impactful graphic design to create communications that engage employees and drive action. The impact of this approach can be seen in two recent projects where we were brought in to help each company effectively communicate their sales incentive plans to drive an increase in understanding, engagement, motivation, and buy in.

In one case, a large medical device company was concerned that its salespeople were not fully understanding or engaging with their new incentive plans – specifically around what they needed to do to maximize their payout. The company's plans are complex and nuanced, and changes were often minor in appearance, but significant in their impact. Our analysis found that sales representatives believed that they understood the plan when in reality the did not.

We developed a pilot campaign with one of their sales teams that brought in a video-based overview of their plan along with a short infographic that highlighted the key incentive plan components. This was significantly different than the text-heavy PowerPoint and word documents that were traditionally used to communicate their plans. We took this approach because we knew that the video would tap into

a number of behavioral science insights including vivid visual progression (i.e., vivid anticipation leads to greater engagement and recall of information), narrative transportation (i.e., stories, like the ones we can tell in video, help immerse people in the information), and graphical recall (i.e., according to a 2006 University of Minnesota study, graphics have 38% higher information recall than copy alone).

Based on this pilot, we found a:

49% increase in the field's understanding of how they could maximize their incentive payout

26% increase in general plan understanding

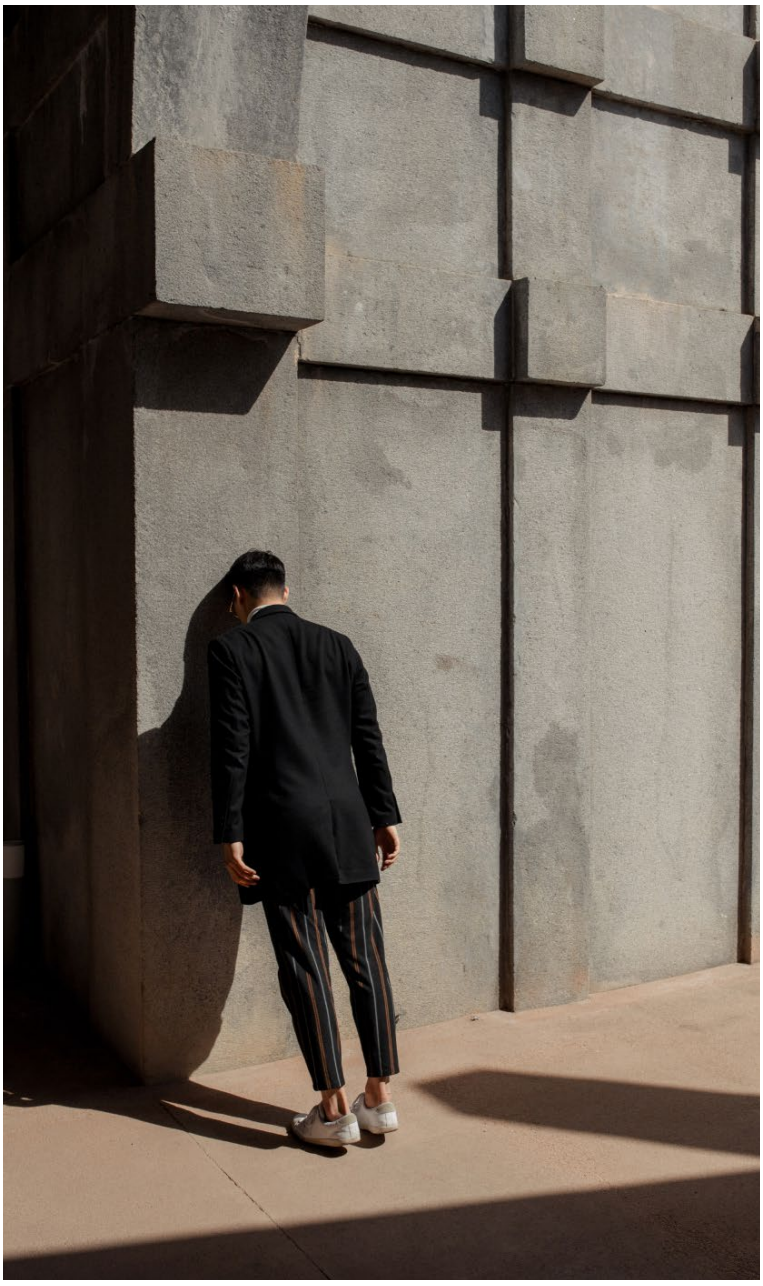
15% improvement in plan satisfaction

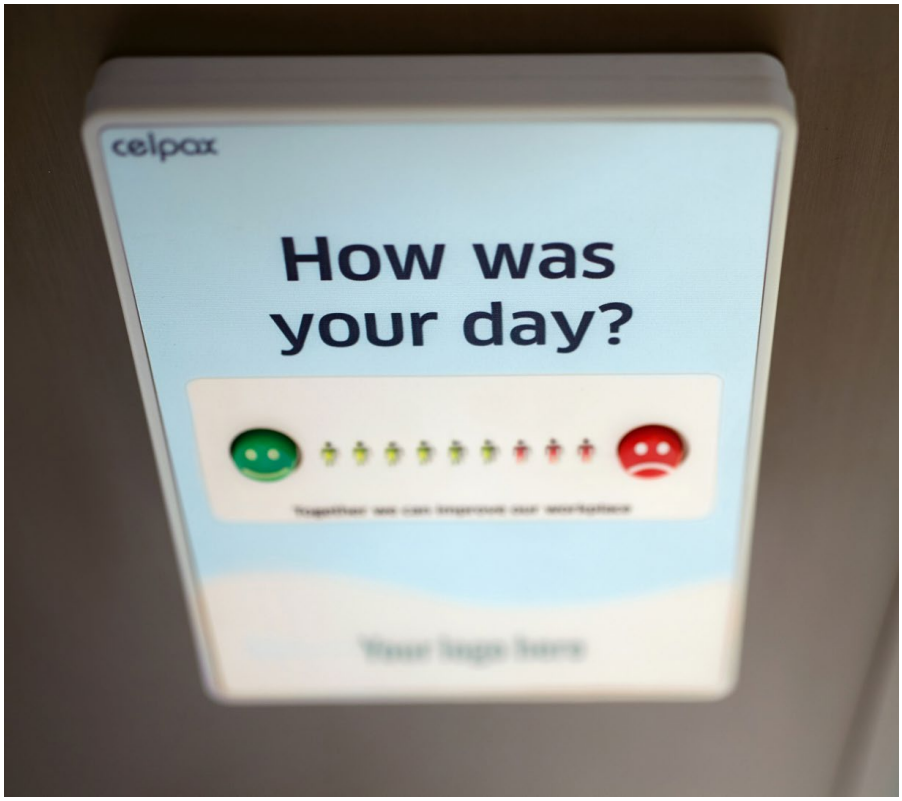
We have subsequently expanded our work with this client to 28 additional sales teams and added new, interactive PDFs as part of the communication mix.

The other case involves a top 20 pharmaceutical company that needed to effectively communicate its incentive plan during the pandemic. The company realized that its sales force was going through significant stress and uncertainty and that they could not continue with their normal communication cadence or messaging. They reached out to see how we could help.

Our initial analysis showcased the need to provide a sense of security and hope moving forward, while maintaining transparency and avoiding false promises. To achieve this, we needed to highlight the human centred approach that the company was taking (i.e., not having sales people in the field but still paying them out their target bonuses) while also pointing out that the future was bright (while not sugar coating the pain that people were experiencing). To achieve these objectives, we created a specific campaign that introduced an entirely new incentive brand and focused on providing human centred messaging.

The new brand focused on taking the sales reps on a journey through 2020 into 2021. The concept highlighted the great start to the year, the dark scary detour that COVID-19 created, and then maintained a focus on the bright future that they could expect on the horizon. We created a series of videos that used this messaging to convey the way that the company was handling their incentives, transparently conveying what was still uncertain, and looking at the possibilities moving forward.




celpax
How was your day?

