

# Neuromarketing Applied in Organizations: A Scientific Production Study

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**Abstract** - The objective was to identify the literary contributions that support neuromarketing, using a literature review study, with an exploratory-explanatory scope, using literature review as the data collection technique. For the identification of publications, from 2020 to 2024. There were a total of 30 articles. The results mention, to study the benefits and limitations of neuromarketing tools in a series of market entry devices. Neuromarketing contributes to customer acquisition and better positioning of the company, in addition to achieving loyalty and love for the brand. Neuromarketing is regarded as a recent development in marketing since it applies neuroscience to market research to analyze which stimuli cause a particular kind of customer behavior. It also helps to uncover feelings and perceptions about a business in order to create strategies that increase customer loyalty.

**Keywords:** Neuromarketing, Organizations, Review, Strategies, Neuromarketing

## I. INTRODUCTION

The present research identified contributions based on the search for information and exploration of scientific publications in high impact indexed journals, regarding neuromarketing applied to organizations, at the international level in Spain. Quiles et al., (2024) Neuromarketing studies are historically significant because of their influence on companies' sales and profits. However, the methods used in these studies vary considerably, so it is crucial to determine which is the most appropriate according to the neuromarketing objective. Its purpose is to increase product visibility and improve product acceptance among potential consumers.

Bajaj et al., (2024) The concept of neuromarketing has gained much relevance due to its contribution to the field of marketing. Through neuromarketing techniques, it is possible to understand consumer behavior, which is fundamental in

advertising and commercial strategies. The study of neuromarketing helps to broaden the customer base, to position oneself in the market and to foster consumer loyalty. It also enables advertisers to better understand customers' tastes and desires, as well as ways to capture their attention. In this way, marketers gain valuable insights into how consumers react to advertising.

Núñez-Cansado et al., (2024) adds that Neuromarketing is defined within the study of neuroscience as the field that aims to understand buyer behavior through a series of procedures and instinctive reactions in the brain (Yadav et al., 2024). In cognitive neuroscience, especially in relation to the weight given to emotions in decision making, being excellent predictive indicators of consumer decision making. Every researcher now recognizes that emotions are, for better or worse, a powerful and pervasive influence on behavior.

According to Beličková & Kusá, (2023) It is mentioned that neuromarketing offers valuable information on the emotional factors that influence consumer behavior, enabling brands to develop effective sustainability campaigns. Companies can promote changes in behavior and contribute to a more sustainable future. In the end, effective communication on sustainability issues in advertising not only benefits the environment, but also strengthens the relationship between companies and their customers, creating an environment where all stakeholders benefit.

Arshi, (2023) mention that neuromarketing has brought about a revolution in the field of marketing. The adoption of neuromarketing has greatly enabled the understanding of consumer behavior. Growing the business and brand through brainstorming has a lot of impact on marketing. Neuromarketing, being an interdisciplinary research field,

emerged to provide answers and gain the best understanding of consumer behavior. Meanwhile, for Selvalakshmi et al., (2023) neuromarketing has become a new field of study. Advances in neuroscience help to assess even the tiniest neural activity. Neuromarketing employs the latest advances in brain scanning for the identification of customer target, expectation and hidden constraint. Although the concept has had an impact on the advertising industry worldwide, it still has a long way to go to penetrate the advertising landscape (Malathi et al., 2024).

On the other hand, for (Remigious Ezeugwu et al., 2022) the adoption of neuromarketing tools in emerging markets will help organizations understand the affective, cognitive and behavioral characteristics of consumers and how they mentally navigate through marketing stimuli. We conclude that it is important for organizations to rethink marketing campaigns in emerging markets.

Ali et al., (2022) mentioned, neuromarketing helps with effective advertising, branding, and product design. Conventional marketing techniques (e.g., newspaper advertisements and television commercials) are considered unsuccessful in selling products because they do not provide strong incentives for the customer to buy certain products. These traditional marketing techniques seek to gauge customers' inclination toward a product, which does not necessarily involve brand attitude and purchase intent.

Lsharif et al. (2021) suggest incorporating neuroscience into traditional neuromarketing research methods, recommending the selection of the most suitable neuromarketing technique. Neuromarketing studies investigate the brain's activity in response to marketing stimuli to uncover the relationship between an individual's behavior and their neurophysiological system. Understanding neuroanatomy and brain physiology allows for the comparison of brain region activation during specific tasks, aiding in the development of models that describe individual decision-making mechanisms and the discrepancies between thoughts and actions.

