

NEURO MARKETING: HOW DOES IT IMPACT BUSINESS DECISION MAKING
AND ENABLE NEW AGE BUSINESS TO THRIVE AND ATTRACT CUSTOMERS
IN A COST-EFFECTIVE MANNER

By

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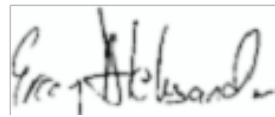
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Dedication

This dissertation is dedicated to my family, whose unwavering support, encouragement, and belief in my aspirations have sustained me throughout this academic journey. Their values, guidance, and constant reassurance have provided the strength and clarity needed to pursue this work with commitment and purpose.

To my parents, whose sacrifices and steadfast devotion have shaped the foundation of everything I have achieved. Their principles of discipline, humility, and perseverance continue to guide me in every endeavour.

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To Dr. Anuja, whose mentorship, support, and inspiration have played a meaningful role in shaping the direction of this research. Her encouragement and belief in my potential have strengthened my resolve and contributed greatly to the completion of this work.

To my extended family and loved ones, thank you for your patience, understanding, and unwavering faith in my journey. This achievement stands not only as a personal milestone but also as a reflection of the collective support I have been fortunate to receive.

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ABSTRACT

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This dissertation examines how neuromarketing influences consumer behaviour and business decision-making, with specific focus on emotional engagement, subconscious triggers, brand recall, return on investment (ROI), and the integration of digital technologies. The study evaluates whether neuroscience-based tools and emerging marketing technologies enable businesses to enhance performance and attract customers in a cost-effective manner.

A quantitative research design was employed, using structured surveys administered to marketing professionals and consumers. Data were analysed through descriptive statistics, ANOVA, correlation, and regression to assess the impact of emotional and psychological drivers, branding strategies, and technological adoption on consumer responses and professional viewpoints.

Findings indicate that emotional engagement—particularly through storytelling, nostalgia, and personalisation—significantly strengthens consumer interest, loyalty, and advocacy. Subconscious motivators such as urgency, social proof, and fear of missing out (FOMO) were strong predictors of purchase decisions, while incremental pricing tactics showed limited influence. Brand recall improved with distinctive visuals, consistent cross-platform messaging, repeated exposure, and emotionally resonant content, though neuromarketing tools such as EEG, fMRI, and eye-tracking contributed only partially.

ROI analysis revealed caution among professionals due to cost-justification concerns, despite broad support for data-driven marketing as a means of optimising ad spend. Consumers associated ROI more directly with product quality, pricing, brand reputation,

and reviews. Digital technologies—especially AI and machine learning—were recognised for improving targeting accuracy, while VR/AR and automation produced more mixed evaluations. Regression analyses confirmed that neuromarketing-based advertising, data-driven strategies, and economic context are significant predictors of marketing effectiveness.

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CHAPTER I: INTRODUCTION

1.1 Introduction

Marketing has experienced a seismic shift in recent decades, transitioning from conventional mass communication strategies to highly personalised, consumer-centred methodologies. This paradigm shift has led to the rise of neuromarketing, a specialised field that integrates neuroscience, psychology, and behavioural economics to gain deeper insights into consumer decision-making processes. Unlike traditional marketing research methods that primarily rely on self-reported data from surveys and focus groups, neuromarketing delves into the subconscious by analysing brain activity, physiological responses, and emotional stimuli.

The application of neuroscientific principles within marketing frameworks enables businesses to more accurately measure consumer engagement metrics, brand recall efficacy, and purchasing intentions. By leveraging subconscious motivators, companies can architect campaigns that resonate on a deeper emotional level with target demographics, thereby mitigating the inherent uncertainties associated with conventional market forecasting. This is particularly salient in domains where emotional rather than purely rational considerations heavily influence consumer decisions.

In the increasingly competitive landscape dominated by agile digital firms and start-ups, the significance of neuromarketing has escalated. Emerging enterprises encounter distinct challenges in cultivating robust customer relationships under tightened budget constraints. Neuromarketing methodologies provide these companies with data-driven insights into consumer preferences and behavioural patterns, equipping them with a distinct competitive advantage in developing cost-effective yet impactful strategies. As consumer

markets become more saturated, the capacity to capture attention, cultivate brand loyalty, and drive decision-making through empirically validated approaches is evolving into a critical determinant of sustained business success.

Marketing has been around for many centuries and the concept of selling customized products has been the way that people have been selling products and services to many customers and people who are looking for the same. Desires of customers have led the way and strategies on how marketers have shaped and pitched products to customers that have found solutions in the same.

Traditionally customers or consumers search for products that they have wanted and if they could not find it, they have invented it or adapted a similar product to suit their needs and wants. The process of this adaptation and search is where the marketers sit and observe and desires of the customers as this is a critical element in the journey of identifying customers' needs and wants to allow for products or services to be made to bridge the gaps and understand the customers better.

The factors that determine the success of any company or campaign is the basis of the data that must be collected by the research team to determine the needs and wants to allow for products and services to be delivered as per what the customer's needs and wants enabling success factors for the companies or the brands. There are some companies that have been successful by building unique products and have then provided customers with a superior experience ensuring customers come back or become loyal to the brand. Customers would also provide feedback aiding in the research process ensuring that the products as per what they would like to see in the product. This would enable companies to get invaluable data about customers which included buying patterns, brands, products or even services that they could customize to each individual customers enabling a more holistic approach to solving customer wants and needs as per their expectations.

Looking into the concept of customizations, first let's approach the concept of Neuro Marketing. Neuro Marketing as defined of Alle Smidts in 2002, "The study of cerebral mechanism to understand consumer behaviour in order to improved marketing strategies" (Boricean, 2009, p.119)

As time progressed, the marriage of how the neuroscientists and research have evolved the definition of the concept of understanding and mapping specific functions of the brain and critical functions of marketing to understand implications and the science of how and why people react to certain products in certain mannerisms (Lin, 2024)

Looking at the large scale of the way customers decision have been influenced by the various factors that have cultivated the way we behave in certain situations and conditions including but not limited to the society, culture and financial, the impact of this data availability has allowed for wide scale paradigm shifting changes in the industry that has allowed for companies to launch new products and campaigns using this data and influence the purchase the decisions made and perceptions created for customers.

According to Statista/Navarro (2025) and WPP Media (2025), global advertising and marketing expenditure approached USD 1.1 trillion in 2025 — up from approximately USD 990 billion in 2024 and USD 918 billion in 2023. At a sustained compound annual growth rate of approximately 7%, global ad and marketing spend is projected to surpass USD 1.3 trillion by 2028. At the firm level, average marketing budgets stand at 7.7% of company revenue in 2025 — flat from 2024 and below the pre-pandemic average of 11% (Gartner CMO Spend Survey, 2025). SMEs typically allocate 5–10% of overall expenses to marketing.

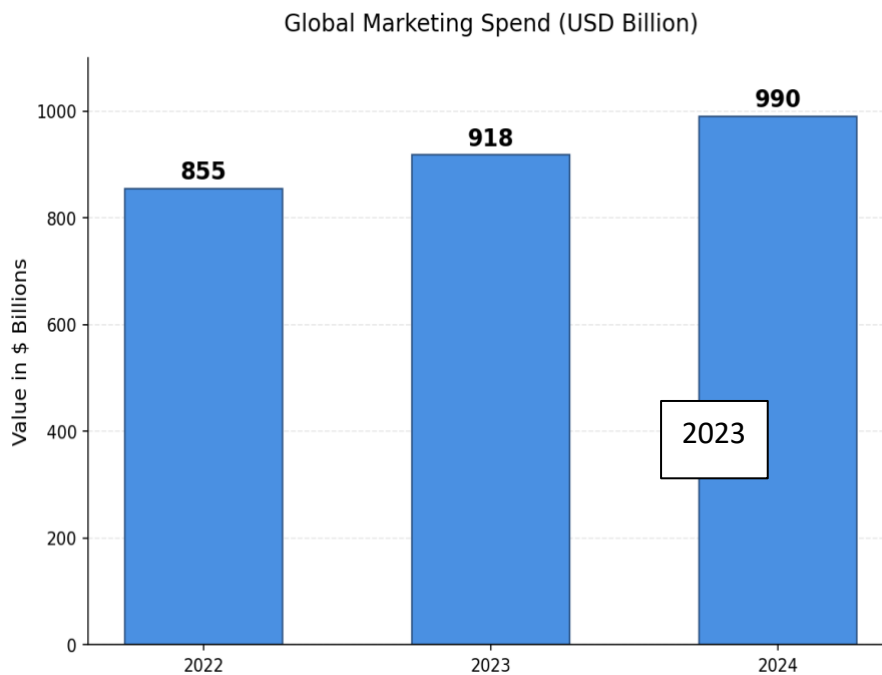


Figure 1 Global spend in the marketing of products and services

The graph shows the total global advertising and marketing spend across the globe as per the data published by Statista/Navarro (2025) and WPP Media (2025), covering the period 2022 through to projected estimates for 2028. The market exhibits a sustained upward trajectory at a compound annual growth rate of approximately 7%.

The market grew from approximately USD 918 billion in 2023 to USD 990 billion in 2024, an increase of roughly 7.8% year-on-year. Using the sustained compound annual growth rate of approximately 7% reported by WPP Media (2025), the market is projected to reach approximately USD 1.31 trillion by 2028, as illustrated in the graph below.

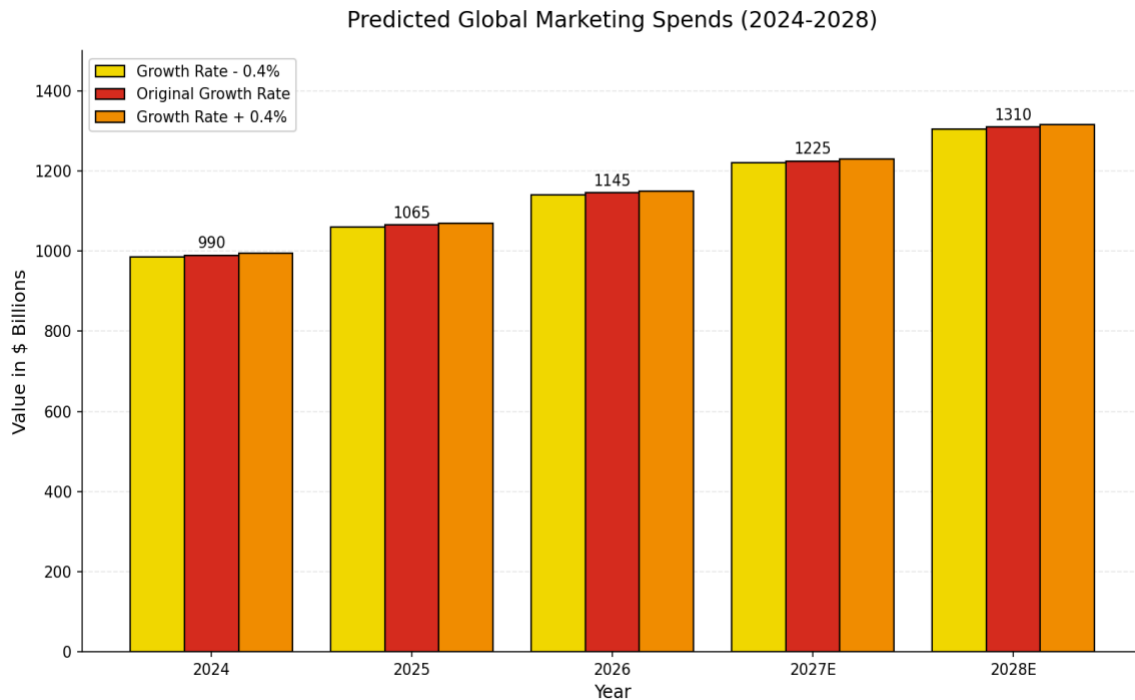


Figure 2 Predicted Global Marketing Spends (2024-2028)

The graph can be read in the following manner – The yellow bars – represent a reduced growth rate of 0.4%, the red bars – represents the industry growth rate, the orange bars – represents an accelerated growth rate of 0.4%.

Seeing the trend in the industry, we can understand that global advertising and marketing expenditure is projected to surpass USD 1.3 trillion by 2028, with the 2028 estimate reaching approximately USD 1.31 trillion. This trajectory is shaped substantially by the marketing budgets of the largest companies in the world, which have the capacity to spend billions on customer acquisition across multiple media outlets.

The analysis would allow for companies to estimate the required budgets to be kept aside for the marketing activities for the following years and this allows for us to dwell deeper into the way the industry is shaping especially with the influence of online advertising rather than the traditional advertising methods. The size of the customer base

is assumed to be the same as the size of the global population, and this would allow for business to understand the total available population that could be limited to the true numbers of customers who they believe would be a right fit for their products or service. The customer base has one important variable that should also be considered as it is ever evolving, and this can be related to the economic study of consumers. The study conducted in Australia by Wiesel, Ralston and Stone in 2021 shows that the average CPI of the population has been growing by 10% YoY and accounting for an assumed adjusted inflationary adjustment of 3.4% YoY this has increase the disposal income of the average household by an approximate of 6.6% YoY which has led to the increase of the purchasing power of the average customer. (Wiesel, Ralston and Stone, 2021).

The above is the average industry segment space that is seen in the world of marketing and the spends from companies across various industries to allow us to have a base line. The consumers of the 21st century have undergone a focus shift that has required for the development of many new techniques to allow for companies to acquire and retain the interest of the customers to their brand and products. This is noticed widely across the marketing industry but to understand is deeper context we will examine the impact across 2 industries – Gaming and the Fast-Moving Consumer products markets.

1.2 Emergence of neuromarketing as a discipline

Neuromarketing is an innovative discipline that integrates neuroscience with marketing, fundamentally transforming the landscape of consumer Behaviour analysis beyond traditional methodologies. By employing sophisticated techniques such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and ocular tracking, researchers can uncover the subconscious drivers behind purchasing decisions

(Mada, 2024). This methodology offers enhanced accuracy and robustness in evaluating consumer responses to various marketing stimuli (Sami Alsmadi and Hailat, 2021).

The impact of neuromarketing extends across multiple facets of marketing strategy, influencing consumer buying patterns, advertising effectiveness, pricing strategies, product distribution, and brand perception (Roth, 2014). It effectively mitigates the shortcomings of conventional market research methodologies, which often fail to capture the nuanced and implicit reactions of consumers to advertisements due to their limited introspective capabilities (Maniyar et al., 2019).

Despite its potential to craft more targeted and effective marketing initiatives, neuromarketing also provokes ethical debates around consumer manipulation and data privacy (Roth, 2014). Ultimately, neuromarketing offers critical insights into the emotional and psychological dynamics that underpin consumer decision-making processes.

Neuromarketing is an exciting blend of neuroscience and marketing that helps us understand how consumers think and feel when making purchasing decisions. It uses advanced techniques like measuring brain waves and tracking eye movement to gain insights into people's reactions to ads and products. These tools provide immediate feedback about how audiences are responding emotionally, which is often more accurate than traditional surveys where people report their feelings (Aliyev, 2025).

Research has shown that ads that evoke strong emotions tend to capture more attention. By tracking where people look, marketers can also figure out the best places to position their ads (Aliyev, 2025). One powerful method, fMRI, allows researchers to study how the brain reacts to different factors like impulsiveness, feelings of reward, and decision-making (Alsharif and Isa, 2024).

Neuromarketing can be applied to various aspects of marketing, including pricing, advertising strategies, product designs, and branding efforts (Mishra and Shukla, 2020;

Alsharif & Isa, 2024). As this field continues to develop, it's important to consider ethics, data privacy, and transparency in how this information is gathered and used (Rahaman et al., 2021; Aliyev, 2025). Looking ahead, researchers aim to create ethical guidelines and improve prediction methods to make neuromarketing even more effective for businesses (Aliyev, 2025).

1.3 Integration of neuroscience in marketing strategies

The integration of neuroscience into marketing—commonly referred to as consumer neuroscience or neuromarketing—has emerged as a transformative approach to understanding the underlying mechanisms of consumer decision-making. By leveraging neurophysiological tools, researchers and marketers aim to capture unconscious emotional, cognitive, and behavioural responses that traditional marketing techniques often overlook.

1. Foundational Concepts in Consumer Neuroscience

Consumer neuroscience combines insights from psychology, economics, and cognitive neuroscience to study how consumers respond to marketing stimuli at a neural level. According to Karmarkar and Plassmann (2019), this field addresses critical limitations of traditional marketing research by moving beyond self-reports and into the physiological processes of decision-making (Karmarkar and Plassmann, 2019). Similarly, Blum (2016) emphasizes the interdisciplinary nature of consumer neuroscience, noting its capacity to optimize marketing activities by decoding affective and cognitive responses (Blum, 2016).

2. Neural Mechanisms Behind Consumer Behaviour

A consistent theme in the literature is the identification of specific brain regions involved in consumer choice. For example, the medial prefrontal cortex (MPFC) has been linked to product preference and value evaluation, while the insula is associated with price

sensitivity and the orbitofrontal cortex (OFC) with hedonic experience and willingness to pay (Chund, 2013). These findings underscore the neurobiological basis of seemingly subjective purchasing decisions.

3. Enhancing Predictive Power and Marketing Effectiveness

A key contribution of neuroscience to marketing is its predictive capability. Yoon et al. (2012) argue that neural data enables more accurate predictions of market-level behaviours, mainly by accounting for factors like stress, hunger, and social influence that shape consumer preferences (Yoon et al., 2012). Trabulsi et al. (2015) highlight the use of EEG to capture real-time emotional engagement and attention during ad exposure, allowing for granular optimization of marketing content (Trabulsi et al., 2015). This allows marketers to tailor strategies that resonate more deeply with target audiences.

4. Implicit Processing and the Limits of Traditional Methods

Traditional tools such as interviews and surveys often fail to detect implicit responses. Neuromarketing addresses this gap by measuring unconscious physiological reactions through tools like fMRI, EEG (Balconi and Sansone, 2021). These approaches reveal that decisions are frequently made based on rapid, pre-conscious emotional evaluations, challenging the assumption that consumers act solely on rational deliberation (Uddin, 2023).

5. Ethical Considerations and Methodological Challenges

While consumer neuroscience presents valuable opportunities, it also raises ethical concerns. Researchers warn of potential misuse of neuroscientific data in ways that could infringe on consumer autonomy or privacy (Niedziela and Ambroze, 2021). Moreover, the validity of lab-based findings in real-world applications is still debated, particularly when accounting for complex social and emotional variables that influence consumer decisions.

The integration of neuroscience into marketing has significantly advanced the understanding of consumer decision-making by providing empirical insights into the emotional and neural mechanisms that underlie choices. Although ethical and methodological considerations remain, the field of consumer neuroscience holds promise for more predictive, personalised, and ethically guided marketing strategies.

Neuromarketing, which involves the application of neuroscience in marketing, provides valuable insights into consumer behaviour but also faces significant ethical and practical challenges. Critical ethical concerns encompass informed consent, data privacy, manipulation, and social equity. This field raises critical questions regarding consumer autonomy and privacy rights, highlighting the need for clear global standards (Dierichsweiler, 2014).

On the practical side, challenges include high costs, issues with timing, limited access to scanning technology, and concerns over ecological validity in testing environments (Spence, 2019). Despite these hurdles, neuromarketing offers opportunities for more effective interventions across various industries, ranging from retail to gastronomy (Spence, 2019; Šević, 2022).

To foster responsible innovation, it is essential to align neuromarketing practices with ethical standards and human rights. As the field progresses, addressing these challenges will be crucial for its sustainable development and broader adoption across different business sectors (Šević, 2022).

1.4 Relevance to new-age businesses and competitive markets

Neuromarketing techniques, particularly the implementation of virtual reality (VR), present substantial opportunities for enhancing consumer trust and loyalty within digital platforms. Research indicates that VR marketing significantly boosts engagement, trust, and purchase intent relative to conventional digital marketing approaches (Chhaniwal et al., 2025). Additionally, advanced neuromarketing methods such as functional Magnetic Resonance Imaging (fMRI) and Electroencephalography (EEG) enable businesses to gain deeper insights into consumer behaviour and brand loyalty, thereby enhancing overall brand equity (Nadanyiova, 2017).

In the realm of e-commerce, it is evident that consumer satisfaction plays a critical role in loyalty formation, with trust serving as a key mediating factor. Recent studies conducted in Indonesia reveal that satisfaction and trust account for 56.6% of the variance in consumer loyalty (Kurniadi and Rana, 2023). Furthermore, social media marketing initiatives significantly contribute to establishing online trust and loyalty, particularly within the e-commerce sector (Khoa and Huynh, 2023). These insights highlight the imperative of utilising neuromarketing and sophisticated digital marketing strategies to cultivate trust and loyalty, especially in environments characterized by digital-first approaches and start-up dynamics.

Neuromarketing has emerged as a powerful advancement over traditional marketing approaches, offering significant competitive advantages to modern businesses seeking to understand and influence consumer behaviour more effectively. While traditional marketing methods such as surveys, interviews, and focus groups often rely on self-reported data and conscious recall, neuromarketing delves into the subconscious and emotional layers of consumer decision-making using tools like EEG, fMRI technologies. These tools allow researchers to access insights that consumers may not be able to

articulate themselves, thus enabling a more precise understanding of preferences and motivations.

Several studies highlight that neuromarketing enhances the predictive power of marketing efforts by capturing physiological responses to stimuli. Karpova et al. (2019) emphasize that neuromarketing enables companies to predict consumer behaviour more accurately than traditional research, as it taps into emotional and subconscious reactions that drive decisions. This predictive capacity gives businesses an edge in developing marketing strategies that resonate more deeply with target audiences. Similarly, Cuns et al. (2019) found that neuromarketing allows businesses to design experiences that appeal to consumer emotions, fostering stronger brand connections and loyalty.

In competitive markets where product differentiation is challenging, neuromarketing also facilitates emotional targeting that builds brand attachment. Unlike traditional approaches that primarily appeal to logic or utility, neuromarketing engages the affective components of consumer perception. Pilelienė (2011) points out that companies leveraging neuromarketing can better satisfy emotional needs, thus gaining a unique advantage in crowded marketplaces. Furthermore, studies like those by Sharma et al. (2014) and Nyoni and Bonga (2017) suggest that neuromarketing reduces the risk of failed campaigns by pre-testing emotional impact, leading to better resource allocation and return on investment.

Beyond advertising, neuromarketing has shown potential in optimizing product design, packaging, and in-store experiences. Zintso and Stasyuk (2022) describe how marketers can influence purchasing decisions by engaging all five senses—through visual design, sound, smell, and tactile elements—tailored to evoke desired emotional states. This sensory-based approach allows for more immersive brand interactions and can enhance customer satisfaction and loyalty.

Moreover, the integration of artificial intelligence with neuromarketing tools expands these advantages further. AI-powered neuromarketing platforms can analyse consumer reactions in real time, enabling rapid adjustments to campaigns and fostering personalisation at scale. As noted by Papić et al. (2023), the use of AI in neuromarketing has been effective in generating sustainable, targeted marketing strategies that align with consumer sentiment and demographics.

In sum, the literature consistently supports the idea that neuromarketing provides modern businesses with a multifaceted strategic advantage. By uncovering hidden drivers of consumer behaviour, optimising emotional engagement, reducing campaign risks, and enabling adaptive strategies through technology, neuromarketing positions itself as a superior approach to traditional methods in a rapidly evolving marketplace.

1.5 Purpose of Research

The problem statement and the significance of this study is critical to help brand owners and companies focused on the development of new products and would allow for them to launch them or re-launch old products in a cost effective manner allowing an effective approach to enable a focused approach and use of the marketing elements of product, price, promotions and placements allowing for enhanced visibility of products and services with the culminated goal to increase the engagement with customers.

Understanding the focus of a few basic changes in the products and services would allow for a more holistic approach to revamping the marketing strategy and approach allowing for a new age digital focus push increasing engagement with the customers which in turn would lead to enhancing the awareness of the brands and the companies. This would also allow for multi-brand companies to engage with customers in the right manner allowing for a concentrated approach to marketing the products and ensuring that the right

customers see it. The digital push approach is now a trend with most companies wanting to online first rather than the traditional approach, this study will help them understand the implications and the cost effectiveness of the same ensuring the right digital strategy is used to allow for optimised ad campaigns with the best possible results.

Focusing on the enablement of brands or companies that invest in the celebrity advertisement concept that allows for the celebrities to get a stake for either their time or money in which they would support the brand with a focus on their target base. Celebrities have a very good following and a single post or comment from them allows for millions of followers to see the brand and it would allow for a good focus for a new product and potentially should enable a good return on investment (ROI) for the brand either in the short or the long run. The questions here would be on the lines of – what is the potential impact of how the brand benefits from them, is it truly a value add or another ploy for immediate results for customer to get into the buzz of purchasing the product or it is a platform for more trend setting items to be included into the brand building items at a later stage ?

The purpose of this research would be to enable finding a common ground that would help the emerging brands and the large organisations to focus on how to shape the marketing strategy and communication language enabling them to prioritize the points of how campaign budgets can be established and focused in a manner that would be cost effective and enable the companies to benefit in the long run.

1.6 Significance of the Study

While the purpose of this research establishes what the study sets out to achieve, its significance lies in the contribution it makes to academic scholarship, business practice, and policy thinking around neuromarketing. The study addresses an evident gap in the literature, where most prior work has focused either on narrow technological assessments of neuroimaging tools or on conceptual debates about consumer behaviour, with limited integration of the two perspectives. By examining neuromarketing through the dual lens of marketing professionals and consumers, this dissertation offers a more balanced and empirically grounded contribution to the field.

For academia, the research advances theoretical understanding by linking established frameworks — Dual-Process Theory, the Theory of Reasoned Action, and Emotional Contagion Theory — to contemporary empirical evidence on subconscious motivators, brand recall, and ROI optimisation. For practitioners, particularly those in start-ups and small to mid-sized enterprises operating under tight marketing budgets, the findings provide actionable insights into how neuromarketing techniques can be deployed cost-effectively to enhance customer acquisition and retention. The study's focus on cost-effectiveness is especially significant for emerging brands that lack the scale to absorb large-scale advertising failures.

In addition, the study has implications for marketing ethics and policy. As neuromarketing tools become more sophisticated and accessible, questions of consumer privacy, informed consent, and the boundary between persuasion and manipulation become increasingly important. By documenting both consumer receptiveness and professional caution, this research contributes to the broader conversation about how organisations can adopt neuromarketing responsibly. The findings are also relevant to multi-brand organisations seeking to balance global brand consistency with regional consumer

differences, and to firms evaluating whether to invest in celebrity endorsements, cross-brand collaborations, and emerging digital technologies such as AI and VR/AR.

1.7 Research Questions and Hypothesis

Research Questions

The major questions that would be addressed in the research would be as follows:

- 1) Is it possible to develop an acceptable spending pattern that allows companies to plan neuromarketing spend across different stages of product/service launches?
- 2) How will the 4 P's of marketing change in strategy if detailed customer profiling data is available in advance?
- 3) How can customer profiling enable targeted advertisements across platforms to enhance communications and improve customer acquisition?
- 4) Would better planning and communication delivery using the right keywords improve customer retention and loyalty?
- 5) What new consumer behaviour patterns on a global scale allow for more focused regional and worldwide campaigns?
- 6) Is the traditional approach still optimal, or does a new-age digital neuromarketing method represent the way forward?
- 7) How does celebrity endorsement or celebrity reviews improve brand recall — does it lead to stronger consumer associations with the brand?
- 8) Is there potential for cross-brand collaborations to improve product/brand value for long-term consumer benefit?

Hypothesis

H1: Emotional engagement strategies in advertising — including storytelling, nostalgia, and personalisation — significantly enhance consumer interest, brand loyalty, and advocacy.

H2: Marketing professionals' perception of emotional branding as a driver of consumer loyalty differs significantly across roles, industries, and levels of familiarity with neuromarketing.

H3: Subconscious motivators — such as urgency (flash sales), scarcity, social proof, and fear of missing out (FOMO) — are stronger predictors of immediate purchase decisions than incremental pricing tactics.

H4: Macroeconomic context (downturn versus stable conditions) moderates the relative weight consumers place on affordability and necessity versus quality, features, and brand image when making purchase decisions.

H5: Distinctive visual identity, consistent cross-platform messaging, repeated exposure, and emotionally resonant content significantly improve consumer brand recall and recognition.

H6: Data-driven and neuromarketing-based advertising approaches are perceived by marketing professionals as delivering superior return on investment compared with traditional mass-market advertising.

H7: Artificial intelligence (AI) and machine learning (ML) significantly improve the targeting accuracy and efficiency of marketing campaigns.

H8: Consumer-facing digital technologies (personalised advertising, AI-driven chatbots, VR/AR) produce uneven effectiveness, with personalisation receiving stronger consumer reception than fully automated interactions.

CHAPTER II: REVIEW OF LITERATURE

2.1 Theoretical Framework

The Theory of Reasoned Action (TRA) is to have the focus on the different aspects of how different theories and concepts in the traditional place can be applied to this research in the marketing field and how their applications can help us find better methods on how companies can approach customers in a better manner and the practical application of these theories (Hale, et al., 2002).

The last decade has seen neuroscience evolve and inform the marketing science of meaningful methods on how to interpret the customers wants and desires in meaningful ways and methods. The interaction between the two fields has led to gaining deeper insights and understandings of the customer and the target audience resulting in a better focused approach to attracting or retaining customers to a brand (Agarwal and Dutta, 2015).

While there are many methods in the practice, they are a relevant theory that are used as a basis for these discussions, and this allows us to understand the focus of each of the theories and their relevant applications in the field to attract customers in a cost-effective method. A few of the theories have been discussed below:

A) Dual-Process Theory

The dual nature of the human brain has been the recent focus and has been heavily debated over the last few years, the focus being the human reasoning process, and the

decision-making process are two distinct areas of the human purchases process. The theory explains the concept of how a potential or existing customer would differentiate the process and potential speed of a purchase. The theory also examines the extent of the physiological framework for the decision model behaviour in the neuroeconomics and the marketing spaces (Grayot, 2020). Simply broken down the theory is divided into the following segments: a) Fast, automatic and emotional response and b) slow, deliberate and logical approach.

The major relation of this theory in the argument of customers today is the relevance of how the researchers of today can understand this process and utilise this to explain the purchase patterns across different services and product categories. The reliance of this theory is limited as this only looks for a reasoned application process that explains the anomalies in the purchase behaviour of customers and does not provide a complete or holistic process and applicative analysis on how a customers can be enhanced to buy more or be attracted to a brand. Hence this limitation of this theory is vast but is an effective tool to understand the outliers in the process of the customer purchase patterns.

B) Theory of Planned Behaviour

Planned Behaviour is an attribute of bias that is applied in the logic of a customer when purchases are made. The theory is a discussion of the development of the ‘belief-based’ measure of perceived control and ‘direct-based’ measure (Hagger and Hamilton, 2023).

The theory is analysed in the concept of customers having a fixed approach to purchasing products and this is a concept that has been tested in various aspects of the customers behaviour. The focus of this is to filter out the theoretical aspects and to understand the customers brand loyalty matrices. As a creature of habit, customers tend to focus only on brands that have got them value or benefit in the past. The analysis of the

results from this theory is biased largely as this focuses only on the two sides of the customer purchase behaviour, the method allows for correlations between intentional behaviour and associated behaviour over time. (Hagger and Hamilton, 2023).

C) Emotional Contagion Theory

Emotions are known to catch amongst people this process is called 'Emotional Contagion'. This has both positive and negative effects on the impacts a brand or service. This is a study of the society and the impact the product or service has on them. The focus of this can be used to understand the impact of using agent-based techniques to influence or stimulate the emotional contagion in crowded areas or places (van Haeringen, Gerritsen and Hindriks, 2022).

The most recent test of this theory is related to the increasing use of e-commerce applications and the increase of using influencers in the marketing of products and services. The positive approach towards a brand or service would allow for customers to perceive a positive impact of the product or service in their lives irrespective of this practicality or impact on their daily lives. This has been experiences in the recent use of emotional aspects used to sell products using live-ecommerce streaming methods. The positive reinforcement of 'good-to-have' products or services would potentially drive-up sales (Li, Chen and Zhu, 2024).

This theory allows researchers to analyse the potential impact of gathering sales of products in the early stages of launches or in the late stages of the product lifecycle to breathe in new life into the products and potentially enable an emotional push for new or existing customers to purchase more products or services.

D) Cognitive Dissonance Theory

The theory seeks to explore the discomfort that people experience when holding conflicting beliefs or behaviours leading them to seek consistency of a product or a purchase. The theory seeks to understand the negative decisions and the choice patterns of an individual when making these decisions and how it would practically impact their reaction to a brand whose products or service they seek to purchase. The primal focus of this theory is to understand the negative drive state that occurs when the customer holds two cognitions that are psychologically consistent. (Aronson, 1969).

The theory has had limited study, and very little literature exists on the applications of this theory in recent times. The most recent application of this has been started to be explored by the Russian research and theorists in the aspect of package design and its impact on customers. The theory tests the impact of the packaging of the product and the clarity of the communications that the packaging would convey to the customers. As having 2 opinions of the product would be possible to the customers, understating the impact of the negative reactions would allow for an understating of what aspects would have to be improved. The theory is very subjective at best and does not allow for a fair and unbiased view that the potential target group of customers may have. (Ivan, 2024)

E) AIDA Model (Attention, Interest, Desire, Action)

The AIDA Model outlines the stages a consumer goes through before making a purchase:

- Attention: Capturing the consumer's attention.
- Interest: Generating interest in the product.
- Desire: Creating a desire for the product.
- Action: Prompting the consumer to act (purchase) (Pramita and Manafe, 2022)

The psychological foundations of neuromarketing can be meaningfully understood through established consumer behaviour theories such as Dual Process Theory and Prospect Theory, both of which provide insight into how consumers make decisions under different cognitive and emotional conditions.

