

Chapter 3

Neuro Marketing: An Astonishing Addition to the Marketing World



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Abstract Neuro marketing is one of the physiological marketing activities that use neural signals which gain insight into customers' preferences and decision-making which in turn leads to create product advertising, pricing and development in the area of marketing. Neuro marketing is the combination of neuroscience and the cognitive science of marketing. Common measurements like Brain Scanning, which measures neural activity, and Physiological Tracking, which measures eye movement and other proxies for the marketing activity, are used here. It also uses Brain Imaging to observe which neural circuits lit up or went dark during the process of buying and through which the interest and decision-making of the customer can be predicted. With this prediction, the interested people can understand how the customer's brain will react to the stimuli in online marketing, which is not simply what they self-report in the qualitative surveys. It is ultimately the truth that impulses to write about MRI's. Though Neuro marketing requires high investment because of the tools like EEG, fMRI, etc., it helps the business to understand some major things to market their products from the customer's point of view like "Does this product worth the price?"—when the price comes first and "Do they like this product?"—when the product comes first. This paper concentrates on the role of Neuro marketing as an effective tool for marketers in this new era of market research for the present intelligent, rational and potential consumers.

Keywords Neuro marketing · Neural signals · Neuroscience · Cognitive science · Brain scanning · Physiological tracking · Brain imaging · Neural circuits · Electroencephalogram · Functional magnetic resonance imaging

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3.1 Introduction

In today's time, businesses experience high competition for grabbing the attention of customers over the different competitors and to expand their brand presence more than ever. Many different new techniques were used to replace the traditional method of marketing research. In this regard, Neuro marketing is considered to be one of the logical approaches in the field of marketing research which speaks about the use of Neuro-scientific techniques with the intention of studying the complicated buying behaviour of consumers in a general sense. On the other hand, it helps the business to understand some major things to market their products from the customer's point of view like "Does this product worth the price?"—when the price comes first and "Do they like this product?"—when the product comes first (Singh 2015).

It also speaks about the survey made for estimating the considerations and the commitment of the consumer towards the brands/products (Kotler 2003). This helps the advertisers to considerably simplify the process of marketing. The marketer can also understand the dialectic contradiction of consumers between "What they want?" and "What they feel?" The two major tools for brain scanning and measuring are Functional Magnetic Resonance Imaging (fMRI) and Electroencephalogram (EEG). fMRI uses strong magnetic fields to track changes in blood flow across the brain and is administered while a person lies inside a machine that takes a continuous measurement. EEG reads brain cell activity using sensors placed on the subject scalp, it can track changes in the activity over fractions of a second, but it does a poor job of pinpointing exactly where the activity occurs or measuring it in the deep sub-cortical region of the brain. fMRIs are many times more expensive than EEG (Kotler and Keller 2006). It also uses Brain Imaging to observe which neural circuits lit up or went dark during the process of buying and through which the interest and decision-making of the customer can be predicted (Joy 2018). With this prediction, interested people can understand how the customer's brain will react to the stimuli in online marketing, which is not simply what they self-report in the qualitative surveys. It is ultimately the truth that impulses to write about MRI's.

3.2 Review of Literature

According to Vaiciukyanaitė (2019), the research was aimed to know the Neuro marketing study of social media influencers focusing on influencer gender, and the author found that male influencer enhances the brand awareness of the customers and female influencers receive more likes, whereas male influencers receive more views. Devaru (2018), opined that Neuro marketing is a more convenient marketing strategy than conventional marketing practices as it directly connects the fundamental neural process and biological pathways associated with marketing stimuli which in turn enhances the healthy competition in the market with certain privacy and ethical concerns. The institution that 'rational' way of expressing the consumer

behaviour can be done through neuro marketing which can act as base for satisfying the consumers as consumer decision-making process is interlinked between cognitive and emotional structures it involves subconscious dimensions (Krajnovic et al. 2012).

Krajnovic et al. (2012), expressed that Neuro marketing has the vital power to identify the factors that rationally influence the consumer to purchase. Neuro marketing has an important role in identifying the reason behind the purchasing behaviour of urban and rural consumers which helps to produce goods and services according to the consumers' preferences. They expressed that Sensory Marketing is a way of marketing to engage and delight customers and inspire their behaviour. Neuro marketing becomes the ultimate solution for brand positioning as it combines neuroscience with brand management and marketing. This helps the consumers to recollect the brand and memorize it. Research says that the effect on choice of brand and experience of using it further affect the on choice of brand and experience of using it further affect the reception of future affect the reception of future advertisement for the same brand. They *had* spoken about the gap between customer's expectations and the company's offered services. The study also emphasizes more on the marketer's knowledge of the field of online consumer behaviour by highlighting the neuro marketing factors. The study also throws light on the interesting result that different age groups react in different ways to the advertised products.