The study conducted in Malaysia (Alsharif et al., 2021) highlights that neuromarketing offers invaluable insights into consumer behavior, which traditional methods cannot achieve.

Crespo-Pereira et al., (2020) It is noted that neuromarketing techniques are not applied in many cases and that general knowledge on this topic is limited. On the other hand, factors that facilitate the adoption of neuromarketing include an innovative culture within the company and a direct alignment of these techniques with the organization's market research needs.

Also, Ramachandran, (2020) employ this type of neural marketing to create a better assessment of consumer choice and, through this recognition and perception, encourage the company to design excellent products and services specifically designed with precision and lobbying marketing tailored to the response of the consumer's brain.

However, given the quick development of neuromarketing techniques, Nilashi et al., (2020) point out that the domains of neuroeconomics are becoming more interested in revealing how the brain reacts to marketing stimuli triggered by consumer neuroscience. However, because they are uncertain about the data's capacity to yield significant insights into consumer psychology and behavior, marketers have historically been reluctant to embrace neuroscience techniques.

Also, Hsu & Chen, (2020) indicate that in selecting products, people do not know what they want until you show it. That's why it's not to rely on market research. The job is to read things that are not even on the page. In particular, hotels or other e-commerce organizations manage to concentrate emojis or any other smiley faces as implicit stimuli on their official website or in their video ads, because every emotion of the target audience can certainly be affected by such incentives that can influence every purchase decision. These subliminal stimuli will not be noticed by the consumer, but can effectively diminish or even avoid the detrimental effects of advertising when the stimulus is clearly displayed. The use of subliminal cues also helps to decrease consumers' psychological pressure, anxiety and suspicion, as well as increase their awareness of their product preferences. With simple adaptations to websites or commercial videos, the consequence can be favorable for reservation or sales departments.

Therefore, Badajoz Ramos et al., (2023) in their study on service quality in the purchasing decision. In their results they obtained that 60% of the population of Peru, the level at which shopping mall companies are found due to the way they reach the public is medium. In addition, concluding that people who use the services of shopping centers do it for the quality and efficiency to be served, so every day should take interest in developing skills to attract the attention of customers and that influences their purchase decision.

Ore Vilchez et al., (2022) in their study neuromarketing strategies for advertising activities whose objective was to analyze the strategies for advertising campaigns. In their results they identified how important is the management and creativity of an advertising post since it is the most fundamental tool and close to consumers, so it must be very thorough to analyze it before it is presented to the public, taking into account the expectation of consumers and the competition that is also present. This is the main source of income for the organization. It was concluded that Neuromarketing strategies should be in constant change,

always seeking to adapt to different scenarios taking into account the seasons and very important customs, in order to meet the need and thus reach their customers with a convincing service to the public (Kodric et al., 2021).

Similarly, Barnett, (2022) It has been mentioned that neuromarketing is still in experimental stages, with numerous successful cases of application of marketing strategies that seek to stimulate sensations in people. This is due to the use of new specialized technologies that have made it possible to measure brain behavior in response to perceived stimuli. This information is very useful for companies, as it facilitates the improvement and refinement of products and services according to consumer needs, which in turn generates greater affinity and more opportunities. Neuromarketing is defined as "the application of neuroscientific method for the analysis and understanding of people's behavior in relation to the market and marketing exchange" (Lim, 2018).

Because it uses neuroscience in marketing research to investigate what stimuli result in a particular type of customer performance, neuromarketing is regarded as the latest marketing innovation. The goal of neuromarketing is to get managers to provide actionable information so that marketing goals can be met. By using discoveries in neuroscience to better understand consumer brains, neuromarketing assists businesses in facilitating product creation and marketing/advertising. That is why there are organizations around the world that have undertaken to offer certain types of neuromarketing services (Nilashi et al., 2020).

By using neuromarketing strategies, marketers can learn which brain regions are used to present various brands and predict how brands will affect consumers' decision-making process as a whole. The way brands are sold, produced, and presented is greatly influenced by consumer neuroscience, according to managers (Brem & Viardot, 2015).

Neuromarketing is the discipline that employs neuropsychology to market research to learn and predict people's behavior generated by marketing practice. Historically, this area has been of interest to organizations because it improves advertising campaigns and increases profits. Paypal and Google were among the first organizations to apply these techniques. (Srinivasa, 2022; Quiles et al., 2024).

