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1 Introduction

A Revolution in Marketing

A revolution has been proclaimed in the field of marketing: the age of neuromarketing is dawning. Now that researchers can look directly into the brain with an fMRI scanner, they can see what really attracts people in an advertisement or television commercial and what moves them to buy a product. Neuromarketing research has found our 'buy button', and if you have something to sell, it can tell you exactly how to push that button. How it works is described in a book aimed at business owners, salespeople and marketers titled *The Buy Button*.[1] It was written by Martin de Munnik, one of the people behind Neurensics, an Amsterdam research and consulting firm that specialises in neuromarketing. In *The Buy Button*, subtitled *The Secret of the Consumer's Brain*, De Munnik tells us of the groundbreaking discovery that the decision to buy a product is the result of the interplay between three brain areas: the nucleus accumbens, the insula and the medial prefrontal cortex. These three areas together are the buy button, 'the greatest neuromarketing revelation of all time', as the book's cover proclaims. Companies like Neurensics have taken this scientific discovery and turned it into practical applications. With an fMRI scanner they can look into the brain and see the activity in these areas when subjects are presented with, for example, different advertisements for breakfast cereal or nail polish. Choosing the best advertisement, once an art based on gut feelings, has become a science. Marketing has been transformed into a 'lottery without blanks'.[2] That, at least, is the claim.

Let us for the moment put aside the question of whether there really is a buy button in the brain – suffice it to say that there are other neuromarketing researchers who call the idea 'bullshit' and warn of 'neurocowboys' harming the field by overselling it.[3] I want to focus on the dream that the buy button stands for: the dream of knowing what really moves people and using that knowledge to manipulate their behaviour in an effective and efficient manner. The metaphor of a button in the brain that triggers an urge to buy a product represents an ideal of control over

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human behaviour on a par with the control we have over material devices. Push a button and the consumer wants a cup of coffee, push another button and the espresso machine produces a ristretto. If you can find the buttons, human behaviour is as predictable and as controllable as an espresso machine, albeit more complicated. Given the right knowledge, human behaviour can be engineered.

The dream of control over human behaviour is an old dream, found in many cultures. The buy button has a long history behind it. Control over people has been pursued with magical spells and love potions, hypnosis and charisma, education and propaganda. Nowadays, promises of control often involve the brain. In fact, the story goes, only now that we have shifted our attention from the mind to the brain and are beginning to understand how the brain works are we starting to realise the dream.[4] That is the revolution: after centuries of confusion, we at last begin to understand the mechanism behind human behaviour because we're finally able to see what happens in the brain. Victor Lamme, professor of cognitive neuroscience at the University of Amsterdam and founding director of Neurensics, put the idea in the clearest terms in his book *Free Will Doesn't Exist*.[5] Modern neuroscience has revealed that free will is an illusion. The rational self that thinks it is in control, making decisions after internal deliberation, looking before it leaps, is a mere chatterbox that produces a mental monologue as it desperately tries to rationalise the decisions taken unconsciously by other processes in the brain. To influence people's behaviour, we mustn't talk to them (their conscious selves), we must influence their brains. The relevance of this fact goes beyond the field of marketing. Our justice system too should shed its belief in free will and the focus on retribution that comes with it. No crime is pre-meditated because none of our behaviour is pre-meditated. The judgements of a court of law should be based on strictly utilitarian principles and objective knowledge about the brain. Their only aim should be to make sure that this individual, with this brain, does not commit more crimes. Correction, rather than punishment, should be the goal.

For De Munnik and Lamme, and many others worldwide who either work in neuroscience or are impressed by its progress and promise, the ideal of engineering human behaviour revolves around the brain. The same ideal is also expressed in another way, however, that does not involve the brain, at least not directly. Ap Dijksterhuis is a professor of social psychology at the Radboud University in Nijmegen, and he is also one of the founding directors of D&B, a research and consulting firm specialising in behaviour modification. Dijksterhuis rose to international fame in the late 1990s with an experimental study of a so-called 'priming'

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effect. Research subjects who had been asked to imagine a typical professor and list the 'behaviors, lifestyle, and appearance attributes' of such a professor later scored higher on a general knowledge test than subjects who had imagined and described a secretary.[6] Activating (priming) the mental representation of a typical professor produced behaviour that corresponded with that stereotype. There was no conscious effort involved, however. None of the subjects had been aware of a relation between the prime and the test, and many expressed surprise that the experimenter thought the prime might have raised their scores. Priming works unconsciously, automatically.

