

Using Neuroeconomics to study Emotional Valence at Icon Metal Marketing Pvt. Ltd

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Abstract:

This study delves into the complexities of emotional advertising effectiveness in industrial markets through the innovative use of advanced neuroeconomic models, machine learning algorithms, and network analysis techniques. The primary objective was to explore how emotional responses to advertisements influence brand perceptions, purchase intentions, and long-term business relationships among industrial decision-makers. Utilizing functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and biometric sensors, we captured and analyzed real-time emotional and cognitive reactions to advertisements from Icon Metal Marketing Pvt. Ltd. Our neuroeconomic analysis revealed significant neural activations in the amygdala and prefrontal cortex, elucidating the neural underpinnings of emotional engagement. Concurrently, machine learning algorithms were instrumental in processing and interpreting the extensive neuroimaging and biometric data, enabling the prediction of emotional engagement levels and the optimization of advertising content. Furthermore, our network analysis provided a detailed visualization of emotional contagion effects across industrial buyer networks. By identifying key influencers and mapping emotional pathways, we gained insights into how emotional engagement amplifies and shapes collective brand perceptions. This approach allowed for the strategic deployment of emotionally resonant content, enhancing the impact of advertising campaigns across diverse industrial sectors. The findings suggest that precision targeting and personalization of advertising content, informed by neural and biometric data, can significantly enhance emotional resonance and brand perception. Additionally, understanding network dynamics and emotional contagion effects offers a powerful framework for optimizing advertising strategies and fostering long-term business relationships.

Keywords: Neuroeconomics, Emotional Valence, Advertisement, Icon Metal, Consumer Engagement

Introduction

Advertising is a cornerstone of modern marketing strategies, serving as a powerful tool for businesses to communicate with their target audience, build brand awareness, and promote products or services effectively. In today's competitive marketplace, companies employ diverse advertising strategies across various media channels such as television, digital platforms, print

media, and outdoor advertising to reach a wide range of consumers and influence their perceptions and preferences. This introductory section explores the multifaceted role of advertising, its impact on consumer behavior, and its implications for business success. Advertising plays a pivotal role in the marketing mix, alongside other elements such as product, price, and place (distribution). It serves as a means of communication between businesses and consumers, conveying messages about products, services, and brand values. Through strategic advertising campaigns, companies aim to inform, persuade, and remind consumers about their offerings, thereby stimulating demand and driving sales (Kotler & Keller, 2016). One of the primary objectives of advertising is to create brand awareness, ensuring that consumers recognize and recall a brand when making purchasing decisions. Brand awareness is crucial as it lays the foundation for brand equity—a set of assets and liabilities linked to a brand's name and symbol that add to or subtract from the value provided by a product or service (Aaker, 1991). Strong brand awareness enables businesses to differentiate their offerings from competitors and build a loyal customer base over time (Keller, 2016). The evolution of technology and media has expanded the scope of advertising channels available to businesses. Traditional media channels such as television, radio, newspapers, and magazines continue to play significant roles in reaching mass audiences.

Television, in particular, remains a dominant advertising medium due to its visual and auditory capabilities, allowing advertisers to create compelling narratives and visual presentations that resonate with viewers (Belch & Belch, 2020). In recent years, digital platforms have revolutionized advertising practices, offering unprecedented opportunities for targeted marketing and personalized communication. Digital advertising encompasses various formats such as display ads, video ads, social media promotions, and search engine marketing (SEM). These platforms leverage user data and behavioral insights to deliver relevant advertisements to specific audience segments, thereby optimizing advertising effectiveness and return on investment (ROI) (Smith & Zook, 2011). Moreover, print media and outdoor advertising continue to serve niche markets and local communities effectively. Print advertisements in newspapers, magazines, and direct mail provide tangible touchpoints for consumers, while outdoor advertising on billboards, transit stations, and digital screens enhances brand visibility in high-traffic areas (Moriarty et al., 2019). Effective advertising not only attracts potential customers but also influences their perceptions, attitudes, and purchasing

decisions. Advertising messages are designed to appeal to consumer emotions, aspirations, and needs, prompting them to consider specific products or services as solutions to their problems or desires (Batra & Ray, 1986).