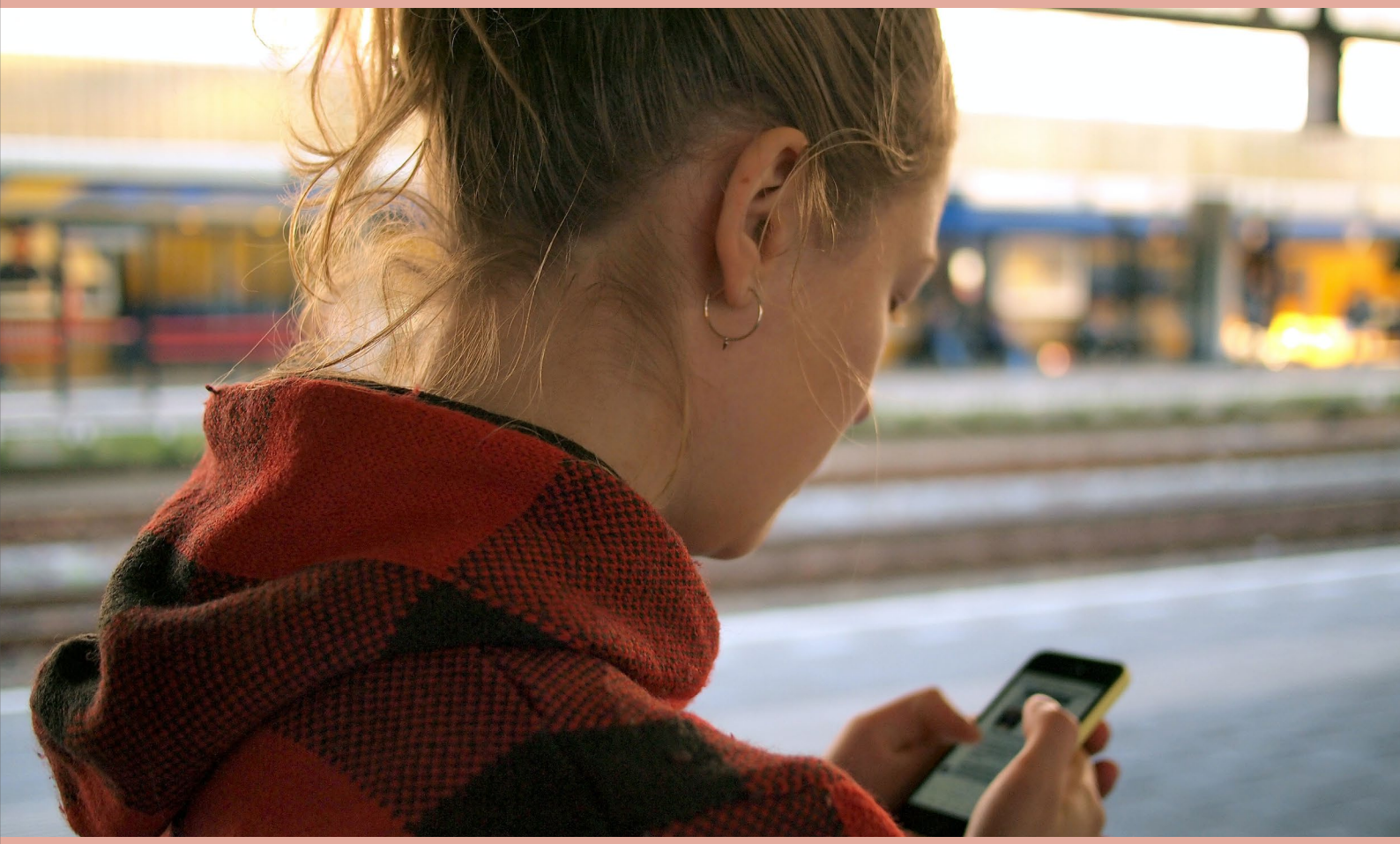
In addition to the new branding, we focused on "emotionally proofing" all of the communications. Behavioural science shows that people, particularly in times of stress, often negatively interpret vague information. All scripts and copy were looked at through this emotionally sensitive lens to ensure that we didn't inadvertently send the wrong message. This emotional proofing process also ensured that our communications focused on the salespeople as humans first and employees second.

The incentive department's communications were highlighted by the company president as being best in class during this time. Additionally, the team earned the top award from an outside organisation, which the director of the team attributed to the great communications that we were able to produce.

BEHAVIOURAL ALCHEMY

Helping Companies Communicate More Effectively

BEHAVIOR ALCHEMY



How to Build an App that Practices Getting Rich

Tim Houlihan
United States

The world is changing at an ever-growing rate. The decisions we make about what we know and, more importantly, what we're not certain about, are influenced by our DNA, the world we grew up in, the community we most closely associate with, the way we view ourselves, and even subconscious influences such as the weather and the headlines we noticed this morning.

BehaviorAlchemy applies the knowledge gained from psychology, neuroscience, sociology and economics to contribute to understanding "why we do what we do." We look at the world through behavioral science lenses and develop applications for a wide variety of business needs. We apply this behavioral lens to help clients improve employee engagement, design engaging products, build more impactful Incentives, and train leaders to apply behavioral principles with their employees.

PART 1

Our Work

We develop solutions in a consultative manner: we investigate to identify the problem through research, we analyze the results through a behavioral lens, we develop solutions based on our behavioral assessment, we pilot concepts to gather feedback and data on the proposed solutions, then revise as necessary to roll out successful interventions. We help human resources engage their employees, design sales incentives, create communication tools and apply game mechanics to make apps stickier.

We work with startups, global pharmaceutical firms, regional businesses, and non-profits. The applications vary on the assignment, but they all revolve around the idea of using behavioral science to positively influence people to behave in productive ways.

PART 2

Case Study

How does an app that's intended to educate young people on financial wellbeing keep them coming back? The nascent idea behind MoneyVerbs, whose goal is to help users practice getting rich. And to accomplish that, they need to learn from each other, load and monitor data, solve case studies...the things you do when you're practicing getting rich.

We were brought in to help MoneyVerbs apply behavioral science insights to the design of their app. We trained the development team on the fundamentals of game mechanics, goal setting, incentives, rewards and the behavioral science behind them. We brainstormed and facilitated sessions to build tools that would take advantage of the behavioral science under our guidance. All of this was done so they could do their own fishing, not just eat a fish.

The app is growing at triple-digit rates and return users continue to increase at exponential rates.

BEHAVIOR ALCHEMY

How to Build an App that Practices Getting Rich

BEHAVIOURAL BY DESIGN

Advancing Global Evidence for Local Practice

Vishal George
New Zealand

Evidence-based insights is widely regarded as the crème de la crème of strategic thinking for many governments, businesses and nonprofit organisations across the world. This idea is grounded in proposing programmes, products and services based on established scientific evidence of what works. As we embrace scientific methods in our strategy, we ought to consider the limitations of advancing a one-size fits all approach.

One of the most common insights from social psychology is the idea of 'social proof'. The term, coined by Prof. Robert Cialdini, suggests that people are more likely to engage in a specific behaviour if they can see that people are doing it. When Wikipedia tested this message in their fundraising banner,

"... fewer than 1% of readers give",

they violated the global evidence of positive social proof. By highlighting that less than 1% give (and in some instances "... less than 99% don't give") in their messaging, they were doing the exact opposite. The insight from social proofing suggests that they were normalising the fact that most people don't donate which in turn would reduce donation rates.

Many called for Wikipedia to remove this immediately or took to social media to express their grievances with this strategy. But it turns out, their online fundraising team was aware of this evidence-based insight and deliberately decided to test the opposite message on multiple occasions. They found every time they removed this message, their donation rates dropped significantly. The team hypothesised that there must be something in the localised donation context that alters the global rules of social proofing.