Researchers like Dijksterhuis and John Bargh, the pioneer of this kind of priming research, claim that such unconscious influences far outweigh what conscious control we have over our behaviour. What we do is not determined by our conscious thoughts but by unconscious forces. Dijksterhuis's company D&B applies this knowledge to develop 'interventions' that influence the behaviour of 'citizens, consumers, or employees'.[7] Like Lamme and Neurensics, D&B bypasses consciousness and directly targets the mechanisms of behaviour. Because most of our behaviour is automatic and directed by unconscious impulses, asking people questions in surveys and interviews is of very little use in finding out what drives them. If you want to know what consumers think of your brand or product, you must measure their unconscious associations and actual behaviour. If you want to change people's behaviour you need to do more than 'make them conscious' of its dangers. Effective behavioural change requires more subtle techniques.

In the way they present themselves, their ideas and methods, their achievements and promises, Neurensics and D&B project a similar ideal of human engineering, the outlines of which are drawn by the contrast between the illusions of consciousness and the reality of unconscious mechanisms, between ineffective talk and efficient, proven techniques. Firstly, both companies offer what sociologists of science Tanja Schneider and Steve Woolgar have called 'technologies of ironic revelation', ways of revealing a truth that is hidden behind our everyday illusions about ourselves.[8] Consumers are pictured as fundamentally and inevitably mistaken about themselves. They do not know and cannot know what moves them, although they think they do.[9] This is an old motif in the history of psychology, a discipline that has often felt the need to assert its cognitive authority by arguing lay people's essential ignorance and incompetence in psychological matters.[10] Nothing shows the superiority of psychology and neuroscience better than experimental evidence that not only are ordinary people irrational, but they're not even aware that they are, and, to top it off, they couldn't be aware of it because the

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processes that determine their behaviour take place unconsciously, in their brain. Science is superior on three levels.

Secondly, what Neurensics and D&B offer is not only a technology of revelation but also one of production: knowing the true mechanism behind consumer behaviour allows modifying that behaviour efficiently and effectively. We could call it a technology of ironic manipulation because it is precisely because people are unaware of what moves them that the neuromarketer and behavioural scientist can manipulate their behaviour so well. The very fact that the real springs of action lie in the mechanisms of the brain rather than in conscious deliberation and free will makes this behavioural engineering so powerful.

Realising their compatibility, Neurensics and D&B have become partners. In a press release on July 6, 2012, 'the two technology leaders in neuroeconomics' announced their alliance. The fruit of their partnership, a unique combination of imaging techniques and behavioural change that unites the biology and psychology of behaviour, will be 'a management tool of unparalleled power'.[11]

Resistance

This book is about the dream of effective and efficient control over human behaviour and society, about attempts to make it reality, but also about the resistance it encounters. Not everyone likes the idea of controlling people. What to some is a dream to others is a nightmare. They consider it wrong, immoral, inhuman to seek control over others. To be fully human is to be autonomous; by manipulating people you degrade them to the level of slave, animal or machine. Immanuel Kant, for example, strongly disapproved of rhetoric, which he considered to be 'an insidious art that knows how, in matters of moment, to move men like machines'.[12] Kant ascribed to rhetoric the power to deprive people of what he thought was the essence of human beings, their reason and autonomy. It is an art that merits no respect.

Control over people encounters resistance not only as an idea but also in practice. People tend to resist attempts to control and manipulate them. They usually object to being treated as objects. To be effective and efficient, therefore, techniques of control have to take that resistance into account. Ways of preventing or circumventing people's recalcitrance must be designed into them. Neurensics claims to achieve this by directly targeting the brain, avoiding whatever little conscious control people have over their behaviour. It is this relation between techniques of control and the resistance to them that I focus on in this book. As an example of that interplay, consider again the work of D&B.

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Despite the partnership and the shared ideal of power, efficiency and a way beyond talk, the claims of D&B are noticeably more cautious and nuanced than those of Neurensics. There is, for instance, no equivalent of the 'buy button' in their description of the mechanisms of human behaviour, and their rejection of consciousness is less than total. Although influencing behaviour requires more than changing people's minds, techniques of conscious influence can be part of effective methods of behavioural change. All in all, human engineering is a more complicated affair for D&B than it is for Neurensics. Many of the complications revolve around the problem of resistance.