3.3 Research Methodology

The analysis has been made using the secondary data.

3.4 Objectives of the Study

- To study the stance of Neuro marketing in the current marketing scenario.
- To identify the different techniques used in Neuro marketing.
- To determine the overall performance of Neuro marketing research.

3.5 The Ever-Evolving World

In recent years, the world has created more than all human history. With so much insurmountable data to draw from, and more being made every day, hour and minute, only a matter of time before marketers and neuroscientists will have a pool of data to learn from. Factors such as the rise of e-commerce and the dominant smartphone all play a role in the vast amount of data being created. This gives businesses a better understanding of creating meaning in the consumer's mind.

3.6 Opportunities in the Field

New trends emerge to further enhance value creation. Some of them are:

- **Combination with conventional measures to increase effectiveness:** In both science and research, we know that combining traditional research methods (surveys, interviews, focus groups) can add value. For example, Neuro marketing metrics can be used to diagnose reactions that evolve over time. Also, self-reported measurements help us understand what remains in our conscious memory. This data provides a complementary source of insight into what works and what doesn't for consumers.
- **Population coding:** There is currently a general trend in cognitive neuroscience to study how the responses of small samples predict market responses, which is something fundamental. The best example of this is how everyone jumps in their chairs when they watch a horror movie. This is a strong indication of how the market is reacting. Neuro marketing measures on a small sample have been shown to predict market reaction to box office receipts.
- **Improved effectiveness and reliability:** Recent collaborations between vendors, customers and academia are working hard towards the industry's next-level standards. These standards are expected to match, or perhaps exceed, those set by academia (which is in danger of duplication).
- **Science and business join forces:** This may not be entirely new, but there has been an increase in academic and commercial collaborations of late. For example, Neurons collaborated with Stanford University and Bonnier News to develop a four-force model based on Neuro marketing for advertising and branding success. The project is now in its final stages, so the next step is to publish these results and models in scientific journals. Similarly, a current survey of mobile marketing associations and all major social media companies publishes results with the Advertising Research Foundation.
- **Beyond marketing:** Neuroscience-based measures are well suited to understanding human responses to a wide range of behaviours. Responses to ads are just an example that displays the consumer reaction that can be measured in a broader context of concepts, prototypes, and especially various emerging technologies that don't have a "gold standard."
- **Challenges in the Market:** With the first Neuro marketing research in the 90 s, the field is only 20–30 years old, so it is quite young compared to other scientific fields. A quick look at the history of modern neuroscience shows that it only really took off in the late twentieth century, and commercial marketing really took off in the 1960s with the advent of advertising agencies.

As Neuro marketing comprises relatively new fields, it is not surprising that many limitations and challenges still exist.

- **Results bias:** One of the limitations of this field is the bias associated with research. Many critics of Neuro marketing are sceptical about the reliability of the information. Most of the information is published by Neuro marketing companies or

scientists working for those companies. As a result, the outcomes are in favour of the companies themselves. It can be distorted and compromise the reliability of the results. Organizations with the right people and tools to do the right research usually publish the results. High costs prevent researchers from designing their own experiments without corporate assistance, limiting the amount of diverse and unbiased information available in practice.

- **Analysis complexity and variability:** There is also the problem of data unpredictability and variability. As with any scientific investigation, there are many factors to consider when conducting an experiment. This is even more relevant in the field of neuro marketing as we finally understand how the human mind works for business purposes. And one thing we know about people is that the results they see are very different. What works for different people can vary, and to keep your ROI high, you can't bet on something that can change from experiment to experiment. Therefore, marketing requires some certainty.
- **Experimental Variation:** Brain research relies heavily on statistical analysis. Different methods may produce different results in terms of significance and some methods may reject one of the hypotheses that would otherwise be supported. Because of this variability in analysis, things are much less black and white than they appear on the outside, leaving plenty of room for bias for companies conducting certain experiments. Many authors also argue that since we are dealing with a complex science of brain processes related to emotions, few can be generalized or identified as affecting the light areas. In other words, reactions can and probably will be different. For example, what might trigger a certain brain response in an East-Asian country might be very different from someone who grew up in a Scandinavian country.
- **The experimental environment is important:** A characteristic of experiments, especially those that focus on responses to stimuli, is that the environment in which the experiment is conducted also influences responses. In other words, the experimental settings influence the outcome of the study. Neuro marketing research often takes place in laboratories, but as many of us know, that environment is very different from the real world.
- **Survey cost:** As mentioned earlier, Neuro marketing is a young field and yet it has not been democratized, and the tools associated with conducting neuroscience research are limited due to the enormous cost of experimentation. To delve deep into the brain and understand the stratified response, researchers need to be armed with the right technical tools and enough collaborators.
- **Challenges of fMRI Scans for Neuro marketing:** Unfortunately, most techniques associated with neuroscience research are very sophisticated. Even more common devices like fMRI scanners range from \$1million to \$2.5million. Along with additional software costs, the scan may reach up to \$500,000. Whereas maintenance costs are also added to this. It's no exaggeration to say that getting the right technology can cost a lot just to get started. And let's say we can afford to arm ourselves with the right machines to do the research we want. The next hurdle to overcome is finding the right talent to pull it all off. Doing neuroscience experiments with the brain is not the same as learning how to use a 3D printer.