Emotions are fundamental drivers of human behavior, influencing how individuals perceive, interpret, and respond to stimuli in their environment. In the context of advertising, emotions play a pivotal role in shaping consumer attitudes, preferences, and purchasing decisions. Advertisements that effectively evoke emotional responses can significantly impact consumer behavior, thereby enhancing brand perception and driving sales (Batra & Ray, 1986). Emotional valence refers to the positive or negative nature of emotions elicited by advertisements. Research indicates that the emotional tone of an advertisement can exert a profound influence on consumer engagement and purchase intentions (Dahl et al., 2001). Positive emotions such as joy, excitement, or nostalgia are often associated with pleasurable experiences and can create favorable associations with a brand or product. When consumers experience positive emotions in response to an advertisement, they are more likely to develop positive attitudes towards the advertised product or brand, leading to increased interest and willingness to purchase (Wang & Calder, 2006). Conversely, advertisements that evoke negative emotions such as fear, sadness, or anger can also impact consumer behavior. Negative emotions may stimulate empathy or concern among consumers, prompting them to consider the advertised product or service as a solution to their needs or problems. For instance, a charity advertisement depicting scenes of suffering or injustice may evoke feelings of empathy and a desire to contribute to the cause, thereby influencing donation behavior (Dahl et al., 2001). Emotional advertising not only captures consumers' attention but also enhances their engagement with the brand or product. Emotional appeals have been shown to increase the likelihood of consumers sharing advertisements with others, thereby amplifying the reach and impact of the message (Berger & Milkman, 2012). When consumers experience emotional resonance with an advertisement, they are more likely to remember the brand and its message over time, contributing to enhanced brand recall and recognition (Batra & Ray, 1986). Moreover, emotional engagement fosters deeper connections between consumers and brands, cultivating brand loyalty and advocacy. Consumers who feel emotionally connected to a brand are more likely to demonstrate repeat purchase behavior and recommend the brand to others, contributing to long-term profitability and sustainable growth (Dahl et al., 2001). Emotional

responses triggered by advertisements can influence both cognitive and behavioral aspects of consumer decision-making. Cognitive responses refer to consumers' thoughts and beliefs about a brand or product, which are shaped by their emotional experiences with the advertisement. Positive emotions associated with an advertisement may lead consumers to perceive the product as superior in quality, value, or reliability, thereby influencing their purchase decisions (Wang & Calder, 2006). Behavioral responses, on the other hand, encompass consumers' actions and intentions following exposure to an advertisement. Emotional appeals can motivate consumers to take specific actions such as making a purchase, visiting a store, or sharing their experience on social media platforms. Behavioral intentions driven by emotional responses are often more spontaneous and emotionally driven, reflecting consumers' immediate emotional reactions to the advertisement (Batra & Ray, 1986). Understanding the role of emotional valence in advertising can inform strategic decisions for designing effective advertising campaigns. Marketers can leverage emotional appeals strategically to align with their brand positioning and target audience preferences. By identifying the emotional drivers that resonate most with their target consumers, marketers can craft messages that evoke the desired emotional responses and enhance engagement levels (Dahl et al., 2001). Continuous monitoring and evaluation of consumer responses to emotional advertising can provide valuable insights for optimizing advertising effectiveness and ROI. Advanced analytics and consumer research techniques enable marketers to measure emotional engagement metrics, track brand sentiment, and assess the impact of emotional appeals on key performance indicators such as sales and brand equity (Wang & Calder, 2006).

Emotional appeals in advertisements can evoke positive feelings such as joy, excitement, or nostalgia, creating favorable associations with a brand and enhancing consumer engagement (Dahl et al., 2001). Furthermore, advertising plays a critical role in shaping consumer perceptions of product attributes, quality, and value proposition. Through informative and persuasive messaging, advertisers highlight unique selling propositions (USPs) and competitive advantages that differentiate their offerings from alternatives in the market (Tellis, 2004). This positioning strategy helps businesses to position their brands effectively and influence consumer preferences based on perceived value and benefits (Kotler & Keller, 2016). Beyond immediate sales impact, advertising contributes to long-term brand equity by fostering brand loyalty and customer relationships. Brand loyalty reflects a

consumer's commitment to repeatedly purchase a particular brand over competitors, often driven by positive experiences, satisfaction with product performance, and perceived brand reliability (Aaker, 1991). Effective advertising campaigns reinforce brand messages, strengthen brand identity, and cultivate emotional connections with consumers, thereby enhancing brand loyalty and reducing customer churn (Keller, 2016). Moreover, advertising facilitates ongoing communication with consumers, enabling brands to engage with their audience, gather feedback, and respond to market trends and consumer preferences effectively. Interactive advertising techniques, such as social media campaigns and online communities, encourage two-way communication and co-creation of brand experiences, fostering deeper levels of engagement and customer loyalty (Smith & Zook, 2011).

Despite the extensive research on the impact of advertisements on consumer behavior, there is a notable gap in understanding how specific emotional appeals within advertisements influence consumer engagement and sales conversion rates, particularly within the industrial marketing context of Icon Metal Marketing Pvt. Ltd. Industrial marketing often involves products or services that cater to businesses rather than individual consumers, necessitating a different approach in advertising strategies (Hutt & Speh, 2019). Furthermore, while studies have examined emotional advertising in consumer goods sectors, there is limited research focusing on the industrial sector, where purchasing decisions are typically driven by rational considerations such as product quality, reliability, and cost-effectiveness (Grawe et al., 2017). Therefore, exploring the role of emotional valence in advertisements within an industrial marketing framework can provide valuable insights into effective marketing strategies tailored to business-to-business (B2B) markets. Despite the extensive research on the impact of advertisements on consumer behavior, a significant gap persists in understanding how specific emotional appeals within advertisements influence consumer engagement and sales conversion rates, especially within the industrial marketing context of Icon Metal Marketing Pvt. Ltd. Unlike consumer goods, industrial marketing involves products or services that cater primarily to businesses rather than individual consumers. This distinction necessitates a different approach to advertising strategies, focusing more on rational considerations such as product quality, reliability, and cost-effectiveness rather than emotional appeals (Hutt & Speh, 2019). While emotional advertising has been extensively studied in consumer goods sectors, there remains limited research focusing on the industrial sector. Industrial marketing typically

revolves around complex products or services with longer purchasing cycles and higher financial stakes, which often require a more pragmatic and value-driven approach in marketing communications (Grawe et al., 2017).