One reason that subtle techniques are required to change people's behaviour is that people don't like to change their ways, particularly if someone else tells them to. Overt attempts to convince them of the need to act differently only raise resistance. As Rick van Baaren (the B of D&B) explains in an interview with the in-house magazine of the Dutch Tax Office, 'people have a natural resistance to change'.[13] Acknowledging the unease among employees about impending organisational changes is an important first step towards neutralising it before it festers and erupts into conflict. Next, more subtle techniques may be required, such as 'altercasting': employees who are enthusiastic about the changes are given a role in the process with a fancy label such as 'innovator'. Their confidence thus raised, they will become ambassadors for the plans, spreading their own enthusiasm among their colleagues. Van Baaren immediately adds a note of caution: such techniques should never be employed as simple tricks, that is, without a proper analysis of the situation and the resistance among the employees. 'I want to talk about that resistance, I want to know *why* someone feels discontent.'[14]

The possibility of resistance complicates behavioural change beyond the straightforward pushing of buttons that Neurensics offers its clients. Resistance is, first of all, the raison d'être of this technology. It is not only people's natural inertia as creatures of habit that requires skill to overcome but also the fact that people do not like being told what to do. Subtle techniques of influence are needed because change is not just hard, it is often actively resisted. In the world of D&B, human beings are at once complicated mechanisms as well as stubborn individuals with a will of their own. Consciousness is presented on the one hand as a theatre of illusions, with the illusion of control as the central mistake, but on the other hand the target's consciousness can be a nuisance and it is better to let sleeping dogs lie when attempting to influence people's behaviour. Secondly, resistance is also countered directly by techniques that aim to neutralise it. There is a set of techniques in the behavioural change repertoire specially designed not to produce actual change but to clear

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the way for it. One such technique is 'acknowledging resistance', mentioned above by Van Baaren, and here we may note the paradox that resistance can apparently be combated by drawing attention to it.

In Pacelle van Goethem's *Selling Ice to Eskimos*, a book that her own website calls 'the Dutch reference work about persuasion',[15] the relation between control and resistance is explained in terms of the brain. Van Goethem is a successful coach, consultant and author on persuasion and influence who has 'discovered the laws of persuasion'.[16] The laws are rooted in the brain. Three brain areas play a role in persuasion: the pre-frontal cortex, the amygdala and the hippocampus. The pre-frontal cortex is the seat of thought and planning but also of self-control. The amygdala is our 'centre for motivation and stress'.[17] It is particularly attuned to negative events and prone to panic (fight, flight or freeze) when we encounter them. Fortunately, the cortex has a direct link with the amygdala. Particularly important for self-control is the ratio of the orbito-frontal cortex to the amygdala: the bigger the former is in relation to the latter, the more you are able to control your impulses. Finally, the hippocampus is involved in memory. When it recognises a situation, particularly when the situation triggers pleasant memories, the hippocampus activates the pituitary gland to release hormones that make us relax and feel good, like oxytocin, dopamine and endorphins. These hormones in turn make the prefrontal cortex work harder and better.

The interplay between these three structures gives us the key to persuasion: relaxation. In situations that are or seem familiar, with people we trust and who appear to give us what we want, we relax and become docile, unless the issue at hand is one we are interested in. In that case, our pre-frontal cortex is alerted and we start to think, aided by the hormones from our pituitary gland. Then we can only be persuaded by good arguments, lest we become recalcitrant. What must be avoided at all costs is to trigger the amygdala into a stress response. When that happens, we are full of resistance (fight, flight or freeze) and persuasion is impossible.

Van Goethem summarises it all in a 'Model of Influence©', a diagram with two dimensions: relaxation versus resistance and low versus high commitment.[18] There are thus four kinds of influence. When we are relaxed but not committed to the issue, we tend to meekly and unconsciously do what we are told – we 'follow'. If we are both relaxed and committed, we react with conscious thought. If we are not relaxed but not interested either, we react with passive resistance – we 'drop out'. Finally, if we are not relaxed but are highly committed to the issue, we react with active resistance – we 'fight'. Persuasion, according to Van Goethem, is

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thus first of all a matter of inducing relaxation and avoiding resistance. To relax our audience, we must appease their brains (their amygdalas, hippocampuses and prefrontal cortices) by giving them what they want and expect. The best way to do that is with personal persuasiveness, which comes in three styles: the friend, the authority and the example. Each style inspires trust in a different way, but they all have their drawbacks as well, and if your style is not appropriate to the situation and the audience, if what it gives does not match what the brains want and expect, it will meet resistance. If, for example, the situation calls for an 'authority', the 'friend' is a nuisance.