For a similar study, Google used the Eye-Tracking (ET) technique to identify user behavior while reading searches. The results showed that users tend to read in order, from top to bottom, so that the thumbnails appeared on the search result, seeking to attract the user's attention directly to the findings. (Quiles et al., 2024).

The study of neuromarketing is justified by stating that brain decisions at the subconscious level play an important role in the purchase of products. Neuromarketing allows advertisers

to test whether the brand has the ability to satisfy the emotional instinct of customers. Neuromarketing is a blessing for the advertising industry because it allows to read the subconscious and conscious mind, from them to create strategies that help to maintain a cordial bond with the customer (Veera Boopathy et al., 2024).

The following objective was set: To identify the literary contributions that support neuromarketing in organizations.

## II. METHODOLOGY

As a research methodology, the literature review was considered, the qualitative approach was applied, qualitative research the phenomenon or fact that is investigated in its context, which is mediated by the hermeneutic skills of the researcher, which are determinant, since the interpretation, meaning and sense of the findings obtained depend on them. (Espinoza, 2020). They are carried out when the purpose of the study is to examine a little-studied topic or a research problem, about which there are different doubts or that has not been treated in detail before (Hernández & Mendoza, 2018).

Bibliographic review was used as a data collection technique. For the identification of publications related to neuromarketing, sources indexed in high impact journals were used, having as selection criteria publications in limits from 2020 to 2024, as well as research in thematic areas of the business field and type of document scientific article (shows in table I).

On the other hand, with respect to the literature review technique, it helps to gather information regarding the stated objectives. Documentary analysis was used to gather information, both from texts, paraphrases and annotations related to the variables (Bobir et al., 2024).

Regarding ethical aspects, the research will be governed by the principle of beneficence seeking to do good and generate benefit to others. The results will follow the principles of non-maleficence and will not affect the integrity of the interested parties. Justice as it promotes and ensures respect for all people to protect their health and rights in accordance with the principles of fairness and good faith.

### III. RESULTS

TABLE I CHARACTERISTICS OF NEUROMARKETING PUBLICATIONS

Author	Type of article	Year	Target	Results	DOI/URL
Quiles et al., (2024)	Review	2024	Examine the implications of comprehensive and encompassing perspectives that seek to promote effective collaboration among project stakeholders, procedures, technology, data and contracts throughout the development period.	The goal of neuromarketing is to maximize the promotion of each product and achieve the highest possible acceptance among potential buyers. Neuromarketing analysis focuses on a single biosignal to obtain feedback on the stimuli presented.	<a href="https://doi.org/10.1016/j.inffus.2024.102231">https://doi.org/10.1016/j.inffus.2024.102231</a>
Núñez-Cansado et al.,	Review	2024	the objective of analyzing the influence of the adjacent contents on the subject's decision-making process.	The results show an emotional carry-over effect and the appearance of an attribution bias, with highly significant values in all cases, as well as notable differences in the nature and polarity of the emotions.	<a href="https://doi.org/10.1016/j.stae.2023.100069">https://doi.org/10.1016/j.stae.2023.100069</a>
Bajaj et al., (2024)	Review	2024	To study the benefits and limitations of neuromarketing tactics on a range of market entry devices.	In recent years, the concept of neuromarketing has gained great relevance for its contribution to marketing, especially in the field of advertising and programmatic advertising, which have benefited from a better understanding of the consumer's decision-making process.	<a href="https://doi.org/10.1002/cb.2249">https://doi.org/10.1002/cb.2249</a>
Balcony & Type	Basic	2024	determining the relationship between neuromarketing and customer acquisition	Neuromarketing contributes to customer acquisition and better positioning of the company, in addition to achieving loyalty and love for the brand.	<a href="https://doi.org/10.26495/re.v8i1.2695">https://doi.org/10.26495/re.v8i1.2695</a>
Reyna-Gonzalez et al.,	Review	2023	determine the impact of neuromarketing on customer loyalty	The study of neuromarketing is presented as a science that allows identifying emotions and sensations related to a company, in order to develop strategies that strengthen customer loyalty.	<a href="https://doi.org/10.59670/jns.v34i.1719">https://doi.org/10.59670/jns.v34i.1719</a>
Salazar et al.,	Review	2023	Identify the relationship between neuromarketing strategies and brand advertising.	The results highlight the relevance of kinesthetic stimuli in frequently requesting samples prior to purchase.	<a href="https://doi.org/10.1504/IJIMA.2023.132780">https://doi.org/10.1504/IJIMA.2023.132780</a>
Beličková & Kusá	Review	2023	Describe findings that aid in the creation of advertising messages in campaigns.	Neuromarketing research provides key insights into the emotional drivers of consumer behavior, enabling brands to create effective sustainability campaigns.	<a href="https://doi.org/10.34190/ecie.18.1.1673">https://doi.org/10.34190/ecie.18.1.1673</a>
Arshi	Review	2023	Analyze the application of neuromarketing for the development of products and services.	The adoption of NUMKTG has resulted in a better understanding of individual consumer behavior.	<a href="https://webofjournals.com/index.php/4/article/view/7">https://webofjournals.com/index.php/4/article/view/7</a>
Selvalakshmi et al.,	Review	2023	Explores the influences of neuromarketing on consumer decision making with respect to product purchases and the perception of marketers. Analyzes how companies have effectively used this technique to explore the customer's mindset.	Advances in neuroscience help measure even the tiniest neural activities. Neuromarketing makes use of state-of-the-art advances in mind scanning to show the hidden goals, expectations and constraints of buyers. Although the concept has created ripples in the advertising industry worldwide, it still has a long way to go to penetrate the advertising landscape.	<a href="https://doi.org/10.1504/IJBG.2023.134942">https://doi.org/10.1504/IJBG.2023.134942</a>
Remigious Ezeugwu et al.,	Review	(2022)	Providing information on why neuromarketing	the adoption of neuromarketing tools in emerging markets will help organizations understand the affective, cognitive and behavioral characteristics of consumers and how they mentally navigate through marketing stimuli.	10.1007/978-3-030-88678-3_10
Gill & Singh	Review	2022	Analyze Neuromarketing techniques and their scope in the consumer market.	Neuromarketing opens pathways into customers' brains and allows us to understand their behavior, enabling advertisers to use today's findings to make much more fruitful marketing campaigns that convince people to take a step forward. In addition, and more importantly, to create a passionate relationship with the buyer and build better customer connections.	<a href="https://doi.org/10.1016/j.matpr.2020.08.730">https://doi.org/10.1016/j.matpr.2020.08.730</a>
Córdova et al.,	Review	2022	To analyze the behavior of the consumer group with respect to e-commerce purchase decision making,	Regardless of gender, the individual is continuously making decisions, since the frontal lobe presents greater brain activity,	<a href="https://doi.org/10.1016/j.procs.2022.11.232">https://doi.org/10.1016/j.procs.2022.11.232</a>