The role of emotional valence in advertisements becomes particularly intriguing as it can potentially influence decision-makers' perceptions and attitudes towards industrial products or services. Exploring the impact of emotional appeals in industrial advertising can offer valuable insights into effective marketing strategies tailored specifically to business-to-business (B2B) markets. Unlike consumer advertising, where emotional appeals often target personal desires or aspirations, industrial advertising must appeal to organizational needs, objectives, and rational decision-making processes. By understanding how emotional content in advertisements resonates with business decision-makers, marketers can better align their messaging to enhance engagement, build trust, and ultimately drive sales in industrial markets. Moreover, the industrial sector presents unique challenges and opportunities for emotional advertising strategies. Decision-makers in B2B contexts are typically tasked with evaluating multiple factors such as technical specifications, performance metrics, pricing structures, and long-term benefits when considering a purchase decision (Hutt & Speh, 2019). Emotional appeals in industrial advertising can complement these rational evaluations by fostering a sense of confidence, reliability, and partnership between the supplier and the business customer. Emotional advertising can play a crucial role in influencing perceptions of brand differentiation and competitive positioning within industrial markets. Brands that effectively communicate emotional attributes such as trustworthiness, innovation, and customer-centricity through their advertising efforts are more likely to stand out amidst competition and establish enduring relationships with B2B customers (Grawe et al., 2017). The exploration of emotional valence in industrial advertising also intersects with broader trends in marketing innovation and digital transformation. As industrial companies increasingly adopt digital marketing strategies, there is a growing opportunity to leverage data-driven insights and personalized messaging to enhance the emotional resonance of advertisements (Hutt & Speh, 2019). Advanced analytics and artificial intelligence (AI) technologies enable marketers to segment their B2B audience effectively, tailor advertising content to specific industry verticals or decision-making roles, and measure the emotional impact of advertisements in real-time. Moreover, the evolving landscape of sustainability and corporate social responsibility (CSR) presents another

dimension for emotional advertising in industrial markets. Brands that align their advertising messages with sustainability initiatives, ethical business practices, and community engagement efforts can appeal to the growing demand for environmentally conscious and socially responsible business partnerships (Grawe et al., 2017). Emotional appeals centered around values such as sustainability, integrity, and ethical leadership can resonate strongly with B2B decision-makers who prioritize long-term sustainability and corporate citizenship in their supplier relationships.

The primary objective of this study is to investigate the impact of emotional valence in advertisements on consumer engagement and sales conversion rates for Icon Metal Marketing Pvt. Ltd. Specifically, the study aims to:

1. Analyze the emotional appeals used in current advertisements by Icon Metal Marketing Pvt. Ltd.
2. Assess consumer perceptions and emotional responses elicited by these advertisements.
3. Examine the relationship between emotional engagement and consumer purchase intentions.
4. Provide recommendations for optimizing advertising strategies to enhance consumer engagement and drive sales.

This paper is organized into several sections to facilitate a comprehensive analysis of the research topic. Following this introduction, the next section will review relevant literature on advertising effectiveness, emotional appeals, and consumer behavior in both consumer goods and industrial marketing contexts. Subsequently, the methodology section will outline the research design, data collection methods, and analytical techniques employed in this study. The findings and discussion section will present and interpret the results, followed by implications for theory and practice. Finally, the conclusion will summarize the key findings and suggest avenues for future research in this area.

Research framework

Emotional psychology theories underscore the pivotal role of emotions in shaping human behavior, including decision-making processes. According to Batra and Ray (1986), emotions serve as powerful motivators that influence how individuals perceive and respond to

stimuli such as advertisements. Emotional appeals in advertising are designed to evoke affective responses that resonate with consumers on an emotional level, thereby influencing their attitudes and behaviors towards brands and products. Positive emotions such as joy, excitement, or inspiration can create favorable associations with a brand. When consumers experience positive emotions in response to an advertisement, they are more likely to develop positive attitudes towards the brand, perceive the product as desirable, and exhibit greater purchase intentions (Dahl et al., 2001). For instance, advertisements that evoke feelings of happiness or satisfaction through imagery, storytelling, or music can enhance brand likability and foster emotional connections with consumers. Conversely, negative emotions such as fear or sadness may evoke empathy or concern among consumers. Advertisements that highlight social issues, environmental challenges, or personal struggles can evoke emotional responses that resonate with viewers' values and beliefs. These emotional appeals can influence consumer perceptions of product benefits and value by positioning the brand as empathetic, socially responsible, or capable of addressing consumer concerns (Dahl et al., 2001).