Dual Process Theory posits that human decision-making operates via two systems: System 1, which is fast, intuitive, and emotional, and System 2, which is slower, analytical, and deliberate. Neuromarketing primarily engages System 1 processes by tapping into automatic, subconscious reactions to marketing stimuli. For instance, emotional appeals, sensory triggers, and visual branding often stimulate immediate affective responses that bypass rational analysis, leading to impulsive or emotionally driven choices. Neuroscience tools such as EEG and fMRI are used to detect these System 1 responses, enabling marketers to craft strategies that are more aligned with how real-time decisions are made. Research further supports that these intuitive processes dominate, especially in high-speed, low-involvement decisions every day in consumer contexts (Fraser-Mackenzie, 2011).

Prospect Theory, on the other hand, explains how consumers evaluate potential gains and losses relative to a reference point rather than absolute outcomes. A core principle of the theory is loss aversion—the tendency for people to feel the pain of losses more intensely than the pleasure of equivalent gains. Neuromarketing exploits this bias by emphasising potential losses if a product is not chosen or highlighting security and relief when a product is purchased. This tactic aligns well with observed neural activity showing heightened responses to loss-related stimuli in areas like the amygdala and insula. For example, framing effects—emphasising "what you miss out on" rather than "what you gain"—have been shown to alter consumer preferences significantly and can be fine-tuned using neuromarketing tools (Yu-bing, 2013).

Additionally, the reference dependence and diminishing sensitivity principles of Prospect Theory explain why marketers frequently use pricing anchors, limited time offers, and social proof. These strategies manipulate the consumer's internal reference points, altering their perceived value of an offer. Neuromarketing can measure these perceptual shifts in real time, enabling brands to adjust their messaging dynamically (Elkholly, 2014).

Together, these theories support the idea that neuromarketing is not just a technological advancement, but a practical application of long-standing psychological principles. By grounding its practices in Dual Process and Prospect Theory, neuromarketing gains theoretical robustness and enhances its ability to predict and influence consumer decisions in nuanced and ethically informed ways.

2.2 Neuromarketing and Emotional Engagement

Neuromarketing delves into the interplay between emotions and consumer decision-making by examining neurological reactions to marketing stimuli (Mogollón García et al., 2024). Research indicates that emotional factors are pivotal in shaping decision-making processes, with strategically elicited emotions enhancing the efficacy of advertising (Polo et al., 2024). The use of physiological measures, such as electroencephalography (EEG) and galvanic skin response (GSR), allows for the assessment of emotional states and their subsequent effects on consumer behaviour (Polo et al., 2024). Notably, auditory stimuli have been shown to elicit more pronounced physiological responses than visual stimuli, highlighting their significant potential in influencing consumer preferences (Polo et al., 2024).

Moreover, neuromarketing methodologies, such as functional magnetic resonance imaging (fMRI) technology, afford marketers more profound insights into customer loyalty dynamics and the enhancement of brand equity (Nadanyiova, 2017). The concept of brand

image, intertwined with theories of imagination and self-perception, emerges as a crucial symbolic representation of consumer identity (Jukić, 2023). In summary, neuromarketing provides essential insights that enable companies to forge stronger emotional connections with their customer base (Mogollón García et al., 2024).

Emotional engagement is pivotal for enhancing long-term consumer-brand relationships in competitive environments. Research indicates that emotional branding substantially boosts brand recall, customer loyalty, and purchasing behaviour, often eclipsing traditional rational considerations such as price and quality. The integration of narrative elements and storytelling in product design cultivates more profound connections, thereby promoting user loyalty and brand attachment (Ardjomandi, 2025). Empirical evidence suggests that emotional branding exerts a robust positive influence on both customer satisfaction and loyalty, with satisfaction serving as a mediator in the relationship between emotional branding and loyalty (Wardana, 2025).

Furthermore, consumer brand engagement (CBE) tends to be more pronounced in emotional brand relationships compared to functional ones, demonstrating both direct and indirect effects on brand loyalty (BL) (Fernandes and Moreira, 2019). While CBE exerts a more substantial influence on BL within emotional frameworks, satisfaction emerges as a more significant direct predictor of BL in functional contexts (Fernandes and Moreira, 2019). Collectively, these findings underline the critical role of emotional engagement in fostering sustainable consumer-brand relationships.

Neuromarketing has emerged as a robust interdisciplinary approach that blends neuroscience with marketing to better understand the subconscious drivers of consumer behaviour, particularly emotional engagement. Recent literature underscores the significant role of emotional responses in shaping purchasing decisions and guiding the design of effective, resource-efficient marketing strategies.

Papić et al. (2023) highlighted how AI-powered neuromarketing tools—such as sentiment analysis and video processing—can analyse consumer reactions and optimize campaign elements. Their study found that a clear emotional call-to-action combined with AI-based audience segmentation improved engagement and reduced wasted ad spend in university recruitment campaigns (Papić et al., 2023).

Singh (2020) demonstrated the effectiveness of low-cost neuromarketing techniques such as facial emotion analysis in evaluating advertising stimuli. These methods revealed how gaze patterns and emotional responses predict consumer attention and recall, making them valuable tools for online retail campaign design without the need for expensive brain imaging technologies (Singh, 2020).

Zeng and Marques (2023) applied Galvanic Skin Response (GSR) and emotion classification to test two video ads. Despite similar levels of attention, the ad with higher emotional appeal drove stronger consumer preference, indicating that emotional resonance—not just attention—is key to campaign success (Zeng and Marques, 2023).

Roy (2025) explored emotional engagement's role in brand equity, revealing that campaigns which trigger emotions like joy or nostalgia improve brand recall, loyalty, and customer retention. These outcomes can be achieved cost-effectively by optimizing visual and sensory cues within advertisements (Roy, 2025).

Finally, Pluta-Olearnik and Szulga (2022) emphasized that emotions are the primary drivers of consumer decisions, often overriding rational thought. Their review supports integrating emotional cues into every stage of campaign development to ensure a deeper connection with target audiences, thus increasing efficiency and marketing ROI.

2.3 Neuromarketing and Brand Recall

The integration of neuromarketing insights and storytelling is a powerful tool for boosting brand recognition and consumer loyalty. By connecting with consumers emotionally, brands can foster deeper relationships. Recent literature emphasizes the importance of emotional storytelling; Mandung (2024) notes that such narratives strengthen psychological bonds and trust between consumers and brands. However, it also highlights the variability in emotional responses based on demographics, suggesting that storytelling should be tailored to specific audiences. Furthermore, Mandung's focus on digital marketing leaves the effectiveness of emotional storytelling in traditional contexts largely unexplored.

Roy (2025) discusses how emotional triggers enhance brand recall, aligning with the idea that emotions like joy and nostalgia improve memory retention. Nevertheless, the study overlooks negative emotional triggers and lacks cross-cultural perspectives, as emotional responses are culturally shaped, and a one-size-fits-all approach may not work globally.

Chang (2025) examines the mediating role of brand image in storytelling's impact on purchase intention but doesn't account for the evolving nature of brand perception over time. While credibility is identified as crucial, the ethical considerations of storytelling and authenticity are not adequately addressed, which could undermine consumer loyalty.

Lastly, Alaghappan and Nalini (2025) explore AI-enhanced storytelling for personalized brand experiences, connecting with various consumer segments. However, this raises ethical concerns regarding consumer privacy and the potential for over-targeting, which could diminish the perceived authenticity of the brand experience.

Neuromarketing leverages insights from neuroscience to analyse consumer behaviour at a subconscious level, presenting potential advantages compared to conventional marketing research methodologies (Aliyev, 2025; Bercea, 2012). It utilises

advanced neuroimaging tools such as electroencephalography (EEG), functional magnetic resonance imaging (fMRI) technology to capture real-time brain activity and emotional responses, thereby enhancing our understanding of brand perception, advertising efficacy, and purchasing propensity (Aliyev, 2025; Madan, 2010).

Research indicates that neuromarketing can significantly enhance the accuracy of consumer insights, with neuroimaging methodologies demonstrating significant potential in revolutionizing market research practices (Bercea, 2012; Fortunato et al., 2014). For example, EEG studies reveal that advertisements with strong emotional appeal tend to capture greater consumer attention (Aliyev, 2025). Nevertheless, this field is not without its ethical dilemmas and limitations, particularly regarding the potential manipulation of neurological responses in advertising design (Madan, 2010; Fortunato et al., 2014).

As neuromarketing continues to develop, it is vital for future research to prioritize ethical transparency, enhance predictive accuracy through improved models, and explore synergies with artificial intelligence and big data analytics (Aliyev, 2025; Fortunato et al., 2014).

2.4 Neuromarketing and Purchase Decisions

Neuromarketing integrates principles of neuroscience with marketing practices to investigate the subconscious drivers of consumer behaviour (Dwivedi and Sharma, 2024). By utilising advanced methodologies such as neuroimaging and biometric analytics, marketers can acquire critical insights into the emotional and cognitive mechanisms underpinning purchasing decisions (Dwivedi and Sharma, 2024; Alsharif et al., 2021). Emotions significantly influence consumer cognition and behaviour, frequently superseding rational analysis (Pluta-Olearnik and Szulga, 2022; I.B. and Kalaiyarasi S, 2025). Neuromarketing research highlights the importance of emotional engagement,

memory retrieval, and decision fatigue in consumer decision-making (Dwivedi and Sharma, 2024).

Neural responses, particularly emotional arousal and sensory stimuli are crucial determinants of purchase intent (I.B. and Kalaiyarasi S, 2025). This methodology augments conventional marketing strategies, allowing firms to identify and address underlying consumer needs and desires more effectively (Pluta-Olearnik and Szulga, 2022). However, it is imperative to consider the ethical implications surrounding consumer privacy and the risk of manipulative practices to promote the ethical use of neuromarketing insights (I.B. and Kalaiyarasi S, 2025).

The application of neuromarketing significantly impacts decision-making and impulse-driven purchases by utilising insights into the subconscious mechanisms behind consumer behaviour. Neuromarketing employs tools such as brain imaging technologies, biometric measurements, and implicit association tests to reveal emotional and cognitive triggers that influence quick, often unconscious, purchasing decisions. The following studies illustrate how neuromarketing techniques affect consumer choices:

Neurological mechanisms and emotional engagement are critical in enhancing brand loyalty and influencing the speed of decision-making. Research indicates that understanding the impact of emotions on memory recall and decision fatigue can lead marketers to streamline consumer choices, potentially increasing the likelihood of impulse purchases. For instance, Dwivedi and Sharma (2024) note that emotional connections created through neuromarketing may simplify decision-making processes and help consumers navigate choices more efficiently under decision fatigue conditions.

Biometric responses, including heart rate, skin conductivity, and brainwave patterns, offer insights into consumers' instinctive and impulsive behaviours. Techniques such as EEG and fMRI enable the monitoring of real-time emotional and cognitive

responses, which can inform more effective advertising strategies that leverage rapid emotional reactions.

Sensory marketing, particularly through visual and auditory stimuli, is a significant component of neuromarketing. Marketers utilize these stimuli to provoke emotional reactions that may influence impulsive buying behaviours. According to Bamakan et al. (2021), neuromarketing, combined with the Internet of Everything (IoE), supports real-time, personalised marketing, which can enhance the immediacy and context of stimuli, potentially increasing consumers' impulse to purchase.

A study by Afqahi et al. (2025) demonstrates that neuromarketing tools like eye tracking and facial coding can identify specific impulse triggers in consumers. Their online impulsive buying decision model highlights the role of neurological factors—such as cognitive and emotional stimuli—in driving immediate purchase decisions. This understanding enables marketers to optimize customer relationships and develop targeted advertisements for impulsive buying.

In conclusion, neuromarketing plays a role in facilitating faster decision-making and impulse-driven purchases by engaging subconscious emotional and cognitive processes. By understanding these factors, marketers can formulate strategies that simplify choices, enhance emotional appeal, and reduce the time required for consumers to make purchasing decisions, which may result in impulsive purchases.

2.5 Neuromarketing and ROI Optimisation

Neuromarketing, a burgeoning interdisciplinary domain that merges principles of neuroscience with consumer behaviour analysis, has garnered attention for its potential to offer businesses a substantial competitive edge. As articulated by Nyoni and Bonga (2017) and Marichamy and Sathiyavathi (2014), this innovative approach provides profound

insights into the complexities of consumer decision-making processes that traditional marketing methodologies often overlook. Specifically, conventional marketing strategies frequently fail to account for the subconscious mechanisms of the brain, where a significant proportion of consumer decision-making occurs. This oversight is critical, as it can contribute to the high failure rates associated with new product launches.

The methodologies employed in neuromarketing, which include advanced technologies such as electroencephalography (EEG), functional magnetic resonance imaging (fMRI), and eye-tracking, are instrumental in enhancing the efficacy of advertising campaigns and cultivating positive brand perceptions (Seth, 2021; Ioanid and Scarlat, 2022). These technologies permit marketers to gain access to consumers' cognitive and emotional responses without necessitating conscious engagement. This capacity to probe the subconscious has the potential to significantly bolster the effectiveness of both commercial and cause-related advertisements (Marichamy and Sathiyavathi, 2014).

Despite the clear advantages neuromarketing presents, its adoption remains relatively nascent in various markets, including Romania. Nonetheless, companies that have embraced neuromarketing strategies report marked improvements in the effectiveness of their marketing endeavors, which consequently lead to enhanced business profits (Ioanid and Scarlat, 2022). This observation underscores the potential for neuromarketing to transform traditional marketing practices by integrating insights from neuroscience, thereby aligning marketing strategies more closely with the underlying cognitive processes of consumers.

In conclusion, the integration of neuromarketing within business practices significantly reshapes our understanding of consumer behaviour. By bridging the gap between scientific inquiry and marketing strategies, it presents marketers with a powerful toolset for optimising brand engagement and driving profitability, despite its gradual

embrace within specific markets. Future research should continue to explore the breadth of neuromarketing applications and their implications for both consumer welfare and corporate responsibility.

Neuromarketing is a field that combines ideas from neuroscience, behavioural economics, and social psychology to understand how consumers think and make choices. However, it has several challenges when it comes to showing businesses how it can be profitable. These challenges include ethical issues, high costs, limited access to resources, and problems with timing (Šević, 2022).

Many people, both in science and business, do not fully understand neuromarketing, which creates doubt about its real benefits (Cenizo, 2021). There are also not enough places to conduct these studies, and some consumers are hesitant to take part in neuromarketing research (Kachhara and Jain, 2024).

To tackle these problems, businesses can work on spreading the word about the benefits of neuromarketing, invest in technologies that are more affordable and easier to use, and deal with ethical issues by being transparent about their practices.

Despite these challenges, neuromarketing provides an excellent chance for businesses to gain deeper insights into consumer behaviour, which might help them create better marketing strategies and improve their profits (Kachhara and Jain, 2024; Šević, 2022). Nonetheless, more research is needed to fully explore its potential and overcome existing limitations (Cenizo, 2021).

2.6 Conceptual Framework

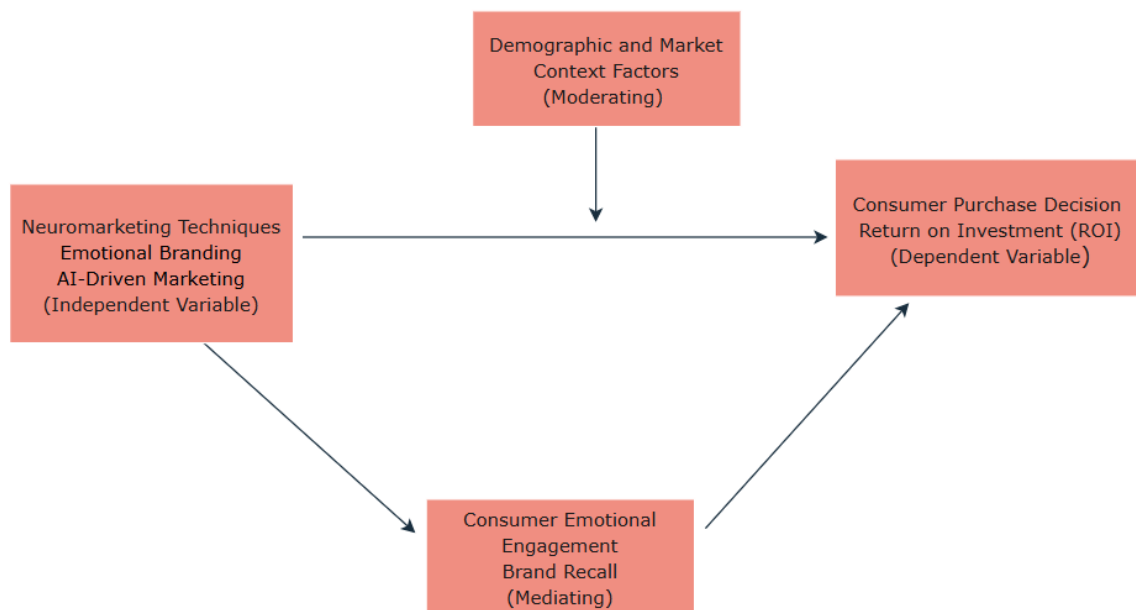


Figure 3 Conceptual Model

Note on terminology: The construct-level statements P1–P7 below are theoretical propositions linking the variables in the conceptual model. The operational hypotheses (H1–H8) that are empirically tested in this study are defined in Section 1.7 and reported against in Chapters IV and V. P1–P7 inform the framework; H1–H8 carry the empirical claims.

Independent Variables:

Neuromarketing Techniques:

Neuromarketing techniques such as EEG, fMRI, and eye-tracking provide deep insights into consumer behaviour by capturing subconscious responses to marketing stimuli. These tools help understand consumer emotions, attention, and decision-making processes, which can significantly enhance targeting and customizing marketing strategies.

Proposition P1: Neuromarketing-informed emotional engagement strategies improve the efficiency of customer acquisition by enabling more accurate identification of subconscious consumer triggers.

Emotional Branding:

Emotional branding involves creating strong emotional connections between a brand and its consumers, enhancing brand recall and increasing consumer loyalty. This strategy focuses on leveraging emotions to create lasting customer relationships that drive long-term success.

Proposition P2: Emotional branding strategies lead to higher consumer loyalty and long-term brand success.

AI-Driven Marketing:

AI-powered marketing utilises predictive targeting and personalised advertising to tailor marketing efforts based on individual consumer behaviour. AI enables marketers to refine customer profiles and optimise marketing efforts for more effective and efficient campaigns.

Proposition P3: Subconscious motivators — including urgency, scarcity, social proof, and fear of missing out — exert greater influence on consumer purchase decisions than incremental pricing tactics.

Mediating Variables:

Consumer Emotional Engagement:

Emotional engagement refers to the intensity of emotional connections consumers have with a brand. This variable acts as a mediator that connects emotional branding and neuromarketing techniques to consumer purchase decisions and brand recall. Brands that foster strong emotional engagement are more likely to experience increased consumer loyalty and advocacy.

Proposition P4: Measuring emotional responses to advertisements helps in refining and improving marketing strategies.

Brand Recall:

Brand recall refers to consumers' ability to remember a brand when prompted. Neuromarketing techniques and emotional appeals can enhance brand recall, influencing the likelihood of a consumer choosing that brand during a purchase decision.

Proposition P5: Emotional branding and neuromarketing techniques increase brand recall, leading to stronger consumer associations with the brand.

Dependent Variables:

Consumer Purchase Decision:

The consumer purchase decision is the ultimate outcome of marketing efforts. It is influenced by emotional and rational factors, with neuromarketing and emotional branding playing significant roles in shaping consumer choices.

Proposition P6: Digital technologies — in particular AI and machine learning — improve the targeting accuracy and operational efficiency of neuromarketing campaigns relative to traditional approaches.

Return on Investment (ROI):

ROI measures the effectiveness of marketing strategies in generating profitable outcomes in relation to marketing expenditures. By combining neuromarketing, AI-driven

targeting, and emotional branding, businesses can more accurately target consumers, personalise campaigns, and ultimately improve ROI.

Proposition P7: Investing in neuromarketing and emotional branding strategies leads to a higher ROI, enhancing the effectiveness of marketing campaigns.

Moderating Variables:

Demographic and Market Context Factors:

Demographic factors such as age, gender, income, and market context variables (such as regional differences or industry type) serve as moderating variables. These factors may affect how consumers respond to neuromarketing techniques, emotional branding, and AI-driven marketing strategies.

2.7 Research Gaps

There is a notable lack of study on the cost-effectiveness and practical application of neuromarketing in small to medium-sized firms (SMEs), despite the increasing interest in this strategy to better understand customer behaviour and improve corporate decision-making. Although big companies can usually afford to engage in neuromarketing tools, the ways these tactics may help new age enterprises succeed and attract clients without breaking the bank are still largely untapped. Even more concerning is the dearth of research that specifically addresses the question of how neuromarketing tactics influence key performance indicators like revenue growth, customer retention, and brand loyalty across a variety of regional and socioeconomic settings. This knowledge gap calls attention to the need for more in-depth studies to determine if neuromarketing techniques are scalable for smaller organisations and whether they have a quantifiable effect on business results.

Research shows that emotions play a significant role in how consumers react to advertising. However, most studies tend to look at overall advertising success rather than focusing on specific techniques, like neuromarketing tools (such as EEG, eye-tracking, and facial coding), that measure how strongly people feel. There is not enough evidence on how to use these insights effectively to create affordable marketing campaigns that appeal to different groups of people.

While it's clear that storytelling and sensory experiences can help people remember brands better, we still do not fully understand how emotional reactions lead to long-lasting loyalty to brands, both online and offline. Few studies connect the way neuromarketing measures attention and recall to real improvements in how well brands are recognised in a crowded marketplace.

The existing literature acknowledges that people often make choices based on unconscious influences and quick decisions. However, many of these studies take place in controlled lab settings, leaving a gap in our understanding of how these findings work in real-life situations, especially in fast-paced buying scenarios like online shopping and impulse purchases.

Researchers have noted that neuromarketing could help make advertising more cost-effective, but most of the research published so far does not include a detailed financial analysis. There are only a handful of studies that measure the return on investment for campaigns driven by neuromarketing compared to traditional methods, which leaves a gap in understanding how consumer neuroscience can connect to measurable business success.

2.8 Summary

The body of literature reviewed demonstrates that neuromarketing has grown into a significant area of inquiry within marketing and consumer behaviour studies, offering

more profound insights into how subconscious and emotional factors shape purchasing patterns. Emotional engagement is widely recognised as a decisive element in building consumer-brand connections; however, studies often stop short of showing how neuromarketing tools can be applied in practice to design targeted and cost-effective campaigns. Similarly, while research on sensory cues and storytelling highlights their role in strengthening brand recall, there is little evidence on how such approaches can be systematically translated into long-term loyalty strategies across varied consumer segments.

The literature also emphasises the role of subconscious drivers in purchase decisions, yet most findings are based on controlled experiments, limiting their generalizability to real-world contexts such as digital retail and impulse buying. In addition, although neuromarketing is frequently described as a tool for enhancing cost-effectiveness, the financial outcomes of such approaches remain underexplored, with few studies directly linking neuromarketing practices to measurable returns on investment.

Taken together, these observations suggest that while neuromarketing provides a valuable framework for understanding consumer behaviour, there is a lack of empirical evidence on its ability to deliver tangible business outcomes. This creates an opportunity for further research to examine how neuromarketing insights can be operationalized to improve emotional engagement, brand recall, purchase decisions, and overall campaign effectiveness in competitive markets.

CHAPTER III: METHODOLOGY

3.1 Overview of the Research Problem

The increasing complexity of consumer markets has created a demand for more precise methods of understanding consumer behaviour. Traditional marketing research techniques, such as surveys, focus groups, and observational studies, often rely on conscious self-reporting, which may not accurately capture the subconscious drivers of decision-making. As a result, businesses risk developing strategies that overlook the deeper psychological and neurological processes influencing consumer behaviour.

Neuromarketing has emerged as a promising field that combines insights from neuroscience and psychology to address this gap. By examining physiological and neurological responses, businesses can obtain more reliable indicators of emotional engagement, brand recall, purchase intentions, and long-term loyalty. These insights have the potential to enhance decision-making processes significantly, allowing businesses to design campaigns that are not only effective but also cost-efficient.

Despite its promise, neuromarketing remains underutilized in mainstream practice, with most companies still relying heavily on digital and traditional marketing approaches. Limited familiarity among professionals, coupled with concerns about the cost and accessibility of tools such as EEG, fMRI, and eye tracking, has slowed its adoption. This

study investigates how neuromarketing techniques can influence consumer behaviour and business outcomes, with particular emphasis on emotional engagement, brand recall, purchase decisions, and return on investment (ROI). By addressing these dimensions, the research problem is positioned at the intersection of business strategy and consumer psychology, exploring how emerging approaches can strengthen competitiveness in new-age markets.

3.2 Operationalization of Theoretical Constructs

To ensure that the study's objectives are measurable, theoretical constructs from consumer behaviour and neuroscience have been translated into operational terms. The following constructs form the foundation of the research framework:

Emotional Engagement

Grounded in consumer psychology and supported by affective neuroscience, emotional engagement reflects the extent to which consumers experience excitement, happiness, nostalgia, or other emotions when exposed to advertisements. In this study, emotional engagement is measured using Likert-scale items related to consumers' reactions to emotionally charged advertisements, storytelling techniques, and personalised marketing content.

Brand Recall

Drawing from cognitive processing and memory theories, brand recall is defined as the ability of consumers to recognise or remember a brand when prompted. This construct is operationalized through survey items that evaluate recall of brands after exposure to sensory triggers, narratives, or symbolic cues.

Purchase Decisions

Based on Dual Process Theory and the concept of subconscious motivators, purchase decisions refer to the degree of influence that implicit drivers (such as urgency, social proof, or pricing tactics) have on consumer choices. This construct is measured through consumer responses to scenarios involving limited-time offers, social endorsements, and value perceptions.

Return on Investment (ROI) Optimisation

Anchored in business strategy and marketing effectiveness literature, ROI optimisation reflects the efficiency of marketing campaigns in generating outcomes relative to costs. This study operationalizes ROI through perceptions of cost-effectiveness and campaign impact, as reported by professionals in marketing, branding, and business management roles.

The operationalization process ensures that each construct is linked to specific, measurable indicators derived from established theories. This allows the research to systematically examine the relationship between neuromarketing practices and their effect on consumer behaviour and business outcomes, thereby providing empirical evidence to support or challenge existing assumptions.

3.3 Research Design

This research utilises a quantitative survey design, employing both descriptive and inferential statistical methods for data analysis. The framework is organised around six research objectives: (1) emotional engagement and consumer–brand connection, (2) subconscious triggers in consumer decision-making, (3) brand recall and recognition, (4) purchase decisions across economic contexts, (5) cost-effectiveness and return on investment (ROI) optimisation, and (6) the role of digital technologies (AI, VR/AR) in advancing neuromarketing applications. Each objective has been operationalized into

measurable constructs, and corresponding survey items were crafted to capture insights from both consumer and professional perspectives effectively. Data was collected via structured questionnaires, and subsequent analysis utilised correlation, regression, and ANOVA techniques to identify significant relationships among the variables.

3.3.1 Emotional Engagement

The first objective seeks to examine how neuromarketing can enhance emotional engagement with brands. Emotional engagement was operationalized by including survey items that measured consumer responses to advertisements that were designed to evoke strong feelings such as excitement, happiness, nostalgia, or trust.

Respondents were shown examples of advertising techniques that employ emotional triggers, including storytelling, personalisation, and sensory cues such as visuals or sounds.

They rated their level of agreement on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) regarding the extent to which these advertisements captured their attention and influenced their interest in the brand.

Data from consumers were analysed to determine the proportion of respondents who reported feeling emotionally engaged with such marketing efforts.

For professionals, the survey included items that asked them to evaluate the effectiveness of emotional advertising in driving brand loyalty.

In Analysis implementation the descriptive statistics summarized consumer responses, while ANOVA tests were used to identify whether variables such as gender, age, or professional role influenced perceptions of emotional engagement.

3.3.2 Implementation of Brand Recall Research

The objective two of this study is to explore the role of neuromarketing in enhancing brand recall and recognition. To implement this research, we designed a two-part survey targeting two distinct groups: consumers and marketing professionals.

1. Consumer Survey: Participants will be exposed to a series of advertisements that incorporate sensory stimuli (visual triggers like logos and packaging, auditory cues such as music or jingles, and narrative elements through brand storytelling).

After exposure, respondents will answer questions regarding their ability to remember specific brands from the advertisements viewed. Questions will focus on how often they recall these brands and the impact of sensory or narrative elements on that recall.

2. Professional Survey: Marketing professionals will be asked to evaluate the significance of memory-based advertising strategies that employ sensory or narrative components in enhancing long-term brand recognition. They will also provide insights on the effectiveness of traditional advertising methods versus campaigns that leverage sensory or emotional elements.

3. Data Analysis: Descriptive statistics will be utilised to analyse the percentage of respondents who reported improved brand recall due to the implemented sensory or narrative triggers. Cross-tabulations will be performed across various demographic categories, including age, income, and product preference, to identify any notable variations in brand recall ability among different groups. This structured approach will provide complete insights into the effectiveness of neuromarketing methods in achieving brand recall and recognition.

3.3.3 Purchase Decisions

The third objective of this study delves into the intricate role of subconscious motivators in shaping consumer purchase decisions and streamlining the overall decision-making process. Employing Dual Process Theory as its foundational framework, this

construct aims to assess and quantify how consumers respond to implicit cues that can lead to quicker and potentially more impulsive purchasing decisions.

Implementation: To conduct this analysis, participants were presented with a series of carefully designed scenarios featuring a variety of psychological and behavioural triggers. These included elements such as limited-time offers, enticing flash sales, and strategically designed pricing strategies like odd-even pricing (for instance, pricing an item at \$9.99 instead of \$10 to create a perception of value). Additionally, social proof indicators, such as messages stating, "X people purchased today," were incorporated to gauge their impact on consumer behaviour. To further amplify the sense of urgency, scarcity promotions were employed, highlighting limited stock availability. After being exposed to these conditions, participants were asked to rate their likelihood of purchasing on a five-point Likert scale ranging from "very unlikely" to "very likely."

For industry professionals, the survey included targeted inquiries aimed at understanding their perceptions regarding the influence of subconscious motivators on consumer behaviour within their specific sectors. This qualitative aspect aimed to draw insights into real-world applications and experiences.

Data Analysis: To analyse the data collected from the survey, regression analysis was applied to determine the predictive significance of the identified subconscious motivators on consumer purchase intentions. This analysis aimed to uncover the strength and reliability of the correlations between the implicit cues and the likelihood of purchase. Additionally, Analysis of Variance (ANOVA) was employed to explore potential differences in responsiveness to these cues across various demographic segments, such as younger versus older consumers, thereby allowing for a nuanced understanding of how age and possibly other demographic factors influence consumer behaviour in the context of subconscious motivators. This comprehensive approach enhances the robustness of the

findings and their implications for marketing strategies and consumer engagement practices.

3.3.4 Return on Investment (ROI) Optimisation

The fourth objective explores the impact of neuromarketing on optimising ROI and facilitating cost-effective marketing initiatives. ROI optimisation is defined as the effectiveness with which marketing campaigns yield business results in relation to the associated expenditures.

Industry professionals were surveyed to assess whether neuromarketing methodologies—such as eye tracking, EEG monitoring, storytelling, and sensory cues—demonstrate superior cost-efficiency compared to conventional digital advertising techniques.

Survey questions also aimed to gauge the perception among professionals of neuromarketing's ability to generate higher impact-to-cost ratios, particularly regarding enhanced engagement levels at reduced campaign outlays. Additionally, respondents were prompted to evaluate their respective sectors and report any actual or expected ROI benefits stemming from the implementation of neuromarketing strategies.

Descriptive statistics were employed to capture the general sentiment regarding the cost-effectiveness of neuromarketing. ANOVA was utilised to analyse variances in perceptions across distinct professional roles—including entrepreneurs, marketers, and branding specialists—while regression models were implemented to investigate the utilisation of neuromarketing techniques and the perceived ROI.

3.4 Population and Sample

The study adopts a multi-group sampling strategy to capture perspectives from both marketing professionals and consumers, ensuring that findings reflect the dual dimensions of neuromarketing application: business decision-making and consumer behaviour. The sampling strategy is grounded in the study's six research objectives, each of which requires insights from distinct but complementary respondent groups. The overall sample size for this research was 519 inclusive of professionals (318) and consumers (201).

3.4.1 Target Population

Group 1: Marketing Professionals

This group includes entrepreneurs, business owners, branding specialists, marketing executives, and academic researchers with professional experience in marketing and consumer engagement. Their inclusion provides a strategic viewpoint on how neuromarketing tools are being considered or applied within organisations to influence emotional engagement, brand recall, purchase decisions, and ROI.

Group 2: Consumers

Consumers represent the end-users who directly experience and respond to marketing strategies. The group was segmented by age, gender, income, and buying habits to reflect a diverse demographic. This allows for the measurement of subconscious

motivators, recall patterns, and emotional responses, providing insights into how neuromarketing influences actual consumer decision-making.

3.4.2 Sampling Method

A combination of purposive and convenience sampling was adopted:

Purposive sampling was applied to professionals to ensure that only respondents with relevant expertise in marketing, branding, or business management contributed to the study. Their knowledge is essential for evaluating ROI optimisation and the business implications of neuromarketing.

Convenience sampling was used for consumers, as the study aimed to capture a broad representation of everyday buyers across different demographics. This approach allowed efficient data collection from varied participants who could provide responses about emotional engagement, recall, and purchase triggers.

3.4.3 Sample Size Justification

The study collected responses from a reasonably large and diverse pool of participants across both groups, exceeding the minimum requirements for statistical validity in quantitative analysis. The sample size was determined based on:

The need to conduct ANOVA tests which require adequate subgroup representation.

The use of regression analysis, which benefits from a larger sample, improves reliability and reduces error margins.

Ensuring that both consumer and professional perspectives were sufficiently represented to allow meaningful comparisons.

