Neuromarketing can work wonders for a more curated marketing experience. It will not only be useful for the consumers to get the products they like in the minimum time, but also for the companies to maximize their profits.
Neuromarketing: Pressing Your Buy Button

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It was a Sunday night and on the stage was a famous director receiving the Oscar Award. In his thanksgiving speech, he said, “I’d like to thank my neuroscience partners who helped us enhance the film’s script, character and scenes.” The director is none other than the famous James Cameron. Hollywood studios today harness the power of your brain waves to win Oscars.

Well, monitoring consumer reactions to strategise business may sound like a concept that has just evolved out of a sci-fi thriller. But neuromarketing uses medical technologies like Functional Magnetic Resonance Imaging (fMRI) to study the brain’s responses to marketing stimuli. It is a relatively new field. The term ‘neuromarketing’ was coined by Ale Smidts in the year 2002. So, we can say that it helps companies to determine the reason someone prefers iPods over Zunes and Pizza Hut over Dominos.

One needs to explore questions like “What’s the need?”, “Can the same response create different patterns in the brain?”, “Does a person adequately represent the group and hence the pattern generated?” and “Can’t a simple questionnaire be enough to come up with a rating of consumer responses?”

Well, this article focuses on the technology, some of the businesses that have benefitted from this and ultimately delves into neuroethics.

The Technology

A number of neuroscience technologies that record the brain’s electrical and metabolic activity, such as Electroencephalography (EEG), Transcranial Magnetic Stimulation (TMS), Magnetoencephalography (MEG), Functional Magnetic Resonance Imaging (fMRI), and Positron Emission Tomography (PET) are implemented in neuromarketing.

Neuromarketing also uses several psychological methods like the Implicit Associations’ Test (IAT) and biological data collection techniques like facial coding system, eye-tracking, galvanic skin response (GSR), assessing the breathing and heart rates. In fact, modern neuromarketing techniques use an amalgam of psychological, physiological and biological data.

IAT is implemented to measure ‘implicit attitudes’. Implicit attitudes can be described as mental representations of objects or self without conscious awareness or subconsciously. These can be influenced by past experience. So, IAT relies on the fact that the past experience of a person can mediate favourable or unfavourable feeling, thought or action towards social objects that he may not be aware of.

IAT requires the users to make a series of rapid judgements. For example, a typical IAT procedure involves a
**Eye Gaze**  
It is known that ads that include people are much more effective than those that do not. Babies particularly tend to attract more attention. But now with eye tracking technology advertisers have further identified that when the baby looks face on, viewers will be more focused on the baby’s face but if the baby is directing its gaze at the product then the viewer focuses on the advertising content.

**Effective Packaging**  
Attractive packaging draws customers. But through neuroimaging and surveys advertisers have found that customers had a negative response to shiny packaging, but didn’t show a negative response to packaging when it was matte. So, neuromarketing techniques are being employed to redesign packaging and presentation.

**Emotional Colours**  
Colours evoke a wide range of emotions, with studies consistently showing a link between certain colours and certain emotions. Coca Cola has stood by the use of the red colour red.

**Satisfaction Evaluation**  
Neuromarketing is now looking at the incredible potential of fMRI imaging or brain imaging to get insights into human behaviour and consumer habits. Various different advertisements are often shown to sections of the general public before release. The ad that elicits the highest amount of brain activity is finalised. Similarly, Emotion Response Analysis (ERA) also uses EEG imaging to identify the emotional response an individual has to a product, advertisement etc.

**Framing**  
Neuromarketing studies have found that people really don’t want to lose out on bargains – and hence the emphasis on “buy before it’s gone” strategies. This concept is called “framing”.

**Anchoring**  
Neuroscientists have discovered that we rarely evaluate the value of something based on its intrinsic worth, but instead compare it with the surrounding options. So, if you are looking at two hotel rooms which are priced similarly but one offers free coffee in the morning, you are much more likely to go with the free coffee. This is known as anchoring.

**Reward and Punishment**  
Video gamers use psychological principles in the product design process, using reward and punishment in order to make engaging games. Increasing the reward also increases the levels of dopamine (a neurotransmitter) within the brain. This neurotransmitter is associated with pleasure and positive associations, which can increase the attachment to keep playing.

**Prototype Testing**  
Hyundai used EEG to test their prototypes. They measured brain activity in response to different design features, and explored which kind of stimulation was most likely to result in buying. The findings of this study led Hyundai to change the exterior design of the cars.

**Website Layout**  
Neuromarketing techniques are looking at colour schemes, layouts, font size, etc. to delve into our website preferences. An interesting finding is that horizontal style website layouts are less effective than traditionally vertical. This is because reading webpages from the top down engages the brain, and makes viewers more likely to keep on scrolling.

**Hippocampal Headlines**  
A new neuromarketing technique called “Hippocampal Headlines” is being used to draw in consumers. Researchers at the University College London found that when a familiar phrase is slightly altered, our hippocampus is activated, grabbing our attention.
series of tasks. In a task, a person has to classify a name, say Suraj and an attribute, say happiness, into pleasant and unpleasant. In another, he has to classify it as black and white and in another black/pleasant and white/unpleasant. These words, say black and white, appear at the top right and top left corner of the screen. The name or attribute, here Suraj and happiness, appear in the middle. A person, then, has to press the right or left arrow key in a matter of seconds.