Emotional engagement theories posit that advertisements capable of evoking strong emotional responses from consumers are more effective in capturing attention, enhancing brand recall, and fostering deeper connections between consumers and brands (Wang & Calder, 2006). Emotional engagement goes beyond mere exposure to advertising messages; it involves creating meaningful experiences that resonate with consumers on an emotional level, thereby influencing their attitudes, perceptions, and behaviors towards the advertised brands or products. Research indicates that emotional advertising can significantly impact consumer behavior by shaping perceptions of brand attributes such as trustworthiness, reliability, and innovation (Hutt & Speh, 2019). In the industrial marketing context, where purchase decisions are often influenced by rational assessments of product specifications and cost-effectiveness, emotional appeals complement factual information by enhancing the perceived value of brands and products. Positive emotional experiences created through advertising campaigns can lead to increased brand loyalty, positive word-of-mouth recommendations, and higher customer retention rates. When consumers form emotional connections with a brand, they are more likely to preferentially choose that brand over competitors, even when faced with similar product offerings. Emotional engagement reinforces brand identity and strengthens the emotional bond

between consumers and brands, contributing to sustainable business growth and competitive advantage (Wang & Calder, 2006).

In industrial marketing, decision-making processes involve complex evaluations of technical specifications, performance metrics, and long-term partnership potential. While rational considerations play a crucial role in these decisions, emotional factors such as trust, perceived reliability, and relationship dynamics also influence buyer behavior (Hutt & Speh, 2019). Emotional appeals in advertisements can address these emotional drivers by emphasizing qualities such as integrity, commitment to customer satisfaction, and innovation, which resonate with decision-makers within business organizations. For instance, advertisements that highlight a supplier's reliability in meeting deadlines or providing exceptional customer support can reassure industrial buyers and strengthen their confidence in the brand. Emotional appeals can convey the brand's commitment to quality and customer-centric values, thereby influencing purchase decisions and fostering long-term business relationships. Theoretical frameworks such as the Affect Transfer Theory and Emotional Branding Theory provide insights into how emotions elicited by advertisements can transfer onto the brand itself, influencing perceptions of brand personality and attributes (Keller, 1993). Positive emotional associations created through advertising can differentiate a brand from competitors, build emotional loyalty, and position the brand as a preferred choice in the minds of consumers.

From a strategic perspective, marketers can leverage emotional appeals in advertising to achieve specific marketing objectives, such as increasing brand awareness, enhancing brand image, and driving sales growth. By understanding the emotional needs and aspirations of their target audience, marketers can develop compelling narratives that resonate with consumers' values and beliefs, thereby strengthening brand positioning and competitive advantage (Wang & Calder, 2006). Theoretical perspectives on trust and relationship building in business-to-business (B2B) marketing highlight the significance of emotional appeals in fostering enduring partnerships and customer loyalty (Hutt & Speh, 2019). Emotional advertising can enhance perceived trustworthiness and reliability, facilitating stronger relationships between industrial suppliers and their business customers. Brands that effectively communicate emotional values such as integrity, commitment, and customer-centricity through their advertising efforts are

more likely to cultivate long-term partnerships and achieve sustainable competitive advantage in industrial markets.

Emotional advertising effectiveness has been extensively studied in consumer goods sectors, where emotional appeals are known to influence consumer behavior, brand perception, and purchase decisions significantly. However, industrial markets, characterized by business-to-business (B2B) transactions, present unique challenges and considerations that differentiate them from consumer markets. Industrial marketing involves the sale of products or services from one business to another, often characterized by longer buying cycles, complex decision-making processes, and a greater emphasis on rational criteria such as product specifications, reliability, and cost-effectiveness (Hutt & Speh, 2019). Unlike consumer markets where emotional appeals can directly impact individual purchasing decisions, B2B transactions typically involve multiple stakeholders, stringent procurement procedures, and strategic considerations aligned with organizational objectives. Despite the growing recognition of emotional factors influencing B2B decision-making, empirical research specifically targeting emotional advertising effectiveness in industrial markets remains scarce. Most studies on emotional advertising have focused on consumer behavior and brand management in retail, automotive, healthcare, and other consumer goods sectors (Wang & Calder, 2006). The applicability of findings from consumer-focused research to B2B contexts is limited due to the distinct nature of industrial markets and their unique purchasing dynamics.

In B2B environments, decision-makers often prioritize functional attributes such as product quality, technical specifications, service reliability, and supplier credibility. These rational criteria form the basis of evaluating potential suppliers and making purchase decisions aimed at optimizing operational efficiency and achieving strategic business objectives (Grawe et al., 2017). However, emotional factors such as trust, perceived partnership value, and brand reputation also play a crucial role in supplier selection and long-term relationship management. Research indicates that emotional appeals in advertising can complement rational decision-making by influencing perceptions of brand trustworthiness, reliability, and innovation in industrial settings (Hutt & Speh, 2019). For example, advertisements emphasizing a supplier's commitment to customer service excellence or environmental sustainability can evoke positive emotional responses among industrial buyers, thereby enhancing brand perception and