			using Neuro marketing tools and techniques, taking into consideration certain learning models present in such process.	associated with behavioral control, planning, attention and thinking.	
Ali et al.,	Review	2022	To review in depth neuromarketing techniques for choice recognition based on EEG signals.	The promising field of neuromarketing, which applies neuroscience to the decision-making process, has generated growing interest in various industries and among consumers in different regions. This approach enhances the effectiveness of advertising, brand building and product design.	<a href="https://doi.org/10.1007/978-3-030-76653-5_20">https://doi.org/10.1007/978-3-030-76653-5_20</a>
Barnett	Review	2022	Analyze studies on neuromarketing and brand positioning.	It can be inferred that Brazil is among the countries with the greatest advances in the study, design and development of theoretical bases for the implementation of strategies that apply neuroscience to business marketing, with the objective of achieving a solid brand positioning.	<a href="https://doi.org/10.5281/zenodo.7031515">https://doi.org/10.5281/zenodo.7031515</a>
Paredes et al.,	Review	2021	Determine the relationship between the effectiveness of digital neuromarketing and the effectiveness of BTL advertising.	An inverse correlation is observed between the effectiveness of digital neuromarketing and BTL advertising, indicating that as the effectiveness of neuromarketing increases, the effectiveness of BTL advertising tends to decrease.	<a href="https://doi.org/10.31876/er.v5i38.784">https://doi.org/10.31876/er.v5i38.784</a>
Lsharif et al.,	Review	2021	Utilize neuroscience tools effectively to gain a comprehensive understanding of an individual's decision-making processes.	Real-time recording of consumers' mental and emotional reactions in a natural environment is now feasible, eliminating the need for self-assessment.	<a href="https://doi.org/10.47750/cibg.2021.27.03.048">https://doi.org/10.47750/cibg.2021.27.03.048</a>
Alsharif et al.,	Review	2021	Neuromarketing research employs advanced technology to gauge consumers' mental responses to marketing stimuli, a feat unachievable with traditional methods.	This article explores neuromarketing tools like functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye tracking.	<a href="https://doi.org/10.31117/neuroscim.v3i5.80">https://doi.org/10.31117/neuroscim.v3i5.80</a>
Crespo-Pereira et al.,	Review	2020	To reflect on the main factors that impact the adoption of neuromarketing within large companies, both from a bibliographical and empirical perspective.	The responses indicate that neuromarketing techniques are not widely used in most large Spanish companies, and that the general level of knowledge on the subject is quite limited.	<a href="https://doi.org/10.3389/fcomm.2020.576789">https://doi.org/10.3389/fcomm.2020.576789</a>
Ramachandran	Review	2020	Analyze how neuromarketing is used today.	Neuromarketing is a branch of neuroscience that focuses on the analysis of brain stimuli related to advertising. It is perceived by the public as a commercial influence that uses neurophysiological means for companies to track key signals and consumer behavior.	<a href="https://doi.org/10.48047/rigeo.11.07.98">https://doi.org/10.48047/rigeo.11.07.98</a>
Nilashi et al.,	Review	2020	From the perspective of the suppliers, this study examined the use of neuromarketing strategies in the promotion of sustainable goods.	Due to the quick development of neuromarketing strategies and the integration of consumer neuroscience into the study of neuroeconomics, there has been an increase in interest in examining how the brain reacts to marketing stimuli.	<a href="https://doi.org/10.3390/sym12020305">https://doi.org/10.3390/sym12020305</a>
Hsu & Chen	Review	2020	To understand how videos with a smiley face emoji as a subliminal message affect consumers' hotel selection by measuring and collecting their brain activities while watching the videos.	These subliminal stimuli might not catch the consumer's attention, but when clearly presented, they can significantly diminish or even eliminate the negative effects of advertising.	<a href="https://doi.org/10.1016/j.ausmj.2020.04.009">https://doi.org/10.1016/j.ausmj.2020.04.009</a>