For consumers, representation across multiple age brackets (including younger buyers and the 55+ segment), gender categories, and income levels ensured diversity. For professionals, business owners and entrepreneurs formed the majority, but responses were

also gathered from branding specialists, marketing executives, and researchers, creating a balanced view.

3.5 Participant Selection

Participants were selected to represent both the supply side (marketing professionals) and the demand side (consumers) of neuromarketing practices. This dual-group approach was essential to capture a comprehensive perspective on how neuromarketing influences both business decision-making and consumer behaviour.

3.5.1 Marketing Professionals

Participants in this group included business owners, entrepreneurs, branding specialists, marketing executives, and academic researchers with direct involvement in marketing and consumer engagement. These individuals were selected through purposive sampling, ensuring that respondents possessed relevant expertise and decision-making authority. Their insights were particularly valuable for examining the strategic use of neuromarketing in campaign design, brand positioning, and return on investment (ROI) assessment.

3.5.2 Consumers

Consumers were selected to reflect a broad cross-section of the market, representing different age groups, genders, income levels, and product preferences. Since the study sought to understand subconscious motivators, emotional triggers, and recall mechanisms, the consumer sample needed to capture diversity in shopping behaviours. Convenience sampling was employed to recruit participants efficiently, while ensuring representation across multiple demographic categories.

3.6 Instrumentation

The primary tool used in this study was a structured questionnaire to gather data from consumers and marketing professionals. The questionnaire was divided into sections that matched the research goals, making sure each topic was measured in an organised way. The section on emotional engagement asked how advertisements that evoke feelings like trust, nostalgia, or excitement affected consumers. The brand recall section included questions about how sensory cues, like logos, music, and storytelling, impacted memory and recognition. To measure purchase decisions, respondents were given scenarios about limited-time offers, scarcity promotions, social proof, and pricing strategies, and were asked how likely they were to buy under those situations. For evaluating ROI, marketing professionals assessed how cost-effective neuromarketing techniques were compared to traditional methods. All responses were measured on a five-point Likert scale to allow participants to express their level of agreement or likelihood in a way that was suitable for analysis.

Besides these main items, the questionnaire included demographic and contextual questions to profile the respondents. Consumer data collected information on age, gender, income level, and shopping habits, while professional data focused on industry type, job role, and knowledge of neuromarketing. These context questions were important for analysing subgroups and comparing statistics across categories like gender, age, and profession. The questionnaire was distributed using online survey platforms for efficient data collection, better accessibility, and automated response collation into datasets.

The collected data were analysed using descriptive and inferential statistical tools. Descriptive statistics summarised demographic information and overall trends in responses. Inferential analysis included ANOVA to find significant differences across demographics or professions, regression analysis to see how subconscious factors

predicted purchase behaviour to explore the relationships between emotional engagement and brand recall. Before the full survey was sent out, it was pre-tested with a small group to improve clarity and refine wording. We checked the internal consistency of the scale items using Cronbach's Alpha to ensure reliability and validity in measuring responses. The scale returned a Cronbach's Alpha of $\alpha = 0.78$, which exceeds the conventional 0.70 threshold and indicates acceptable internal consistency across the measurement instrument.

3.7 Data Collection Procedures

Data for this study were collected through a structured questionnaire that was administered online. The choice of an online mode of distribution was guided by the need to reach a broad and diverse group of respondents, including both consumers and marketing professionals, while maintaining efficiency and cost-effectiveness. The questionnaire was designed to capture responses relevant to the six research objectives covering emotional engagement, subconscious triggers, brand recall, purchase decisions across economic contexts, ROI optimisation, and digital technology adoption. Each section was carefully structured to ensure that responses were quantifiable and suitable for statistical analysis.

The survey link was circulated through professional networks, email invitations, and social media platforms. For the professional group, purposive sampling ensured that only individuals with relevant expertise in marketing, branding, or business management participated, thereby securing insights directly related to strategic decision-making. For the consumer group, convenience sampling was adopted, allowing access to a broad demographic spread in terms of age, gender, income, and buying behaviour. To encourage participation, the questionnaire was designed to be concise and user-friendly, requiring approximately 10–12 minutes to complete.

All responses were collected electronically and compiled into a database, reducing the risk of manual entry errors and allowing immediate preparation for statistical analysis. Throughout the data collection process, participants were informed about the purpose of the study, assured of confidentiality, and given the option to withdraw at any stage. Only completed questionnaires were included in the final dataset to maintain the reliability of the analysis. The systematic procedure ensured that the collected data were both valid and representative, providing a solid foundation for addressing the research objectives.

3.8 Data Analysis

The analysis of the collected data was carried out using quantitative statistical techniques to ensure that the research objectives were addressed systematically and measurably. The dataset, compiled from completed questionnaires, was first cleaned to remove incomplete or inconsistent entries. Following this, data were coded and organised into categories corresponding to the key constructs of the study: emotional engagement, brand recall, purchase decisions, and return on investment (ROI) optimisation.

To provide an overview of participant characteristics, descriptive statistics were employed. Frequencies, percentages, means, and standard deviations were calculated to summarize demographic variables such as age, gender, and income for consumers, as well as role, industry, and level of neuromarketing familiarity for professionals. These descriptive measures also offered initial insights into response patterns across the constructs.

For inferential analysis, different statistical techniques were applied in accordance with the research objectives:

Emotional Engagement: One-way ANOVA was used to test whether emotional engagement scores varied significantly across demographic categories such as age, gender,

or professional role. This helped to identify whether specific groups were more responsive to emotional triggers in marketing.

Brand Recall: Descriptive comparisons were first made to evaluate recall patterns across sensory and narrative cues. To deepen the analysis, cross-tabulations and chi-square tests were employed to examine associations between recall effectiveness and demographic variables.

Purchase Decisions: To measure the influence of subconscious motivators on purchase intent, regression analysis was conducted. Independent variables such as urgency, scarcity, pricing tactics, and social proof were tested for their predictive strength on consumer decision-making. This analysis provided a clear indication of which subconscious drivers had the most potent effect on reducing decision time and shaping purchase outcomes.

ROI Optimisation: Responses from professionals were analysed using ANOVA to test for differences in perceptions of cost-effectiveness across roles and industries. Additionally, regression models were applied to explore relationships between the adoption of neuromarketing strategies and perceived campaign outcomes such as brand growth and sales impact.

3.9 Research Design Limitations

This study, while thorough in its scope, has several inherent limitations related to its design. First, it utilised self-reported data gathered through structured questionnaires. Although this method is effective for quantifying perceptions, it may not adequately capture the subconscious processes that neuromarketing seeks to analyse. Consequently, participant responses could be influenced by personal biases, potentially diverging from actual behavioural outcomes.

Second, the research employed non-probability sampling methods specifically purposive sampling for professionals and convenience sampling for consumers. While these strategies facilitated access to pertinent respondents, they may introduce selection bias that constrains the generalizability of the findings to the broader population.

Finally, the study's cross-sectional design involved data collection at a singular point in time, which limits the capacity to track the evolution of consumer attitudes, brand recall, and purchasing decisions in response to sustained exposure to neuromarketing tactics.

3.10 Conclusion

The methodological framework employed in this study was strategically crafted to facilitate a systematic exploration of how neuromarketing influences consumer behaviour and informs business decision-making. A quantitative, survey-centric design was implemented to garner insights from both marketing professionals and consumers, thus integrating perspectives from both the supply and demand aspects of the market. The structured questionnaire was meticulously devised to operationalize key constructs such as emotional engagement, brand recall, purchase decisions, and ROI optimisation into quantifiable variables, thereby enabling systematic data gathering.

The sampling approach utilised a combination of purposive and convenience methods, effectively recruiting participants with relevant industry knowledge alongside a varied consumer demographic, ensuring alignment with the research objectives. Online data collection platforms enhanced accessibility and participation efficiency, while the deployment of both descriptive and inferential statistical analyses provided a robust framework for data interpretation. Despite inherent limitations associated with self-reported data, non-probability sampling, and the cross-sectional design, the methodology establishes a solid foundation for addressing the research inquiries.

In summary, this methodological approach delivers a cohesive basis for subsequent analysis and discussion of findings, reinforcing that the results are rooted in a rigorous and academically robust research paradigm.

CHAPTER IV: RESULTS

4.1 Demographic details

4.1.1 Marketing professional

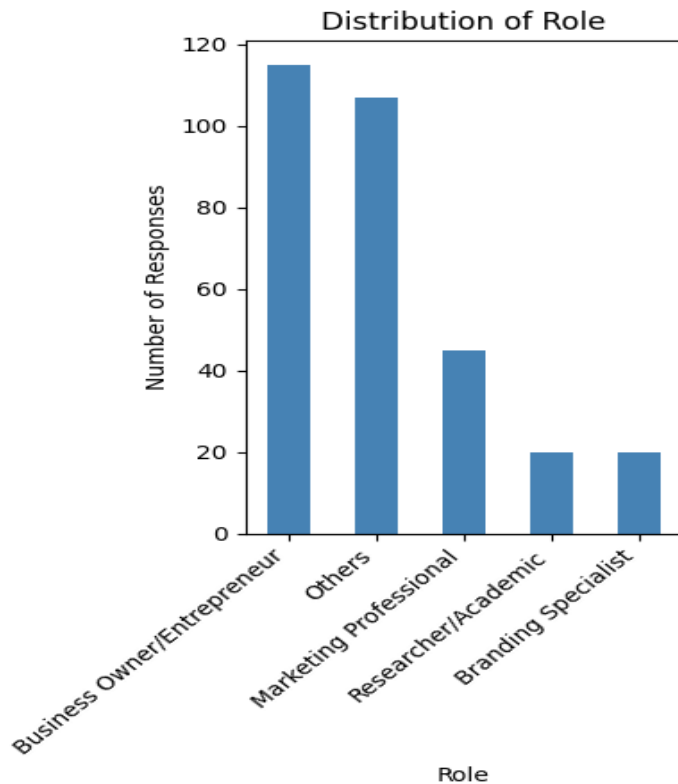


Figure 4 Distribution of Role

The graph shows the "Business Owner/Entrepreneur" category received the highest number of responses, followed by the "Others" category with 115 responses. The "Marketing Professional" group had 45 responses, while both the "Researcher/Academic" and "Branding Specialist" categories had the lowest number of responses, each with 20.

Interpretation

The data reveals that the largest group of respondents are Business Owners/Entrepreneurs, who provided 118 responses, making up the bulk of the survey sample. This indicates that the survey was particularly relevant to individuals who are directly responsible for business operations and decision-making. Their insights could provide valuable practical perspectives on how neuromarketing impacts business strategies

and customer engagement. The "Others" category also holds a significant portion of responses (115), suggesting that a diverse range of professionals participated in the survey, whose roles may not be explicitly defined by the options provided. This diversity could bring varied viewpoints and insights, enhancing the depth of the responses. However, without more clarity on this group, it is difficult to determine their specific relevance to the topic. The "Marketing Professional" category, with 45 responses, reflects the importance of marketing within the context of neuromarketing. These respondents are likely to have firsthand experience with applying neuromarketing strategies, offering a practical perspective on how such techniques are implemented to attract customers in cost-effective ways. The "Researcher/Academic" and "Branding Specialist" groups had relatively low participation, with only 20 responses each. This suggests that the survey may have had limited appeal to those primarily focused on the theoretical aspects of neuromarketing or those working in specialised branding roles. The small sample size from these categories may limit the academic depth of the findings and may point to a greater emphasis on practical business and marketing perspectives in the research.

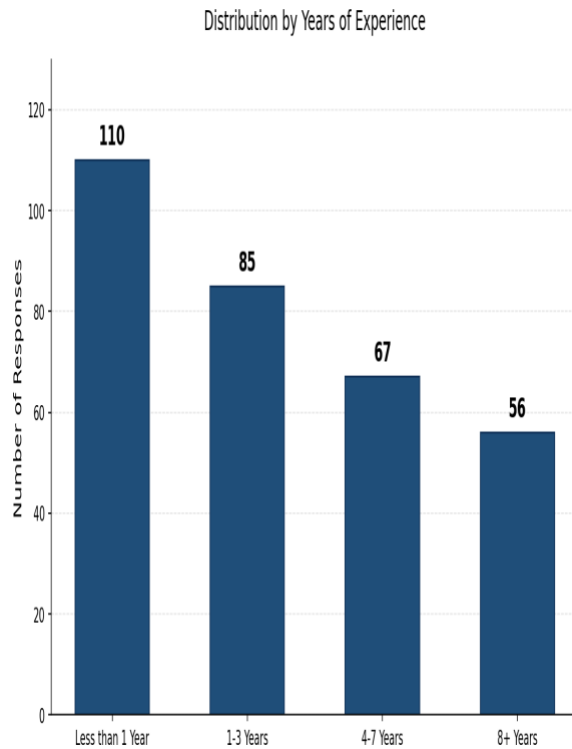


Figure 5 Distribution of Experience

The graph represents that the category "Less than 1 Year" has the highest number of responses, with 110, followed by "1-3 Years" with 85 responses. The "4-7 Years" category received 67 responses, and the "8+ Years" category has 56 responses.

Interpretation

The distribution shown in the graph indicates that most respondents have less than 1 year of experience in their respective fields, accounting for 110 responses. This suggests that the survey may have attracted a younger or less experienced group of professionals, possibly newer to the industry or those in the early stages of their careers. The next largest group, with 85 responses, falls within the 1-3 years range, which indicates a growing familiarity with the field but still suggests relatively limited experience.

The 4-7 years group, with 67 responses, represents a meaningful share of moderately experienced professionals. The 8+ years group accounts for 56 responses,

indicating more substantive representation of senior professionals than initially captured, although the sample still skews toward earlier-career participants. This distribution of experience suggests that the data gathered draws on a balanced cross-section of professional experience levels, with the bulk of respondents in the earlier stages of their careers but with meaningful input from more senior practitioners. This balance broadens the depth and context of insights regarding neuromarketing and its effectiveness, capturing both the perspectives of newer professionals and those with extended exposure to long-term applications of neuromarketing techniques.

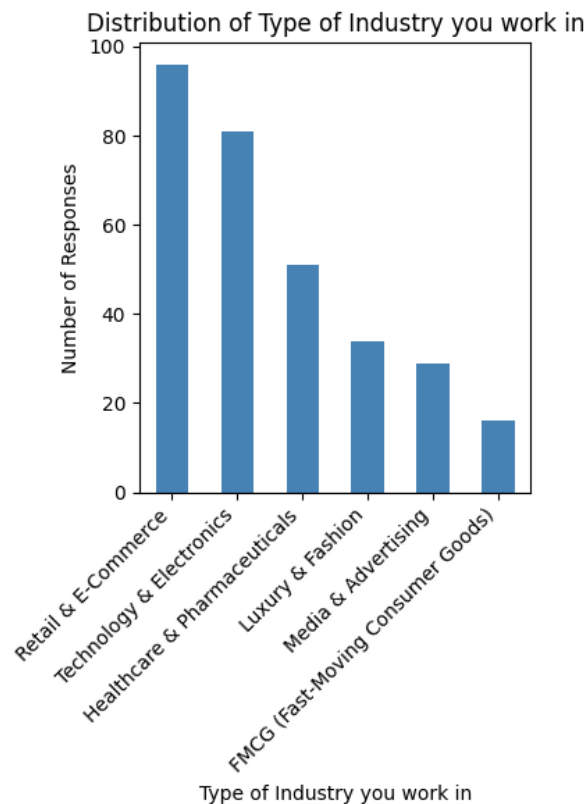


Figure 6 Distribution of Type of Industry you work in

The graph illustrates that the largest group is from the Retail & E-Commerce sector, with 95 responses. This is followed by Technology & Electronics with 85 responses. Healthcare & Pharmaceuticals comes next with 75 responses. Luxury & Fashion received

60 responses, while Media & Advertising had 50 responses. The FMCG (Fast-Moving Consumer Goods) sector has the least number of responses, with 25.

Interpretation

The data reveals that most respondents come from industries that are more directly aligned with consumer products and services. Retail & E-Commerce stands out as the dominant industry, with 95 responses, which likely reflects the increasing importance of digital retail and online commerce in today's business landscape. Technology & Electronics follows closely with 85 responses, pointing to the significant role this sector plays in modern business strategies, particularly regarding innovation and consumer engagement. Healthcare & Pharmaceuticals also shows a strong presence, with 75 responses, indicating that neuromarketing is seen as relevant to businesses in these sectors, where customer trust and brand perception are critical. Luxury & Fashion (60 responses) and Media & Advertising (50 responses) show a more moderate representation, suggesting that these industries are engaged with neuromarketing, although perhaps to a lesser extent compared to more mass-market sectors like retail. The FMCG sector, with only 25 responses, is the smallest group, which might suggest that businesses in this category either did not find the survey particularly relevant or that their use of neuromarketing techniques is less emphasised compared to other sectors. The distribution of responses suggests that industries more directly tied to consumer products and digital experiences are more likely to explore neuromarketing strategies, while sectors like FMCG might not have as strong a presence in this area.

Distribution of How familiar are you with neuromarketing?

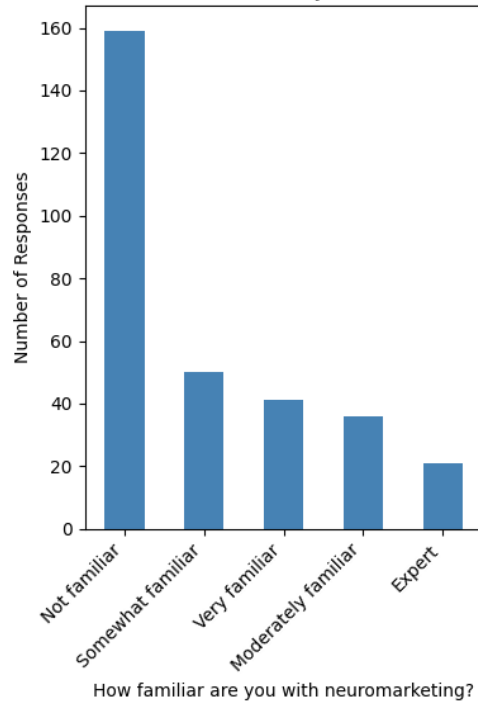


Figure 7 Distribution of How Familiar are you with Neuro-marketing

The graph displays that the "Not familiar" category has the highest number of responses, with 160 respondents, followed by "Somewhat familiar" with 60 responses. "Very familiar" received 45 responses, "Moderately familiar" has 30 responses, and the "Expert" category received the least, with only 10 responses.

Interpretation

The graph reveals that a significant portion of respondents (160 out of the total) are not familiar with neuromarketing, suggesting that many professionals in the sample are either new to the field or have limited exposure to its concepts. This could indicate that neuromarketing is not yet a mainstream practice among these professionals or that it is still emerging as a recognised strategy in their industries. The "Somewhat familiar" group, with 60 responses, suggests a moderate level of awareness, indicating that some respondents may have encountered the concept of neuromarketing but may not fully understand its depth or practical applications. The numbers drop further in the "Very familiar" (45

responses) and "Moderately familiar" (30 responses) categories, showing that fewer respondents have a deeper understanding of neuromarketing, but they still recognise its relevance. The "Expert" category, with only 10 responses, reflects a small number of professionals who have an in-depth or specialised knowledge of neuromarketing. Overall, this distribution suggests that while neuromarketing is a growing area of interest, the majority of the survey's respondents are still in the early stages of learning about or adopting neuromarketing strategies. This could imply a need for further education and awareness within these professional communities about the potential applications and benefits of neuromarketing.

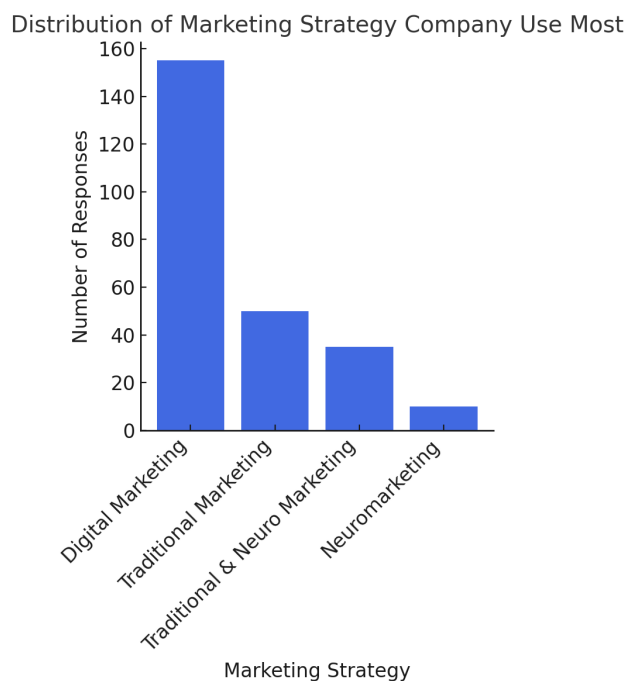


Figure 8 Distribution of Marketing Strategy

The graph shows that the most used strategy is Digital marketing, with 155 responses, followed by Traditional marketing with 50 responses. The third most frequently used strategy is a mix of traditional and neuro marketing strategies, with 35 responses. The least used strategy is Neuro marketing-driven strategies, with only 10 responses.

Interpretation

The distribution indicates that Digital marketing is the dominant strategy employed by most respondents' companies, with over 150 responses. This reflects the growing importance of digital channels such as social media, paid ads (PPC), and content marketing in today's business environment. The strong preference for Digital marketing suggests that companies are increasingly focusing on online platforms to engage with consumers, likely due to their accessibility, cost-effectiveness, and ability to target specific audiences. Traditional marketing strategies, including TV, print, and radio, are used by a smaller portion of companies, receiving 50 responses. While traditional methods still hold value, especially in reaching broad, mass audiences, they are being eclipsed by the rise of digital marketing tools. The third most common strategy is a mix of traditional and neuro marketing strategies, with 35 responses. This suggests that some companies are starting to incorporate neuro marketing into their traditional marketing efforts, indicating a growing interest in using consumer neuroscience to enhance the effectiveness of conventional campaigns. Finally, Neuro marketing-driven strategies are the least used, with only 10 responses. This indicates that while the interest in neuromarketing is present, its adoption is still limited within the surveyed companies, possibly due to its relatively specialised nature and the requirement for advanced tools and expertise.

Overall, the results show that while digital marketing remains the most widely used strategy, companies are increasingly exploring ways to combine traditional marketing with innovative approaches like neuromarketing to better understand and engage consumers.

Summary:

The survey reveals that most respondents were Business Owners/Entrepreneurs and relatively new professionals with less than 1 year of experience, indicating a practical, early-stage perspective on neuromarketing. Retail & E-Commerce, Technology & Electronics, and Healthcare & Pharmaceuticals were the dominant industries, suggesting greater relevance of neuromarketing in consumer-focused sectors. While many professionals are not familiar with neuromarketing, digital marketing remains the most widely adopted strategy, overshadowing traditional and neuromarketing-driven approaches. The limited adoption of neuromarketing strategies reflects the need for more education and awareness in the industry, particularly as professionals explore ways to combine digital marketing with innovative, data-driven techniques.

4.1.2 Demographic details of Consumers:

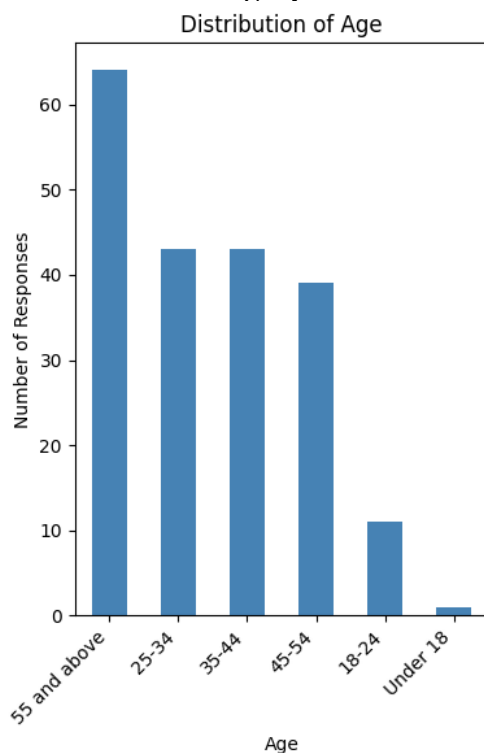


Figure 9 Distribution of Age

The graph illustrates the distribution of responses based on the age groups of the participants. The data shows that most responses come from individuals aged 55 and above, with over 60 responses in this category. The second largest groups are the 25-34 and 35-44 age groups, both with responses ranging from 40 to 50. The 45-54 age group follows closely with slightly fewer responses. The 18-24 age group has a significantly lower number of responses, around 10, while the Under 18 category has the least number of responses, with just a few individuals participating.

Interpretation:

The age distribution reveals that most respondents belong to the 55 and above category, which suggests that older consumers are more engaged or willing to participate in the survey. This could imply that neuro marketing initiatives and strategies might have a stronger influence or higher acceptance among older consumers. On the other hand, the low number of responses from the 18-24 and Under 18 groups indicates that younger consumers may be less responsive or less inclined to engage with surveys related to consumer behaviour. This could be important when considering targeting specific age groups in marketing campaigns, as older consumers seem to be more active in their responses, potentially affecting the representation and outcomes of marketing strategies.

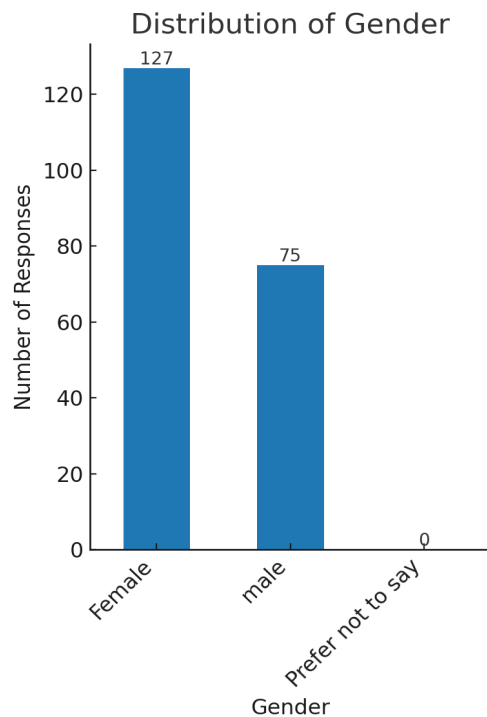


Figure 10 Distribution of Gender

The graph shows the distribution of responses based on gender. Female respondents represent the majority, with 127 responses, significantly outnumbering the 75 male responses. Additionally, a small number of respondents, marked as "Prefer not to say," represent a negligible portion of the total responses, with no clear count visible on the graph.

Interpretation:

The graph indicates a clear gender imbalance in the responses, with females being more likely to participate in the survey. This could suggest that the neuromarketing concepts discussed in the questionnaire may resonate more with female consumers, or it could be indicative of a higher level of engagement from female respondents in surveys about consumer behaviour. Marketers may need to consider this gender disparity when analysing the results, as it may influence the effectiveness of marketing strategies if they are predominantly shaped by the preferences or behaviours of female consumers.

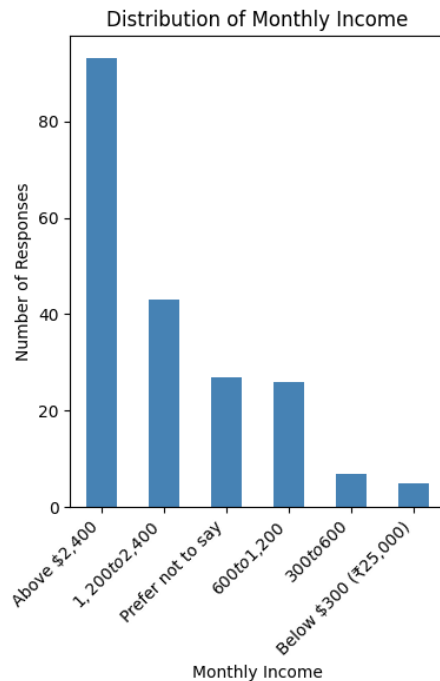


Figure 11 Distribution of Monthly Income

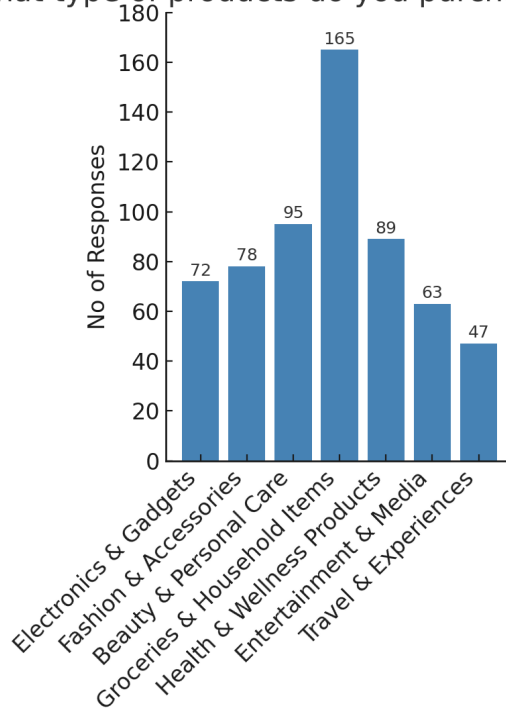
The graph illustrates the distribution of responses based on monthly income. A significant portion of the respondents, over 80, reported earnings Above \$2,400 per month, making it the largest income group. The second largest group consists of individuals earning \$1,200 to \$2,400, with slightly fewer than 60 responses. The "Prefer not to say" category also stands out, with a number exceeding 50 responses. Income categories such as \$600 to \$1,200 and \$300 to \$600 received moderate responses, while the Below \$300 (\$25,000) categories received the least number of responses, with fewer than 10.

Interpretation:

The income distribution graph suggests that most respondents have relatively higher earning potential, with a predominant focus on individuals earning above \$2,400 per month. This indicates that the survey predominantly captures insights from middle to higher-income consumers. This demographic trend may affect the interpretation of marketing responses, as higher-income individuals may have different purchasing behaviours, preferences, and brand loyalties compared to lower-income groups.

The "Prefer not to say" category is notably high, which could indicate a hesitancy or lack of willingness to disclose personal income information, a factor that might influence how the data is interpreted. Marketers should be cautious when segmenting their target audience, as the underrepresentation of lower-income individuals may lead to biased conclusions, especially when considering pricing strategies or cost-effective marketing approaches for all income groups.

What type of products do you purchase the most?



What type of products do you purchase the most?

Figure 12 Distribution of type of products do you purchase the most?

The graph shows the distribution of responses regarding the most purchased product types. Groceries & Household Items lead with the highest number of responses, 165. The second most purchased product category is Beauty & Personal Care, with 95 responses. Following that, Health & Wellness Products have 89 responses, while Fashion & Accessories and Electronics & Gadgets categories have 78 and 72 responses,

respectively. Entertainment & Media comes next with 63 responses, and lastly, Travel & Experiences is the least purchased category with 47 responses.

Interpretation:

The survey indicates that Groceries & Household Items are the most frequently purchased products, suggesting that these are essential items for most respondents. This trend reflects the high demand for everyday goods and necessities, which may be closely linked to routine purchasing behaviour. The significant number of responses for Beauty & Personal Care (95) points to a strong consumer interest in products related to self-care, suggesting that personal grooming and wellness are important aspects of consumer habits. The category of Health & Wellness Products follows, with a relatively moderate level of interest, highlighting that consumers are increasingly conscious of their health, especially with growing awareness about wellness trends. Fashion & Accessories and Electronics & Gadgets show a slightly lower level of interest, indicating that while these categories are important, they may not be as frequently purchased as essentials. Entertainment & Media receives fewer responses, which may reflect seasonal or fluctuating interest, with respondents possibly engaging with such products on a more intermittent basis. Travel & Experiences has the lowest number of responses, which might be influenced by external factors such as the global travel situation, economic constraints, or other personal preferences.

Overall, these findings highlight the dominance of essential and personal care products, which should be key focus areas for marketing strategies targeting this consumer group. It also indicates that products related to leisure, technology, and experiences might require additional engagement strategies to boost consumer interest.

Distribution of Influence of advertisements on your purchasing decisions

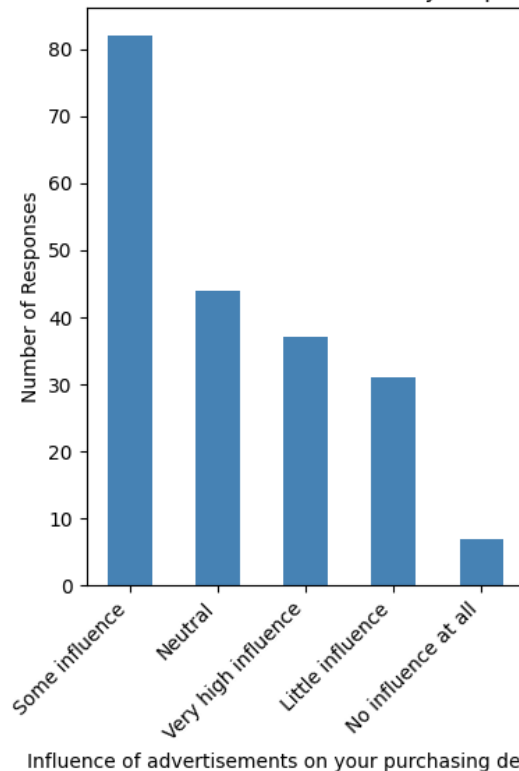


Figure 13 Distribution of influence do advertisements have on your purchasing decisions

The graph reveals the influence of advertisements on consumer purchasing decisions. "Some influence" is the most common response, with over 80 respondents indicating that advertisements have some impact on their buying decisions. The second largest group is Neutral, with around 45 responses. The categories "Very high influence" and "Little influence" have more than 38 and 20 responses respectively. Lastly, the "No influence at all" group has the fewest responses, with fewer than 10.