When Wikipedia tested this message in their fundraising banner, "... fewer than 1% of readers give", they violated the global evidence of positive social proof.

They found every time they removed this message, their donation rates dropped significantly.


DONATE

In the 2016 local government elections in Auckland, the voter turnout was less than 40%. The Research and Evaluation unit at Auckland Council had conducted a comprehensive review of behavioural insights to identify new strategies to increase voter turnout in the 2019 election. This report revealed a wide range of promising messaging strategies from global evidence, such as, expressing gratitude to create positive feelings of reciprocity. Another study with Danish voters suggested that messages with duty-framed-as-losses were most effective (e.g. "Do not let others decide your everyday – vote").

Our challenge was to consider all the global evidence to support Auckland Council and develop localised strategies that might increase voter turnout. We applied the Nudge Testbed platform to design 12 global strategies in the form of messages and stress-tested this with 433 residents in Auckland to identify localised strategies to motivate different demographics to vote. The online experiment revealed that the most persuasive localised strategy was to get people to feel ownership over their right to vote, which is referred to as 'the endowment effect'. The losses people may experience as a result of not exercising their rights can actually motivate more people to vote.

The most persuasive localised strategy was to get people to feel ownership over their right to vote, which is referred to as 'the endowment effect'

However, for some underrepresented demographics, the most effective strategy was not always the most effective approach. For young Aucklanders (18 to 34 year olds) and Māori audiences, the message “Make sure the right people represent you” was a far more effective strategy. To achieve a sustainable democracy, a pivotal localised strategy is to inspire diverse candidates to stand for the local body elections. Celebrating younger candidates and diverse Māori representatives can inspire demographics that have lower levels of voter turnout.

The adoption of evidence-based insights should only be the starting place for advancing new strategies. Rather than blindly following global insights and expecting behaviour change to follow, we need to stress-test our strategies with our audiences for better outcomes. In order to do so, a new set of scientific tools can enable us to rapidly understand what resonates and what does not resonate with people in the localised social context.

Advancing global evidence: The next evolution to evidence-based insight needs to involve collaboratively designing with communities and testing which global insights from behavioural science supports change in our local practice.

CHAPTER *Four*

CIRCLES IN TIME

Is Behavioural Science Reaching a Local Maximum?

David Perrott
South Africa

In this article, I'll unpack the assumptions and reasoning that underlie my current view of applied behavioural science.

PART 1

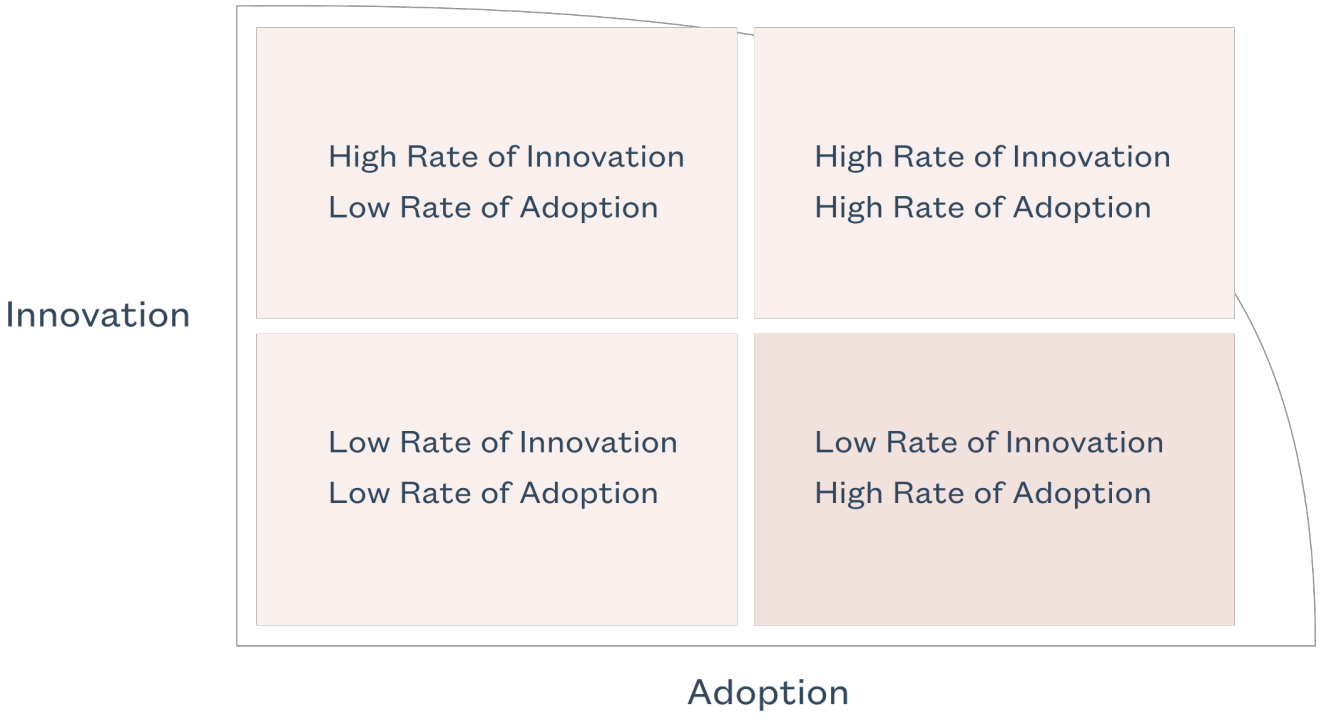
The Shape of Progress

Applied behavioural science is the use of evidence-based insights, tools and techniques to solve real-world behavioural challenges. The field has seen enormous success in recent times, evident in the rate of global adoption over the past five years. Whether it's public policy units, large corporations, consultancies or technology start-ups, teams are opening their doors to the behavioural sciences, and taking the insights it has to offer very seriously. This is a huge and well-deserved victory. After all, for the past decade, the field has been optimising for the functions of broad-scale buy-in, adoption and usage. But has all the attention to adoption come at a cost?

UNBALANCED DRIVERS OF GROWTH

The sustainable growth of a field requires horizontal adoption and exploitation of the validated technologies — in the case of applied behavioural science, this means frameworks, techniques, processes, theoretical models, methodologies and databases. Check! We're doing well there. However, continued growth also requires a fruitful vertical exploration of new and innovative technologies, allowing for continued expansion over the long run.

My sense is that this 'horizontal' growth has been heavily relied on to fuel the field's progress narrative, and less attention has been paid to the innovation dimension. You can easily see this narrative frame when you look at the way we talk about progress (number of RCT's a team have completed, number of behavioural units or capability building programmes set up around the world, the geographic diversity of attendees at conferences, etc). I don't mean to downplay the importance of horizontal growth. It is incredibly necessary. It just isn't sufficient on its own. Without healthy movement upward, we will inevitably start closing in on a saturation point.


High Rate of Innovation
Low Rate of Adoption
High Rate of Innovation
High Rate of Adoption
Low Rate of Innovation
Low Rate of Adoption
Low Rate of Innovation
High Rate of Adoption
Innovation
Adoption

INCREMENTAL OPTIMISATION ISN'T INNOVATION

To be clear, there have been many developments of the past ten years that have moved the needle on vertical growth. However, for the most part, these improvements have been in the form of refinement and incremental optimisation on what has worked in the past. Figuring out failure points, tinkering where there is room for iteration and patching up the holes as they appear. We've made our existing tools sharper, without adding new tools to the toolkit.

To provide a sense of what I mean, consider progress along the technical dimensions of the applied behavioural science toolkit. Here are some examples everyone should be familiar with.