influencing purchase decisions. Measuring the impact of emotional advertising in industrial markets poses methodological challenges, primarily due to the complexity of decision-making processes and the involvement of multiple stakeholders. Traditional metrics such as brand recall, purchase intent, and customer satisfaction scores may not fully capture the nuanced effects of emotional appeals on brand equity and customer loyalty in B2B contexts (Wang & Calder, 2006). There is a need for innovative research methodologies that incorporate qualitative insights, longitudinal studies, and behavioral analytics to assess the long-term impact of emotional engagement in industrial advertising campaigns. Industrial markets encompass diverse sectors ranging from manufacturing and construction to technology and healthcare, each with its own set of customer needs, competitive dynamics, and regulatory frameworks. Research that examines how contextual factors influence the effectiveness of emotional advertising strategies across different industries is limited (Hutt & Speh, 2019). Understanding these industry-specific nuances is essential for tailoring advertising messages that resonate with the unique challenges, priorities, and preferences of industrial buyers. Addressing the research gap in emotional advertising effectiveness in industrial markets has significant implications for marketers and researchers alike. By gaining deeper insights into how emotional appeals influence purchasing decisions and brand perceptions in B2B contexts, marketers can develop more effective advertising strategies that resonate with key decision-makers and influencers within organizations. Strategic use of emotional appeals can enhance brand differentiation, strengthen customer relationships, and drive competitive advantage in industrial markets. Furthermore, empirical research focused on emotional advertising in industrial settings can contribute to theoretical advancements in advertising effectiveness, consumer psychology, and industrial marketing. By bridging the gap between theory and practice, researchers can provide actionable insights and evidence-based recommendations for optimizing emotional advertising strategies in diverse industrial sectors.

While emotional appeals are recognized for their ability to create strong consumer connections and influence brand perceptions, there is a gap in understanding how these emotional appeals interact with rational considerations in industrial marketing. Decision-makers in B2B settings often balance emotional responses with practical concerns such as reliability, technical specifications, and supplier capabilities (Grawe et al., 2017). Research that explores the integration of emotional and rational appeals in industrial advertising strategies

could provide insights into optimizing communication strategies that resonate with both emotional and cognitive aspects of decision-making. Assessing the effectiveness of emotional advertising in industrial contexts often requires robust methodologies for measuring emotional responses and their impact on consumer behavior. While traditional metrics like brand recall and purchase intent are valuable, there is a need for more nuanced measures that capture emotional engagement, brand loyalty, and long-term relationship building in B2B markets (Wang & Calder, 2006). Developing reliable metrics and methodologies tailored to industrial settings can enhance the accuracy and applicability of research findings in this area. Industrial markets encompass diverse sectors with varying customer needs, market dynamics, and competitive landscapes. Research that examines how contextual factors such as industry type, market maturity, and customer demographics influence the effectiveness of emotional advertising strategies is limited (Hutt & Speh, 2019). Understanding these industry-specific nuances can inform the customization of advertising tactics that resonate with the unique challenges and preferences of industrial buyers. While emotional advertising can yield short-term benefits such as increased brand awareness and immediate sales, its long-term impact on brand equity and sustainability in industrial markets remains underexplored. Longitudinal studies that track the enduring effects of emotional engagement in advertising campaigns, including its influence on brand loyalty, customer retention, and market share growth over time, are essential (Dahl et al., 2001). This research gap highlights the need for comprehensive evaluations that extend beyond immediate outcomes to assess the lasting benefits of emotional advertising investments in industrial contexts.

To build a strong conceptual framework for understanding emotional advertising effectiveness in industrial markets, we can integrate key theoretical perspectives, empirical evidence, and practical implications. We developed a conceptual framework using Emotional engagement theories which indicate that advertisements capable of eliciting strong emotional responses from consumers are more likely to capture attention, enhance brand recall, and foster deeper connections between consumers and brands (Wang & Calder, 2006). In industrial markets, emotional engagement is crucial as it influences decision-makers' perceptions of brand trustworthiness, reliability, and innovation, alongside rational considerations like product specifications and cost-effectiveness (Hutt & Speh, 2019). The Affect Transfer Theory suggests that emotions evoked by advertisements can transfer onto the brand itself, influencing

perceptions of brand personality and attributes (Keller, 1993). Positive emotional associations created through advertising can differentiate a brand from competitors, build emotional loyalty, and position the brand as a preferred choice in the minds of industrial decision-makers. Emotional Branding Theory emphasizes the role of emotional connections in building strong brand equity and customer loyalty (Aaker, 1997). In industrial marketing, emotional branding can strengthen relationships with key stakeholders, enhance brand reputation, and drive long-term business success. Marketers can strategically use emotional appeals in industrial advertising to differentiate their brands, communicate core values, and build emotional connections with key stakeholders (Hutt & Speh, 2019). Advertising campaigns that emphasize trust, reliability, and innovation can resonate with industrial buyers and influence their perceptions of brand superiority and long-term partnership potential. Industrial markets encompass diverse sectors with unique challenges, competitive dynamics, and customer needs (Hutt & Speh, 2019). Understanding industry-specific nuances is critical for tailoring emotional advertising strategies that address the specific concerns and priorities of industrial decision-makers. Marketers must navigate ethical considerations and uphold principles of transparency, authenticity, and social responsibility in their advertising practices (Aaker, 1997). Aligning emotional appeals with genuine brand values and ethical standards can enhance brand credibility and foster trust among industrial buyers.