However, this is more of a psychological measure and anyone can still manipulate the test. It is the limitation of this technique that forced researchers to explore new avenues. Therefore, the modern neuromarketing tests deal with responses through the use of medical technologies.

EEG records the data provided by the surface neurons. EEG technique is non-invasive and the sensors can record very low-frequency brain waves. It is well known that different areas of the brain are responsible for various functions. So, different cortical areas of the brain get activated differently depending on the type of stimuli.

Another medical technology is fMRI, which gives an estimation of the oxygen level in the brain's blood flow. The working of fMRI is based on the fact that blood contains iron, which can change the magnetic fields around them. During the experiment, a subject is scanned in a tube generating magnetic fields while lying on his back. This technique is more accurate than EEG in determining the increased brain activity in a certain region in response to a certain stimulus as compared to EEG. EEG suffers from the drawback of having large artefacts in signals. Artefacts are distortions or noise in the signal received due to blinking of eyes, motion of body parts or faulty wiring in circuits. However, fMRI is an expensive technique and requires the presence of professionals with sound knowledge.

Measurement Parameters
A neuromarketing study by Dr. Hakan Boz in 2015 used a questionnaire with EEG, galvanic skin response (GSR), heart rate and eye tracking to reveal that traditional data collection methods are insufficient to measure the emotional responses to products. Ariely and Berns (2010) say that measuring the brain waves reveals consumers’ subconscious responses to marketing stimuli.

That is why researchers and market analysts moved onto new measures. But what are the indicators that we intend to measure? Neuromarketing intends to measure memory retention, emotional engagement, purchase intention, response to the advertisement message, affinity to a certain brand and novelty of a product. We make decisions based on our emotions. The stronger the emotions, the stronger are the brain waves and hence, more is the emotional engagement. A stronger response for innovation may lead to a successful commercial campaign.

Areas of Application
Food and Beverage Industry:
Consumers’ food choices are often driven by reasons of which consumers aren’t aware themselves. Vincenzo Russo, Professor of Neuromarketing at IULM University of Milan, has coordinated several experiments aiming at the food and wine sector. According to him, the gaze of the person portrayed in the advertisement has an impact. For example, if a model in the advertisement stares at the audience, the audience builds a rapport with her. However, if she stares at the product, the effect is more direct.

Professor Russo and his team performed experiments for the advertising of an Italian winery, with posters and advertising messages with a female model next to some bottles. In one version, she looks towards the viewer and in another, she looks towards the bottles. They reached a conclusion that in the second ad, she guides the attention of the viewers more towards the product. Thus, it helped the brand to fine tune its advertising campaign and messages.

Tourism:
Hawaii’s Tourism Authority has partnered with Expedia Media Solutions to come up with a video ‘Discover your Aloha’. Rather than show mere lush green landscapes, the campaign measures viewers’ facial expressions through their webcams as they watch and then offers them a personalized tourism package.
Researchers at the University of Split have studied the neuromarketing potential for tourist destination brand positioning. In a study by Dr. Boz on tourism pricing strategy, it was observed that people paid more attention to discount rates than reduced price. So, in the advertisement campaign, mentioning the discount percent, say 25% would be more effective than mentioning ₹ 2000 rupees off for a ₹ 8000 package, although both mean the same.

**Automobile Industry:** A significant neuromarketing study by Daimler Chrysler in 2008 led to a better understanding of people’s reactions to cars. The subjects were shown different images of car grilles. They realised that a portion of the temporal lobe called fusiform facial recognition that enabled facial recognition was highly active for certain cars. They hypothesised that the main reason behind the sales of BMW’s Mini Cooper was, at least, subconsciously, its adorable design. The study also highlighted that the subjects were fascinated by Ferrari 360 Modena and BMW Z8 due their association with social status and wealth.

**Neurocinema and Hollywood:** Several neuromarketing companies these days brain-test movie trailers for the major studios through fMRI and GSR. A year before Avatar hit screens worldwide, James Cameron, the director asserted in an interview with Variety magazine that more neurons were activated while watching the movie in 3D than in the conventional form. The BrainMovie of Avatar is available on YouTube and one can easily observe the changes in brain activations.

Stephen Susco, the writer of the horror movie Grudge, claims that horror filmmakers can potentially control the viewers’ brains by adding amygdalic excitements and thus maximizing their profits.

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Secondly, he feared the promotion of degrading values. Thirdly, he believed that neuromarketing can be misused to establish political propaganda.

V. Sebastian, in a technical article, advocates against the tampering of confidentiality and freedom of individuals due to neuromarketing tests. It is quite possible that the agencies conducting tests on subjects can send the data to multiple companies. It is very important that the subjects who volunteered should have full access to their test reports.

Due to a lot of controversies, Neuromarketing Science and Business Associations was formed that drew up a code of ethics that must be followed by its affiliated agencies. However, rules alone aren’t sufficient. The transparency of the tests conducted is significant. Participants should be able to withdraw at any time during the test despite signing an agreement.

Well, it can be said that neuromarketing can work wonders for a more curated marketing experience. It is still in its infancy and criticism is certainly not the cure. It will not only be useful for the consumers to get the products they like in the minimum time, but also for the companies to maximize their profits. Businesses that invest early into this are more likely to benefit. It has an enormous potential to revolutionize the market, pricing models and shopping experience.

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