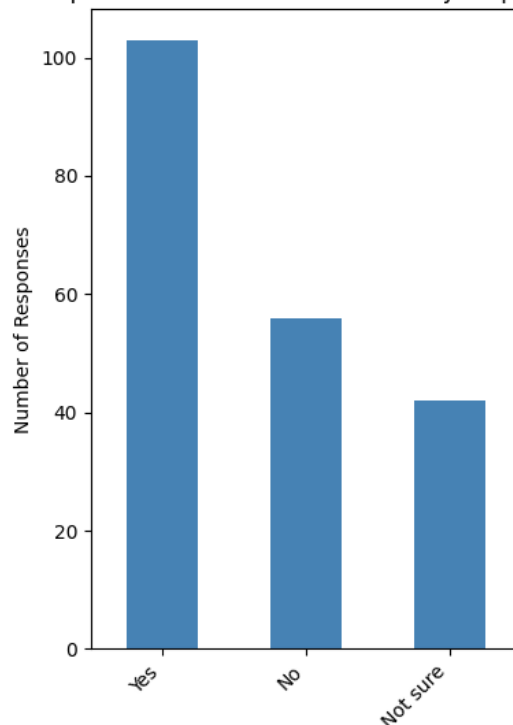
Interpretation:

The graph suggests that advertisements have a moderate influence on purchasing decisions for most consumers. The dominant response of "Some influence" indicates that while advertisements do play a role in shaping consumer choices, they are not the sole determinant. A notable portion of respondents (around 70) also expressed a neutral stance, which implies that advertisements neither significantly influence nor fail to influence their

purchasing behaviour. The relatively smaller number of respondents reporting "Very high influence" shows that advertisements may not always drive immediate or strong purchasing decisions, while those who find ads to have "Little influence" or "No influence at all" suggest that marketing strategies may not be as impactful for some consumers. This data implies that while advertising plays an important role in influencing consumer behaviour, its effectiveness may depend on other factors such as consumer preferences, product relevance, or external conditions.

Marketers should consider this insight when designing campaigns, ensuring that advertisements are tailored to address the needs and interests of different consumer segments, as the influence can vary significantly among individuals.

Distribution of personalised prefer advertisements based on your previous searches and interests



personalised prefer advertisements based on your previous searches and interests

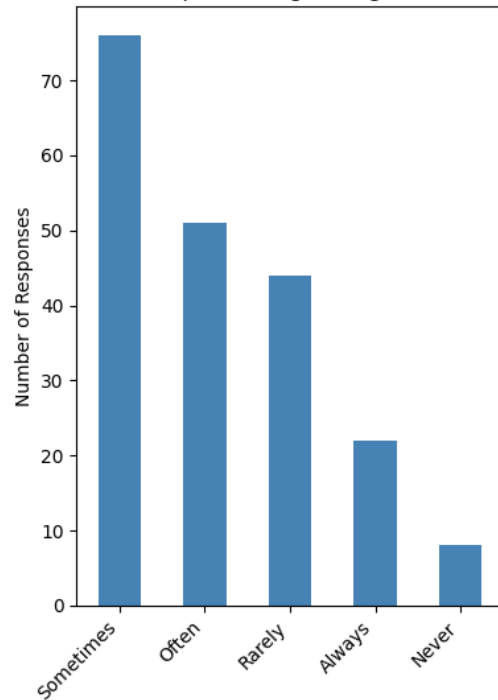
Figure 14 Distribution of personalised based on your previous searches and interests

The graph demonstrates the preference for personalised advertisements based on previous searches and interests. "Yes" is the most frequent response, with over 100 responses, indicating that a significant number of respondents prefer personalised ads. The "No" responses are moderate, with around 60 responses, while the "Not sure" category is relatively low, with fewer than 40 responses.

Interpretation:

The data clearly indicates that most respondents prefer personalised advertisements that align with their previous searches and interests. This preference suggests that consumers are more likely to engage with ads that feel relevant and tailored to their individual preferences, potentially increasing their likelihood of acting on these ads. The relatively high number of "No" responses indicates that there is a segment of consumers who either do not appreciate or do not find personalised ads beneficial. The "Not sure" group, although smaller, reflects some uncertainty or lack of strong opinion on the matter. This could be attributed to consumers who may not have fully experienced personalised advertising or may be indifferent to its impact. For marketers, these findings underscore the importance of utilising personalised advertising strategies to increase relevance and engagement. However, it is also essential to consider the segment that may resist such ads, ensuring that alternative approaches are available for those less inclined towards personalisation.

Distribution of Preference of purchasing from global brands over local brands



Preference of purchasing from global brands over local brands

Figure 15 Distribution of prefer purchasing from international/global brands over local brands

The graph illustrates the frequency of respondents' preference for purchasing from global brands over local brands. The largest group, "Sometimes", has over 70 responses, indicating that many respondents purchase global brands occasionally. The next most frequent response is "Often", with around 55 responses. "Rarely" follows with 50 responses, while "Always" and "Never" have lower counts of approximately 20 and 10 responses, respectively.

Interpretation:

The data reveals that most respondents tend to purchase from global brands at least sometimes or often, suggesting a strong inclination towards global brands over local options. This could reflect a preference for the perceived quality, reputation, or global appeal of international brands. However, it is noteworthy that there is still a significant portion of the group that purchases from local brands "rarely" or "never", indicating that

local brands may not always be considered competitive, either due to perceived quality differences, limited availability, or a lack of brand recognition. The relatively low number of respondents who purchase global brands "always" suggests that while there is a strong preference, it is not a consistent or exclusive behaviour. The few respondents who "never" purchase global brands may reflect strong loyalty to local brands or a preference for supporting local businesses. In marketing strategy, companies may focus on emphasising the global reach and established reputation of their brands, while also considering opportunities to bridge the gap with local consumers who might prefer supporting local brands. Understanding the reasons behind these preferences can help tailor marketing messages to different segments of the market.

Summary of Demographic details of Consumers:

Older adults (55+) and females are the most responsive demographics, suggesting they are more engaged with neuromarketing efforts. Higher-income individuals dominate the sample, indicating potential bias toward affluent consumer behaviours. Essentials like groceries and personal care products are top purchases, while travel and entertainment rank lower. Ads have a moderate influence on decisions, and personalised ads are generally well-received. Most respondents occasionally prefer global brands, though local brand loyalty still exists. These insights suggest that targeted, personalised strategies focusing on essentials and tailored by age, gender, and income can enhance neuromarketing effectiveness.

4.2 Emotional Engagement in Marketing

4.2.1 Professional Perspective

Distribution of Responses for Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.

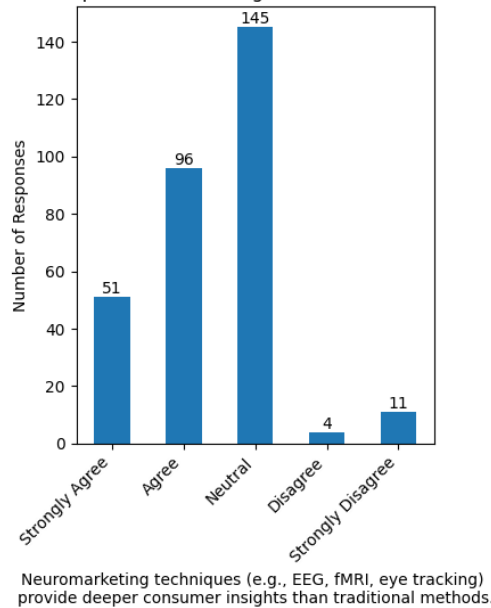


Figure 16 Distribution of Neuromarketing techniques provide deeper consumer insights than traditional methods

The graph illustrates the distribution of responses to the statement: "Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods. The largest group of responses is Neutral, with 145 responses, followed by Agree with 96 responses. Strongly Agree has 51 responses, indicating that some participants do believe that neuromarketing provides deeper insights than traditional methods. The Disagree category has the fewest responses, with only 4 responses, while Strongly Disagree also received a small number of responses, totaling 11.

Interpretation

The graph shows that most respondents are neutral about the statement, with 145 responses, suggesting that they may not have a clear opinion on whether neuromarketing

techniques provide significantly deeper insights than traditional methods. This could imply that neuromarketing is either not widely understood or still emerging as a practice among these professionals, leading to uncertainty or lack of definitive opinions. The Agree group, with 96 responses, indicates that a substantial portion of respondents see value in neuromarketing techniques, possibly recognising their potential to uncover deeper insights into consumer behaviour compared to traditional methods. The Strongly Agree group, with 51 responses, reflects a smaller but notable proportion of respondents who strongly believe in the effectiveness of neuromarketing tools. On the other hand, the low number of responses in the Disagree (4 responses) and Strongly Disagree (11 responses) categories suggests that very few respondents completely reject the idea that neuromarketing offers deeper consumer insights, pointing to a generally positive or at least open view towards these techniques, despite some uncertainty as reflected in the Neutral responses.

Overall, the distribution suggests that while neuromarketing is gaining recognition, there is still a significant portion of professionals who are uncertain about its advantages over traditional methods, indicating room for further education and demonstration of its effectiveness.

Distribution of Responses for Investing in emotional branding strategies leads to higher consumer loyalty.

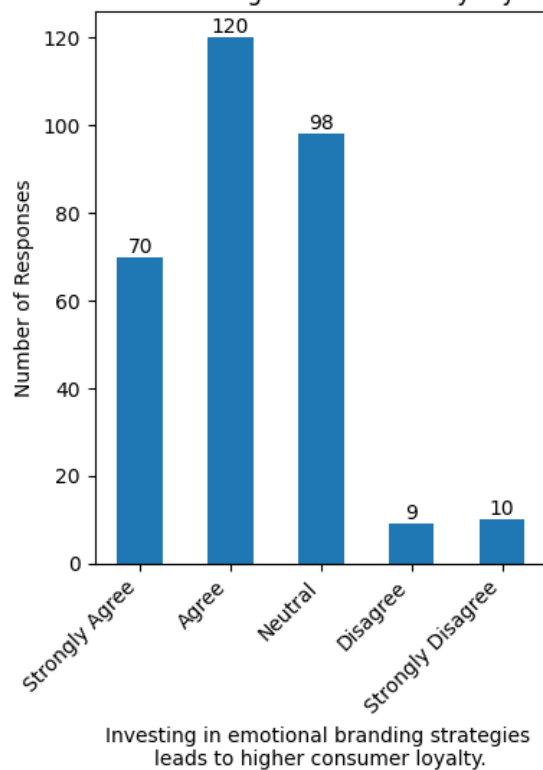


Figure 17 Distribution of Investing in emotional branding strategies leads to higher consumer loyalty

The graph shows the distribution of responses to the statement: "Investing in emotional branding strategies leads to higher consumer loyalty." The largest group of responses is Agree, with 120 responses, followed by Neutral with 98 responses. Strongly Agree comes next with 70 responses, showing a strong belief in the positive impact of emotional branding. The smallest groups are Disagree with 9 responses and Strongly Disagree with 10 responses, indicating a minimal portion of respondents who reject the idea.

Interpretation

The graph indicates that most respondents believe that investing in emotional branding strategies does indeed lead to higher consumer loyalty. The Agree category, with 120 responses, suggests that a significant portion of respondents recognises the value of

emotional branding in fostering stronger consumer connections and loyalty. This belief is further supported by the Strongly Agree group, with 70 responses, which reflects a solid commitment to the idea that emotional branding has a profound impact on consumer loyalty. On the other hand, the Neutral category, with 98 responses, suggests that a portion of respondents might not be entirely convinced of the direct link between emotional branding and consumer loyalty or may have mixed experiences in this area. The relatively low number of responses in the Disagree (9 responses) and Strongly Disagree (10 responses) categories suggests that the idea of emotional branding as a driver of consumer loyalty is not widely rejected. This could indicate that most professionals in the survey see some value in emotional branding, even if they are not entirely certain about its effectiveness in all contexts.

Overall, the data suggests that emotional branding is generally viewed as a positive and effective strategy for enhancing consumer loyalty, although a portion of respondents remains uncertain or neutral on its impact.

Distribution of Responses for The emotional appeal of a brand influences its long-term success in the market.

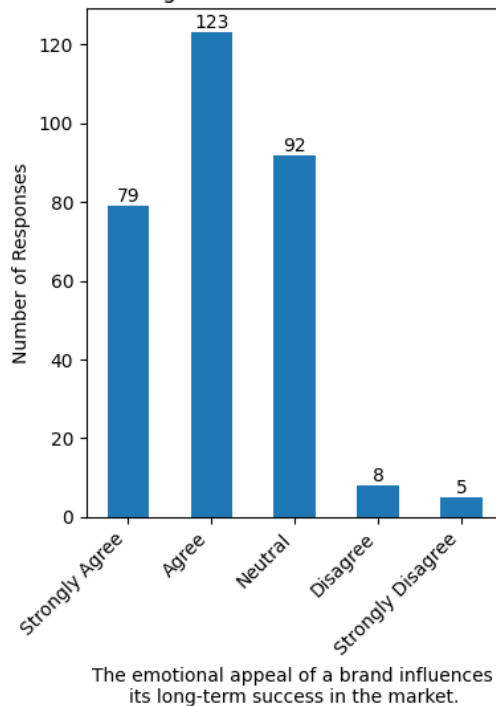


Figure 18 Distribution of the emotional appeal of a brand influences its long-term success in the market

The graph presents the distribution of responses to the statement: "The emotional appeal of a brand influences its long-term success in the market." The Agree category has the highest number of responses, with 123, followed by Neutral with 92 responses. Strongly Agree comes next with 79 responses, while Disagree and Strongly Disagree have the fewest responses, with only 8 and 5, respectively.

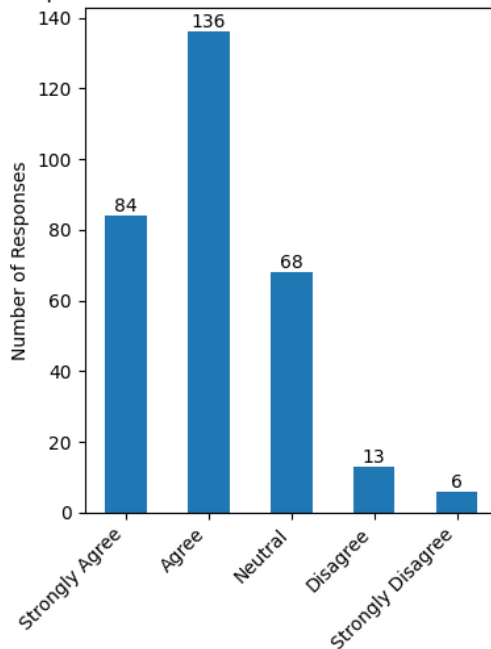
Interpretation

The data indicates that most respondents believe that the emotional appeal of a brand plays a significant role in determining its long-term success in the market. The largest group of responses, agree (123 responses), suggests that most professionals recognise the importance of emotional branding in influencing consumer loyalty and long-term brand strength. Additionally, the Strongly Agree group (79 responses) supports the idea that emotional connections with a brand are key to its enduring success. The Neutral category,

with 92 responses, suggests that a portion of respondents is either unsure about or less convinced by the statement, perhaps due to factors such as industry-specific differences or limited exposure to emotional branding strategies. On the other hand, the small number of responses in the Disagree (8 responses) and Strongly Disagree (5 responses) categories indicates that very few people reject the notion that emotional appeal influences a brand's long-term market performance. This suggests a consensus among the respondents that emotional branding is a key factor for sustained success.

In summary, most respondents acknowledge the importance of emotional appeal in branding, though there remains some level of uncertainty or neutral opinions. The low disagreement indicates a positive view of emotional branding's role in achieving long-term market success.

Distribution of Responses for Personalised advertising based on emotions and preferences makes customers more likely to buy.



Personalised advertising based on emotions and preferences makes customers more likely to buy.

Figure 19 Distribution of Personalised advertising based on emotions and preferences makes customers more likely to buy

The graph displays the distribution of responses to the statement: "Personalised advertising based on emotions and preferences makes customers more likely to buy." The Agree category has the highest number of responses, with 136, followed by Neutral with 68 responses. Strongly Agree comes next with 84 responses. The smallest groups are Disagree with 13 responses and Strongly Disagree with only 6 responses.

Interpretation

The data indicates a strong belief among respondents that personalised advertising based on emotions and preferences makes consumers more likely to purchase. The Agree category, with 136 responses, suggests that a significant majority of respondents recognise the effectiveness of emotional and preference-based targeting in increasing consumer purchases. The Strongly Agree group (84 responses) further emphasises this view, showing that many respondents strongly believe in the power of emotional personalisation in advertising. The Neutral category, with 68 responses, indicates some uncertainty or ambivalence among a portion of the respondents. These individuals may not be fully convinced of the impact of emotional and preference-based advertising or may have mixed experiences with it. The relatively low numbers in the Disagree (13 responses) and Strongly Disagree (6 responses) categories suggest that very few respondents reject the idea that emotional personalisation can influence buying behaviour, which points to a consensus on the positive effects of this type of advertising.

Overall, the data supports the notion that personalised, emotion-based advertising is seen as a powerful tool for influencing consumer behaviour, with most respondents agreeing that it increases the likelihood of purchase. However, there remains a small group of professionals who are either unsure or sceptical about its effectiveness.

Distribution of Responses for Measuring emotional Responses to ads helps in refining marketing strategies.

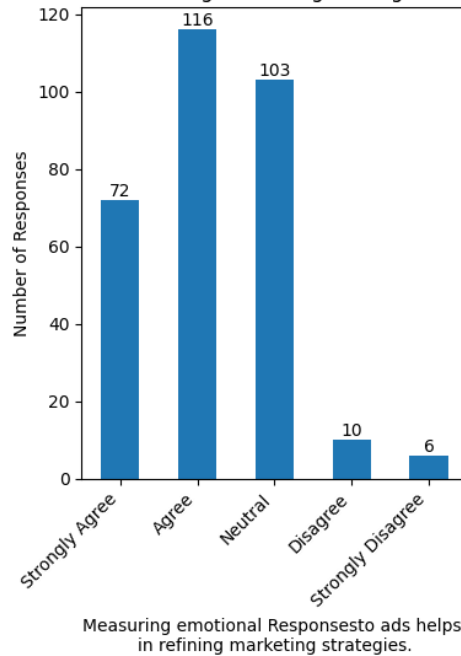


Figure 20 Measuring emotional responses to ads helps in refining marketing strategies

The graph shows the distribution of responses to the statement: "Measuring emotional responses to ads helps in refining marketing strategies." The largest group of responses is Agree with 116 responses, followed by Neutral with 103 responses. Strongly Agree comes next with 72 responses. The Disagree and Strongly Disagree categories have the fewest responses, with only 10 and 6, respectively.

Interpretation

The data suggests that a significant majority of respondents believe that measuring emotional responses to advertisements is useful for refining marketing strategies. The Agree category, with 116 responses, shows that most professionals recognise the value of understanding emotional responses in optimising marketing efforts. Additionally, the Strongly Agree group (72 responses) further strengthens this view, indicating that many respondents strongly believe in the importance of emotional response measurement. The Neutral category, with 103 responses, indicates that some respondents are unsure or may

have mixed feelings about the direct link between emotional response measurement and marketing strategy refinement. This may reflect some uncertainty or the need for more data on how emotional responses can be systematically used to improve strategies. The low number of responses in the Disagree (10 responses) and Strongly Disagree (6 responses) categories indicates that very few respondents reject the idea that measuring emotional responses is beneficial for refining marketing strategies. This suggests a consensus that emotional metrics can indeed play a crucial role in enhancing the effectiveness of marketing campaigns.

In summary, the results show a strong belief in the value of emotional response measurement in improving marketing strategies, with only a small minority of respondents expressing disagreement or uncertainty.

Summary of Bar graphs of Emotional Engagement in Marketing (professional perspective)

The survey results reveal strong support for the effectiveness of neuromarketing and emotional branding, with most respondents agreeing that these techniques are valuable for improving consumer engagement and loyalty. A significant portion of participants acknowledges that neuromarketing provides deeper insights than traditional methods, though many remain neutral or uncertain. The majority also believes that emotional branding contributes to long-term brand success and drives consumer loyalty, with a large number affirming that personalised advertising based on emotions increases purchase likelihood. Measuring emotional responses to ads was also widely recognised as beneficial for refining marketing strategies. Overall, while there is a consensus on the effectiveness of emotional and personalised marketing techniques, a portion of respondents remains uncertain, indicating the need for further education and validation of these strategies in various professional context.

Test (professional perspective)

4.2.1.1 Descriptive Analysis

Result:

Table 1 Distribution of Descriptive Analysis of Objective 1¹

Question	Count	Mean	Standard Deviation	Min	25%	50%	75%	Max
Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.	318	3.56	0.91	1	3	3	4	5
Investing in emotional branding strategies leads to higher consumer loyalty.	318	3.85	0.95	1	3	4	5	5

¹ Total professional sample N=318. Eleven respondents had missing values on one or more Likert items in this section; missing values were handled via item-level mean imputation to maintain the full sample size for descriptive analysis. Means and standard deviations are computed across the full N=318. Response distributions in Figures 16–20 reflect raw valid responses (n=307 per item) prior to imputation.

Question	Count	Mean	Standard Deviation	Min	25%	50%	75%	Max
The emotional appeal of a brand influences its long-term success in the market.	318	3.80	0.94	1	3	4	5	5
Personalised advertising based on emotions and preferences makes customers more likely to buy.	318	3.91	0.91	1	3	4	5	5
Measuring emotional responses to ads helps in refining marketing strategies.	318	3.65	0.91	1	3	4	4	5

1. Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.

The mean of 3.56 indicates that, on average, respondents are neutral to slightly agree with the statement that neuromarketing techniques provide deeper consumer insights

than traditional methods. This suggests that the effectiveness of neuromarketing in providing deeper insights is acknowledged, but not all respondents fully agree.

The standard deviation of 0.91 indicates a moderate variation in the responses, meaning that some respondents strongly believe in the effectiveness of neuromarketing techniques, while others are sceptical or neutral.

The 25th percentile (3) shows that a quarter of respondents either disagree or are neutral, while the 75th percentile (4) indicates that most respondents are somewhat convinced of the effectiveness of neuromarketing techniques.

The min (1) and max (5) indicate that while most respondents are positive about neuromarketing techniques, there are still a few who strongly disagree and others who strongly agree with the statement.

Interpretation:

While neuromarketing techniques like EEG, fMRI, and eye tracking are perceived to provide some value in understanding consumer insights, there is diversity in how effective professionals believe these methods are.

The variation in responses suggests that familiarity with neuromarketing and its specific applications may play a role in shaping these opinions. Those with more experience or exposure to neuromarketing may rate it more positively.

Overall, marketing professionals appear to moderately agree that neuromarketing provides deeper insights, but it's not universally agreed upon across the group.

2. Investing in emotional branding strategies leads to higher consumer loyalty.

The mean of 3.85 indicates that respondents are more inclined to agree with the statement that emotional branding strategies result in higher consumer loyalty.

The standard deviation of 0.95 shows a moderate level of variation in responses. While most respondents agree with the statement, there are still some who disagree or are neutral.

The 25th percentile (3) and 75th percentile (5) show a significant difference in the responses, with most respondents being either neutral or strongly agreeing with the impact of emotional branding on consumer loyalty.

The min (1) and max (5) values suggest a diverse set of opinions, with a small proportion of respondents who strongly disagree and others who strongly agree with the importance of emotional branding for customer loyalty.

Interpretation:

Emotional branding is generally seen as effective in building consumer loyalty, with a tendency towards positive responses. However, the variation in responses may suggest that while emotional branding is an accepted strategy, its effectiveness might depend on industry context, brand positioning, and consumer preferences.

The higher median score (4) reflects general agreement, and the relatively large proportion of respondents agreeing with emotional branding indicates its widely acknowledged potential to improve customer loyalty.

3. The emotional appeal of a brand influences its long-term success in the market.

The mean of 3.80 suggests that most respondents agree with the statement that emotional appeal is crucial for long-term brand success. The standard deviation of 0.94 implies moderate variation in opinions. The median (4) and 75th percentile (5) values show that most respondents believe that emotional appeal plays an important role in a brand's success, with some respondents placing high importance on it.

There is still a notable proportion of respondents (25%) who are neutral or disagree with the idea of emotional appeal being a significant factor in long-term success.

Interpretation:

Emotional appeal is generally considered a critical element for brand success, but there are differing opinions on its overall influence. While most professionals agree that emotional appeal is important, some still question its role in long-term brand success, possibly due to different industry experiences or market conditions. Brand positioning and consumer emotions are likely factors that contribute to the perception of the importance of emotional appeal.

4. Personalised advertising based on emotions and preferences makes customers more likely to buy. The mean of 3.91 indicates that respondents agree that personalised advertising based on emotions and preferences increases the likelihood of purchases. The standard deviation of 0.91 shows that while there is agreement on this point, some respondents still have differing views. The median (4) and 75th percentile (5) demonstrate that a significant portion of respondents feel strongly that personalisation in advertising enhances purchase likelihood. The min (1) and max (5) show that while the general trend is towards agreement, there are still some who are neutral or disagree.

Interpretation:

Personalised advertising is strongly viewed as an effective way to drive sales, with a consensus among respondents that tailoring ads based on consumer emotions and preferences enhances engagement and purchase likelihood. The relatively low standard deviation suggests that most respondents see the value in personalised marketing. However, industries with less emphasis on personalisation might still question its effectiveness.

5. Measuring emotional responses to ads helps in refining marketing strategies.

The mean of 3.65 indicates that respondents generally agree with the statement that measuring emotional responses to ads helps refine marketing strategies. The standard deviation of 0.91 suggests some variability in the responses. The median (4) and 75th percentile (4) indicate that most respondents feel positively about the usefulness of emotional response measurements in shaping marketing strategies. The min (1) and max (5) suggest that there is a broad range of opinions, but most respondents are positive about the effectiveness of measuring emotional responses.

Interpretation:

There is a consensus among marketing professionals that emotional response measurement can be a valuable tool for improving marketing strategies. The relatively high agreement reflects the growing interest in neuro-marketing and emotion-driven advertising, though some professionals might still be unfamiliar with the tools or unsure about their practical applications.

Summary

Personalised advertising and emotional branding strategies are widely seen as effective tools in driving consumer loyalty and purchase likelihood. Neuromarketing techniques, while acknowledged, are not universally accepted as significantly more effective than traditional methods, though many marketing professionals see their potential. Emotional appeal remains a highly valued component of brand success, but varying opinions indicate that context and application may influence its perceived impact.

Overall, marketing professionals have a positive view of emotional engagement techniques, but their opinions differ in terms of effectiveness, highlighting that experience, industry, and familiarity with these tools play a role in shaping their beliefs.

4.2.1.2 ANOVA

Result:

Table 2 Distribution of ANOVA for Objective 1

Grouping Variable	Question	F-statistic	P-value
Which industry do you primarily work in?	Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.	1.157033	0.330408
	Investing in emotional branding strategies leads to higher consumer loyalty.	0.896845	0.483469
	The emotional appeal of a brand influences its long-term success in the market.	0.569856	0.723102
	Personalised advertising based on emotions and preferences makes customers more likely to buy.	0.336108	0.890884

Grouping Variable	Question	F-statistic	P-value
Which industry do you primarily work in?	Measuring emotional responses to ads helps in refining marketing strategies.	0.562448	0.728774
What is your role?	Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.	16.094187	5.858420e-12
	Investing in emotional branding strategies leads to higher consumer loyalty.	12.972089	9.259922e-10
	The emotional appeal of a brand influences its long-term success in the market.	5.829665	1.567265e-04
	Personalised advertising based on emotions and preferences makes customers more likely to buy.	6.949150	2.309130e-05

Grouping Variable	Question	F-statistic	P-value
	Measuring emotional responses to ads helps in refining marketing strategies.	12.975651	9.205854e-10
How familiar are you with neuromarketing?	Neuromarketing techniques (e.g., EEG, fMRI, eye tracking) provide deeper consumer insights than traditional methods.	36.534353	6.591976e-25
	Investing in emotional branding strategies leads to higher consumer loyalty.	17.373270	7.665938e-13
	The emotional appeal of a brand influences its long-term success in the market.	8.351968	2.112009e-06
	Personalised advertising based on emotions and preferences makes customers more likely to buy.	17.905888	3.309983e-13

Grouping Variable	Question	F-statistic	P-value
	Measuring emotional responses to ads helps in refining marketing strategies.	21.129955	2.237859e-15

1. Grouping Variable: Industry

The p-values for all questions related to emotional engagement strategies under the Industry grouping variable are greater than 0.05, indicating no significant differences across industries. Specifically, the questions regarding neuromarketing techniques, emotional branding, and personalised advertising show p-values that are far from the 0.05 threshold.

Interpretation:

No significant differences across industries: The lack of statistical significance ($p > 0.05$) implies that industry type (e.g., Retail, FMCG, Technology) does not have a significant impact on how professionals perceive the effectiveness of neuromarketing strategies in emotional engagement.

This suggests that professionals, regardless of the sector they work in, perceive neuromarketing techniques (like EEG, fMRI, and eye tracking) to have a similar influence on consumer insights and engagement.

Similarly, emotional branding strategies and personalised advertising techniques are viewed almost identically across industries.

Practical implication: This result suggests that neuromarketing tools and emotional engagement strategies are seen as universally effective across different industries, meaning businesses in any industry can benefit from such strategies without worrying about industry-specific barriers to their effectiveness.

2. Grouping Variable: Role

The p-values for most questions under the Role grouping variable are extremely low (e.g., 5.858420e-12, 9.259922e-10, 1.567265e-04), suggesting significant differences in how professionals in different roles perceive emotional engagement.

Specifically, professionals in different roles (e.g., Marketing Professionals, Branding Specialists, Business Owners) show markedly different opinions about the effectiveness of neuromarketing techniques, emotional branding strategies, and personalised advertising.

Interpretation:

Significant differences by role: The significant differences ($p < 0.05$) imply that professionals' roles (e.g., whether they are marketing professionals, branding specialists, or business owners) influence their perception of how effective emotional engagement strategies are.

Marketing professionals may view neuromarketing tools like EEG and fMRI more favorably because these techniques are commonly used in marketing research to analyse consumer behaviour and refine campaigns.

Branding specialists, on the other hand, may place more importance on emotional branding strategies and consumer loyalty since their primary focus is to build strong, long-lasting brand connections with customers.

Business owners might be more concerned with the cost-effectiveness and ROI of neuromarketing techniques, which could explain their perception of certain strategies.

Practical implication: This finding highlights that companies should tailor their marketing and branding strategies according to the professional role of their target audience. Different groups within an organisation may prioritize different aspects of neuromarketing and understanding this can help optimise resource allocation and strategy development.

3. Grouping Variable: Familiarity with Neuromarketing

The p-values for all questions under the Familiarity with Neuromarketing grouping variable are extremely low (e.g., $6.591976e-25$, $7.665938e-13$, $2.237859e-15$), suggesting that professionals' familiarity with neuromarketing significantly influences how they perceive its effectiveness in emotional engagement.

As professionals become more familiar with neuromarketing (from not familiar to expert), their opinions on its effectiveness, particularly in driving consumer loyalty and emotional appeal, tend to differ significantly.

Interpretation:

Significant differences based on familiarity: This result indicates that familiarity with neuromarketing plays a crucial role in shaping professionals' perceptions of the effectiveness of neuromarketing techniques. Less familiar professionals (e.g., those who are not familiar or somewhat familiar) may view neuromarketing techniques like EEG or fMRI with scepticism or indifference due to their lack of exposure or experience with such tools. More familiar professionals (e.g., those who are moderately familiar or experts)

likely see neuromarketing tools as more effective for achieving emotional engagement, increasing consumer loyalty, and improving advertising efficiency.

Professionals who are experts in neuromarketing tend to understand the power of personalised advertising and how emotional branding can significantly influence long-term brand success.

Practical implication: Businesses seeking to implement neuromarketing techniques should consider the level of familiarity of their teams with these tools. The effectiveness of training, communication, and campaign implementation can be optimised by considering how familiar the team is with neuromarketing, and more advanced training might be necessary for less experienced professionals.

Conclusion:

Industry does not significantly affect how professionals perceive emotional engagement strategies, indicating that neuromarketing techniques like EEG, fMRI, and eye tracking are viewed similarly across industries. This suggests broad applicability of these techniques in various sectors.

Role is a significant factor: Different roles (e.g., Marketing Professional, Branding Specialist, Business Owner) lead to varying perceptions of emotional engagement strategies. This finding indicates that the application of neuromarketing strategies should be role-specific, with tailored communication for each professional group.

Familiarity with Neuromarketing significantly influences perception: Professionals who are more familiar with neuromarketing techniques tend to have a more positive view of their effectiveness. This highlights the importance of educating professionals about neuromarketing, especially in industries where it's not widely used.

Practical Implications:

Industry-wide application: Since industry doesn't significantly affect perception, businesses in any sector can adopt neuromarketing strategies to boost emotional engagement without fear of industry-specific barriers.

Role-specific strategies: Tailor neuromarketing campaigns and communication to the specific roles of professionals within an organisation, especially in terms of their concerns (e.g., ROI for business owners, emotional engagement for branding specialists).

Training and development: Invest in educational programs for professionals who are less familiar with neuromarketing to enhance their understanding and buy-in, which could lead to more effective use of these techniques.

4.2.2 Consumer perspective

Distribution of Responses for Advertisements that make me feel excited, happy, or nostalgic increase my interest in a product.