Let's start with methodologies. Many practitioners seem to still be leaning on some variant of Ideas42's behavioural design methodology or the RCT protocol template that J-PAL built out years before that. Thaler and Bernatzi's Save More Tomorrow, BIT's tax payment messages, the Obama campaign's implementation planning prompts and Opower's social norming nudges are still the go-to case studies when you want to talk about the impact of behavioural science. Thinking, Fast and Slow, Risk Savvy, Scarcity, Predictably Irrational and Nudge are still the most frequent book suggestions for people who are interested in learning about the field. MINDSPACE (EAST's predecessor), COM-B, the Behavioural Change Wheel and Cialdini's Principles are still the frameworks practitioners lean most heavily on when making sense of potential interventions.

These early innovations have been incredible success stories for the field, and their continued legacy is testament to the impact they have had. What may be cause for concern, however, is that they were almost all created more than a decade ago. Why is that the case?

It is not like there hasn't been talk of big innovation. There have been animated and exciting flirtations with neighbouring fields such as machine learning, systems thinking and the complexity sciences. Yet these sorts of collaborations seem to be perpetually more present in 'future of the field' slide decks than the real world. This may be less surprising once the limiting forces at play are understood.

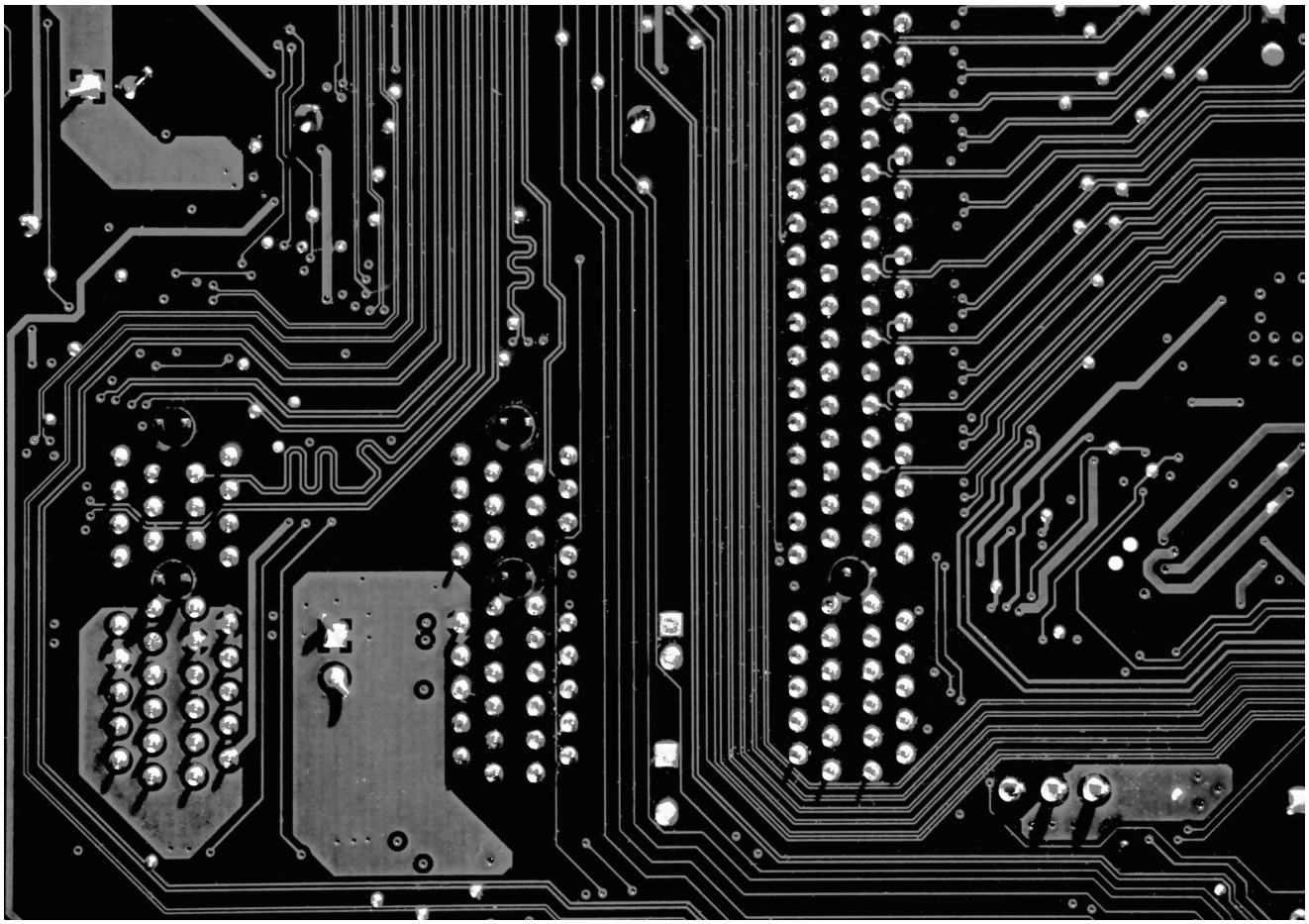
WHAT IS HOLDING VERTICAL PROGRESS BACK?

Like many others, I've been surfing the early innovation waves created by the field's founders. For the past seven years, I've been tinkering here and there, generating buy-in and building capabilities and competencies in younger practitioners. Yet in recent years, I've become slightly sceptical. Unsure that the propulsions created by those early innovations, on-going refinements, incremental optimisations, as well as the wide-scale horizontal adoption, are enough to keep the field expanding outward to reach its potential over the long run.

My sense is that a substantial set of new innovation waves are needed for applied behavioural science to continue thriving. So, I decided to investigate — to understand where the challenges are and explore potential ways to solve them. In doing so, I collated a set of technical and ethical limitations that are getting in the way of vertical progress. What I've found is that almost all of these limitations are well studied and understood, and many of the proposed solutions have been around for quite some time.

SO, WHY HASN'T THERE BEEN SIGNIFICANT INNOVATION?

As I began to step back and look at these limitations together, I started to see the broad system of related moving parts, and the answer to this question became more apparent. The issue isn't in overcoming each of the particular limitations directly. Rather, it is how the suggested resolutions influence and constrain one another. That



is to say that in certain cases the suggested paths put forward, to, for example, overcome technical limitations, were good ones, but because they don't operate in isolation, they are heavily constrained by other limitations, especially those of a more ethical nature. The further we move down the technical progress paths, the heavier the ethical headwinds will be, making progress slow, effortful and costly, if possible at all.

To explain how I reached the position mentioned above, I'll unpack each of the technical and ethical limitations identified and discuss the current suggested solutions. I'll then step back and discuss how these suggested solutions come into conflict with one another, restricting vertical progress and creating a local maximum in the process. I'll also explore the implications of reaching a local maximum (there's an interesting set of costs and benefits), and finally, I'll share a set of potential paths forward worth betting on, that may get around some of the sticky points discussed. Exploring these paths may be costly in the short-run, yet prove to be fruitful over the long run.

PART 2

The Technical Limitations

1. REPLICABILITY

Firstly, and perhaps the most familiar limitation to those working in the behavioural space, is the barrage of research findings that have failed to replicate in recent years. This crisis in reproducibility emerged because of a number of factors, but the primary culprits were small sample sizes, outdated protocol structures and questionable research practices (p-hacking/cherry-picking, etc.). The incentive setup and social pressures created by the structure of the academic system didn't help either — novel, counter-intuitive and sexy findings hold more currency than trivial, 'nothing-new-here' sorts of studies that may have more rigour to them.

Issues with replicability have important implications for behavioural practitioners, as the evidence-based nature of their diagnoses and interventions is one of the cornerstones that make the whole effort

valuable. This value gets diminished if the evidence underlying the initial assumptions is shaky. It is easy to see how a faulty foundation here does more harm than good. Practitioners may be discouraged from using behavioural science literature out of fear that it may fail to replicate in the future, discrediting any work that they build on top of it. Even if the academic research is just a jumping-off point, the time, effort and costs saved by starting with a narrow, more concise search space can be hugely beneficial.