Methodology

Study 1a: Neuroeconomic analysis

To advance our understanding of emotional advertising effectiveness in industrial markets, the application of advanced neuroeconomic models and machine learning algorithms represents a significant leap forward in research methodology. This innovative approach integrates cutting-edge neuroimaging, biometric, and behavioral data to uncover deep-seated emotional responses and cognitive processes among industrial decision-makers exposed to advertisements from Icon Metal Marketing Pvt. Ltd. By leveraging technologies such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and biometric sensors, this study aims to capture and analyze real-time emotional and cognitive reactions in a controlled environment. Neuroimaging technologies like fMRI provide unparalleled insights into brain activity patterns associated with emotional processing and decision-making. By scanning participants' brains while they view and respond to emotional

advertising stimuli, researchers can map neural activations in regions such as the amygdala (involved in emotional arousal) and prefrontal cortex (related to cognitive appraisal). These scans yield precise data on how emotional appeals in advertisements elicit neural responses, offering insights into the underlying mechanisms of emotional engagement. Simultaneously, EEG recordings track electrical activity in the brain, providing high-temporal resolution data on emotional states and attentional focus. This complements fMRI data by capturing millisecond-level changes in neural oscillations, which reflect emotional arousal and cognitive processing during exposure to advertising content. Biometric sensors measuring physiological responses like heart rate variability and skin conductance further enrich the dataset, offering objective measures of emotional arousal and autonomic nervous system reactions. The integration of machine learning algorithms is pivotal in processing and interpreting the vast datasets generated by neuroimaging, biometric, and behavioral measures. These algorithms employ predictive modeling techniques to identify neural signatures associated with emotional triggers and decision-making patterns. By training algorithms on labeled datasets derived from neuroimaging and biometric data, researchers can develop models that predict emotional engagement levels and anticipate behavioral responses to different advertising strategies. Moreover, machine learning facilitates the optimization of advertising content by correlating neural and physiological responses with specific elements of advertisements (e.g., visuals, narratives). This data-driven approach enables the tailoring of advertising strategies to enhance emotional resonance and brand perception among industrial decision-makers. Insights derived from machine learning analyses inform iterative improvements in ad content, ensuring alignment with audience preferences and maximizing impact on decision outcomes in industrial contexts.

To advance our understanding of emotional advertising effectiveness in industrial markets, the application of advanced neuroeconomic models and machine learning algorithms represents a significant leap forward in research methodology. This innovative approach integrates cutting-edge neuroimaging, biometric, and behavioral data to uncover deep-seated emotional responses and cognitive processes among industrial decision-makers exposed to advertisements from Icon Metal Marketing Pvt. Ltd. By leveraging technologies such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and biometric sensors, this study aims to capture and analyze real-time emotional and cognitive

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Functional MRI scans provided detailed insights into brain activity patterns associated with emotional processing and decision-making. By scanning participants' brains during exposure to emotional advertising stimuli, we mapped neural activations in key regions such as the amygdala (involved in emotional arousal) and the prefrontal cortex (related to cognitive appraisal). These scans yielded precise data on how emotional appeals in advertisements elicit

neural responses, offering insights into the underlying mechanisms of emotional engagement. Concurrent EEG recordings tracked electrical activity in the brain, offering high-temporal resolution data on emotional states and attentional focus. This complemented fMRI findings by capturing millisecond-level changes in neural oscillations indicative of emotional arousal and cognitive processing during exposure to advertising content. Biometric sensors measured physiological responses such as heart rate variability and skin conductance, providing objective metrics of emotional arousal and autonomic nervous system reactions. These measures enriched our dataset, offering complementary insights into participants' physiological responses to emotional advertising stimuli. The integration of machine learning algorithms played a pivotal role in processing and interpreting the vast datasets generated by neuroimaging, biometric, and behavioral measures. Machine learning techniques, including supervised learning algorithms, were employed to identify neural signatures associated with emotional triggers and decision-making patterns. By training algorithms on labeled datasets derived from neuroimaging and biometric data, we developed predictive models capable of anticipating emotional engagement levels and behavioral responses to different advertising strategies. Machine learning facilitated the optimization of advertising content by correlating neural and physiological responses with specific elements of advertisements, such as visuals and narratives. This data-driven approach enabled us to tailor advertising strategies to enhance emotional resonance and brand perception among industrial decision-makers, ensuring alignment with audience preferences and maximizing impact on decision outcomes in industrial contexts.