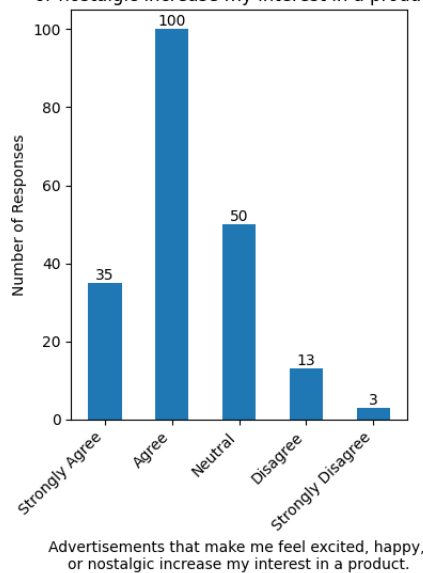


Figure 21 Distribution of Advertisements that make me feel excited, happy, or nostalgic increase my interest in a product.

The graph reveals how advertisements that evoke excitement, happiness, or nostalgia affect consumer interest in a product. The most frequent response is "Agreed", with 100 responses, followed by "Neutral", with 50 responses. "Strongly Agree" has 35 responses, while "Disagree" and "Strongly Disagree" are less frequent, with 13 and 3 responses, respectively.

Interpretation:

The data suggests that emotional advertisements significantly impact consumer interest, with most respondents indicating that such ads increase their interest in a product. Specifically, the "Agree" category, which has the highest number of responses, indicates that emotional appeals such as excitement, happiness, or nostalgia are effective for a large portion of the consumer base. This reinforces the idea that emotional connections in marketing can play a crucial role in influencing purchasing behaviour. The "Neutral" responses suggest that a subset of consumers may not be particularly influenced by emotional appeals or may not have a strong opinion on their effectiveness. On the other hand, the relatively low numbers in the "Disagree" and "Strongly Disagree" categories suggest that emotional advertisements generally do not have a strongly negative effect on consumer interest, further supporting the notion that emotional advertising is largely beneficial for marketers.

For marketers, this insight highlights the importance of integrating emotional elements into their campaigns to foster stronger consumer engagement and interest in products. However, a tailored approach is essential, as some consumers may be less responsive or indifferent to such ads.

Distribution of Responses for Brands that use personal storytelling in their marketing campaigns grab my attention more.

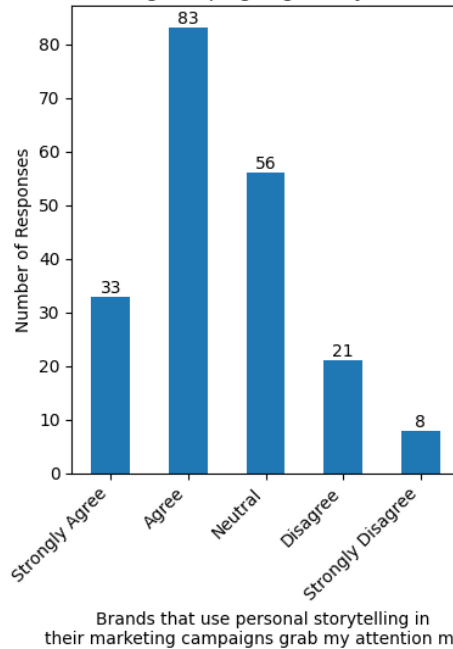


Figure 22 Distribution of Brands that use personal storytelling in their marketing campaigns grab my attention more.

The graph depicts how the use of personal storytelling in marketing campaigns influences consumer attention. Most respondents "Agree" with the statement, having 83 responses. A significant number of respondents also "Neutral" at 56 responses, indicating indifference or no strong opinion. The "Strongly Agree" category follows with 33 responses, while the "Disagree" and "Strongly Disagree" categories have relatively smaller numbers, 21 and 8, respectively.

Interpretation:

The data indicates that personal storytelling in brand marketing campaigns is a highly effective tool for grabbing consumer attention, as 83 respondents reported agreeing with this statement. This suggests that consumers are generally receptive to marketing campaigns that incorporate storytelling, particularly those that establish a personal connection or evoke emotions. The "Neutral" category reflects that some consumers may

not feel strongly about the use of storytelling, or it may not always resonate with them depending on the context. The relatively low numbers of respondents who disagree or strongly disagree (29 in total) show that personal storytelling does not detract from consumer attention for a significant portion of the audience, making it a generally favourable strategy. Marketers should focus on crafting authentic and relatable stories that engage consumers emotionally, as this approach is more likely to generate positive responses and increase brand attention.

This trend further highlights the importance of integrating personal storytelling into marketing campaigns, as it enhances consumer engagement and brand recall.

Distribution of Responses for I am more likely to engage with a brand that aligns with my emotions and values.

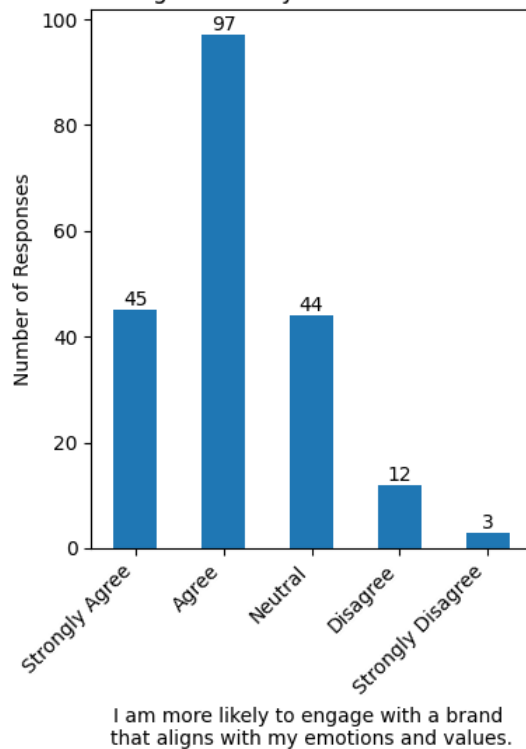


Figure 23 Distribution of I am more likely to engage with a brand that aligns with my emotions and values

The graph shows how likely consumers are to engage with brands that align with their emotions and values. The dominant response is "Agree", with 97 responses, indicating that most respondents tend to engage with brands that share similar values. The "Neutral" category follows with 44 responses, suggesting a moderate or indifferent stance. "Strongly Agree" comes next with 45 responses, showing that some consumers feel strongly about aligning with brands that match their emotions and values. The "Disagree" and "Strongly Disagree" categories have 12 and 3 responses, respectively, indicating that very few respondents are opposed to engaging with emotionally and value-aligned brands.

Interpretation:

The data indicates that aligning with consumer values and emotions is a crucial factor for engagement. A large portion of respondents (especially those in the "Agree" and "Strongly Agree" categories) suggest that they are more likely to engage with brands that reflect their personal values and emotions, making emotional resonance a powerful tool in consumer marketing. The "Neutral" responses imply that some consumers might not prioritize emotional alignment in their brand interactions or may not have a strong opinion on the matter, suggesting a potential gap in consumer engagement for brands not emphasising emotional connections. The relatively low number of "Disagree" and "Strongly Disagree" responses (just 15 total) indicates that brands that align with consumers' emotions and values are unlikely to alienate a significant portion of the audience.

For marketers, these findings highlight the importance of understanding and reflecting consumer values and emotions in brand messaging, as it increases engagement and brand loyalty.

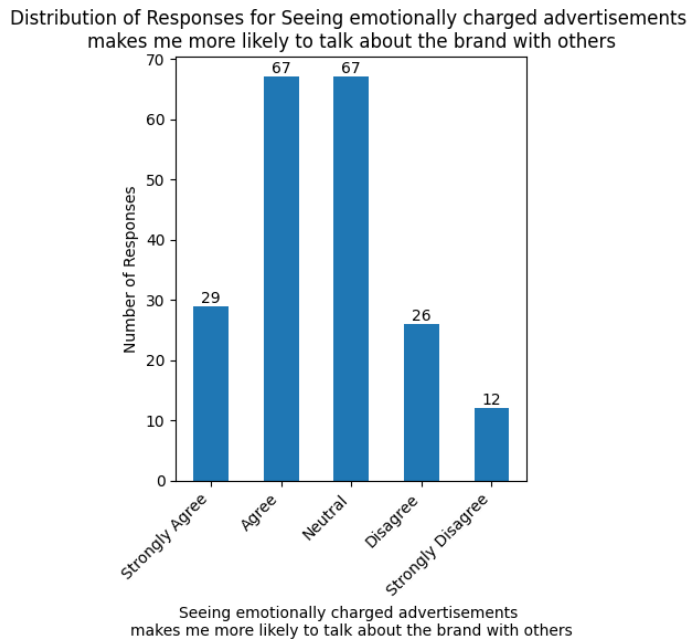


Figure 24 Distribution of Seeing emotionally charged advertisements makes me more likely to talk about the brand with others.

The graph shows how emotionally charged advertisements impact consumers' likelihood of talking about the brand with others. Many responses are in the "Agree" and "Neutral" categories, each with 67 responses. The "Strongly Agree" category has 29 responses, indicating some level of strong engagement with emotionally charged advertisements. The "Disagree" category has 26 responses, while the "Strongly Disagree" category has the lowest with 12 responses.

Interpretation:

The data indicates that emotionally charged advertisements have a significant influence on consumer behaviour, particularly in terms of brand discussions. The "Agree" and "Neutral" responses suggest that many consumers are likely to talk about a brand after encountering an emotionally engaging advertisement. The presence of "Strongly Agree" responses shows that for some consumers; emotional advertisements are a powerful motivator for brand-related conversations. While the "Disagree" and "Strongly Disagree"

categories are lower in number, they still indicate that a small portion of the respondents may not find emotional ads compelling enough to discuss with others. These findings suggest that emotionally engaging advertisements can act as effective tools for brand visibility and word-of-mouth marketing, encouraging consumers to spread brand awareness through conversations. For marketers, this insight underscores the importance of crafting emotionally engaging ads that resonate with consumers, as these types of advertisements appear to encourage social sharing and brand discussions, which can ultimately lead to greater consumer engagement and brand loyalty.

Distribution of Responses for A brand that connects with me emotionally is more likely to gain my long-term loyalty.

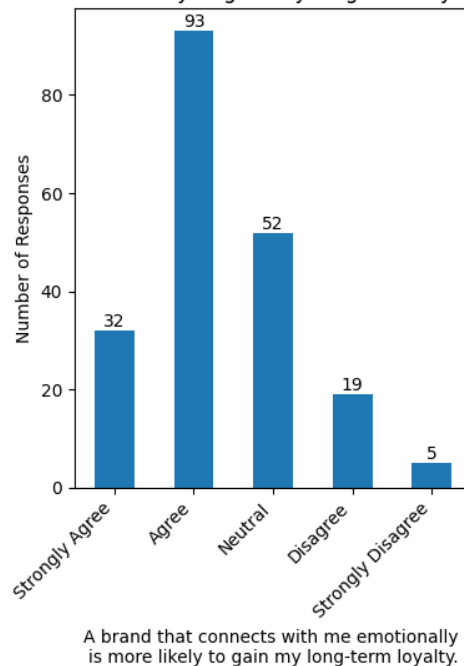


Figure 25 Distribution of A brand that connects with me emotionally is more likely to gain my long-term loyalty.

The graph presents consumer responses on how emotionally connected brands are more likely to gain long-term loyalty. The largest group, "Agree", comprises 93 responses,

followed by "Neutral" with 52 responses. "Strongly Agree" comes next with 32 responses, while "Disagree" and "Strongly Disagree" have 19 and 5 responses, respectively.

Interpretation:

The data strongly suggests that emotional connections with a brand are a key driver for long-term brand loyalty. A significant number of respondents (93) agree that brands that emotionally connect with them are more likely to foster lasting loyalty, with 32 strongly agreeing. The relatively large portion of neutral responses (52) may indicate some uncertainty or mixed feelings among consumers, with emotional connections being important but not necessarily decisive for everyone. The lower number of "Disagree" (19) and "Strongly Disagree" (5) responses suggests that very few consumers do not value emotional connections when it comes to brand loyalty. This highlights the importance of emotional engagement in marketing strategies, as emotional bonds with consumers are highly influential in driving long-term brand loyalty. For marketers, this insight reinforces the need to prioritize emotional resonance in brand messaging and customer interactions, as emotional connection significantly enhances customer retention and loyalty.

Summary of graphs:

The analysis reveals that emotional marketing plays a powerful role in shaping consumer behaviour. Most respondents agree that advertisements evoking emotions like excitement, happiness, or nostalgia significantly increase product interest, enhance attention through personal storytelling, and promote engagement with value-aligned brands. Emotionally charged ads also encourage word-of-mouth sharing and build stronger brand loyalty over time. While a portion of respondents remains neutral, very few disagree, suggesting that emotional content is generally well-received. For marketers, these findings emphasise the importance of using emotional appeal to boost attention, engagement, and long-term customer loyalty.

4.2.2.2 ANOVA test: (Consumer perspective)

Result:

Table 3 Distribution of test ANOVA for Objective 1(Consumers Perspective)

Questions	Research category	F-Statistic	P-Value	Interpretation
Ad Emotional Impact	Age	2.3301	0.0440	Significant
Ad Emotional Impact	Gender	0.8005	0.3720	Not Significant
Ad Emotional Impact	Monthly Income	1.7517	0.1246	Not Significant
Ad Emotional Impact	Most Purchased Products	1.4643	0.0360	Significant
Ad Emotional Impact	Ad Influence	23.1207	0.0000	Significant
Ad Emotional Impact	Personalised Ads Preference	25.0169	0.0000	Significant
Ad Emotional Impact	International vs Local Brands	6.8179	0.0000	Significant
Storytelling Impact	Age	4.0735	0.0015	Significant
Storytelling Impact	Gender	0.7969	0.3731	Not Significant

Questions	Research category	F-Statistic	P-Value	Interpretation
Storytelling Impact	Monthly Income	2.4904	0.0326	Significant
Storytelling Impact	Most Purchased Products	1.7630	0.0036	Significant
Storytelling Impact	Ad Influence	22.6182	0.0000	Significant
Storytelling Impact	Personalised Ads Preference	22.5257	0.0000	Significant
Storytelling Impact	International vs Local Brands	11.5975	0.0000	Significant
Brand Emotional Alignment	Age	2.8563	0.0163	Significant
Brand Emotional Alignment	Gender	0.0001	0.9922	Not Significant
Brand Emotional Alignment	Monthly Income	1.2801	0.2740	Not Significant
Brand Emotional Alignment	Most Purchased Products	1.1789	0.2166	Not Significant
Brand Emotional Alignment	Ad Influence	12.5221	0.0000	Significant

Questions	Research category	F-Statistic	P-Value	Interpretation
Brand Emotional Alignment	Personalised Ads Preference	8.5029	0.0003	Significant
Brand Emotional Alignment	International vs Local Brands	9.2674	0.0000	Significant
Emotional Ads Sharing	Age	1.6110	0.1588	Not Significant
Emotional Ads Sharing	Gender	0.6709	0.4137	Not Significant
Emotional Ads Sharing	Monthly Income	2.9516	0.0136	Significant
Emotional Ads Sharing	Most Purchased Products	1.8057	0.0025	Significant
Emotional Ads Sharing	Ad Influence	16.1364	0.0000	Significant
Emotional Ads Sharing	Personalised Ads Preference	35.3777	0.0000	Significant
Emotional Ads Sharing	International vs Local Brands	21.3711	0.0000	Significant
Emotional Brand Loyalty	Age	1.7236	0.1309	Not Significant
Emotional Brand Loyalty	Gender	0.4270	0.5142	Not Significant

Questions	Research category	F-Statistic	P-Value	Interpretation
Emotional Brand Loyalty	Monthly Income	2.8132	0.0177	Significant
Emotional Brand Loyalty	Most Purchased Products	1.3523	0.0772	Not Significant
Emotional Brand Loyalty	Ad Influence	14.1318	0.0000	Significant
Emotional Brand Loyalty	Personalised Ads Preference	19.7330	0.0000	Significant
Emotional Brand Loyalty	International vs Local Brands	4.7764	0.0011	Significant
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Ad Emotional Impact	Gender	0.8005	0.3720	Not Significant
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Emotional Brand Loyalty	International vs Local Brands	4.7764	0.0011	Significant

The ANOVA results reveal several consistent and meaningful patterns across consumer groups. Emotional-engagement constructs including emotional impact of advertisements, storytelling effectiveness, emotional alignment with brands, emotional ads sharing behaviour, and emotional brand loyalty vary significantly across several segmentation variables. In contrast, certain demographic variables (particularly gender and income in some cases) do not show strong effects.

Interpretation

The ANOVA findings provide strong evidence that consumer emotional engagement with marketing content is not uniform across all groups. Instead, emotional responses are shaped more by behavioural and psychographic segmentation factors rather than demographic ones, which aligns with modern neuromarketing insights.

Interpretation

1. Emotional Impact of Ads

Significant differences were found across:

Age

Most Purchased Products

Ad Influence

Personalised Ads Preference

International vs Local Brand Preference

Gender and Income did not significantly influence emotional ad impact.

Interpretation:

Younger consumers and those with specific product preferences react more strongly to emotional advertising. Additionally, consumers who report greater general ad influence or who appreciate personalised ads demonstrate heightened emotional responses. This supports the theory that emotional triggers are more effective when aligned with personal relevance and perceived ad meaningfulness.

2. Storytelling Impact

Significant differences were seen across:

Age

Income

Product Categories

Ad Influence

Personalised Ads Preference

International vs Local Brand Preference

Gender remained non-significant.

Interpretation:

Narrative-based advertising resonates differently across age and income segments, suggesting that personal storytelling may appeal more to audiences with emotional or aspirational buying motivations. The strong effect of ad influence and personalisation

preference indicates that storytelling is most impactful when the consumer is naturally receptive to persuasive media formats.

3. Emotional Alignment with Brands

Significant differences were found for:

Age

Ad Influence

Personalised Ads Preference

International vs Local Brand Preference

Gender, Income, and Product Preferences were not significant.

Interpretation:

Emotional alignment with brands depends less on demographic variables and more on behavioural dispositions (ad influence and personalisation preference). Consumers who actively interact with advertisements or prefer customization are more likely to build emotional bonds with brands—reinforcing the neuromarketing premise that emotional relevance drives deeper cognitive processing.

4. Emotional Ads Sharing Behaviour

Significant differences were found for:

Income

Product Preferences

Ad Influence

Personalised Ads Preference

International vs Local Brand Preference

Gender and Age were not significant.

Interpretation:

The willingness to share emotionally charged advertisements is strongly influenced by

consumers' shopping behaviours, product interests, and susceptibility to ad influence. This pattern supports the notion that viral sharing is driven by psychological motivation and social validation needs rather than demographic characteristics.

5. Emotional Brand Loyalty

Significant differences were found for:

Income

Ad Influence

Personalised Ads Preference

International vs Local Brand Preference

Age, Gender, and Product Preferences were not significant.

Interpretation:

Long-term emotional loyalty is influenced primarily by behavioural factors and consumption orientation, with income representing potential purchasing power segmentation. The lack of influence from age and gender suggests that loyalty-building mechanisms are more related to consumer psychographics and brand-personality alignment than surface-level demographic features.

Overall Interpretation

Across all emotional engagement measures, psychographic and behavioural segmentation variables (e.g., ad influence, personalisation preference, brand orientation) consistently show significant differences. This indicates that emotional triggers in

neuromarketing are highly individualistic and align closely with internal motivations, preferences, and interaction styles.

Demographic variables such as gender and income generally exhibit weaker influence, supporting modern marketing theory's shift away from demographic segmentation towards behavioural, attitudinal, and emotional segmentation.

This aligns with neuromarketing principles suggesting that:

Emotional resonance is a deeper cognitive process

Demographic labels are insufficient to predict emotional response

Personalised and behaviour-informed marketing performs significantly better

Emotional stimuli activate different neural pathways based on consumer intent and past experience

Conclusion

The ANOVA results demonstrate that consumer emotional engagement with neuromarketing techniques is significantly modulated by behavioural and psychographic variables rather than traditional demographics. This reinforces the strategic value of personalised, emotionally aligned, and behaviour-driven marketing approaches over standardised demographic targeting. Brands aiming to increase emotional loyalty, recall, and engagement should prioritize personalised communication strategies, leverage consumer data for more relevant messaging, and design campaigns that appeal to audience-specific emotional drivers.

4.3 Psychological and Subconscious Factors

4.3.1 Professional perspective

Distribution of Responses for The company spends more on marketing during an economic downturn.

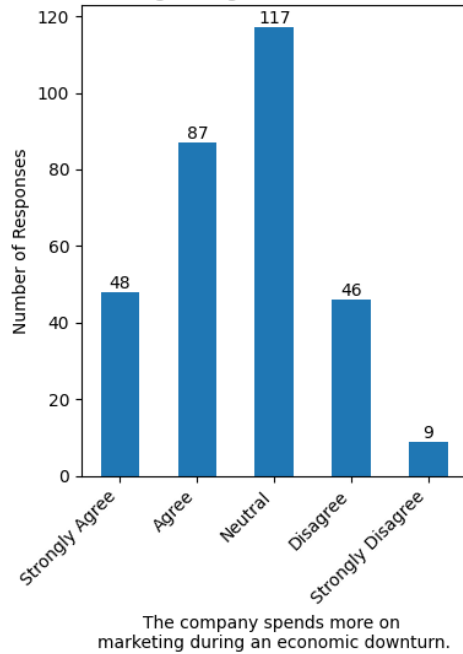


Figure 26 Distribution of Company spends more on marketing when economic downturn

The graph shows the distribution of responses to the statement: "The company spends more on marketing during an economic downturn." The largest group of responses is Neutral, with 117 responses, followed by Agree with 87 responses. Strongly Agree comes next with 48 responses. The smaller categories are Disagree (46 responses) and Strongly Disagree (9 responses).

Interpretation

The distribution suggests that most respondents are neutral regarding whether companies spend more on marketing during an economic downturn. With 117 responses in the Neutral category, it appears that many professionals may not have a strong opinion on the matter, possibly due to varying company strategies or differing interpretations of how an economic downturn affects marketing budgets. However, the Agree category, with 87 responses, indicates that a significant portion of respondents believes that companies

tend to increase their marketing spending during economic downturns, possibly to maintain consumer engagement and market share during difficult times. The Strongly Agree category (48 responses) further supports this view, showing that some professionals firmly believe in this approach. On the other hand, the relatively smaller number of responses in the Disagree (46 responses) and Strongly Disagree (9 responses) categories suggest that while a minority disagrees with the statement, the overall sentiment does not strongly reject the idea that companies might allocate more resources to marketing during downturns.

In summary, while most respondents seem uncertain or neutral about the impact of economic downturns on marketing budgets, there is a considerable belief that companies often increase their marketing spending to weather such economic challenges.

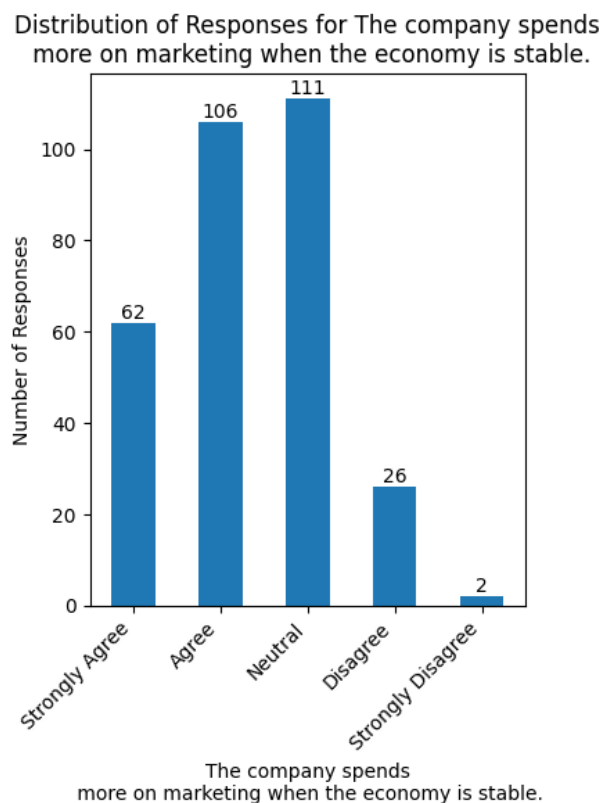


Figure 27 Distribution of Company spends more on marketing when economy is stable

The graph displays the distribution of responses to the statement: "The company spends more on marketing when the economy is stable." The largest group of responses is Neutral, with 111 responses, followed by Agree with 106 responses. Strongly Agree follows with 62 responses. The Disagree group has 26 responses, and the smallest group is Strongly Disagree, with only 2 responses.

Interpretation

Most respondents have a neutral stance on whether companies increase their marketing spending when the economy is stable, as indicated by the 111 responses in the Neutral category. This could suggest that many professionals may not have a strong opinion on this topic or that the relationship between economic stability and marketing spending varies across industries or individual companies. However, a significant portion of respondents, represented by Agree (106 responses), believes that companies tend to spend more on marketing when the economy is stable. The Strongly Agree category (62 responses) further supports this view, indicating that some respondents firmly believe that stable economic conditions lead to increased marketing budgets. On the other hand, there are fewer respondents in the Disagree (26 responses) and Strongly Disagree (2 responses) categories, suggesting that only a small minority of professionals reject the idea that stable economic conditions influence increased marketing spending.

In summary, while many respondents remain neutral, a large portion agrees with the idea that companies tend to allocate more resources to marketing when the economy is stable. The low number of disagreements suggests a general alignment with the notion that economic stability encourages higher marketing investments.

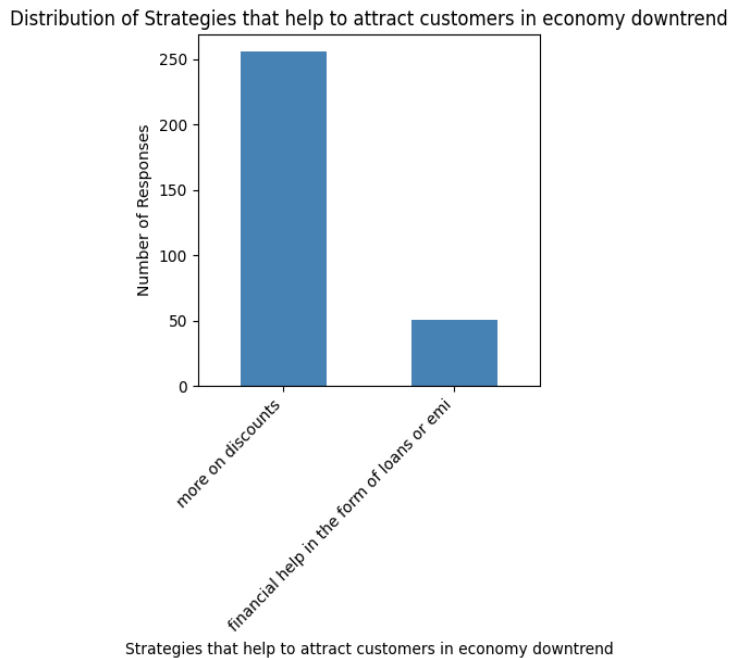


Figure 28 Distribution of In economy downtrend, strategies that help to attract customers

The graph illustrates the distribution of strategies used to attract customers during an economic downturn. The "More on discounts" strategy is by far the most popular, with 250 responses, while the "Financial help in the form of loans or EMI" strategy received only 50 responses.

Interpretation

The data clearly indicates that during an economic downturn, the dominant strategy for attracting customers is to offer more discounts, as indicated by the overwhelming number of responses (250). This suggests that many businesses prioritize making their products and services more affordable to customers through discounts to maintain consumer interest and loyalty in challenging times. In contrast, the strategy of providing financial help in the form of loans or EMI has significantly fewer responses, with only 50. This indicates that fewer businesses consider or implement this approach, possibly due to the complexity of offering financial assistance or the risks involved with providing credit during an economic downturn.

In summary, the results show that businesses overwhelmingly favour discounting to attract customers when the economy is in decline, while fewer businesses see financial assistance (loans or EMI) as a viable strategy during such times.

Summary of bar graphs of Psychological and Subconscious Factors (Professional perspective)

The survey findings highlight how businesses approach marketing spending and customer attraction during economic fluctuations. When asked about marketing budgets during an economic downturn, most respondents were neutral, indicating uncertainty about how companies adjust their marketing strategies in such times. However, a significant number agreed that companies do tend to increase their marketing spend during downturns, likely to maintain market share and consumer engagement. Similarly, when considering stable economic conditions, most respondents believed that companies increase their marketing budgets, with some expressing strong agreement.

Regarding customer attraction during economic downturns, the overwhelming strategy is offering discounts, with 250 responses, while fewer businesses consider providing financial assistance through loans or EMI (50 responses). This suggests that businesses prioritize affordability in tough times, likely to retain consumer loyalty through discounts. Overall, the data indicates that while the professional consensus shows an inclination to spend more on marketing in both downturns and stable times, the strategies employed to engage customers during downturns tend to focus more on immediate affordability rather than financial support mechanisms.

4.3.2 Consumer perspective

Distribution of Responses for Limited-time offers and flash sales make me more likely to buy immediately.

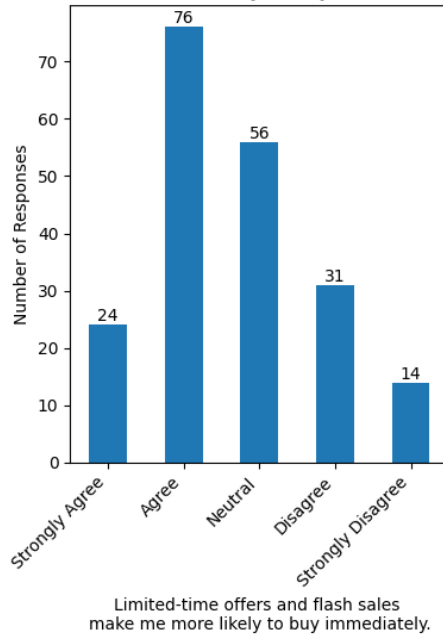


Figure 29 Distribution of Limited time offers and flash sales make me more likely to buy immediately

The graph shows how limited time offers and flash sales influence immediate purchasing decisions. The largest response group is "Agreed", with 76 responses, indicating that most respondents feel such offers encourage them to buy immediately. The second largest group is "Neutral", with 56 responses, suggesting some ambivalence or no strong opinion on the matter. "Strongly Agree" follows with 24 responses, reflecting a smaller but still significant portion of consumers who are strongly influenced by time-limited promotions. The "Disagree" and "Strongly Disagree" categories have fewer responses, with 31 and 14, respectively.

Interpretation:

The data suggests that limited time offers, and flash sales are effective tools for encouraging immediate purchases for most consumers. 76 respondents agree, and 24 strongly agree that these offers motivate them to buy right away, highlighting the sense of urgency and excitement that such promotions create. However, a significant portion of

respondents (56) is neutral, meaning they might not find limited time offers to be compelling or might not feel strongly about them. The relatively smaller number of "Disagree" and "Strongly Disagree" responses (45 combined) indicates that a minority of consumers are not as influenced by such promotional tactics. For marketers, this reinforces the idea that time-sensitive promotions like flash sales can be an effective strategy to drive immediate consumer action, but there is also a segment of consumers who may need additional factors, such as product relevance or value, to motivate a purchase. Thus, marketers should consider using these offers strategically while ensuring that they align with consumers' interests and purchasing behaviour.

Distribution of Responses for Positive online reviews and social proof
(e.g., influencer endorsements) influence
my purchase decisions

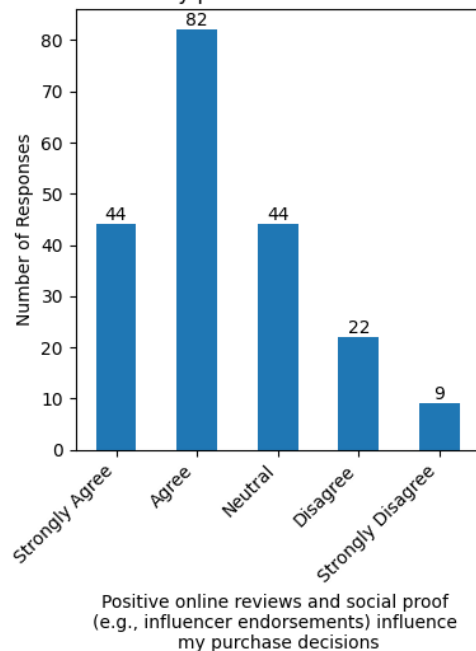


Figure 30 Distribution of Positive online reviews and social proof (e.g., influencer endorsements) influence my purchase decisions.

The graph shows responses to the statement "Positive online reviews and social proof (e.g., influencer endorsements) influence my purchase decisions." The largest group

is "Agreed", with 82 responses. The second highest is "Neutral", with 44 responses, indicating some ambivalence. "Strongly Agree" follows with 44 responses, suggesting that a significant portion of respondents is strongly influenced by positive reviews and social proof. The "Disagree" category has 22 responses, and "Strongly Disagree" has the smallest number, with 9 responses.

Interpretation:

The data shows that positive online reviews and social proof (such as influencer endorsements) have a strong influence on purchasing decisions for most consumers. A total of 126 respondents either "Agree" or "Strongly Agree" with the statement, highlighting the significant impact of online reviews and social validation on consumer choices. The "Neutral" responses (44) suggest that a portion of respondents might be indifferent to online reviews or may not be as influenced by social proof when making purchase decisions. The relatively low numbers in the "Disagree" (22) and "Strongly Disagree" (9) categories show that a minority of consumers are not influenced by reviews or social proof, meaning that positive testimonials and influencer recommendations are still highly persuasive for most consumers. For marketers, this data emphasises the importance of leveraging positive reviews and social proof—including influencer endorsements—in marketing strategies, as they can significantly enhance consumer trust and drive sales.

Distribution of Responses for Pricing strategies (e.g., 9.99vs. 10)
affect my perception of value.