Not only does it require a high degree of expertise to operate the machine, but knowing how to organize the data afterwards is also very important. Having this in mind, finding the right people to manage and support these technologies can be a difficult task.

3.7 The Futuristic View on Neuro-Market

The global Neuro marketing market sizes by 2021 is estimated to reach 2,493 million \$. It is predicted that by 2030, it will reach 21,218 million \$ and will grow at a CAGR of 8.9% during the forecast period (2022–2030). Neuro marketing uses a cognitive approach to understand customers and communicate with them more effectively. The various strategies used in the neuroscience-based discipline of Neuro marketing facilitate the study of consumer behaviour, decision-making, responses, and other topics related to the field, in Neuro marketing, a customer's pattern can be determined by observing eye movements and coding facial expressions. These methods determine the attractive aspects of the product that the consumer looks at, how long they look at those aspects, and how much the customer's pupils dilate. Another method, known as neuro-imaging, involves the same observation and knowledge of how the brain responds to different shades of colour participating in and experiencing augmented reality can have the advantage of having the right market for the technology. The consumer is at the core of the global neuro marketing market, which relies heavily on new product development and innovation to maintain its dominant position. The same is used by some large companies and well-known companies, including PepsiCo, eBay, Diabler and Frito Lay.

After the era of COVID-19, digital marketing has assumed an increasingly important role, which is beneficial to the global neuro marketing market. The study of Neuro marketing has become much more important due to the increased focus on the consumer and the prevalence of digitization worldwide. Eye-ball tracking and facial coding and the technologies introduced by the fourth industrial revolution are largely responsible for the advancement of the market. This is despite the fact that manufacturers, companies and marketers follow a consumer-centric strategy. A survey conducted by sales force specialists found that 73% of consumers believe companies prioritize meeting their needs. Actively driving the global Neuromarketing market to retain, anticipate and capture customer loyalty and attention is the driving force behind innovation and flawless customer experience combined with aspects of digital marketing along with video-marketing and advertising. This combination of factors drives the market forward like Eye-tracking, face-coding, vision, and other similar features are among the methods used to collect and store customer data in the field of Neuromarketing.

After the COVID-19 phase, the global Neuromarketing industry is doing pretty well. However, the same market is hampered by many restrictions. Data availability and customer privacy protection are fundamental constraints that are causing even more problems in the global neuro marketing market. Consumers and governments

alike are closely monitoring stored personal data. The Neuro marketing sector has a global presence, but in Europe, it is subject to regulations such as the General Data Protection Regulation (GDPR). Similarly, many in the United States believe that companies are deliberately misleading consumers in order to profit financially from false prejudices. There have also been cyber security issues, privacy breaches and theft incidents. This ongoing fear is primarily aimed at companies, as the global neuro marketing markets to fortify the amounts of customer data, including physical characteristics.

Besides the problem of persuading and retaining data, the global neuro marketing market has to contend with the additional task of sourcing the data itself. Data collection is done by these organizations through various methods and observations, while these companies require their own data. Primary data are often collected through direct testing on subjects to better understand their behaviour and various variables. The use of electrode caps and other similar devices is a fundamental obstacle that the market needs to overcome. This is due to the limited physical distance covered and the negative attitude towards the experiment. The global neuro marketing market share is segmented by end-use industry and region. Segmentation by end-user industry includes banking, financial services and insurance, retail and consumer brands, market research, academic institutions and others. The retail and consumer brands sector will have the largest market share in 2030 and is expected to grow at a CAGR of 8.95%. This is because consumers of these brands are at the forefront of the market. As consumer demands continue to change, so must a company's ability to innovate and the way it engages with its customers.