Fortunately, there is a solution to this conundrum that 'really works': to combine the three styles.[19] 'The more of all three styles you radiate towards the other(s), the more persuasive you are.'[20] If people see you as authority, friend *and* example, you are 'maximally persuasive, perhaps even irresistible'.[21] Barack Obama, for example, is almost universally considered as an authority, friend and example. He has maximised his persuasiveness.[22] However, although combining the three styles allows the persuader to cover all bases and be maximally persuasive in all situations, for any audience, judgement remains required. For example, high-status behaviour is the primary element of the 'authority' style. It is such a powerful technique that it trumps all the others – it alone is enough to 'reach the top'.[23] High-status behaviour consists of 'acting as if you feel at home' and 'taking up space', but it needs to be appropriate to the situation: 'The more people are listening to you, the more space you need to fill.'[24]

Like Van Baaren, Van Goethem combines a conception of persuasion as a potentially immensely powerful, effective way of getting people to do what you want with an emphasis on the situatedness of persuasion. They both present a technology based on universal, scientific knowledge (the laws of persuasion, the functioning of the brain) that gives great power to influence people's behaviour and opinions. However, to be effective these technologies also require an understanding of the particular situation in which they are deployed: of the wants and needs of the audience that you're addressing, of the atmosphere in the company that is changing its organisation. Resistance is a potentially disruptive element of every situation, not only because people are generally difficult to get into motion and change their ways (in that sense the point of any behavioural technology is to overcome inertia) but also because people are prone to resist if they're not handled well. The methods that are used to effect change in behaviour or opinions need to be adapted to the people that they target and the situation they are in, lest they are resisted. In short, these methods need to be applied with tact.

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Tact and Technology

In *The Practice of Everyday Life*, Michel de Certeau distinguished 'strategies' and 'tactics': a strategy is a procedure for calculating and manipulating power relationships that operates in a certain domain (a city, a scientific institution, an enterprise) that can be isolated from its environment. A strategy has its own, proper place from which it manages relations with what is exterior to it. Tactics are the ways of making do of those who are caught up in spaces that are not their own: the users and consumers of products, the inhabitants of a city, the subjects in a psychological laboratory. Tactics are the ways in which people seize the opportunities such spaces offer and exploit the cracks in the system; they are the tricks and ruses of resistance. 'A tactic is an art of the weak.'[25]

De Certeau offers as a model tactic 'la perruque', the use of the boss's resources for personal ends: printing the football club's newsletter on the company's laser printer, 'borrowing' the workshop's circular saw for renovation work at home, emailing with your girlfriend during office hours. From the point of view of De Certeau's analysis of everyday practices, the resistance that the techniques of social science meet is also tactical. It is the reaction of those who, as the targets or subjects of such techniques, find themselves on a terrain that is organised by a scientific rationality that is not their own (psychologists, after all, are quite emphatic on this point).[26]

Although De Certeau is mostly cited as a theorist of everyday resistance to systems of power, he also extended his analysis of 'the art of practice' to the field of science and the relation between knowing and doing.[27] In science, 'method' systematises thinking as a way of operating – rational procedures are the essence of science. But in the operations of science there are tactics as well. Scientific work does not consist solely in the application of formal methods, but it is also a matter of 'making do' (in French: *bricolage*). This is the '"underside" of scientific activity', 'the stubborn persistence of ancient tricks in the everyday work of … laboratories'.[28] Science, publicly presented as strategic (consisting of rational procedures for the production of facts and theories), is in practice full of tactics as well.[29] Scientists are also workers who do not always follow the rules that are imposed on them and may attempt to subvert for example the system of output measurement by which they are evaluated. But there is more to it than tactics of resistance. More generally science requires not only method but also judgement, or 'tact'. Following Kant's analysis of judgement ('Urteilskraft'), De Certeau writes that it designates 'that which, in scientific work itself, does not depend on the (necessary) application of rules or models'.[30] Judgement, tact, is 'the art of thinking'

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at the heart of both science and ordinary practice; it is the middle term between theory and praxis. Tact is not a procedure, a method that can be followed. Kant compares tact to the art of tightrope walking: it consists in maintaining a dynamic equilibrium (between imagining and understanding) by continually adjusting to a situation of which one is oneself a part.