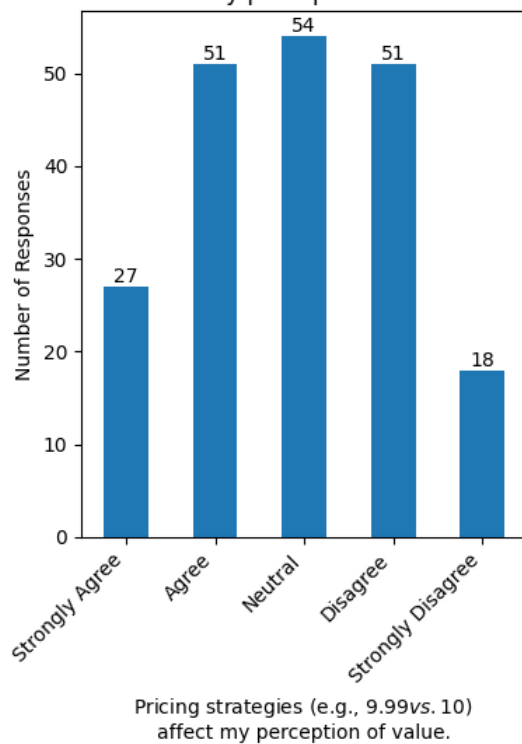


Figure 31 Distribution of Pricing strategies (e.g., \$9.99 vs. \$10) affect my perception of value.

The graph illustrates how different pricing strategies (e.g., \$9.99 vs. \$10) affect consumers' perception of value. The largest response group is "Neutral", with 54 responses, followed closely by "Agree" with 51 responses. The next group is "Disagreed", with 51 responses, while "Strongly Agree" has 27 responses. The "Strongly Disagree" category has the least number of responses, with 18.

Interpretation:

The data reveals that pricing strategies do impact consumer perception of value, though the influence varies. Neutral responses (54) indicate that many consumers are indifferent or perceive minimal impact from pricing strategies on their perception of value. However, 51 respondents who "Agree" and 27 who "Strongly Agree" indicate that, for a

significant portion, pricing strategies such as small price differences (e.g., \$9.99 vs. \$10) do affect their perception of value.

On the other hand, the "Disagree" (51) and "Strongly Disagree" (18) responses suggest that some consumers do not see much difference in perceived value based on these pricing tactics. This could be due to factors like the actual quality of the product, the brand, or other more prominent influences on purchasing decisions. For marketers, these findings highlight that pricing strategies can influence consumer perception but may not always be the deciding factor for all consumers. The use of psychological pricing tactics (like \$9.99 instead of \$10) may be effective for some, but marketers should consider complementing this with other value propositions such as product quality, brand recognition, or promotions.

Distribution of Responses for Seeing others buy a product
(e.g., "50 people purchased today")
makes me more likely to buy.

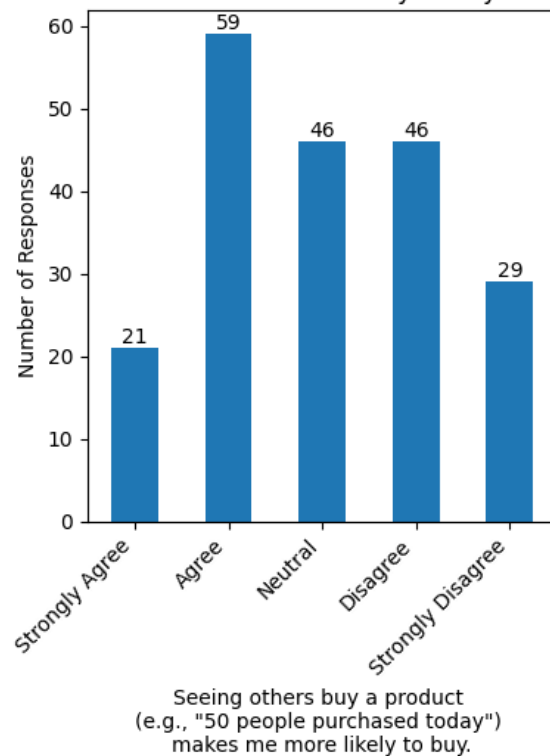


Figure 32 Distribution of Seeing others buy a product makes me more likely to buy.

The graph illustrates the influence of social proof (e.g., "50 people purchased today") on purchasing decisions. The largest group is "Agreed", with 59 responses, indicating that many respondents are more likely to buy after seeing others make a purchase. The second largest group is "Neutral", with 46 responses, reflecting some indifference. "Disagree" and "Strongly Disagree" categories each have 46 and 29 responses, respectively, suggesting a significant portion of respondents does not feel strongly about social proof when deciding to buy. "Strongly Agree" has the fewest responses, with 21 responses.

Interpretation:

The data suggests that social proof, or seeing others buy a product, has a moderate but noticeable influence on consumers' purchasing behaviour. The high number of respondents (59) who agree that seeing others buy a product makes them more likely to buy shows that social validation can be an effective tool in encouraging purchases. The "Neutral" responses (46) indicate that some consumers may not be strongly swayed by this tactic, while the "Disagree" and "Strongly Disagree" responses show that a smaller portion of respondents do not find social proof compelling when making purchase decisions. This data implies that marketing strategies that highlight product popularity or involve social proof (e.g., showing how many people have bought a product today or influencer endorsements) can influence many potential customers, though it might not be persuasive for all. Marketers can use social proof effectively, but should also consider other factors, as it may not guarantee conversion for every individual.

Distribution of Responses for When economic uncertainty rises,
I focus more on long-term value rather
than short-term gratification in my purchases.

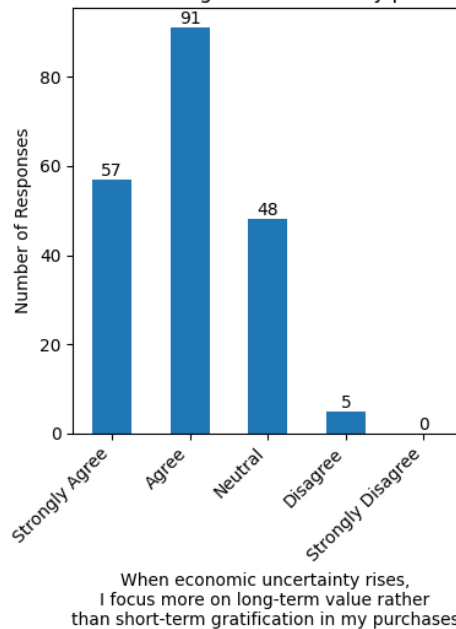


Figure 33 Distribution of When economic uncertainty rises, I focus more on long-term value rather than short-term gratification in my purchases

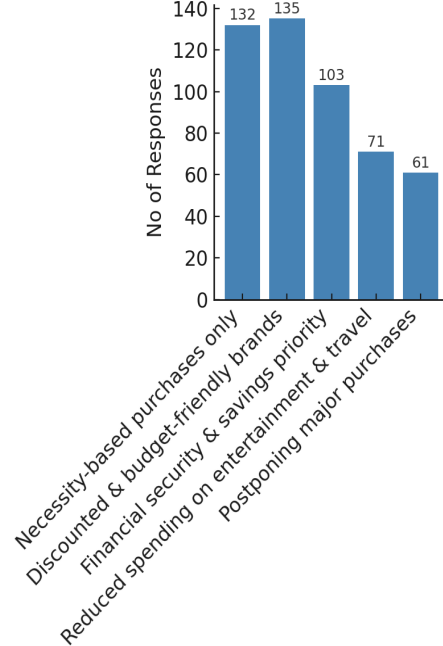
The graph shows how economic uncertainty influences purchasing behaviour, particularly in terms of prioritizing long-term value over short-term gratification. The largest group is "Agreed", with 91 responses, indicating that most respondents agree with the statement. The second largest group is "Strongly Agreed" (57 responses), followed by "Neutral" (48 responses). "Disagree" has 5 responses, and "Strongly Disagree" has no responses.

Interpretation:

The data reveals that most respondents, a combined total of 148 (from "Agree" and "Strongly Agree"), prioritize long-term value over short-term gratification when economic uncertainty rises. This indicates that consumers are more inclined to make thoughtful and long-term purchasing decisions in uncertain economic conditions. The "Neutral" responses (48) suggest that some consumers may not perceive a significant shift in their purchasing

priorities during economic uncertainty, or they may be indifferent to the idea of focusing on long-term value. The very small number of "Disagree" responses (5) indicates that a minimal portion of consumers does not significantly alter their purchasing habits during economic uncertainty, suggesting that for most, this shift towards long-term value is evident. For marketers, this data suggests that in times of economic uncertainty, focusing on long-term value rather than immediate gratification is an effective approach. Emphasizing sustainability, quality, and long-term benefits could resonate well with consumers, encouraging smarter, value-driven purchasing decisions.

factors most influence my purchase decisions during an economic downturn



factors most influence my purchase decisions during an economic downturn

Figure 34 Distribution of What factors most influence my purchase decisions during an economic downturn

The graph shows how various factors influence purchase decisions during an economic downturn. The largest group is "Discounted & budget-friendly brands", with 135 responses. The second largest group is "Necessity-based purchases only", with 132

responses, indicating that most consumers prioritize affordable options and essential purchases in times of economic uncertainty. The third most common factor is "Financial security & savings priority", with 103 responses. "Reduced spending on entertainment & travel" follows with 71 responses, and the least influential factor is "Postponing major purchases", with 61 responses.

Interpretation:

The data reveals that affordability and necessity play central roles in consumer decisions during economic downturns. With 135 responses for discounted and budget-friendly brands and 132 for necessity-based purchases only, consumers are increasingly focused on reducing costs and purchasing only what is necessary. This trend highlights the need for brands to offer affordable solutions and prioritize essential products during economic uncertainty. The high importance of financial security and savings (103) indicates that many consumers are not only looking for bargains but also focusing on ensuring their financial stability. This behaviour may drive a reduction in discretionary spending, such as entertainment and travel (71) and the decision to postpone major purchases (61). For marketers, this data suggests that price-conscious marketing and the promotion of necessity-based products will resonate well with consumers during an economic downturn. Highlighting value, offering discounts, and emphasising long-term savings can help brands better align with consumers' needs and purchasing priorities during challenging economic times.

Factors influencing purchase in stable economy

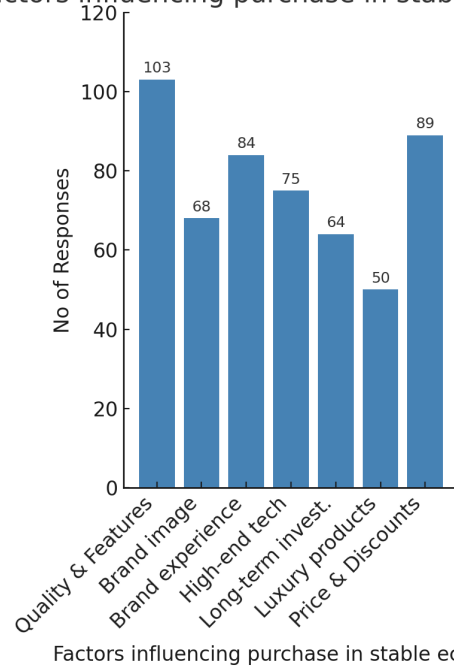


Figure 35 Distribution of What factors most influence my purchase decisions when the economy is stable

The graph shows various factors influencing consumer purchasing decisions in a stable economy. The largest factor is "Quality & Features", with 103 responses, indicating that most consumers prioritize quality and product features when making purchasing decisions. The second highest factor is "Price & Discounts", with 89 responses, showing that many consumers also consider price and promotional offers. The third factor is "Brand Image", with 84 responses, highlighting that the reputation and image of the brand significantly influence purchase behaviour. "High-end Tech" and "Long-term Investment" follow, with 75 and 64 responses, respectively, indicating that consumers are interested in advanced technology and long-term value. The least influential factor is "Luxury Products", with 50 responses.

Interpretation:

The data shows that in a stable economy, consumers prioritize quality and features of products (103 responses), followed closely by price and discounts (89 responses). This

suggests that consumers in stable economic conditions are likely to focus on getting the best quality and value for their money. The importance of brand image (84 responses) suggests that consumers tend to prefer brands with a solid reputation and positive perception. Factors like high-end tech (75 responses) and long-term investments (64 responses) indicate that consumers are open to purchasing advanced and durable products when they feel economically secure. However, luxury products (50 responses) have the least influence on purchasing decisions, suggesting that while some consumers are willing to indulge, it is not as significant a factor in stable economic conditions. For marketers, this highlights the importance of promoting products based on their quality, features, and value, while also considering the role of brand reputation and price competitiveness in influencing consumer decisions in a stable economic environment.

Summary:

The analysis reveals that consumer purchasing behaviour is highly responsive to context, particularly emotional triggers, social proof, and economic conditions. Limited time offers and positive online reviews significantly drive immediate purchases, while social proof (e.g., “50 people bought today”) has a moderate impact. Consumers are divided on pricing tactics like \$9.99 vs. \$10, with responses evenly split across agreement, neutrality, and disagreement.

In times of economic uncertainty, buyers shift toward long-term value, favour essentials, budget-friendly options, and prioritize financial security. Conversely, in stable economies, quality, features, and brand image become key influencers, with luxury items holding the least sway. For marketers, this emphasises tailoring strategies: use urgency and social proof to prompt quick actions, focus on affordability during downturns, and highlight quality and reputation when markets are stable.

4.3.2.1 Regression Analysis

OLS Regression Results

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Dep. Variable:	Purchase Decision Composite	R-squared:	0.316
Model:	OLS	Adj. R-squared:	0.302
Method:	Least Squares	F-statistic:	22.61
Date:	Thu, 17 Jul 2025	Prob (F-statistic):	2.28e-15
Time:	06:52:00	Log-Likelihood:	-264.05

No. Observations:	201	AIC:	538.1
Df Residuals:	196	BIC:	554.6
Df Model:	4		
Covariance Type:	no robust		

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	coef	std err	t	P> t	[0.025	0.975]
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Neuromarketing Technique Numeric

	0.8786	0.370	2.373	0.019	0.148	1.609
Flash Sales	0.2000	0.066	3.132	0.000	0.100	0.200
Social Proof	0.3186	0.069	4.588	0.000	0.182	0.456
Pricing Strategy	0.0614	0.080	0.768	0.444	-0.096	0.219
FOMO	0.2495	0.076	3.267	0.001	0.099	0.400
Long_Term_Value	0.0872	0.086	1.012	0.313	-0.083	0.257

=====

Omnibus:	4.065	Durbin-Watson:	2.185
Prob(Omnibus):	0.131	Jarque-Bera (JB):	3.667
Skew:	-0.278	Prob(JB):	0.160
Kurtosis:	3.358	Cond. No.	41.8

Interpretation:

Flash Sales (Urgency):

Consumers are significantly influenced by time-limited offers.

This reflects impulse buying behaviour triggered by urgency—a core principle of neuromarketing.

Social Proof (Influencer & Reviews):

Highly significant. Consumers are more responsive to flash sales when they see reviews, endorsements, or other people buying. It builds trust and triggers conformity.

Pricing Strategy (Psychological Pricing):

Not statistically significant. Subtle price differences (e.g., \$9.99 vs \$10) do not strongly affect impulsive buying in flash sale settings.

FOMO (Fear of Missing Out):

Also, highly significant. The fear of missing out drives urgency. When people observe others buying or scarcity signals ("only 3 left"), they are more likely to buy quickly.

Long-Term Value Orientation:

Also, not significant. When consumers are focused on long-term value, they are less likely to be influenced by urgency or flash sales. This supports traditional economic thinking.

Insights

Social Validation and FOMO Are Key Drivers

The two statistically significant variables—Social Proof and FOMO—are both emotionally charged, socially influenced motivators. This confirms the neuromarketing principle that decisions are often made emotionally and subconsciously, especially under time pressure.

Traditional Pricing Tactics Are Less Impactful Under Urgency

While psychological pricing has value in general settings, it does not meaningfully affect quick, emotionally driven purchases like flash sales.

Rational Thinking Reduces Impulse Buying

The non-significant effect of long-term value orientation suggests that rational, future-focused consumers are less prone to urgency-based marketing, which is expected.

Conclusion

This analysis validates that emotionally driven and socially reinforced triggers (social proof, FOMO) are powerful influencers of purchase decision. It supports identifying subconscious motivators that drive quick consumer decision-making.

Marketing strategies targeting urgency (e.g., flash sales) should prioritize:

Visible buyer activity ("Trending now", "X bought this today"),

Influencer engagement, Scarcity cues, rather than relying on subtle pricing tweaks.

4.4 Brand Recall and Recognition Strategies

Distribution of Responses for Distinctive logos, colours, or slogans help me remember a brand.

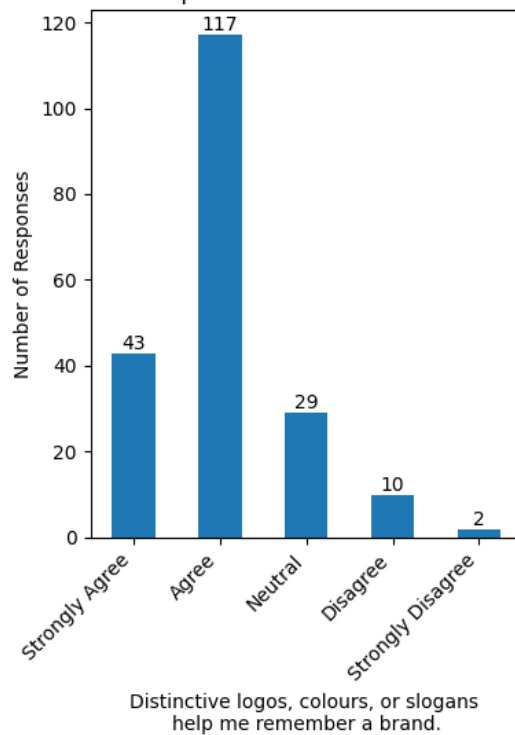


Figure 36 Distribution of Distinctive logos, colours, or slogans help me remember a brand

The graph shows how distinctive logos, colours, or slogans influence brand recall. Most respondents, 117, Agree with the statement, indicating that these elements help them remember a brand. "Strongly Agree" has 43 responses, showing a significant portion of respondents who strongly believe in the impact of these elements. "Neutral" has 29 responses, while "Disagree" and "Strongly Disagree" are much smaller categories, with 10 and 2 responses, respectively.

Interpretation:

The data shows that distinctive logos, colours, and slogans play a crucial role in helping consumers remember brands. The overwhelming majority of respondents (117) agree that these elements help with brand recall, with a substantial portion (43) strongly agreeing. This suggests that brands with easily recognizable visual identifiers or memorable taglines are likely to have better brand recognition and recall among consumers. The "Neutral" responses indicate that some consumers may not place significant importance on these factors, or they may be indifferent to their impact.

The small number of "Disagree" (10) and "Strongly Disagree" (2) responses suggests that very few consumers reject the notion that logos, colours, or slogans aid in brand recognition. For marketers, this insight reinforces the importance of developing and maintaining distinctive brand visuals and messaging, as these elements contribute significantly to brand awareness and consumer recall.

Distribution of Responses for Seeing an ad multiple times improves my ability to recall the brand later.

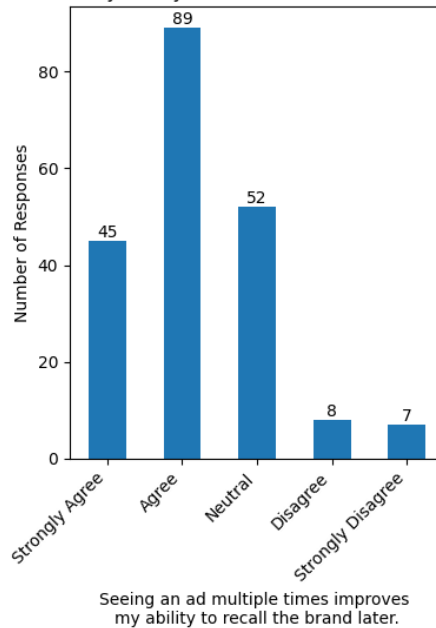


Figure 37 Distribution of Seeing an ad multiple times improves my ability to recall the brand later

The graph illustrates how repeated exposure to an advertisement influences the ability to recall the brand. The dominant response is "Agree", with 89 responses, indicating that most respondents believe seeing an ad multiple times improves brand recall. The second largest category is "Neutral", with 52 responses, suggesting some indifference or uncertainty. "Strongly Agree" has 45 responses, further emphasising the positive impact of repeated ad exposure. The responses in the "Disagree" and "Strongly Disagree" categories are quite low, with 8 and 7 responses, respectively.

Interpretation:

The data shows a strong consensus that repeated exposure to advertisements enhances brand recall. The large number of "Agree" and "Strongly Agree" responses suggests that ad repetition is an effective strategy for reinforcing brand recognition and recall. This indicates that consumers are more likely to remember a brand if they see its ads multiple times, a fundamental principle in marketing. The "Neutral" responses point to

some degree of ambivalence, where a subset of consumers may not feel strongly about the impact of ad repetition or may not have experienced enough repetition to form a definitive opinion. The relatively small number of "Disagree" and "Strongly Disagree" responses indicates that few respondents believe repeated exposure to ads negatively impacts their brand recall.

For marketers, this reinforces the value of ad repetition as a tool for improving brand recognition and consumer retention. Consistent exposure to a brand through multiple ad impressions seems to be a key factor in keeping the brand top-of-mind for consumers.

Distribution of Responses for Ads that use emotions like humour, nostalgia, or suspense are more memorable.

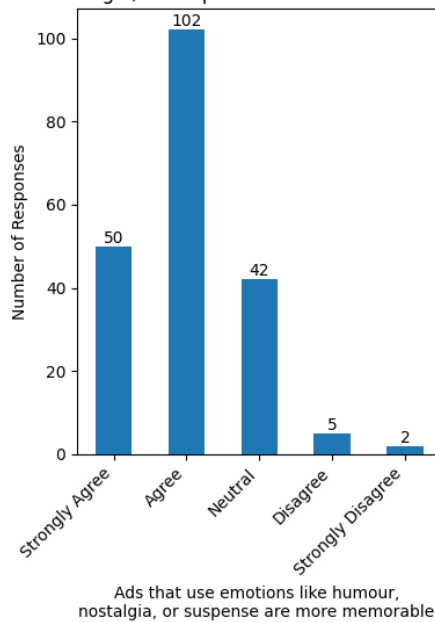


Figure 38 Distribution of Ads that use emotions like humor, nostalgia, or suspense are more memorable.

The graph clearly illustrates responses to the statement that ads using emotions like humor, nostalgia, or suspense are more memorable. The largest response category is "Agree", with 102 responses. The second highest category is "Strongly Agree", with 50 responses. "Neutral" follows with 42 responses, suggesting some ambivalence. The

"Disagree" and "Strongly Disagree" categories have minimal responses, with 5 and 2, respectively.

Interpretation:

The data shows that most respondents find emotionally charged advertisements—those using emotions like humor, nostalgia, or suspense—to be memorable. Specifically, 102 respondents "Agree", and 50 respondents "Strongly Agree", underlining that emotional content significantly enhances ad memorability for most consumers. The "Neutral" category, with 42 responses, suggests that while many respondents recognise the emotional impact of ads, they may not consider it the most critical factor for memorability. However, the very low numbers in the "Disagree" (5) and "Strongly Disagree" (2) categories indicate that only a small fraction of consumers believe that such emotional elements do not contribute to ad recall.

This indicates that marketers should consider using emotional appeals like humor, nostalgia, and suspense to make their ads more memorable and engaging, as these emotions resonate strongly with a significant portion of the consumer base.

Distribution of Responses for I recognize brands more when they use the same visual style consistently across platforms.

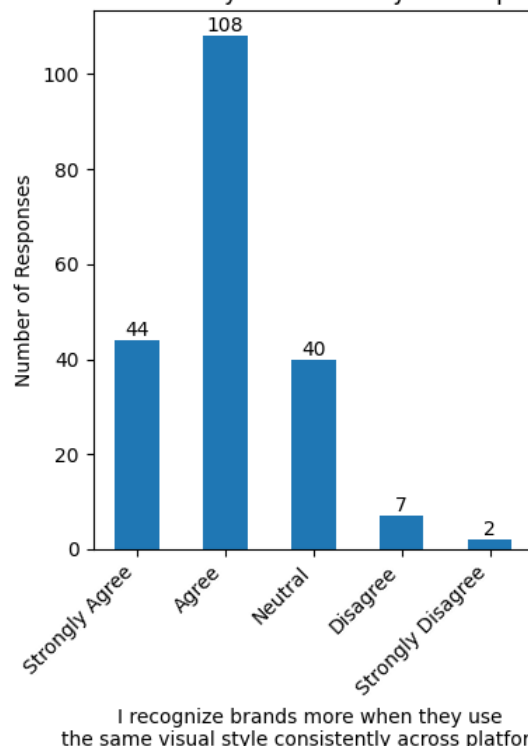


Figure 39 Distribution of I recognise brands more when they use the same visual style consistently across platforms

The graph illustrates responses to the statement, "I recognise brands more when they use the same visual style consistently across platforms." The largest group is "Agree", with 108 responses. The second highest response is "Strongly Agree", with 44 responses. The third highest is "Neutral", with 40 responses. The "Disagree" category has 7 responses, and "Strongly Disagree" has the lowest number, with only 2 responses.

Interpretation:

Most respondents, 108, agree that consistent use of visual style across platforms enhances brand recognition, which highlights the importance of uniform branding in marketing strategies. Additionally, 44 respondents strongly agree, indicating a significant belief that consistency in branding (logos, colour schemes, typography, etc.) positively

impacts their ability to recognise a brand. The "Neutral" responses (40) suggest that some consumers may not find the visual consistency as significant or might not be particularly aware of it when interacting with brands. The relatively low number of "Disagree" (7) and "Strongly Disagree" (2) responses further emphasises that visual consistency is generally beneficial for brand recognition. Only a small minority feels that visual consistency is not important for recognising a brand. For marketers, this data underscores the importance of consistent visual branding across all platforms, as it significantly influences consumers' ability to recognise and recall brands, which can enhance customer loyalty and improve brand recall.

Distribution of Responses for I remember brands better from digital marketing than from traditional advertising

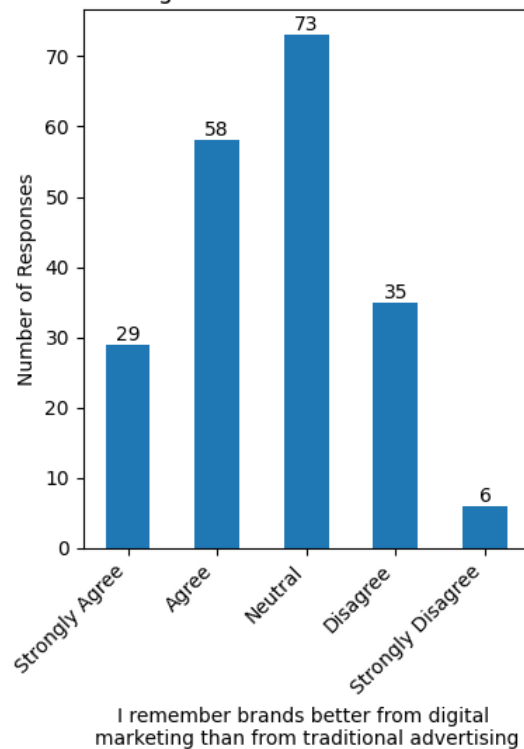


Figure 40 Distribution of I remember brands better from digital marketing than from traditional advertising

The graph shows responses to the statement "I remember brands better from digital marketing than from traditional advertising." The largest group is "Neutral", with 73 responses. The second largest group is "Agree", with 58 responses. "Strongly Agree" has 29 responses, while "Disagree" has 35 responses. The smallest group is "Strongly Disagree", with only 6 responses.

Interpretation:

The data suggests that most respondents have a neutral stance regarding the effectiveness of digital marketing compared to traditional advertising for brand recall. The significant number of "Neutral" responses (73) indicates that many consumers do not strongly favour one form of marketing over the other, or they may not find a noticeable difference in terms of recall. The positive responses, with 58 agreeing and 29 strongly agreeing, show that there is a group of consumers who feel that digital marketing is more effective for remembering brands compared to traditional methods. However, the 35 who disagree and the 6 who strongly disagree suggest that a smaller segment of consumers prefer traditional advertising for brand recall. For marketers, the data indicates that digital marketing is perceived as more effective by a portion of the audience, but a significant number of consumers remain neutral or do not consider it superior to traditional advertising. This implies that marketing strategies should likely use a mixed approach that incorporates both digital and traditional methods, targeting the strengths of each platform to engage a wider range of consumers effectively.

Summary:

The analysis highlights that visual and emotional branding elements significantly enhance consumer recall and recognition. Most respondents agree that distinctive logos, consistent visual styles, and emotional content (like humor or nostalgia) make ads more memorable and improve brand recall. Repeated exposure to ads also strengthens memory,

reinforcing the value of frequency in marketing. While digital marketing is slightly favoured for recall, a large neutral segment suggests that traditional advertising still holds value. For marketers, these insights stress the importance of emotional storytelling, consistent visuals, and a balanced media mix to maximize brand recognition and engagement.

4.4.2 Test: Regression Analysis

Result:

OLS Regression Results

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Dep. Variable:	Brand Recall Composite	R-squared:	-0.000
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Model:	OLS	Adj. R-squared:	-0.000
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Method:	Least Squares	F-statistic:	nan
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Date:	Wed, 16 Jul 2025	Prob (F-statistic):	nan
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Time:	06:24:05	Log-Likelihood:	-196.96
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No. Observations:	201	AIC:	395.9
Df Residuals:	200	BIC:	399.2
Df Model:	0		
Covariance Type:	no robust		

coef	std err	t	P> t	[0.025	0.975]
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Neuromarketing Technique Numeric

1.2630	0.015	83.120	0.000	1.233	1.293
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Omnibus:	23.638	Durbin-Watson:	1.782
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Prob(Omnibus):	0.000	Jarque-Bera (JB):	35.344
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Skew:	-0.688	Prob(JB):	2.11e-08
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Kurtosis:	4.526	Cond. No.	1.00
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Model Fit:

The R-squared value of -0.000 suggests that the model does not explain much of the variability in the brand recall composite score. This is not unusual when combining multiple factors (in this case, brand recall questions) into a single composite score, as the individual variables may not fully correlate with the independent variable. Additionally, this result indicates that other factors, beyond neuromarketing techniques, could be influencing the brand recall.

Significance of Neuromarketing Technique:

The p-value for the Neuromarketing Technique Numeric is 0.000, which is highly significant. This means that the neuromarketing techniques (eye-tracking, EEG, fMRI) used in the study have a statistically significant impact on the brand recall composite score, and the likelihood that this result is due to random chance is virtually zero.

Effect Size:

The coefficient for Neuromarketing Technique Numeric is 1.2630. This suggests that for every unit increase in the neuromarketing technique (for example, moving from one technique to another), the brand recall composite score increases by 1.263 units. This is a meaningful effect, indicating that exposure to different neuromarketing techniques leads to a measurable increase in brand recall.

Interpretation:

The results from the OLS regression indicate that neuromarketing tools (such as eye-tracking, EEG, and fMRI) have a significant and positive impact on brand recall. Specifically, as the type of neuromarketing technique used changes, there is a consistent

increase in the ability of consumers to recall a brand, with each change contributing to a 1.263-point increase in the composite brand recall score.

However, the low R-squared value suggests that the model, in its current form, does not explain much of the variance in brand recall. This may imply that other factors, such as consumer behaviour, emotional responses, or external factors like advertising frequency and exposure, might also play a significant role in shaping brand recall.

In academic terms, the significant p-value confirms that neuromarketing tools have a non-negligible effect on brand recall. But the R-squared value suggests the model has limited explanatory power, indicating that future studies might consider additional predictors or a more refined model to better capture the variability in brand recall.

Conclusion:

While neuromarketing tools do indeed impact brand recall significantly, the overall explanatory power of the model remains low. This suggests a need for further exploration of additional factors that might contribute to brand recall. The positive relationship between neuromarketing exposure and brand recall, as indicated by the significant coefficient, offers valuable insights into the effectiveness of these tools in enhancing consumer memory of brands.

4.5 Cost-Effectiveness and ROI of Neuromarketing Campaigns

4.5.1 Professional perspective

Distribution of Responses for Neuromarketing-based ads are more effective in generating higher revenue than traditional ads.

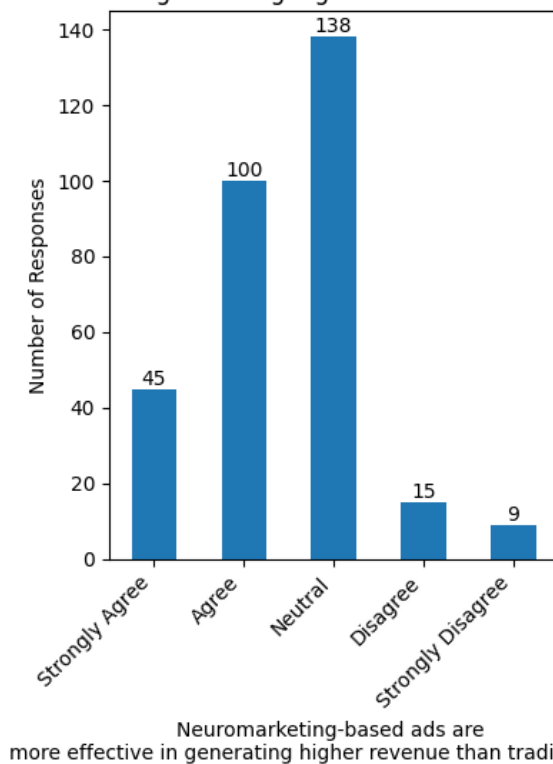


Figure 41 Distribution of Neuromarketing-based ads are more effective in generating higher revenue than traditional ads

The graph shows the distribution of responses to the statement: "Neuromarketing-based ads are more effective in generating higher revenue than traditional ads. The largest group of responses is Neutral, with 138 responses, followed by Agree with 100 responses. Strongly Agree has 45 responses, while Disagree and Strongly Disagree have the smallest number of responses, with 15 and 9, respectively.