A Neuro marketing business can be of great help to retail and consumer brands. It helps the brands to monitor and measure customer behaviour. Neuro marketing determines customer eye movements and general attractiveness, product placement and even the appearance of stores and outlets. As a result, Neuro marketing is becoming more and more in demand among various retail and consumer brands. The market research sector is expected to account for the second-highest market share at a CAGR of 10.24% during the forecast period. Similar to neuro marketing, consumer research and knowledge acquisition are central to the market research business. Market research organizations, on the other hand, often focus on understanding customer behaviour based on superficial emotions and reactions.

The global neuro marketing market is highly profitable for market researchers and companies. Market researchers are more likely to understand the conscious and subconscious thought processes and tendencies of subjects, as well as using this data, which also benefits from digital marketing adoption and customer retention. The Banking, Financial Services and Insurance business is of international importance, especially given the high consumer share of the banking industry. The provider's website should be user friendly, easy to understand, and easy to follow. Many bank's online and smartphone apps are not user friendly. Apart from poor interactions with other bank services, buggy applications and apps shutting down for no reason, even well-functioning apps may miss customer needs. A neuro-marketer studies their user's journey online and understands consumer's emotional experiences when visiting websites and apps.

3.8 Key Findings and Recommendations

After visiting different facets of opportunity, neuro marketing evolution, market obstacles and most importantly a futuristic view of the market, it is absolutely certain that a growing and strongly growing company can afford it. We have the best ideas and research that will blow the mind, such as EEG, fMRI and many other new technologies which also helps in building the brand with own strategy. In other words, companies struggling to make their mark in the market or start-ups just starting to make their mark on neuro-floor, digest the harsh truth that even signing up for demos is impossible. Moving onto a more practical example, most tech giants these days go to great lengths to understand user behaviour. One of the easiest ways to learn about the customers and their behaviour is through neuro marketing strategies. With this latest technology, it's easy to see how the consumer's brain works when choosing a product and which parts of the brain are activated to complete a purchase. That's why Netflix uses neuro-trackers to predict how successful shows are and what subscribers want to see on the platform. Most marketers use traditional advertising techniques extensively. But marketers should look beyond old tricks when trying to attract new customers. Yes, it is improving consumer satisfaction and persuading potentially a customer requires thinking outside the box. This is where neuro marketing techniques can play an important role. Understanding how the typical consumer feels, thinks and acts helps in making data-driven decisions. Additionally, firms can customize the offer to give their users what they want.

Using the gaze technique: Well, advertisers have long tried to boost sales of baby products by using close-ups of cute baby faces using eye-tracking technology. However, they quickly realized that this alone was not enough. Why do customers look at the child's face instead of reading the entire content of the ad? And it's actually not convenient. Therefore, the researchers found that viewers will focus much more on the child's face while focusing on the content. However, if the child focuses on the product or the text, the viewer will also focus on the content of the ad.

Effective packaging and effective design increase sales: Next, in this example, we will discuss neuroimaging. We have different preferences when it comes to buying products online. For example, packaging colour, quality, packaging style, design, taste, etc. Interestingly, marketers are well aware of these things. They know what their customers want. Using neuroimaging strategies, they have successfully taken their business tactics to a whole new level.

Smart use of colour to match the brand identity: As part of neuro marketing, using the right colour combinations for the brand can influence the customer's brains and help them visualize the designs for better results.

3.9 Managerial Conclusion

Neural manipulation may seem ominous, even dystopian, but defenders point out that marketers are already using tactics to influence consumers without even knowing it. The whole concept is for the companies; while it is impossible to physically manipulate people's brains, the same can be seized without people's consent using neuroscience tools and techniques.

The nerves of big companies, especially tech giants like Facebook, Google and Amazon, there is a lack of transparency about what is happening in their scientific labs. Some companies have already come under scrutiny for conducting experiments without user consent. In 2012, Facebook manipulated the sentiments of nearly 7,00,000 users by changing their news feeds without their knowledge. The only concern is whether these companies will go rogue. But to prevail over the same, companies have already hired neuroscientists.

While marketers struggle with ethical ambiguity, several Silicon Valley start-ups, in particular, are working to make brain imaging easier and cheaper. A portable and affordable fMRI's would be a complete game changer. It attempts to understand what consumers are thinking is advancing rapidly and marketers should at least be up to date. With the basic science, we are amazed at how far science has advanced in the last 15 years. And we really feel that we are just scratching the surface.

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