In human engineering, these three concepts – strategy, tact and tactics – come together. Human engineering presents itself as a strategy for calculating and manipulating power relationships that promises efficient and effective control over human behaviour. But it also requires judgement, the art of thinking, because it must apply its procedures in concrete situations, balancing the ideals of theory with the constraints of practice. This is the challenge for all engineers: to mediate between theory and practice, to take the techniques that worked so well on paper, or in the lab and in the workshop, and supply whatever know-how is required to make them work in the rough terrain of everyday life.[31] In the case of human engineering, this know-how involves not only judgement of the situation but especially the tact that is needed to prevent and counter resistance. Tact is involved in human engineering because its deployment requires judgement of the situation and because it must deal with the tactics of the people it targets. The tactics of the recalcitrant targets of human engineering require tact on the part of the human engineer. Human engineering is both tact and technology. That, in short, is the scheme that guides my analysis of the historical material that I present in this book.

Overview of the Book

In Chapter 2, I develop the concepts of tact and technology further, drawing on rhetorical theory and science and technology studies. In rhetoric, the question of how to move people is obviously central. Scholars of rhetoric, starting with the sophists in ancient Greece, have long reflected on what persuasion is and how it can be achieved. The concept of *kairos*, variously translated as timing or propriety, invites a further look at tact, in particular the question of whether tact can be formalised. Can the situatedness of persuasion be transcended by formulating it in a finite set of rules, or is it an unavoidably particular, local, individual element in persuasion?

In rhetoric, resistance to persuasion is likewise an important concern. To persuade requires more or less effort depending on the message and the audience. Moreover, rhetorical situations are often implicitly or explicitly polemical. Rhetors may encounter active resistance, to themselves, to their message and arguments and even to the attempt to persuade itself. Some form of concealment is often used to circumvent this resistance.

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In fact, concealing persuasion itself has been described as the pinnacle of the art of rhetoric.

Next, I turn to the concept of 'technology'. Although the dream of control over the behaviour of other people is ancient, terms like 'technology' and 'engineering' are of recent vintage. But what in fact is technology? This question becomes particularly urgent when we use terms like 'human engineering' or 'social technology', which are even more recent. Are there two kinds of technology, one social and one not social? In the past few decades, some philosophers, historians and sociologists of technology have started rejecting such distinctions. Simply following them in this rejection is not an option in this study, however, because terms like 'social technology' and 'human engineering' are a part of the history I'm describing. What they referred to, one could say, was at least historically real, in the same way that phlogiston was once real. Whether or not it is sensible to distinguish between 'technology' and 'social technology', people have thought that it was, and from a historical standpoint it is important to understand why they did.

Conceptions of what it means to be human, what a machine is, or control, technology or society, are not static but historically variable. That means I can only use a term like 'human engineering' with the greatest caution, in the knowledge that the meaning of each part of that term has changed over time and is still changing. This is unavoidable in historiography: the vocabulary one uses to write history is to some extent always a part of that history itself. There is no neutral language to work with. The best one can do is to keep one's vocabulary light, be aware of the choices it incorporates and stay sensitive to the discourse of the people one is describing.

The issue of the relation between humanness and engineering was particularly prominent in the controversy over scientific management, which is the subject of Chapter 3. Scientific management, an approach to managing companies and their production processes that was explicitly based on engineering principles, encountered strong opposition over its allegedly inhumane character. In the ensuing controversy, what is human, and how it relates to machines and engineering, was the primary topic of discussion. Psychologists soon began to promote themselves as experts in both human beings and science and engineering and offered their services as 'human engineers' as a complement to natural science and engineering. Management thinker Mary Parker Follett, however, took a fundamental step away from the engineering perspective. She was one of the first to discuss the problem that giving direct orders is not always the best way to get things done because people may resent having to obey orders. It is better, she argued, to present the situation in such a way that

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