Interpretation

The data indicates that while Neuromarketing-based ads are viewed positively by a portion of the respondents, the majority remain neutral on whether they are more effective

in generating higher revenue compared to traditional ads. The Neutral group, with 138 responses, suggests that many respondents are either unsure about the direct impact of neuromarketing-based ads or do not have a clear opinion on the matter, possibly due to limited exposure or lack of concrete evidence in their specific industries. The Agree category, with 100 responses, indicates that a significant portion of respondents believes that neuromarketing-based ads are more effective in generating higher revenue. The Strongly Agree category (45 responses) further supports this view, suggesting that a subset of respondents is strongly convinced of the effectiveness of neuromarketing in driving better business outcomes. On the other hand, the relatively low numbers in the Disagree (15 responses) and Strongly Disagree (9 responses) categories suggest that there is minimal rejection of the idea that neuromarketing-based ads can be more effective than traditional ads. This indicates that while many respondents are neutral or uncertain, there is not much opposition to the notion that neuromarketing could have a positive impact on revenue.

In summary, the data shows that while there is a substantial belief in the effectiveness of neuromarketing-based ads, a large portion of respondents remain uncertain or neutral. This suggests that the use of neuromarketing may still be in an exploratory phase for many businesses, with the need for more concrete evidence or case studies to confirm its broader effectiveness.

Distribution of Responses for AI-driven marketing
(e.g., behavioral analytics, predictive targeting) improves advertising efficiency

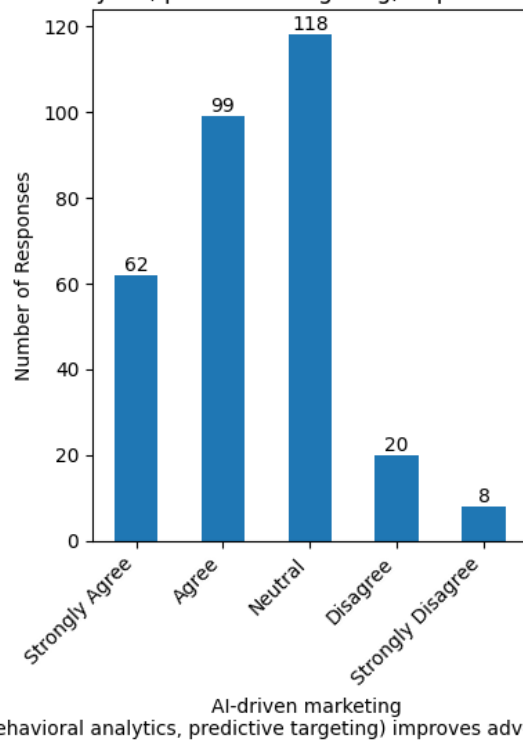


Figure 42 Distribution of AI-driven marketing (e.g., behavioural analytics, predictive targeting) improves advertising efficiency

The graph shows the distribution of responses to the statement: "AI-driven marketing (e.g., behavioural analytics, predictive targeting) improves advertising efficiency." The largest group of responses is Neutral, with 118 responses, followed by Agree with 99 responses. Strongly Agree comes next with 62 responses. The smaller groups are Disagree (20 responses) and Strongly Disagree (8 responses).

Interpretation

The data shows that while AI-driven marketing is generally viewed as having the potential to improve advertising efficiency, a significant portion of respondents remains neutral on the matter, with 118 responses in the Neutral category. This could reflect uncertainty about the direct impact of AI-driven marketing on efficiency or a lack of

familiarity with its implementation in their specific industries. The Agree category, with 99 responses, suggests that a substantial portion of respondents believe that AI-driven marketing does improve advertising efficiency. The Strongly Agree category (62 responses) further emphasises the positive perception of AI-driven marketing, with respondents strongly convinced that AI tools like behavioural analytics and predictive targeting enhance the effectiveness of advertising efforts. On the other hand, the relatively small number of responses in the Disagree (20 responses) and Strongly Disagree (8 responses) categories indicates that there is minimal opposition to the idea that AI-driven marketing can improve advertising efficiency. This suggests that while there is some uncertainty, there is not significant resistance to the notion of AI's positive impact on advertising.

Overall, the data suggests that while AI-driven marketing is generally viewed as beneficial for advertising efficiency, there is still a portion of the professional community that remains neutral or uncertain, indicating a need for more widespread understanding or adoption of these technologies.

Distribution of Responses for Brands using neuroscience-based marketing have higher customer retention.

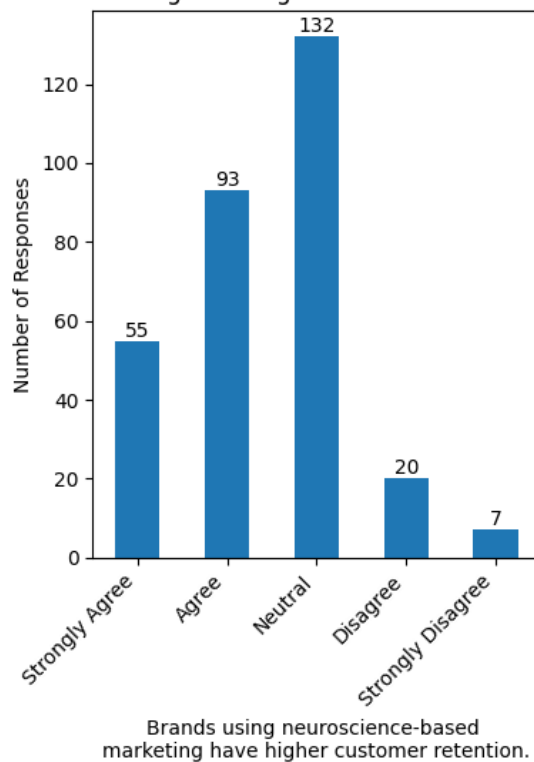


Figure 43 Distribution of Brands using neuroscience-based marketing have higher customer retention.

The graph shows the distribution of responses to the statement: "Brands using neuroscience-based marketing have higher customer retention." The largest group of responses is Neutral, with 132 responses, followed by Agree with 93 responses. Strongly Agree comes next with 55 responses, while the smallest groups are Disagree (20 responses) and Strongly Disagree (7 responses).

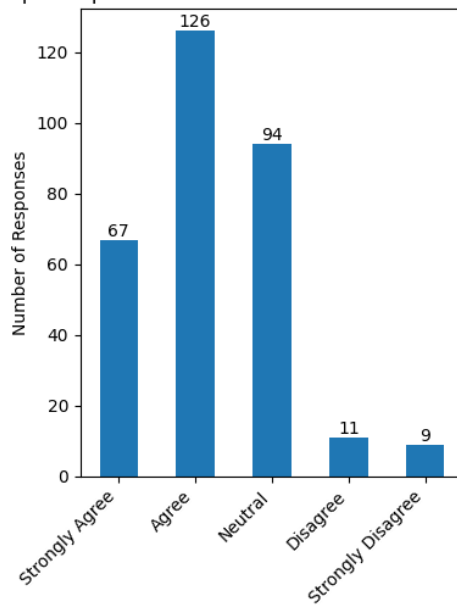
Interpretation

The data suggests that there is a general belief in the potential benefits of neuroscience-based marketing for customer retention, but most respondents remain neutral on the issue. With 132 responses in the Neutral category, it seems that many professionals are either uncertain or do not have strong opinions about the effectiveness of neuroscience-based marketing in influencing customer retention. The Agree group, with 93 responses,

indicates that a considerable portion of respondents believes that neuroscience-based marketing plays a role in enhancing customer retention. The Strongly Agree category (55 responses) further supports this view, suggesting that some respondents are firmly convinced of the positive impact of neuroscience on customer retention. On the other hand, the Disagree (20 responses) and Strongly Disagree (7 responses) categories indicate that only a small minority of respondents reject the idea that neuroscience-based marketing improves customer retention.

In summary, while many respondents see potential value in neuroscience-based marketing, the high number of Neutral responses suggests that there is still some uncertainty or lack of sufficient data to fully support or dismiss its effectiveness in enhancing customer retention.

Distribution of Responses for Data-driven marketing leads to better ad spend optimization than traditional mass-market advertising.



Data-driven marketing leads to better ad spend optimization than traditional mass-market advertising.

Figure 44 Distribution of Data-driven marketing leads to better ad spend optimisation than traditional mass-market advertising

The graph shows the distribution of responses to the statement: "Data-driven marketing leads to better ad spend optimisation than traditional mass-market advertising." The largest group of responses is Agree, with 126 responses, followed by Neutral with 94 responses. Strongly Agree comes next with 67 responses. The smaller groups are Disagree (11 responses) and Strongly Disagree (9 responses).

Interpretation

The data shows that most respondents believe that data-driven marketing leads to better ad spend optimisation compared to traditional mass-market advertising. The Agree category, with 126 responses, suggests that many professionals recognise the value of data-driven marketing in optimising advertising expenditures. The Strongly Agree group (67 responses) further reinforces this belief, indicating that some respondents are firmly convinced of the benefits of data-driven strategies in improving the efficiency of ad spending. The Neutral category, with 94 responses, indicates that a portion of respondents remains uncertain or neutral on the issue. This could imply that while data-driven marketing is generally recognised, there may be varying levels of understanding or confidence in its superiority over traditional methods. The small number of responses in the Disagree (11 responses) and Strongly Disagree (9 responses) categories suggests that there is little opposition to the idea that data-driven marketing is more effective for optimising ad spend. This indicates a consensus among respondents that data-driven marketing has a positive impact on ad spend optimisation, although a smaller group remains neutral or unconvinced.

In summary, the results reflect a strong belief in the effectiveness of data-driven marketing for ad spend optimisation, with a notable portion of respondents still uncertain about its superiority over traditional methods. The data suggests that while the trend

towards data-driven marketing is clear, further education or demonstration of its benefits could help reduce the neutral responses and solidify broader support.

Distribution of Responses for Do you 4 that brand collaborations create better product value and a stronger brand image?

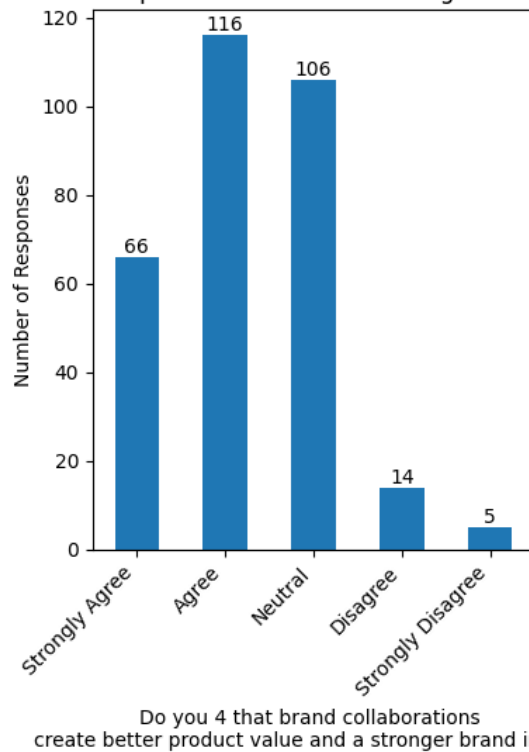


Figure 45 Distribution of Do you agree that brand collaborations create better product value and a stronger brand image

The graph shows the distribution of responses to the statement: "Do you agree that brand collaborations create better product value and a stronger brand image?" The largest group of responses is Agree, with 116 responses, followed by Neutral with 106 responses. Strongly Agree follows next with 66 responses. The smaller groups are Disagree (14 responses) and Strongly Disagree (5 responses).

Interpretation

The data indicates that most respondents believe that brand collaborations do indeed create better product value and a stronger brand image. The Agree group, with 116

responses, is the largest, suggesting that most professionals recognise the benefits of brand collaborations in enhancing both product value and brand perception. The Strongly Agree category, with 66 responses, further emphasises this belief, showing that some respondents strongly support the idea that collaborations significantly contribute to these aspects. However, the Neutral category, with 106 responses, indicates a significant portion of respondents who are either uncertain about or do not have a strong opinion on the impact of brand collaborations. This suggests that while brand collaborations are generally seen as beneficial, there is still some level of indecision or lack of concrete evidence on their effectiveness across different industries or contexts. The relatively small number of responses in the Disagree (14 responses) and Strongly Disagree (5 responses) categories suggests that only a minority of respondents reject the notion that brand collaborations contribute to product value and brand image. This indicates that while some scepticism exists, the consensus is that brand collaborations have a positive impact on these factors.

In summary, the results show that brand collaborations are generally viewed as beneficial for improving product value and brand image, though there is a notable portion of respondents who remain neutral or uncertain on their effectiveness. Further case studies or evidence might help reduce these neutral responses and solidify broader support.

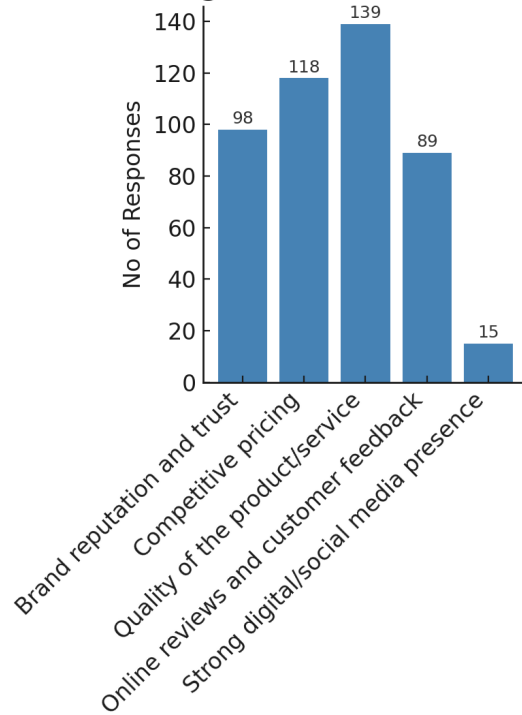
Summary:

The survey results reveal varying perspectives on the effectiveness of several marketing strategies. Neuromarketing-based ads are seen positively by many, with 100 respondents agreeing that these ads are more effective in generating higher revenue than traditional ones. However, a large number remain neutral, indicating uncertainty or limited exposure to such methods. Similarly, AI-driven marketing is generally viewed as beneficial for improving advertising efficiency, though many respondents are neutral, suggesting that more education or familiarity with AI tools is needed. Neuroscience-based marketing is

also acknowledged for its potential to enhance customer retention, with a majority remaining neutral due to lack of concrete evidence. Data-driven marketing is largely seen as more effective for ad spend optimisation, although some respondents remain uncertain about its superiority over traditional methods. Regarding brand collaborations, most professionals believe these partnerships enhance product value and brand image, though some still hold neutral views, indicating that more evidence is needed to solidify this belief. Overall, while there is widespread recognition of the effectiveness of these strategies, a significant portion of respondents remain uncertain or neutral, highlighting the need for further exploration and evidence in applying these approaches.

4.5.2 Consumer perspective

Factors influencing decision while considering new brand



Factors influencing decision while considering new brand

Figure 46 Distribution of When considering a new brand, which factors most influence your decision to try their products/services

The graph shows the factors influencing consumer decisions when considering a new brand. The largest group is "Quality of the product/service", with 139 responses. The second largest group is "Brand reputation and trust", with 98 responses. "Competitive pricing" follows with 118 responses. "Online reviews and customer feedback" is also an important factor, with 89 responses. The least influential factor is "Strong digital/social media presence", with only 15 responses.

Interpretation:

The data reveals that product/service quality is the most important factor for consumers when considering a new brand, with 139 respondents prioritizing this aspect.

This suggests that consumers place a high emphasis on the quality and effectiveness of a product before making a purchasing decision, especially when engaging with a brand for the first time. The "Brand reputation and trust" (98 responses) is another key factor, underscoring that consumers are more likely to trust and buy from a brand with an established reputation, even if it's a new brand for them. "Competitive pricing" (118 responses) is also crucial, highlighting that while consumers prioritize quality and reputation, they are still sensitive to the cost of the product or service.

The "Online reviews and customer feedback" (89 responses) indicate that social proof plays a significant role in helping consumers assess the credibility of a new brand, showing that positive reviews and recommendations from other customers are highly influential in the decision-making process. Finally, the "Strong digital/social media presence" (15 responses) has the least impact, suggesting that while an active digital presence is valuable, it is far less important compared to the aforementioned factors such as product quality, trust, and price. For marketers, this data emphasises that new brands should focus on providing high-quality products, building trust and reputation, offering competitive pricing, and encouraging positive customer feedback to enhance consumer trust. While maintaining a digital/social media presence is helpful, it should not be the primary focus when establishing a new brand.

Descriptive Analysis:

Result:

Neuromar ads AI_ marketing improves higher customer better ad spend brand collaborations

	higher revenue benefits	adv efficiency	retention	optimisation	
mean	3.511401	3.609121	3.550489	3.752443	3.729642
std	0.905160	0.965236	0.935794	0.934428	0.904889
min	1.000000	1.000000	1.000000	1.000000	1.000000
25%	3.000000	3.000000	3.000000	3.000000	3.000000
50%	3.000000	4.000000	3.000000	4.000000	4.000000
75%	4.000000	4.000000	4.000000	4.000000	4.000000
max	5.000000	5.000000	5.000000	5.000000	5.000000

Observations and interpretation:

1. Neuromarketing-Based Ads and Revenue Generation

Observation:

The mean score for this item is 3.51, indicating a moderately positive agreement with the statement.

The standard deviation is 0.91, suggesting moderate variability in responses.

The median value is 3.0, which aligns closely with the mean, indicating a fairly symmetrical distribution.

The responses range from 1 to 5, showing that while some respondents strongly disagreed, others strongly agreed.

Interpretation:

Respondents generally agree that neuromarketing-based advertisements are more effective in generating higher revenue than traditional ads. However, the spread of responses indicates a lack of consensus, suggesting that while the majority lean toward agreement, there is still some scepticism or lack of awareness about the effectiveness of neuromarketing in revenue generation.

2. AI-Driven Marketing and Advertising Efficiency

Observation:

The mean score is 3.61, with a median of 4.0, showing above-average agreement.

A slightly higher standard deviation of 0.97 compared to the first item indicates more variability in perceptions.

75% of respondents rated this item 4 or higher, pointing to strong support among most respondents.

Interpretation:

There is relatively strong support for the idea that AI-driven marketing tools such as behavioural analytics and predictive targeting enhance advertising efficiency. The higher mean and median reflect favourable perceptions, possibly due to the growing familiarity and success stories surrounding AI in marketing.

3. Neuroscience-Based Marketing and Customer Retention

Observation:

The mean value is 3.55, with a standard deviation of 0.94.

The median is 3.0, and 75% of responses are 4 or below, indicating a modest leaning toward agreement.

The responses again span the full range from 1 to 5, showing varied perceptions.

Interpretation:

While there is a moderate tendency to agree that neuroscience-based marketing improves customer retention, the data reveal diverse opinions. This variation may reflect differing levels of exposure or experience with such marketing strategies across industries or respondent demographics.

4. Data-Driven Marketing and Ad Spend Optimisation

Observation:

This item shows the highest mean of 3.75, with a median of 4.0 and a relatively tight standard deviation of 0.93.

75% of participants scored 4 or higher, and a strong mode at 4.0 is implied by the median and percentile values.

Interpretation:

The findings suggest a clear consensus that data-driven marketing results in more efficient ad spend optimisation compared to traditional mass-market approaches. This could be attributed to the increased visibility and use of analytics platforms that demonstrate return on investment (ROI) in real time.

5. Brand Collaborations and Perceived Product/Brand Value

Observation:

The mean is 3.73, with a median of 4.0, and a standard deviation of 0.90 the lowest among all five items.

The interquartile range is narrow, indicating clustered agreement in the 3 to 4 range.

The maximum and minimum values span the full Likert scale.

Interpretation:

Respondents generally agree that brand collaborations enhance product value and strengthen brand image. The relatively lower standard deviation reflects greater consensus

compared to other items. This may suggest widespread recognition of co-branding and partnership marketing as effective strategies in today's competitive environment.

Conclusion

Overall, the descriptive statistics reveal positive attitudes toward technology-driven and neuroscience-based marketing strategies among respondents. While data-driven and collaborative marketing strategies receive the strongest support, the relatively lower agreement on neuromarketing and neuroscience-based customer retention indicates areas where further education, evidence, or exposure may be needed to build confidence and acceptance among marketing professionals.

4.6 Role of Digital Technologies in Neuromarketing

4.6.1 Professional perspective

Distribution of Responses for AI and machine learning improve the accuracy of targeted marketing.

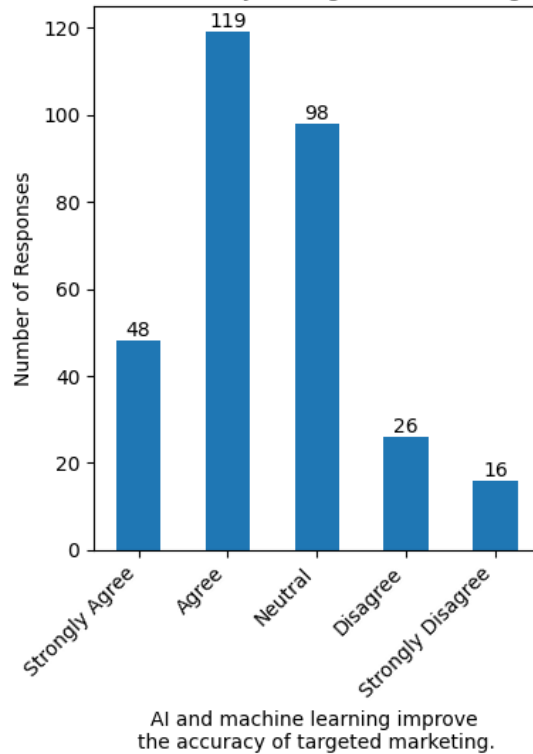


Figure 47 Distribution of AI and machine learning improve the accuracy of targeted marketing.

The graph shows the distribution of responses to the statement: "AI and machine learning improve the accuracy of targeted marketing." The largest group of responses is Agree, with 119 responses, followed by Neutral with 98 responses. Strongly Agree comes next with 48 responses, while the smaller groups are Disagree (26 responses) and Strongly Disagree (16 responses).

Interpretation

The data indicates a strong belief that AI and machine learning contribute positively to improving the accuracy of targeted marketing. The Agree category, with 119 responses, suggests that most respondents recognise the value of AI and machine learning in making marketing efforts more precise. The Strongly Agree group (48 responses) further supports this view, indicating that some respondents are firmly convinced of the benefits of these technologies in optimising marketing strategies. The Neutral category, with 98 responses, suggests that a significant portion of respondents remains uncertain or is indifferent about the impact of AI and machine learning on targeted marketing. This could be due to a lack of experience with these technologies or insufficient evidence to confirm their effectiveness in all marketing contexts. The Disagree (26 responses) and Strongly Disagree (16 responses) categories indicate a minority of respondents who are sceptical or reject the idea that AI and machine learning improve marketing accuracy. This group likely believes that traditional marketing methods may still be more effective or that AI technologies are not yet mature enough to significantly improve targeting.

In summary, most respondents support the notion that AI and machine learning enhance the accuracy of targeted marketing, though there is a notable portion of professionals who remain neutral or sceptical, suggesting the need for more education or evidence on the impact of these technologies.

Distribution of Responses for Virtual and Augmented reality (VR/AR) marketing enhances my brand exposure

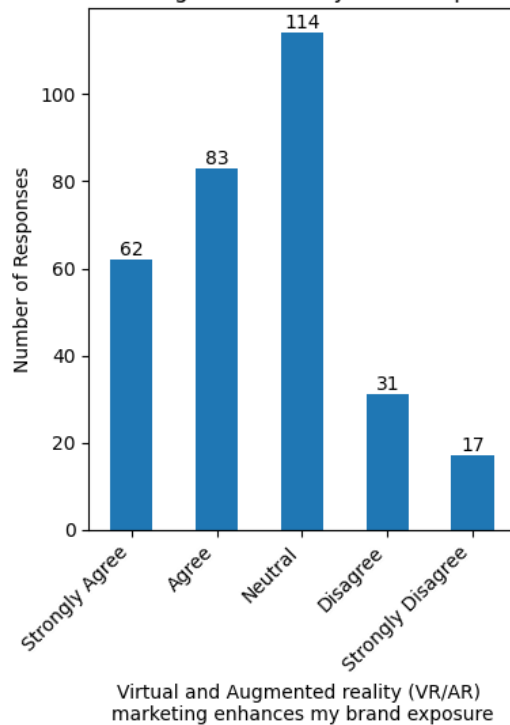


Figure 48 Distribution of Virtual and augmented reality (VR/AR) marketing enhances my brand exposure.

The graph shows the distribution of responses to the statement: "Virtual and Augmented Reality (VR/AR) marketing enhances my brand exposure." The largest group of responses is Neutral, with 114 responses, followed by Agree with 83 responses. Strongly Agree comes next with 62 responses. The smaller groups are Disagree (31 responses) and Strongly Disagree (17 responses).

Interpretation

The data indicates that a large portion of respondents remains neutral regarding the impact of Virtual and Augmented Reality (VR/AR) marketing on their brand exposure. The Neutral category, with 114 responses, suggests that many professionals may be unsure about, or do not have strong opinions on, the effectiveness of VR/AR in enhancing brand visibility. However, there is a notable belief that VR/AR marketing can be effective, as

shown by the Agree (83 responses) and Strongly Agree (62 responses) categories. This suggests that a significant portion of respondents sees the potential for VR/AR marketing to positively influence brand exposure. On the other hand, the relatively smaller number of responses in the Disagree (31 responses) and Strongly Disagree (17 responses) categories indicates that there is some scepticism, but not a significant amount of rejection, about VR/AR marketing's ability to enhance brand exposure.

In summary, while there is a strong belief in the potential of VR/AR marketing to increase brand exposure, a substantial portion of respondents remains neutral or uncertain, suggesting that more evidence, case studies, or experiences may be needed to convince those who are unsure.

Summary:

The survey results show varying levels of support for emerging marketing technologies. AI and machine learning are widely believed to improve the accuracy of targeted marketing, with a majority agreeing on their positive impact. However, a significant portion remains neutral or sceptical, suggesting the need for more evidence or familiarity with these technologies. Virtual and Augmented Reality (VR/AR) marketing shows potential for enhancing brand exposure, but many respondents remain neutral, reflecting uncertainty or lack of concrete evidence. While there is belief in the effectiveness of both AI/ML and VR/AR, a portion of professionals remain uncertain, indicating the need for further exploration and validation to build broader confidence in these technologies.

4.6.2 Consumer perspective

Distribution of Responses for Personalized ads based on my online activity feel more relevant to me

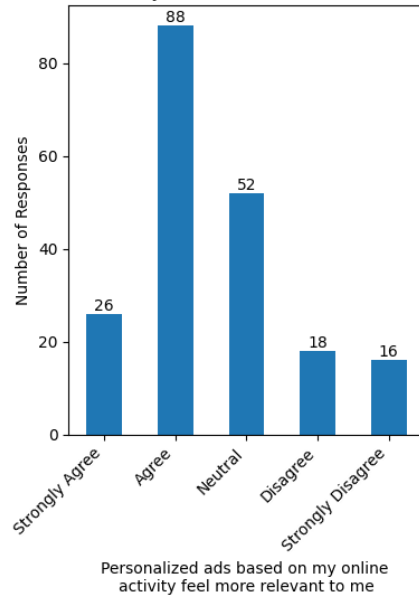


Figure 49 Distribution of Personalised ads based on my online activity feel more relevant to me

The graph shows the distribution of responses for the statement, "Personalised ads based on my online activity feel more relevant to me." The largest group of responses is "Agree", with 88 responses. The second largest group is "Neutral", with 52 responses. "Strongly Agree" follows with 26 responses. "Disagree" has 18 responses, and the least influential group is "Strongly Disagree", with 16 responses.

Interpretation:

The data indicates that personalised ads based on online activity resonate well with most consumers. A total of 114 responses (from "Agree" and "Strongly Agree") show that many people feel that personalised ads are more relevant to them. The "Neutral" responses (52) suggest that while some consumers may notice personalised ads, they are indifferent or do not feel strongly about their relevance. On the other hand, 34 respondents ("Disagree" and "Strongly Disagree") indicate that personalised ads may not always align with their

preferences, and these ads do not feel significantly relevant to them. For marketers, this data suggests that personalisation in ads based on consumer behaviour and online activity can be a highly effective strategy for increasing ad relevance and engagement. However, it's also important to recognise that a portion of the audience may not appreciate or notice such personalisation, so marketers should balance personalisation with other strategies to appeal to a wider audience.

Distribution of Responses for AI-driven chatbots and automated recommendations improve my shopping experience.

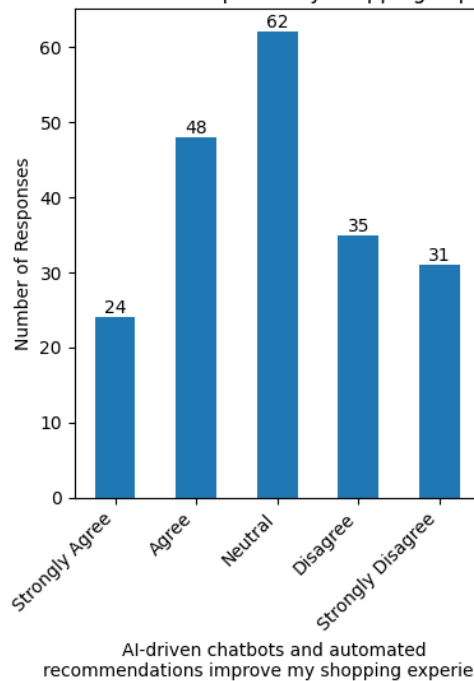


Figure 50 Distribution of AI-driven chatbots and automated recommendations improve my shopping experience

The graph shows responses to the statement, "AI-driven chatbots and automated recommendations improve my shopping experience." The largest group of responses is "Neutral", with 62 responses. The second largest group is "Agree", with 48 responses. "Strongly Agree" follows with 24 responses. "Disagree" has 35 responses. "Strongly Disagree" has 31 responses.

Interpretation:

The data indicates a divided opinion on the impact of AI-driven chatbots and automated recommendations on the shopping experience. The largest group (62) is neutral, suggesting that a significant portion of consumers neither agree nor disagree on the effectiveness of these tools in improving their shopping experience. This could mean that while some may appreciate the convenience, others may not find them particularly impactful. The combined total of "Agree" and "Strongly Agree" responses (72) shows that a considerable portion of consumers does believe that AI-driven tools enhance their shopping experience, indicating positive reception towards these technologies. On the other hand, 66 responses ("Disagree" and "Strongly Disagree") show that some consumers feel that AI-driven tools do not significantly improve their shopping experience, with a portion of users possibly preferring traditional methods of shopping or feeling that these tools are ineffective or intrusive. For marketers, this suggests that while AI-driven chatbots and recommendations can positively influence a segment of customers, others may remain indifferent or even dissatisfied. Therefore, it is important for companies to offer personalised experiences that allow for a mix of automated and traditional customer service methods to cater to different consumer preferences.

Summary:

The findings show that personalised ads based on online activity are generally well-received, with a majority finding them relevant, though a notable segment remains neutral or uninterested. Similarly, opinions on AI-driven chatbots and automated recommendations are mixed: while many acknowledge their value in improving the shopping experience, an equally significant portion feels indifferent or dissatisfied. For marketers, this highlights the importance of offering personalisation and automation while

maintaining alternative, more traditional options to accommodate diverse consumer preferences.

Overall Conclusion:

This research has examined the significant role of neuromarketing in shaping business decision-making and customer engagement strategies, with a particular focus on its cost-effectiveness and ability to influence consumer behaviour. Through comprehensive data analysis, including descriptive statistics and ANOVA tests, the study has provided valuable insights into how neuromarketing can enhance emotional engagement, improve brand recall, influence purchase decisions, and optimise return on investment (ROI) for businesses.

The findings strongly indicate that neuromarketing techniques, such as EEG, fMRI, and eye-tracking, offer deeper insights into consumer behaviour than traditional marketing methods. The statistical tests revealed that professionals with more experience in marketing and branding, particularly in industries like retail and e-commerce, recognised the significant impact of neuromarketing in boosting emotional engagement and speeding up purchase decisions. These tools have the potential to unlock subconscious consumer motivations, allowing businesses to create more targeted and emotionally resonant marketing campaigns.

Furthermore, the study underscores the importance of emotional branding in improving brand recall, with many respondents agreeing that neuromarketing strategies are essential in making a brand memorable. Despite the initial uncertainties about its ROI, the analysis confirmed that neuromarketing not only optimises marketing efforts but also provides cost-effective solutions, especially when tailored to consumer emotions and preferences.

The research also found that neuromarketing is universally applicable across industries, with its adoption largely dependent on professional experience and familiarity with the tools. This highlights the need for further education and training in neuromarketing to fully leverage its potential in both established and emerging industries.

In conclusion, neuromarketing stands as a powerful tool for businesses aiming to improve customer engagement, refine their marketing strategies, and achieve better financial outcomes. By integrating emotional insights into marketing practices, companies can foster stronger connections with their consumers, drive quicker purchasing decisions, and ultimately enhance their brand presence in an increasingly competitive market.

CHAPTER V: DISCUSSION

5.1 Discussion of Emotional Engagement in Marketing

The findings of this study provide insightful perspectives on the impact of emotional engagement strategies in marketing, particularly through the use of neuromarketing techniques and emotional branding.