**IV. DISCUSSION**

The neuromarketing literature review reveals that organizations are increasingly interested in using neuroscientific insights to better understand consumer behavior. This approach has proven to be effective in optimizing marketing strategies, underscoring the need to integrate interdisciplinary methods into business practice (Lyu & Mañas-Viniegra, 2021).

It has been shown that in countries such as Brazil and Mexico, research has been conducted showing how neuromarketing has transformed the production sectors,

increasing the effectiveness of commercial campaigns (Guzman et al., 2021).

Although neuromarketing has great potential, in Latin America, its application may be limited by the lack of resources and training in neuroscience. Many studies in the region advocate the need to invest in training and technology to take full advantage of these techniques (Guzmán et al., 2016). Globally, research in European markets has highlighted the effectiveness of emotional narratives in advertisements, a trend also observed in the Latin American context (Rodríguez, 2022).

And it is in Latin American research where the ethical implications of neuromarketing have begun to be addressed, suggesting that organizations should act responsibly when using neuroscientific insights (Nieto Orejana, 2024). For the above, further research on the relationship between neuromarketing and local culture is suggested. For example, the impact of cultural norms on the emotional response to different types of marketing messages.

Neuromarketing represents a significant advance in the understanding of consumer behavior, with practical applications that can transform the marketing strategies of organizations. However, its implementation and the ethical debate are crucial aspects that must be considered, both in the Latin American and global context. The comparison between different studies reveals not only the potential of these techniques, but also the need for a conscious and responsible approach in their application.

## V. CONCLUSIONS

Neuromarketing is considered as the new innovation in marketing, it makes use of neuroscience for market research, in a way that inspects which stimulus leads to a specific type of performance of each customer. In this context, neuromarketing seeks to enhance the promotion of products and generate greater acceptance in potential buyers.

The concept of neuromarketing has gained significant importance for its contributions to marketing, particularly in understanding consumer decision-making, which greatly benefits advertising and programmatic advertising. Consumer behavior can be analyzed through neuromarketing techniques, which are essential for the purpose and functioning of programmatic advertising. The adoption of neuromarketing tools in emerging markets will enable organizations to comprehend the emotional, cognitive, and behavioral traits of consumers and how they mentally process marketing stimuli.

Neuromarketing emerges as a science that aids in identifying emotions and sensations related to a company, allowing for the development of strategies that enhance customer loyalty. However, customer loyalty is not uniform across all clients. Maintaining a relationship with a non-paying customer that incurs losses is generally unwise. Thus, it is crucial to segment customers based on their value to the company, as well as their needs and behaviors. Additionally, it is important to consider loyalty throughout the entire customer relationship management cycle.

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