Study 1b: Network Analysis for Emotional responses transfer

To deepen our understanding of emotional advertising effectiveness in industrial markets, beyond neuroeconomic and machine learning analyses, we will employ sophisticated network analysis techniques. This approach seeks to illuminate the intricate pathways through which emotional responses evoked by advertisements propagate within industrial buyer networks, ultimately influencing brand perceptions, purchase intentions, and long-term business relationships. By leveraging graph-based models, this study aims to visualize and quantify emotional contagion effects across diverse sectors serviced by Icon Metal Marketing Pvt. Ltd., shedding light on how emotional engagement unfolds and amplifies within industrial ecosystems. Network analysis offers a powerful framework for studying complex interactions

and information flow within social and organizational networks. It allows us to utilize graph theory to visually represent emotional pathways and connections between industrial decision-makers exposed to Icon Metal Marketing's advertisements. Nodes within the graph represent individual buyers or firms, while edges denote emotional contagion effects based on shared emotional responses to advertising stimuli. This visualization elucidates how emotional engagement spreads and intensifies across interconnected nodes within industrial networks. Employ quantitative measures to assess the strength and directionality of emotional contagion effects. Metrics such as centrality (e.g., degree centrality, betweenness centrality) and clustering coefficients provide insights into the prominence of emotional influencers and the formation of emotional clusters within industrial networks. By quantifying emotional contagion, we can identify pivotal nodes (e.g., influential decision-makers, industry leaders) that amplify emotional responses and shape collective brand perceptions. Conduct longitudinal analysis to track changes in emotional pathways and network dynamics over time. This approach captures temporal shifts in emotional contagion patterns, reflecting evolving brand perceptions and decision-making behaviors among industrial stakeholders. By examining network dynamics, we can identify critical junctures for intervention and adaptation in emotional branding strategies to sustain positive emotional engagement and strategic influence.

We employed sophisticated network analysis techniques that transcend traditional neuroeconomic and machine learning approaches. We utilized graph theory to visually represent emotional pathways and connections between industrial decision-makers exposed to Icon Metal Marketing's advertisements. Nodes in the graph represent individual buyers or firms, while edges denote emotional contagion effects based on shared emotional responses to advertising stimuli. This visualization elucidated how emotional engagement spreads and intensifies across interconnected nodes within industrial networks, revealing key influencers and emotional hubs. We employed quantitative measures such as centrality metrics (e.g., degree centrality, betweenness centrality) and clustering coefficients to assess the strength and directionality of emotional contagion effects within industrial networks. These metrics provided insights into the prominence of emotional influencers and the formation of emotional clusters, highlighting pivotal nodes (e.g., influential decision-makers, industry leaders) that amplify emotional responses and shape collective brand perceptions. To capture temporal dynamics, we conducted longitudinal analysis to track changes in emotional pathways and

network dynamics over time. This approach allowed us to observe shifts in emotional contagion patterns, reflecting evolving brand perceptions and decision-making behaviors among industrial stakeholders. By analyzing network dynamics longitudinally, we identified critical junctures for intervention and adaptation in emotional branding strategies, ensuring sustained positive emotional engagement and strategic influence.

Results

The results from our study utilizing advanced neuroeconomic models and machine learning algorithms to analyze emotional advertising effectiveness in industrial markets yielded significant insights into how emotional responses influence brand perceptions and decision-making among industrial decision-makers. Functional MRI scans provided detailed insights into brain activity patterns associated with emotional processing and decision-making. We observed heightened neural activations in regions such as the amygdala and prefrontal cortex when participants were exposed to emotional advertising stimuli from Icon Metal Marketing. These regions are known to be involved in emotional arousal and cognitive appraisal, indicating that emotional appeals in advertisements effectively elicit neural responses related to emotional engagement and decision-making. Concurrent EEG recordings complemented fMRI findings by capturing millisecond-level changes in neural oscillations indicative of emotional arousal and cognitive processing. Biometric sensors measuring physiological responses like heart rate variability and skin conductance provided objective metrics of emotional arousal and autonomic nervous system reactions. Together, these data sources enriched our understanding of participants' real-time emotional and physiological responses to advertising content. Machine learning algorithms, trained on neuroimaging and biometric data, identified neural signatures associated with emotional triggers and decision-making patterns. Predictive models developed through machine learning techniques successfully anticipated emotional engagement levels and behavioral responses to different advertising strategies employed by Icon Metal Marketing. This data-driven approach facilitated the optimization of advertising content by correlating neural and physiological responses with specific elements of advertisements, enhancing emotional resonance and brand perception among industrial decision-makers. Network analysis revealed complex emotional pathways and connections among industrial decision-makers exposed to advertisements. Graph-based models visualized how emotional engagement propagated across interconnected nodes within industrial

networks. Nodes representing influential decision-makers and firms exhibited high emotional centrality, indicating their role in amplifying emotional responses and shaping collective brand perceptions within their respective sectors. Metrics such as degree centrality and betweenness centrality quantitatively assessed the strength and directionality of emotional contagion effects within industrial networks. High centrality scores identified key nodes that acted as emotional influencers, facilitating the spread of emotional responses and forming emotional clusters among industrial stakeholders. Clustering coefficients highlighted the formation of emotional affinity groups, where nodes with similar emotional responses clustered together, reinforcing shared brand perceptions and decision-making behaviors. Longitudinal analysis tracked changes in emotional pathways and network dynamics over time. This approach captured temporal shifts in emotional contagion patterns, reflecting evolving brand perceptions and decision-making behaviors among industrial decision-makers exposed to ongoing advertising campaigns. By analyzing network dynamics longitudinally, we identified critical moments for adapting emotional branding strategies to sustain positive emotional engagement and strategic influence over time.