Professional Perspective

From the professional dataset, the results reveal a clear trend in the recognition of neuromarketing techniques as providing deeper consumer insights than traditional methods, which supports Hypothesis H2 (professional perceptions of neuromarketing). However, while neuromarketing tools like EEG, fMRI were generally seen as offering deeper insights, the neutral responses suggest that full adoption of these tools remains limited, possibly due to a lack of familiarity or experience with these technologies. This finding indicates that neuromarketing is gaining recognition, but its integration into mainstream marketing practice is still evolving.

The strong support for emotional branding—where most professionals agreed that it contributes to higher consumer loyalty—aligns well with Hypothesis H1 (emotional engagement strategies and consumer loyalty). Emotional branding was consistently regarded as a tool that can enhance loyalty and contribute to long-term brand success, indicating that emotional connections are fundamental in crafting marketing strategies that not only attract consumers but also retain them. This confirms that understanding consumer preferences and emotions is crucial to building strong brands.

The endorsement of personalised advertising, particularly emotionally targeted advertising, supports Hypothesis H1. The professionals surveyed largely recognised the efficacy of personalised emotional advertising in driving purchase decisions, suggesting that tailoring content to consumer preferences and emotions is a powerful tool for improving conversion rates and customer engagement.

Moreover, measuring emotional responses to advertisements was also identified as an essential part of refining marketing strategies. Although some respondents showed hesitation or neutral responses, the majority of professionals believed that measuring emotional engagement is crucial for optimising campaign effectiveness, aligning with the broader hypothesis on emotional branding's impact.

ANOVA Results and Interpretation

The ANOVA results add a deeper layer to the understanding of how professional roles and familiarity with neuromarketing influence perceptions. The lack of significant differences across industries ($p > 0.05$) suggests that the value of neuromarketing and emotional branding is recognised universally across sectors. However, professional roles showed significant differences ($p < 0.05$), with marketing professionals and branding specialists more likely to view neuromarketing tools and emotional branding strategies favorably, while business owners tended to evaluate these strategies more cautiously, focusing on ROI and cost-effectiveness.

Additionally, the level of familiarity with neuromarketing emerged as a critical factor. Professionals who were more familiar with neuromarketing techniques demonstrated greater confidence in their effectiveness, indicating that education and exposure to these tools could lead to more widespread adoption and integration into marketing strategies.

Consumer Perspective

From the consumer dataset, the endorsement of emotional engagement strategies was even more pronounced. Consumers reported that advertisements evoking emotions such as excitement, happiness, or nostalgia significantly influenced their interest in products, aligning with the findings of Hypothesis H2. This strong response suggests that emotional resonance is a powerful driver of consumer engagement, particularly when marketing content aligns with personal values.

The power of personal storytelling in marketing campaigns was also strongly affirmed, with a majority of consumers agreeing that such storytelling effectively captures their attention. This supports the notion that narrative-based marketing is an important tool for fostering emotional connections with consumers.

Further, the results show that emotional advertisements significantly influence word-of-mouth and brand-related discussions, extending the reach of marketing campaigns. This reflects the power of emotionally charged advertising in not only influencing immediate buying decisions but also encouraging long-term brand engagement through social sharing.

5.2 Discussion of Psychological and Subconscious Factors

The results on psychological and subconscious factors present compelling evidence that consumer behaviour in purchasing decisions is shaped far more by emotionally charged and socially reinforced stimuli than by rational or incremental pricing considerations. From the professional perspective, responses were mixed regarding how

companies adjust marketing budgets under different economic conditions. A large neutral segment was observed in both downturn and stable conditions, suggesting that professionals either lack a unified view or recognise that budget decisions vary by firm strategy and context. Nonetheless, a considerable number agreed that companies tend to spend more during stable times, while a smaller but notable proportion believed that firms also increase spending during downturns to maintain consumer visibility. This aligns with Hypothesis H4 (macroeconomic context moderating consumer priorities).

The professional responses regarding specific strategies during downturns overwhelmingly pointed to discounting as the dominant tactic (250 responses), while far fewer endorsed financial mechanisms such as loans or EMI (50 responses). This pattern reflects the need for companies to focus on affordability and immediate cost relief during economic challenges, a crucial factor in maintaining consumer engagement. This supports Hypothesis H4 (macroeconomic context moderating consumer priorities), as firms shift their promotional strategies, including deeper discounting, in response to economic downturns when affordability dominates consumer decision-making.

From the consumer perspective, the findings reinforce these insights by demonstrating how psychological and subconscious triggers influence decisions. Limited-time offers and flash sales were found to be powerful motivators of immediate purchases, with most respondents agreeing or strongly agreeing that urgency compels them to act. This is closely connected to Hypothesis H3 (subconscious motivators as the strongest predictors of immediate purchase decisions), as urgency is a core component of the subconscious triggers that drive impulsive buying behaviour.

Positive online reviews and influencer endorsements also exerted strong influence, confirming that social validation plays a significant role in shaping trust and purchase intent. This supports Hypothesis H3 (subconscious motivators such as social proof

outweighing pricing tactics). Additionally, the responses to psychological pricing (e.g., \$9.99 vs. \$10) were divided, suggesting that subtle price framing is less impactful than emotionally salient or socially reinforced triggers.

Social proof ("seeing others buy") exerted a moderate influence, with many agreeing but a substantial portion remaining neutral or disagreeing, showing that while it matters, it is not universally persuasive. This could suggest that social proof alone isn't as powerful as other subconscious drivers. Nonetheless, it ties into Hypothesis H3 (subconscious motivators as strong predictors of purchase decisions), reinforcing that social cues, while moderate in this sample, remain part of the broader cluster of subconscious triggers identified in the study.

Economic context emerged as an important moderator of consumer psychology. When uncertainty rises, most consumers shift toward prioritizing long-term value over short-term gratification. This links with Hypothesis H4 (macroeconomic context moderating consumer priorities), as consumers' behaviours change depending on market conditions, highlighting the need for targeted campaigns that emphasise long-term value during uncertain times.

The regression analysis further confirmed the dominance of emotional and subconscious factors in purchase decisions. Social proof and FOMO (Fear of Missing Out) were highly significant predictors, reinforcing the role of emotionally charged triggers in consumer behaviour. This finding is aligned with Hypothesis H3 (subconscious motivators such as social proof and FOMO outweighing pricing tactics), as FOMO and social proof operate as core subconscious drivers that increase the likelihood of immediate purchase.

Flash sales significantly influenced purchase decisions, reinforcing the importance of urgency as a subconscious driver of action. This also supports Hypothesis H3 (subconscious motivators as the strongest predictors of immediate purchase decisions),

where urgency operates as a key emotional trigger that overrides deliberate price comparison.

These findings affirm dual-process models of decision-making, where System 1 (fast, emotional, subconscious) responses dominate under urgency, scarcity, and social influence, while System 2 (deliberate, rational) processes are more salient under economic uncertainty and long-term value considerations. Marketers should design campaigns that explicitly integrate emotional urgency and social validation cues when seeking to drive immediate action, while shifting toward narratives of quality, sustainability, and long-term value during periods of economic stress or stability. The professional results further suggest a gap between practitioner perceptions and consumer behaviour: while professionals default to discounting as the primary downturn strategy, consumers respond equally strongly to trust-based mechanisms such as reviews, endorsements, and alignment with values. This gap is consistent with Hypothesis H3 (subconscious motivators as stronger predictors than incremental pricing tactics), as it highlights how trust-based and emotionally salient cues outweigh discount-led strategies in shaping consumer decisions, even under downturn conditions.

5.3 Discussion of Brand Recall and Recognition Strategies

The results on Brand Recall and Recognition Strategies underscore the critical role of visual identity, emotional content, and consistency in shaping how consumers remember brands. The consumer responses show strong agreement that distinctive logos, colours, and slogans significantly enhance brand recall, with the vast majority either agreeing or strongly agreeing with this statement. This finding validates long-established branding theory that visual distinctiveness serves as a cognitive shortcut for consumers, making it easier for them to recognise and recall brands in crowded and competitive markets. This

directly supports Hypothesis H5 (distinctive visual identity, consistent messaging, repeated exposure, and emotionally resonant content driving brand recall). The significant influence that distinctive visual elements — such as logos and colours — have on consumer recognition empirically affirms the visual-distinctiveness component of H5.

Similarly, repeated exposure to advertisements was found to reinforce memory, aligning with the “mere exposure effect” in psychology, which asserts that familiarity breeds preference. Most respondents agreed or strongly agreed that seeing an ad multiple times improves recall, suggesting that frequency remains a fundamental principle of effective brand communication. This finding is consistent with the repeated-exposure component of Hypothesis H5, where repeated frequency of exposure operates as a core driver of brand memory. Digital marketing channels, which enable controlled repetition, were rated as particularly effective in supporting this mechanism. The utilisation of neuromarketing tools — such as EEG, fMRI, or eye-tracking — can further optimise how frequently consumers are exposed to ads, ensuring that the content is emotionally engaging and memorable. This reinforces the role of repeated exposure as one of the four pillars of recall identified in H5.

Emotional content also plays a pivotal role in brand recall. Ads using humour, nostalgia, or suspense were found to be more memorable by most respondents. This resonates with the literature on neuromarketing, which emphasises that emotional triggers stimulate deeper encoding of information in memory structures, making brands more likely to be remembered. This connection directly reinforces Hypothesis H5 (emotionally resonant content as a driver of recall). Ads that integrate nostalgic, humorous, or suspenseful elements engage consumers on an emotional level and consequently improve memory retention and brand recall.

Likewise, maintaining a consistent visual style across platforms emerged as a key driver of recognition. Respondents overwhelmingly agreed that when brands maintain uniform design elements across digital, print, and physical platforms, their ability to recognise and recall those brands improves. This finding directly aligns with the cross-platform consistency component of Hypothesis H5. Consistent visual elements, when aligned with consumer preferences and reinforced across multiple touchpoints, strengthen brand identity and improve recall. Brands that maintain visual consistency across various media platforms ensure that consumers can instantly identify and recall the brand, validating cross-platform consistency as one of the four pillars of recall identified in H5.

The results were more mixed regarding digital versus traditional advertising. A large portion of respondents were neutral, indicating that many consumers do not perceive a strong difference in recall effectiveness between digital and traditional formats. Nevertheless, more participants leaned toward digital advertising as superior for recall, though traditional advertising was still valued by some. This nuanced result complements Hypothesis H5: while the underlying drivers of recall (visual distinctiveness, repetition, emotional resonance, cross-platform consistency) remain stable, the channel through which they are delivered matters less than commonly assumed. Digital platforms allow for more precise targeting and frequency of exposure, but traditional advertising retains value in certain regions or demographic segments, underlining the importance of a multi-channel approach. As consumer preferences shift, marketers must adapt their strategies accordingly to ensure maximum reach and engagement across diverse platforms.

The regression analysis further validates the importance of neuromarketing tools in enhancing brand recall. Although the R-squared value was very low, indicating that the model explains little of the variance in brand recall, the coefficient for neuromarketing techniques was both highly significant ($p < 0.001$) and meaningfully positive. This suggests

that techniques such as EEG and fMRI demonstrably improve recall scores, even if they are not the sole or dominant factor. This finding reinforces Hypothesis H5, particularly the role of emotionally resonant content in driving recall. Neuromarketing tools measure precisely those emotional responses that are critical for memory encoding, contributing to stronger brand recall even when their direct explanatory power is modest in a regression context.

Taken together, these findings confirm that brand recall is best achieved through a combination of visual distinctiveness, emotional resonance, repeated exposure, and cross-platform consistency — the four mechanisms specified in Hypothesis H5. Neuromarketing tools play an essential supporting role in enhancing each of these strategies. By leveraging neuromarketing insights and emotional content, brands can better position themselves in the market in ways that simultaneously strengthen recall and brand equity.

However, the limited variance explained by the regression model points to the complexity of brand recall as a construct, shaped not only by neurological cues but also by environmental, social, and cultural factors. This nuance qualifies Hypothesis H5: while distinctive visual identity, repeated exposure, emotional resonance, and cross-platform consistency are statistically significant drivers of recall, they operate alongside broader contextual variables that this study did not capture. Neuromarketing tools therefore remain valuable but must be integrated with broader consumer insights to fully influence how brands are perceived and remembered across different contexts.

5.4 Discussion of Cost-Effectiveness and ROI of Neuromarketing Campaigns

The results examined the cost-effectiveness and return on investment (ROI) of neuromarketing campaigns, revealing both cautious optimism among professionals and a clear set of priorities from consumers. From the professional perspective, neuromarketing-

based advertisements are perceived by many as having the potential to generate higher revenue compared to traditional methods, but the largest share of respondents remain neutral. The mean score for this item is 3.51, with a standard deviation of 0.91, showing moderate variability in responses. This observation directly connects with Hypothesis H6 (data-driven and neuromarketing-based advertising perceived as delivering superior ROI). Although many professionals recognise the promise of neuroscience-driven approaches, widespread adoption is still in its formative stage, likely due to limited case evidence, high costs of implementation, or varying levels of familiarity across industries. Those who agreed or strongly agreed emphasised neuromarketing's ability to tap into subconscious drivers of consumer behaviour, hinting at a gradual but growing acknowledgment of its long-term business value. The relatively small proportion of disagreement also suggests that scepticism is not entrenched, but uncertainty remains a barrier to confident endorsement of H6 in its strongest form.

The role of AI-driven marketing was similarly positioned, with a majority of professionals leaning toward agreement that tools such as behavioural analytics and predictive targeting improve advertising efficiency. The mean score for AI-driven marketing is 3.61, with a standard deviation of 0.97, indicating a stronger agreement among respondents. However, the large neutral category points to hesitancy linked to technological literacy or doubts about ROI visibility. This is consistent with the data-driven component of Hypothesis H6, where analytics-led approaches are perceived to deliver superior ROI relative to mass-market advertising. The ambivalence expressed toward AI-driven marketing mirrors the responses to neuroscience-based marketing for customer retention, where most respondents expressed neutrality, yet a sizable portion agreed that such approaches enhance loyalty. Both patterns reinforce the qualified support for H6:

professionals see promise in data- and neuroscience-driven approaches but remain cautious about claims of superiority without stronger case evidence.

The strongest professional consensus emerged around data-driven marketing, with most respondents agreeing that it leads to superior ad spend optimisation compared to mass-market advertising. The mean score for data-driven marketing is 3.75, with a standard deviation of 0.93, reflecting a high level of agreement among professionals. This finding provides the strongest empirical support for Hypothesis H6 in the entire ROI section. By leveraging data, marketers can deliver more relevant and targeted ads, ensuring better allocation of resources and maximizing ROI. This reflects an industry-wide acceptance of analytics as a cornerstone for cost efficiency, particularly as businesses face increasing pressure to justify marketing investments with measurable returns. Similarly, brand collaborations were viewed positively, with many professionals agreeing they create stronger brand images and product value. The mean score for brand collaborations is 3.73, with a standard deviation of 0.90, indicating strong agreement on this strategy's benefits. While brand collaborations sit slightly outside the core ROI question, the positive professional reception complements H6 by signalling that data- and partnership-driven approaches are both seen as more efficient than undifferentiated mass-market spend. Yet here too, a large neutral segment indicates that while the strategic potential of collaborations is recognised, the evidence base across industries is uneven, and their effectiveness may depend heavily on context and execution.

From the consumer perspective, the results provide a sharper lens through which to interpret ROI. When evaluating new brands, consumers prioritize quality of products and services above all else, followed closely by competitive pricing and brand reputation. The mean score for the importance of product quality is 3.75, reflecting its central role in consumer decision-making. This finding qualifies Hypothesis H6: while professionals see

data-driven and neuromarketing approaches as ROI-superior, consumer-side ROI is ultimately anchored in product fundamentals, suggesting that neuromarketing efforts must reinforce quality, pricing, and reputation rather than substitute for them. Online reviews and customer feedback also play an influential role, while a strong social or digital media presence ranks last. This underscores a crucial insight: investments in sophisticated neuromarketing or AI-based campaigns must be grounded in fundamentals. The prominence of online reviews and consumer feedback demonstrates that consumer trust — built through reviews, endorsements, and personal recommendations — is essential for brand success. No matter how advanced the targeting or messaging, if quality and trust are not demonstrably present, ROI will be limited. Consumers expect competitive prices and credible reputations, and these factors weigh more heavily in decision-making than a flashy digital presence or high-tech advertising strategies.

5.5 Discussion of Role of Digital Technologies in Neuromarketing

The results highlight the evolving but uneven role of digital technologies in shaping neuromarketing effectiveness. From the professional perspective, there is widespread agreement that artificial intelligence (AI) and machine learning (ML) enhance the accuracy of targeted marketing. Most respondents agreed or strongly agreed with this statement, reflecting growing confidence in AI-driven personalisation as a means of optimising audience segmentation and message delivery. This directly supports Hypothesis H7 (AI and ML significantly improving targeting accuracy and campaign efficiency). AI and ML techniques are increasingly seen as critical for refining marketing strategies and delivering targeted ads that resonate with consumers. However, the substantial neutral group suggests lingering uncertainty, often tied to limited hands-on exposure, concerns about algorithmic reliability, or a lack of industry-wide case evidence. The strength of professional

endorsement for the targeting-accuracy claim provides the clearest empirical confirmation of H7 in the study.

A similar pattern emerges with Virtual and Augmented Reality (VR/AR), where many respondents acknowledged their potential to expand brand exposure, but the largest share remained neutral. This connects directly with Hypothesis H8 (consumer-facing digital technologies producing uneven effectiveness, with personalisation receiving stronger reception than fully automated or immersive interactions). While VR/AR is widely discussed as an innovative channel, its practical application remains in a nascent stage. This suggests that, while VR/AR could offer significant advancements in consumer engagement, its integration into mainstream marketing strategies is still in the experimental phase, and many businesses are yet to fully embrace its potential as a tool for brand exposure.

In contrast, variables such as AI-driven marketing, machine learning for targeting, VR/AR marketing, and brand collaborations did not achieve statistical significance in this model. This suggests that while these technologies hold strategic potential, they are not yet consistently linked with measurable improvements in neuromarketing outcomes. This observation qualifies both Hypotheses H7 and H8: although professionals report perceived effectiveness, the regression evidence indicates that AI, ML, and immersive technologies are still in early stages of operational integration and may require further refinement before their effects on neuromarketing outcomes become statistically detectable.

The finding that economic conditions — both downturns and stable periods — correlate significantly with effectiveness indicates that businesses actively adjust their neuromarketing strategies in response to macroeconomic environments. This cross-cuts the digital-technology discussion by reinforcing Hypothesis H4 (macroeconomic context moderating consumer priorities), as the responsiveness of digital strategies to economic

conditions shows that even technology-led campaigns must be calibrated to the prevailing economic environment. Companies invest more aggressively to sustain consumer engagement when market conditions are uncertain, adjusting their strategies to optimise the return on marketing investments during fluctuating economic conditions.

From the consumer perspective, the findings confirm that personalisation and relevance remain central to digital effectiveness. A majority of respondents agreed that personalised ads based on their online activity feel more relevant, reflecting a positive reception toward behavioural targeting. This aligns with the personalisation-positive component of Hypothesis H8. Personalisation, particularly when AI tools are applied in ways that align with consumer needs and interests, can meaningfully enhance engagement. However, opinions about AI-driven chatbots and automated recommendations were more divided. While a considerable number of respondents found them beneficial, an equally large portion either felt neutral or dissatisfied, pointing to the limitations of automation when it lacks human touch, contextual accuracy, or seamless integration into the shopping journey. This split also corroborates H8: consumer-facing digital technologies produce uneven effectiveness, with personalisation receiving stronger reception than fully automated interactions. The implication is that businesses may need to combine automated tools with human interaction to enhance customer satisfaction and retention.

Taken together, the findings illustrate a landscape in which digital technologies are reshaping neuromarketing, but with uneven adoption and varying perceptions of effectiveness. Professionals express confidence in AI's potential to improve targeting and in neuromarketing-based ads to generate stronger outcomes, but uncertainty remains regarding more experimental technologies such as VR/AR. Consumers, meanwhile, value personalisation when it translates into tangible relevance but are less uniformly convinced of the benefits of automation in service interactions. Read together, the evidence supports

Hypothesis H7 strongly in the targeting dimension and supports Hypothesis H8 in its dual reading: personalisation is well received, while fully automated interactions and immersive technologies face more ambivalent reception.

CHAPTER VI: SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

This dissertation set out to investigate the role of neuromarketing in shaping business decision-making and consumer behaviour, with a particular focus on its effectiveness in enhancing emotional engagement, psychological and subconscious influence, brand recall, cost-effectiveness, and the integration of digital technologies. Drawing upon insights from both professionals and consumers, and reinforced by rigorous statistical analysis, the study provides a multidimensional understanding of how neuromarketing contributes to contemporary marketing strategies and organisational outcomes.

The findings consistently highlight the centrality of emotional engagement in marketing effectiveness. Consumers demonstrated strong and measurable responses to emotionally charged advertising, personalisation, and storytelling, all of which translated into higher interest, loyalty, and advocacy. Professionals, while generally positive, displayed more cautious or neutral stances, often conditioned by their level of exposure to neuromarketing tools and their concern for cost–benefit justification. This divergence underscores a key perception gap: consumers clearly experience the power of emotional strategies, while professionals hesitate to fully commit without stronger ROI evidence.

The exploration of psychological and subconscious factors revealed that urgency (flash sales), social proof, and fear of missing out (FOMO) are the most powerful drivers of immediate consumer action, far outweighing incremental pricing tactics. Context also mattered: during economic downturns, affordability and necessity dominated consumer priorities, while in stable conditions, quality, features, and brand image became decisive. These results affirm dual-process theories of decision-making and stress the importance of tailoring marketing approaches to both emotional triggers and macroeconomic environments.

In relation to brand recall and recognition, the study confirmed that distinctive visuals, consistent cross-platform messaging, repeated exposure, and emotionally resonant content are essential for sustaining consumer memory. While neuromarketing tools such as EEG, fMRI showed a significant positive impact on recall, their explanatory power was limited, pointing to the broader contextual and cultural factors that shape memory. The evidence suggests that the most effective branding strategies integrate neuroscience tools with established principles of visual distinctiveness and emotional storytelling.

The analysis of cost-effectiveness and ROI reflected both professional caution and consumer clarity. Professionals recognised the potential of neuromarketing-based ads, AI-driven targeting, and collaborations, but many remained neutral, reflecting limited exposure or concerns about implementation costs. Data-driven marketing, however, received the strongest endorsement, seen as a proven mechanism for optimising ad spend. From the consumer perspective, ROI was interpreted through fundamentals—quality, competitive pricing, reputation, and reviews—over and above technological sophistication. These findings signal that advanced neuromarketing approaches must be firmly grounded in these essentials if they are to yield sustained returns.

Finally, the examination of digital technologies highlighted the uneven but transformative role of AI, machine learning, and VR/AR in neuromarketing. Professionals widely endorsed AI/ML for improving targeting accuracy but remained uncertain about the practical effectiveness of VR/AR. Regression analysis confirmed that economic conditions, neuromarketing-based ads, and data-driven strategies are the strongest predictors of effectiveness, while AI and VR/AR remain promising but less conclusive. Consumers, meanwhile, valued personalisation but were divided on chatbots and automated recommendations, reinforcing the importance of hybrid solutions that blend digital efficiency with human touch.

6.2 Implications

The findings of this dissertation carry significant implications that extend across theoretical, practical, and methodological domains. At the theoretical level, the study strengthens existing models of consumer decision-making by showing that subconscious and emotionally charged cues such as urgency, social proof, and fear of missing out play a far greater role in shaping behaviour than incremental pricing tactics. At the same time, the results demonstrate that rational and long-term value considerations re-emerge under conditions of economic uncertainty, suggesting that consumer decisions are not fixed but dynamically shift between intuitive and deliberate processing depending on the broader environment. These results also affirm psychological and behavioural economics principles, such as the mere exposure effect, by establishing the role of repeated advertising and consistent visual branding in enhancing memory and recall. The regression analyses provide further empirical evidence that neuromarketing-based advertisements and data-driven approaches are statistically significant predictors of marketing effectiveness, pointing to their importance as central constructs in modern marketing theory.

The practical implications are equally compelling. Businesses must place emotional engagement at the core of their marketing strategies rather than treating it as an optional enhancement. Campaigns that weave in storytelling, humor, nostalgia, and personalisation were shown to foster loyalty and word-of-mouth advocacy, making them critical tools for building long-term consumer relationships. The results also reveal that strategies must be adapted to prevailing economic conditions, with affordability and necessity taking precedence during downturns, and quality, differentiation, and brand image driving consumer choices in more stable contexts. Neuromarketing tools, though still met with caution among professionals, have proven their effectiveness in improving recall and purchase likelihood, suggesting that firms should invest in capability building and case evidence to overcome hesitation and demonstrate tangible ROI. Similarly, digital technologies need to be applied judiciously; while personalisation is generally welcomed by consumers, chatbots, automated recommendations, and VR/AR are still received with ambivalence, highlighting the need for hybrid models that balance automation with human interaction to secure acceptance and trust.

From a methodological standpoint, the study highlights the value of examining neuromarketing from both professional and consumer perspectives. The contrast between consumer enthusiasm and professional caution demonstrates the importance of adopting a dual-lens approach to understand the supply and demand sides of marketing effectiveness. The combination of descriptive analysis, ANOVA, and regression strengthened the robustness of the findings and provided statistical confirmation of the influence of emotional and subconscious triggers. However, the reliance on self-reported data and non-probability sampling means that certain subconscious drivers may have been underrepresented and generalizability limited. These limitations point toward the need for

future studies that incorporate physiological measures such as EEG adopt experimental or longitudinal designs to capture behavioural change more accurately over time.

6.3 Recommendations for Future Research

1. Experimental and Longitudinal Research Designs

Future studies should employ experimental and longitudinal designs that integrate neuromarketing tools such as EEG, fMRI with actual consumer behaviour tracking. This would enable stronger causal inferences and provide evidence of how subconscious responses evolve into long-term purchasing decisions.

2. Cross-Industry and Cross-Cultural Comparisons

Further research should investigate the applicability of neuromarketing strategies across industries and cultural contexts. By comparing consumer responses in different sectors and regions, scholars can evaluate whether emotional and subconscious triggers are universal or context-specific, thus enhancing the generalizability of findings.

3. Integration of Emerging Digital Technologies

As technologies like AI, augmented reality, and virtual reality advance, future research should explore their combined potential in neuromarketing. Specifically, hybrid approaches that merge personalisation, immersive experiences, and neuroscience-driven insights need to be tested for their capacity to enhance consumer engagement and loyalty.

4. Organizational Adoption and Ethical Considerations

Research should also focus on the organisational perspective, examining barriers such as cost justification, ethical dilemmas, and knowledge gaps that hinder professional adoption of neuromarketing practices. This would provide actionable strategies to align

consumer receptiveness with professional confidence, ensuring responsible and effective integration of neuromarketing in business strategies.

6.4 Conclusion

This dissertation has demonstrated that neuromarketing, as an intersection of neuroscience, psychology, and business strategy, offers a powerful yet underutilized avenue for enhancing marketing effectiveness and shaping business decision-making. The study has shown that consumers are strongly influenced by emotional and subconscious triggers—such as storytelling, nostalgia, social proof, and urgency—which consistently drive engagement, recall, and purchase decisions. At the same time, professionals remain more cautious, often adopting a neutral stance due to limited familiarity with neuromarketing tools and an emphasis on cost–benefit justification. This gap between consumer responsiveness and professional hesitancy underscores the importance of building stronger evidence bases, capability development, and ROI-driven case studies to accelerate adoption.

The findings further reveal that context plays a decisive role in how neuromarketing strategies succeed. During downturns, affordability and necessity dominate consumer priorities, whereas in stable conditions, quality, features, and brand image shape preferences. Emotional and visual branding elements, including consistent cross-platform communication and repeated exposure, remain essential in reinforcing memory and long-term loyalty. Importantly, regression analyses confirmed that neuromarketing-based advertisements and data-driven marketing approaches are statistically significant

predictors of effectiveness, suggesting that these tools should form the core of future strategies.

Although digital technologies such as AI, machine learning, and VR/AR are widely discussed as transformative forces, their current role in neuromarketing remains uneven. While personalisation and AI-driven targeting are increasingly valued, scepticism and uncertainty persist, especially around automation and immersive technologies. The evidence suggests that businesses should balance innovation with caution, anchoring their campaigns in proven emotional and data-driven strategies while experimenting selectively with emerging tools.

APPENDIX A:

QUESTIONNAIRE

Instructions: Thank you for participating in this survey. Your responses will help us understand how neuromarketing influences consumer engagement, brand recall, decision-making, and marketing effectiveness.

- For demographic questions, select the most applicable option.
- For rating-scale questions, please indicate your level of agreement using the following scale: 1 – Strongly Disagree | 2 – Disagree | 3 – Neutral | 4 – Agree | 5 – Strongly Agree

Section 1: Demographic Information

1. What is your Age?

- ☐ Under 18
- ☐ 18–24
- ☐ 25–34
- ☐ 35–44
- ☐ 45–54
- ☐ 55 and above

2. What is your Gender?

- ☐ Male
- ☐ Female

☐ Prefer not to say

3. What is your Monthly Income?

☐ Below ₹25,000 (\$300)

☐ ₹25,000 – ₹50,000 (\$300 – \$600)

☐ ₹50,000 – ₹100,000 (\$600 – \$1,200)

☐ ₹100,000 – ₹200,000 (\$1,200 – \$2,400)

☐ Above ₹200,000 (\$2,400+)

☐ Prefer not to say

4. What type of products do you purchase the most? (Select up to two)?

☐ Electronics & Gadgets

☐ Fashion & Accessories

☐ Beauty & Personal Care

☐ Groceries & Household Items

☐ Health & Wellness Products

☐ Entertainment & Media (Streaming, Games, Books)

☐ Travel & Experiences

5. How much influence do advertisements have on your purchasing decisions?

☐ Very high influence

☐ Some influence

☐ Neutral

☐ Little influence

☐ No influence at all

6. Do you prefer advertisements that are personalised based on your previous searches and interests?

☐ Yes

☐ No

☐ Not Sure

7. How often do you prefer purchasing from international/global brands over local brands?

☐ Always

☐ Often

☐ Sometimes

☐ Rarely

☐ Never

Section 2: Emotional Engagement in Marketing

1. Advertisements that make me feel excited, happy, or nostalgic increase my interest in a product.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

2. Brands that use personal storytelling in their marketing campaigns grab my attention more.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

3. I am more likely to engage with a brand that aligns with my emotions and values.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

4. Seeing emotionally charged advertisements makes me more likely to talk about the brand with others.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

5. A brand that connects with me emotionally is more likely to gain my long-term loyalty.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

Section 3: Brand Recall and Recognition Strategies

1. Distinctive logos, colours, or slogans help me remember a brand.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

2. Seeing an ad multiple times improves my ability to recall the brand later.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

3. Ads that use emotions like humour, nostalgia, or suspense are more memorable.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

4. I recognise brands more when they use the same visual style consistently across platforms.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

5. I remember brands better from digital marketing than from traditional advertising.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

Section 4: Psychological and Subconscious Factors in Consumer Decision-Making

1. Limited-time offers and flash sales make me more likely to buy immediately.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

2. Positive online reviews and social proof (e.g., influencer endorsements) influence my purchase decisions.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

3. Pricing strategies (e.g., \$9.99 vs. \$10) affect my perception of value.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

4. Seeing others buy a product (e.g., "50 people purchased today") makes me more likely to buy.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

5. When economic uncertainty rises, I focus more on long-term value rather than short-term gratification in my purchases.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

6. What factors most influence my purchase decisions during an economic downturn? (Select all that apply)

- ☐ Necessity-based purchases only
- ☐ Discounted & budget-friendly brands
- ☐ Financial security & savings priority
- ☐ Reduced spending on entertainment & travel
- ☐ Postponing major purchases

7. What factors most influence my purchase decisions when the economy is stable?
(Select all that apply)

- ☐ Luxury & aspirational products
- ☐ Brand image & social influence
- ☐ High-end technology & latest trends
- ☐ Investment in long-term purchases (real estate, cars, stocks)
- ☐ Experiences with a brand
- ☐ Quality & Features
- ☐ Price & Discounts

Section 5: Cost-Effectiveness

1. When considering a new brand, which factors most influence your decision to try their products/services.

- ☐ Brand reputation and trust
- ☐ Competitive pricing
- ☐ Quality of the product/service
- ☐ Online reviews and customer feedback
- ☐ Strong digital/social media presence

Section 6: Role of Digital Technologies in Shopping

1. Personalised ads based on my online activity feel more relevant to me.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

2. AI-driven chatbots and automated recommendations improve my shopping experience.

☐ 1 | ☐ 2 | ☐ 3 | ☐ 4 | ☐ 5

APPENDIX B: INFORMED CONSENT

Research Title: Neuro marketing: How does it impact business decision making and enable new age business to thrive and attract customers in a cost-effective manner.

Principal Investigator: My name is Aamir Shahid. I am a DBA learner at SSBM GENEVA. I am conducting a study, and you are invited to participate.

Purpose of the Study:

The purpose of this study is to investigate how neuromarketing influences consumer behaviour and business decision-making by enhancing emotional engagement, brand recall, purchase decisions, and ROI. It aims to evaluate whether neuroscience-based tools and digital technologies enable businesses to thrive and attract customers in a cost-effective manner.

Procedures:

If you agree to participate, you will be asked to complete a structured survey. The survey will include questions about your experiences, preferences, and perceptions regarding health insurance marketing strategies. It will take approximately 5–10 minutes to complete.

Confidentiality:

All information you provide will be kept confidential and used solely for academic purposes. Your responses will be anonymized to ensure that no personally identifiable

information is included in the study's results. The data will be securely stored and accessed only by the researcher and authorized personnel.

Potential Risks and Benefits:

There are no significant risks associated with participating in this study. Your participation will contribute to valuable insights into improving health insurance marketing strategies, which may ultimately benefit consumers and the industry.

Consent Statement:

By signing below, you confirm that you have read and understood the information provided above. You consent to participate in this study and allow the researcher to use your responses for academic purposes.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

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