Fortunately, there have been some great initiatives in recent times, lead by rockstar researchers like Brian Nosek, Sanjay Srivastava, John List, Simine Vazire and many others. Initiatives like Open Science and the introduction of experimentation protocol features like pre-registrations are good examples of this. In addition, there have been efforts to create better incentive structures for replication studies and fieldwork with larger samples. Collaborations with government and private sector institutions have also helped provide researchers with access to the numbers needed to reach the required statistical power. A nice example of this is the ongoing collaboration between Harvard Business School and Commonwealth Bank.

2. UNKNOWN BOUNDARY CONDITIONS

Behavioural-informed interventions have proven to be more or less effective, given the presence or absence of certain conditions. Therefore, gaining a better understanding of the context in which an intervention achieves a particular behavioural outcome is important for practitioners. A good example of this is the famous energy conservation intervention popularised by Opower. Using previous research conducted by Cialdini and others, they found that showing citizens how their electricity consumptions compared to that of their neighbours (the social benchmark), lead to a marked reduction in energy usage. What is often not discussed about this study is that there was also a boomerang effect, participants who were doing better than the social benchmark actually regressed, slacking off on their energy savings after seeing the social benchmark. With hindsight, this makes sense: social benchmarks are performance agnostic. The mechanism drives regression to the norm, not energy conservation, per se. Understanding that the social benchmarking intervention is effective, but may have adverse effects for those who are 'better than the benchmark' is an important boundary condition, which could help practitioners to spot Boomerangs and 'Big Mistakes' and to mitigate their effects.

So, we know that these boundary conditions are there, and we know that they are important. The problem is that the characteristics aren't well understood for the majority of existing interventions, even in the contexts where they are commonly used. In saying this, there has been much more discussion of boundary conditions lately. These discussions, in combination with independent variables being studied

over a variety of contexts, more field studies, bigger samples allowing for sub-group analysis and more meta-analyses, should lead to exciting developments in the years to come.

3. COMBINATORY EFFECTS

In an ideal situation, practitioners would set up isolated experiments to test the effects of different interventions and how those compare to the effects of interventions when they are combined. This is rare. In practice, it is commonly the case that a combination of interventions will be tested all at once. The problem is that although there may be strong evidence for particular interventions (e.g. leveraging temporal landmarks or setting implementation intentions), the combinatory effects of two or more interventions are often not as well understood (e.g. a programme that uses temporal landmarks in combination with implementation prompts to get people exercising). This isn't often discussed as a concern because intuitively it seems to make sense that piling interventions on top each other increases the chances of solving the behavioural problem. This is a dangerous assumption, as counter-intuitive crowding out effects may exist. More might be better, but it also may not be.

Studying the combinatory effects of interventions isn't a common research area. Perhaps this is because the underlying psychological mechanisms are more interesting to academic behavioural scientists, and this sort of research becomes much harder to do when you have more moving parts. However, with intervention combination being less the exception, and more the rule in practice these days, it is a valuable area for more rigorous investigation. Gabriele Oettingen's WOOP framework is a useful paragon for researchers and practitioners to look to if we want to make progress here.

4. CULTURAL VARIATION

This one is close to home for me. I work across Africa, yet lean on research that was conducted in either the United Kingdom, Europe or the United States. The problem with this sort of extrapolation comes in two forms.

Firstly, it may be the case that the direction and magnitude of an intervention's effects were the results of local norms that are unique to narrowly sampled WEIRD contexts, rather than some universal mechanism that is broadly generalisable. Even if the researchers have a large sample and robust research protocol, over-generalisation is possible.

Secondly, there may be cultural beliefs, norms and expectations that crowd out the effects of particular interventions. For example, there is a lot of research on the effectiveness of lotteries as an incentive structure for increasing uptake and initial usage of services. However, in Accra, Ghana, strong religious-cultural norms and pyramid scheme-type scams have lead lottery-type incentive structures to be viewed with distaste. Organisations and institutions that use lottery-style incentives are therefore likely to suffer backfire effects, and worse, suffer damaging erosions of their reputation, credibility and trustworthiness.

Whether it's over-generalisation or cultural crowding-out effects, the consequences are the same: evidence-informed interventions that fail to have the expected impact on a particular behavioural problem.

There is cause for optimism though. With greater access to the internet and the growth of virtual research labs, cross-

cultural research studies are more common these days. Global partnerships between research institutions and organisation are also starting to come online. Research consultancies like Busara and Ideas42 are doing some really great work in this space. My sense, however, is that to unlock real value here, behavioural researcher and practitioner competencies have to be built within local organisations. This will enable teams to conduct research and run experiments locally. Why is this important? Because it enables an important shift in attitudes towards academic research findings, as opposed to relying on the conclusions made by researchers halfway across the world, the findings can be treated as informed hypotheses, that need to be validated locally. This creates an appetite for local experimentation, and more effective, culturally-specific behavioural outcomes emerge as a result.

5. WITH-IN AND BETWEEN-SUBJECT IDIOSYNCRASIES

This is where things start getting really tricky.

For unknown reasons, individuals within a seemingly similar context will be more or less responsive to different interventions. To make things more complicated, individuals responsiveness to a particular intervention can change over time or as a result of changing contextual features. For example, a set of individuals may be responsive to a social benching intervention, while another segment of the same population may not respond at all, yet be highly responsive to scarcity-orientated messaging or communications that take advantage of authority bias.

The suggested paths forward here all seem to orientate around getting access to individual-level data, to better understand

the target population heterogeneity, and to use that data in combination with machine learning in order to deploy sharply personalised interventions that are uniquely tailored to each individual. These tailored interventions are deployed in an automated manner using individual-level psychological, cognitive and situational profiles, which dynamically evolve over time. Yeung's 'Hypernudges', Thaler's 'Choice Engines', Mills' thinking around 'Personalised Nudging' and Fogg's 'Persuasion Profiling' ideas are all good examples of interesting work being done in this area.

Personally, I find the whole space fascinating. At the same time, I'm sceptical that real progress can be made here without resolving some of the other core technical and ethical issues that exist. I'm also not very optimistic that those issues can be resolved, at least not quickly. Progress in the personalisation space, or the lack thereof, will play a significant role in the shape that the field starts taking over the next few years. I also wouldn't be surprised if we see rapid progress here in certain countries (especially those with high-trust institutions and collectivist cultures), while at the same time very

limited progress in others. Whatever the outcome, it will be exciting to watch.

A final thought on the problem of individual difference: An alternative solution to heterogeneity is customisation. With this approach, impersonal interventions are deployed (e.g. defaults) and individuals can then adapt particular settings to suit their personal preferences (e.g. the Apple iPhone's Screen Time feature). This gets around some of the ethical concerns that arise with a purely personalised approach, yet may be limited to a narrow set of contexts. Individuals may also simply decide to go with the status quo (or do so unintentionally), even if there are more suitable options. This, in my opinion, is an interesting and underexplored space for growth.

6. CHANNEL & DATA ACCESS

The effectiveness of interventions can be constrained by the channels and data available to the practitioner. Public sector practitioners are largely limited to interventions in the public spaces, or via relatively inflexible communication channels. They also often need to rely on proximate data measures, with assumed links to target behaviours, rather than measures that relate to the target behaviours directly. In the developed world, limited access is a headache that needs to be resolved, while in many developing nations, access to good behavioural data is such a distant pipedream that it feels weird to complain about it.

Private sector organisations, on the other hand, can access behavioural data via the product, service and communication touchpoints that their employees and customers engage with. There is a much greater opportunity here, especially given the intimate nature of particular technology products (e.g. Apple's watch, Google's search tool or browser, social media platforms like Facebook, Twitter or Instagram).

If we think of data and channel access as instrumental to positive behaviour change, it is intriguing that there isn't more interest in influencing positive behavioural outcomes via private sector vehicles. There is just vastly more potential there, in comparison to influencing citizen behaviour using the largely static data that is available via public sector channels. There are exceptions to this, China and Singapore are the obvious ones, but these public sector institutions exist within very different political and cultural environments to most other governments, especially those in the West.

Generally speaking then, public sector institutions may not have the data and channel access to solve certain important behavioural challenges. However, a promising avenue for growth here may be to solve these problems indirectly. This can be done by focusing on audits, interventions and policy changes that shape the nature of the way companies' interface and engage with citizens. Sugar taxes, GDPR, sludge audits and dark pattern penalties are all interesting examples of what is happening in this space.

7. IMPLEMENTATION & SCALING ISSUES

Even if a robust behavioural research finding is trialled and proven to be effective within a particular local context, it can still fail when implemented at scale. The reasons for failure vary, sometimes the service landscape changes, sometimes key stakeholder buy-in diminishes. Other times there are reprioritisations on the product, programme or policy roadmap. Failure to implement at scale can also be due to resource constraints, inadequate infrastructure or ROI miscalculations. There may also just be emergent effects that exist at scale that simply weren't possible to foresee during the field trials.

These factors are all difficult to control. Practitioners can lower the downside risks by identifying, discussing, accepting and managing all the potential failure points. There are also certain aspects of implementation that can be fully mitigated upfront. For one, get key stakeholders to pre-commitment to scaling, given certain outcomes are achieved upon completion of the field trial. Mapping out the scaling scenario upfront and utilising planning tools such as backcasting and premortems help too.

8. UNFORSEEABLE SECOND-ORDER EFFECTS

Interventions don't influence behaviour in a vacuum. There can be important long term effects, immediate side effects and wider unintended externalities. These effects are tricky to foresee, difficult to map accurately, incredibly hard to model and nearly impossible to measure perfectly. As Applied Behavioural Science starts

moving away from the low hanging fruit and attempts to solve more complex (or wicked) problems, that involve dynamic behaviour (change over time), and non-linear outcomes, the field is going to need to start grappling with these components.

Here, closer collaboration with system thinkers, complexity theorists and network scientists is a useful starting point. I'm not even sure that's enough though, especially in the case of centralised teams (large organisations, public institutions) trying to solve dynamic behavioural problems. These tend to operate in complex local contexts, with important yet hard-to-measure knock-on effects on the unique individuals, their communities and the environment around them. This is one of the technical limitations that seems incredibly difficult to overcome, especially at scale. I expect contextually intimate and localised intervention deployments may bear more fruit here, but how you do that sort of thing in practice is tricky.

PART 2

The Ethical Limitations

1. PREFERENCE AMBIGUITY

In some situations, it may seem relatively easy to infer what an individual's preferences are. There are many scenarios, however, where this is not so clear. In these cases, the practitioner needs to go about gathering information about individuals' preferences. This moves practitioners into the messy realm of epistemology. What kind of information can be said to provide a reliable indication of an individual's preference? Are long-term preferences really more important than those that prioritise immediate gratification? Is relying on experts enough? Can we just ask people or observe their behaviour and infer preferences from that?

It's a complex problem, but for the sake of discussion, let's just say that it is solvable. Even if the practitioners know what kind of information would be necessary to understand an individual's preferences, actually collecting that information is

a whole other challenge. Especially if preferences are expected to 1) be heterogeneous within the target population, 2) be contextually dependent and 3) change over time. Additionally, there are also situations where the preferences of individuals are known, or the information required for them to be known can be accessed, yet individuals explicitly do not want third-parties to make decisions for them (e.g. medical treatments and end-of-life decisions).

One final issue with preferences is intention attribution. Even if practitioners have a clear understanding of an individual's goals or values (high-level preferences), they still need to understand if the target behaviour of interest is something that the individual supports. The problem here is that it is possible that an intention to perform a particular behaviour can be misattributed to an individual because the behaviour is seen as instrumental in achieving a particular personal or professional goal. Matt Wallaert has a neat example of this in his 'Start at the End' book: Say it is known that an individual wants to preserve their good health, yet is strongly opposed to getting vaccines, from the practitioners perspective, going to get a vaccine is a behaviour that is instrumental in achieving good health outcomes, yet they would perhaps be wrong to intervene here, given the individual's opposition to the specific activity. There is an important misalignment between the high-level preference (health) and the preferred behaviour (not getting a vaccine) that practitioners need to appreciate.

It's a tricky yet important problem set, and the paths to resolution aren't obvious at all.

preference ambiguity

2. LACK OF TRANSPARENCY

There is good evidence that behaviourally-informed interventions are effective, even when the target populations are made aware of the interventions. In saying this, there are still certain kinds of interventions, where disclosure is likely to have an effect. This creates a problem. Even if the target population's preferences are well understood and the target behaviour supported, a lack of transparency can be seen as undermining an individual's autonomy, and therefore worth ethical consideration.

This is further complicated by the idea that there is 'no neutral choice architecture'. It isn't like a choice environment is playing a passive role in an individual's decision-making processes, and all of a sudden, become active and influential once a practitioner intervenes. No, the environment is always influencing, shifting and shaping our behaviour. As a simple example of this, you don't have to look much further than the order of commonly used information.

There is a lot of evidence that ordering effects have a strong influence on our behaviour (top-ranked search results, survey answers and food items get selected more often). There is no neutral way to order these items. Ordering is a trivial case, but the principle applies very broadly. Influence is always at work. We are creatures of context, not, creatures of 'only psychologically informed and intentionally designed' context. To accept this argument is to accept that the ethical discussion is more about the intentionality of the practitioners and the magnitude of influence, rather than whether a particular context or choice environment is inherently ethical or unethical.

Another consideration, when thinking about transparency, is mechanism disclosure. It is one thing to be transparent about 'what' the intervention is, but what about 'how' the intervention works? Take, for example, a recycling campaign that includes information about dynamic norms (an upward trend in the amount of recycling being collected in your neighbourhood). The intervention may be disclosed here, but what about how dynamic norms operate psychologically? Should this be disclosed? What effect might that have on the effectiveness of the intervention? Sometimes the mechanisms aren't well understood, what then? What about when interventions are used in combination with one another? And at the risk of being captured by infinite regress, what about the psychological effects of the mechanism disclosure, should these be disclosed? Even if an intervention's mechanisms should be disclosed, this is often very difficult to achieve in practice, let alone getting individuals to actually engage with the disclosure.

A final issue relating to transparency is disclosure around experimentation. These days, A/B tests are commonplace throughout the corporate world, and RCT's are quickly becoming a familiar instrument in the policymaker's toolkit. However, there are still important ethical implications to consider, as Jon Jachimowicz and others have discussed in detail. There are also citizen sensitivities that need to be accommodated, as Facebook learned in 2012.

Resolving these issues isn't obvious, but their implications aren't trivial either. We can't simply ignore them because of their complexity — another hard puzzle for the smartest amongst us to try to solve.

3. PSEUDO-REVERSIBILITY

The ability to reverse the behavioural effects of an intervention can be important. Although reversibility may seem like a strength of the softer, more liberally paternalistic nudging approach so commonly used in Applied Behavioural Science, especially in comparison to harder policy instruments (or customers incentives and employees penalties in organisations), this may not always be the case. The concern is that because some behaviourally-informed interventions operate outside of conscious awareness, even when optionality is available, the ability to reverse a choice may not always be possible, practically speaking.

This is what Johnson, Goldstein and more recently Reijula and Hertwig, refer to as a gap between nominal reversibility and actual reversibility. It is difficult to opt-out of something you aren't consciously aware you are opting into.

As a result, and paradoxically perhaps, the more explicit, harder policies, penalties, restrictions and punishments may in some interesting sense provide more reversibility, as they can be more easily identified, discussed and challenged. This sort of citizen activism is difficult to do if you don't know if an intervention is present or how it operates.

Again the lack of choice architecture neutrality is an important principle to appreciate here.

4. UNKNOWN EXTERNALITIES

Let's imagine the primary effects of a behaviourally-informed intervention are known. Additionally, let's imagine these effects align with the target population's preferences and that the target behaviour is supported. Let us also imagine the intervention is transparent and it's operating mechanisms are disclosed. In this scenario, deployment of an intervention may still be ethically problematic due to the wider rippling effects. These knock-on effects could be intended or unintended, known or unknown. The effects could be personal (for example, getting people to exercise may have pendulum effects or moral licencing consequences in the short run, and wider physical health outcomes over the long run). The effects could also be social (for example, the primary effects of the intervention lead to broader effects on social group cohesiveness) and the effects could be environmental (the primary effects lead to changes in the environment surrounding the individual).

A narrow focus on the target behaviour and related outcome measures is a feature of the behavioural approach (get uncomfortably specific as Kristen Berman of Irrational Labs likes to say). However, without appreciating the wider ripples created by the intervention, the maxim can end up being a bug.

Widening the boundaries to the system within which the intervention operates seems to be an important and ethically necessary exercise, but one that isn't often practiced or discussed amongst those in the field. Of course, where the system boundaries should be drawn is complicated, and in some sense, an impossible question to answer perfectly.

Just moving one order out seems like a good starting point.

5. DATA PRIVACY & TRACKING CONCERNS

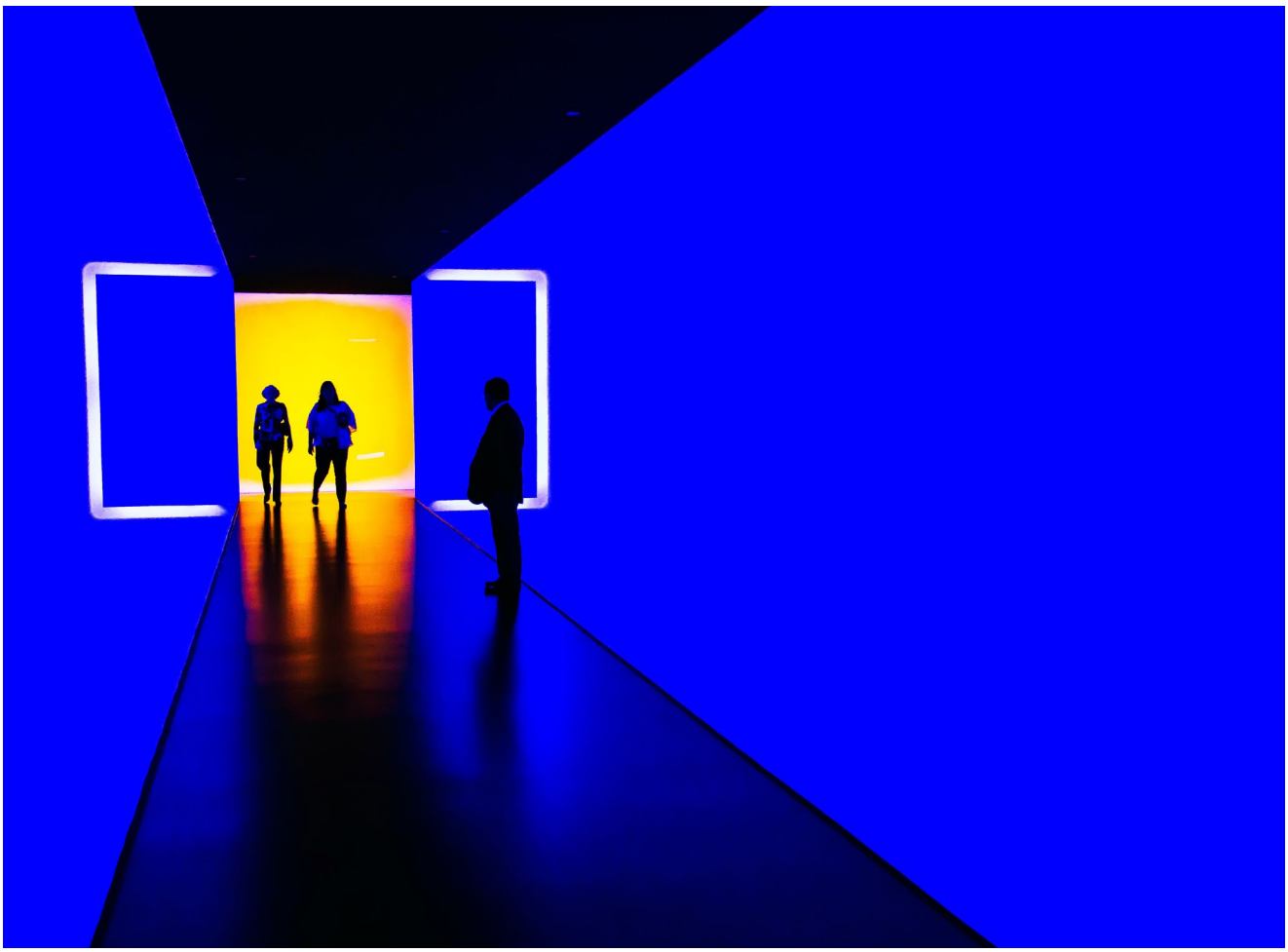
As discussed previously, given the limitations to assuming an individuals preferences and their responsiveness to particular interventions, gathering behavioural, situational and psychographic data can be incredibly helpful. Personalised option-sets, tailored interventions and dynamic updating are all much more difficult (if not impossible) tasks without detailed and reliable individual-level data. The concern is that collecting and utilising this data brings up a set of ethical issues, that seem to magnify disproportionately with every additional step practitioners make down this path. The core ethical considerations here are around transparency of data collection (does the individual know their data is being collected, and can they opt out?), transparency of data uses (does the individual know how their data is being used to influence their behaviour and can they opt out?) and accountability for data privacy (who is responsible for the individual's data privacy and what are the consequences if this data is leaked?).

Even if these ethical issues are resolved, there is also an important psychological dimension to individual-level data collection, usage and privacy. Individuals seem more comfortable and open to tracking and data-driven interventions when the activities are perceived as norms and are seen as coming from benevolent and highly trustworthy institutions. The problem here is that norms, benevolence and trustworthiness are all dynamic and

unstable psychological percepts. They move up and down with time. Innovating along a path that is so susceptible to social and psychological retort is a risky endeavour, especially as the sensitivity seems to increase with every step forward.

For example, compare the Obama election campaigns (shaped by VAN) to those deployed by Brexit and Trump (shaped by Cambridge Analytica). Arguably, the data collection capabilities and micro-targeting tools utilised in 2016/2017 were just the next generation of the Obama campaign toolkit, yet the societal reaction was an order of magnitude worse. Of course, some of this reaction was driven by CA's malicious manner of data collection, but individual-level psychographic profiling and finely tuned micro-targeted messaging (often referred to as a psychological warfare tool) were also serious concerns at the time, yet slightly blunter versions of these tools are used as consulting case studies.

The general sentiment towards personal tracking, data-collection, data-driven micro-targeting and personalised interventions seems to be slightly less apprehensive these days. However, it wouldn't be wise to forget that the landscape is still a minefield. That is to say; it is an extremely high-risk environment with catastrophe just waiting to happen again. How do practitioners continue to move down the path of ever more finely tailored interventions without risking a debilitating CA-type event? Especially knowing that the societal reaction could significantly damage the long-run reputation of the field, and put a stop to progress entirely. Perhaps, I'm overly precautionary in my thinking here. It is also likely that risk redundancies will emerge from familiarity and normalisation, similar to what seems to



be happening with the social credit systems that are being so eagerly adopted in the east.

6. BROADER PSYCHOLOGICAL IMPLICATIONS

The position presented by Applied Behavioural Science can often be perceived as leaning more towards the paternal than the liberal. As the field continues to expand horizontally, the implications of this belief set shouldn't be overlooked, especially given the research on the psychological consequences of learned helplessness and a low sense of agency (e.g. stress, passivity, more frequent depressive positions, etc.). Even if 'the world is hard', Applied Behavioural Science needs to be careful not to lobby for ideologies that lead to a self-fulfilled, prophetic, over-reliance on third-parties to get through life.

It is important to acknowledge the cognitive distortions that plague our mind and the motivation mishaps that lead to self-control failures. There are also, however, downsides to pushing narratives that may dispel a sense of self-determination, self-reliance and self-confidence. The balancing act requires both an acceptance of the mind's palaeolithic predispositions while still instilling a sense of agency. We need to be telling better stories of how these two realities can operate together. The world might be hard, but that's okay because there's a Macgyver in you (or perhaps a 'Matt Damon from The Martian' for younger folk).

PART 3

The Bigger Picture

The collections of technical and ethical limitations are difficult enough to overcome in isolation. My sense, however, is that the real challenge here is the constraints that each of the limitations put on one another. Overcoming the difficulties associated with population heterogeneity, preference ambiguity, longitudinal effects and second-order externalities are all limited by individual-level data collection and usage concerns. Moving forward with combinatorial approaches to behaviour change is limited by the need for intervention disclosure, mechanism transparency and narrow channel access. Culturally specific interventions that use experimentation at a local level dial up the importance of understanding the ethical surrounding field experimentation. Attempting to make significant progress down any one path (e.g. personalisation), results in tension on the other part of the system (e.g. data usage concerns).

WHAT ARE THE IMPLICATIONS OF THIS?

The best way I have found to make sense of the position applied behavioural is moving towards, is by leaning on a concept often used in mathematics and evolutionary biology — namely, a local maximum.

PART 4

Local Maximums - a Brief Digression

To help make sense of the evolutionary processes, biologists often use a visualisation tool called a fitness landscape. The tool demonstrates the relationship between genotypes (an organisms genetic makeup) and reproductive success, as a way to understand the paths of evolutionary optimisation within a particular search space.

What does that mean?

In short, when an organism, let's say Darwin's famous finches, for example, reproduce, there are inevitably new gene combinations and slight mutations that emerge. Biologically, the baby finches are subtly different from their parents. If the baby finches manage to survive childhood and go on to reproduce, this slight shift will likely happen again. And again. And again...

This process of reproduction and random mutation is how evolution moves an

organism around the genetic search space. If a random mutation leads to genetic combinations that increase the fitness of the next generation, they are more likely to go on and reproduce, while mutations that lower an organism's fitness function are less likely to.

BACK TO THE FITNESS LANDSCAPE

You can imagine the evolutionary process randomly moving around a three-dimensional landscape. The horizontal plane is a collection of possible genotypes, a two-dimensional search space that evolution moves through. At every point in the search space, there will be a vertical fitness level, which you can think of as how successful a given genotype is at reproducing. So evolution slowly (the sort of slow we cannot even comprehend) moves through the search space at random, and when it hits on a mutation that improves fitness (reproductive success), it moves upward, gradually climbing a hill. Through this process, evolution iterates on what is working (throwing away what is not), gradually optimising an organism for a particular environment. In this way, evolution works a bit like a blind man with a stick walking up a hill. The blind man uses his cane to feel the space in front him, and if the ground is slightly higher, we move toward it, and so upward. He then repeats the process, gradually moving slowly to the top of a hill.

This is the core operating algorithm of the evolutionary machine. You and I are the results of this elegant and beautifully simple optimisation algorithm. We wouldn't be here without this. Neither would any living organism.

In saying that, evolution's core strategy isn't perfect. Just like the blind man and his stick, evolution cannot see. All it is able to do is feel around for the ground that is slightly higher than the turf it is currently on. Like the blind man, blindness becomes a bit of an issue when an organism gets to the top of the hill. At this point, there is no higher ground. No way to make any further progress upward. The blind man has reached the peak of his hill.

At this stage, our blind man metaphor' starts to lose its grip.

Our blind man's purpose isn't perpetual hill climbing so he can grab some cold water, eat the sandwich he packed in his bag, take a deep breathe and start making his way down the hill. No harm is done. Evolution, on the other hand, is an optimisation algorithm with the core function of getting to the highest point possible. This is fine if the process just so happens to climb the highest hill in the fitness landscape (the global maximum). The problem is that there are many hills and mountains and only one Mount Everest. So the chances of that happening can be quite low, depending on the landscape. It is perhaps more likely that the algorithm has reached one of the smaller peaks. A local maximum, rather than the global one.

A DOWNSIDE OF NARROW OPTIMISATION FUNCTIONS

The problem with evolution reaching a local peak is that it doesn't have a mechanism for descending into the valley to try other hills that may have higher peaks. All it can do is use its cane to feel around for higher ground in the search space around it. And because the

spaces are either flat or lower than its current position, it gets stuck. Evolution, unfortunately, just doesn't have the ability to lower an organism's fitness level in order to head down into the valley in search of higher peaks. It just keeps perpetually searching in the space around it, or at least until the landscape changes shape. But, until that happens, the blind man will climb the hill many times.

> It is perhaps more likely that the algorithm has reached one of the smaller peaks.

PART 5

So Are We reaching a Local Maximum?

My sense is that Applied Behavioural Science is closing in on the peak of a local maximum. There are a variety of factors that give me this sense, but the primary one is the diminishing rate of new innovation, driven largely, in my view, by a set of inter-related technical and ethical limitations that are constraining one another.

There are several implications here worth briefly discussing:

1. Reaching a local maximum isn't inherently a bad thing. Over the next few years, we will continue to gain clarity on how to utilise the current toolkit most effectively. For example, I think we'll start getting a clearer sense of where centralised public sector nudging is effective and where it isn't. Greater distillation, refinement and incremental optimisation is still progress. So is wide-scale adoption.

2. A local maximum isn't a global maximum, meaning there is greater potential value to still unlock on the Applied Behavioural Science landscape. I firmly believe this. Fortunately, unlike evolution's fitness function, practitioners can override the optimisation algorithm, and head down, off the peak, and into the valleys below, in search of paths to other peaks.

3. Not all practitioners need to venture down into the valleys, at least not all of the time. If Applied Behavioural Science is to survive over the long run, it is important that many practitioners continue to leverage what works, expand adoption and build capabilities in teams, organisations and institutions around the world. In saying this, I would encourage practitioners to start spending some of their time in the valleys, investigating potential paths to new innovations. The future of the field depends on exploring promising new avenues today.

Is Behavioural Science Reaching a Local Maximum?

Contributors

PRODUCTION

Jess Mahendra
Designer & Editor
cowryconsulting.com

Mana Jhaveri
Editor-in-chief
linkedin/mana-jhaveri

Apoorva Mathur
Designer
cowryconsulting.com

Jez Groom
Editor
cowryconsulting.com

WRITING

Sonia Friedrich
Australia
soniafriedrich.com

Kurt Nelson
USA
lanterngroup.com

Tim Houlihan
USA
behavioralchemy.com

Ziba Goddard
United Kingdom
cowryconsulting.com

Roger Dooley
North America
Brainfluence

Vishal George
New Zealand
behaviouralbydesign.co.nz

Christian Hunt
United Kingdom
human-risk.com

Ruth Canagarajah
India
busaracenter.org

Reshma Tonse
India
1001stories.in

David Perrott
South Africa
citbesci.substack.com

John Owen
United Kingdom
wdc-london.com

Elina Halonen
Netherlands
squarepeginsight.com

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