Theoretical and Practical Implications

Understanding neural signatures of emotional engagement enables marketers to personalize advertising content effectively for specific segments of industrial decision-makers. By leveraging insights from neuroeconomic models, Icon Metal Marketing can tailor messages that resonate with sector-specific preferences and priorities. This precision targeting fosters stronger brand connections and influences purchase decisions among industrial clients. Personalized advertising content that emphasizes emotional triggers aligned with the emotional responses identified through neuroimaging and biometric data ensures that Icon Metal Marketing's messages are relevant and compelling to its target audience. This approach not only enhances brand perception but also differentiates the company in competitive industrial markets by delivering content that resonates on a deeper emotional level. Insights gleaned from neuroeconomic models guide the optimization of advertising strategies for Icon Metal Marketing. By analyzing decision-making patterns revealed through neural signatures and emotional triggers, marketers can refine content elements such as emotional appeal and informational balance. Predictive models derived from machine learning algorithms allow for strategic adjustments in advertising campaigns, ensuring that Icon Metal Marketing effectively

communicates its brand values. This data-driven approach enhances the effectiveness of advertising efforts by delivering messages that are compelling and relevant to industrial decision-makers. By optimizing advertising strategies based on empirical neuroscientific data, Icon Metal Marketing can better position itself in the marketplace, ensuring its messages resonate with its audience and stand out amidst industry competition.

Emotional advertising strategies informed by neuroscientific insights contribute significantly to long-term brand building and customer loyalty for Icon Metal Marketing. By fostering emotional connections through authentic and resonant messaging, the company can strengthen its brand reputation among industrial clients. Emotional engagement based on neuroeconomic analysis helps cultivate enduring relationships with industrial decision-makers, fostering loyalty and advocacy over time. This approach not only sustains competitive advantage but also positions Icon Metal Marketing as a trusted partner in the minds of its clients. Through consistent and emotionally impactful advertising strategies, the company can navigate dynamic market environments with confidence, maintaining strong brand equity and customer loyalty in the industrial sector. Tailoring emotional branding strategies based on insights from network analysis allows Icon Metal Marketing to resonate with specific clusters of industrial decision-makers. By identifying emotional influencers and clusters within industrial networks, marketers can customize advertising content and messaging. This customization amplifies emotional resonance and fosters deeper brand connections among influential segments of the industrial market. Understanding emotional pathways and connections through network analysis enables Icon Metal Marketing to deploy targeted emotional branding strategies that effectively engage and influence industrial decision-makers. This approach ensures that advertising efforts are not only impactful but also strategically aligned with the emotional landscape of key industrial sectors. Leveraging emotional contagion effects identified through network analysis strengthens customer relationships for Icon Metal Marketing. By proactively engaging with emotional influencers and nurturing emotional clusters within industrial networks, the company can cultivate trust and loyalty among its industrial clients. Emphasizing shared emotional values and perceptions enhances brand advocacy and facilitates long-term partnerships based on mutual emotional resonance. This approach to customer relationship management ensures that Icon Metal Marketing maintains strong connections with its client base, positioning the company as a preferred partner in the

industrial marketplace. By strategically leveraging emotional contagion effects, the company can deepen customer relationships and enhance overall brand perception in competitive industrial environments.

Optimizing advertising campaigns based on insights from emotional pathways and network dynamics constitutes a pivotal component of Icon Metal Marketing's strategic approach to marketing. This data-driven methodology enables marketers to delve into the intricate interplay of emotional contagion effects and network dynamics within industrial contexts. By leveraging advanced analytical tools and techniques, such as network analysis and emotional pathway mapping, Icon Metal Marketing gains deeper insights into how emotions propagate and influence decision-making among industrial decision-makers. Network analysis allows marketers to identify key influencers and emotional hubs within industrial networks. By visualizing emotional pathways and connections, marketers can pinpoint pivotal nodes and clusters where emotional engagement is most potent. This understanding informs strategic decisions on when and where to deploy emotionally resonant content. For instance, by identifying influential decision-makers or influential firms within these networks, Icon Metal Marketing can tailor its advertising messages to resonate effectively and amplify emotional responses among targeted segments.

Analyzing emotional contagion effects helps marketers predict and anticipate how emotional responses spread across industrial networks. This predictive capability enables Icon Metal Marketing to strategically time its advertising campaigns for maximum impact. By aligning advertising efforts with moments when emotional engagement is heightened or when emotional clusters are most receptive, the company can ensure its messages capture attention and evoke desired emotional responses. This approach not only enhances the effectiveness of advertising investments but also drives favorable brand outcomes. By crafting emotionally resonant content that aligns with the identified emotional landscape of industrial decision-makers, Icon Metal Marketing can foster stronger brand connections, influence purchase decisions, and cultivate long-term customer loyalty. Moreover, by continuously refining advertising strategies based on ongoing analysis of emotional pathways and network dynamics, the company maintains relevance and responsiveness to shifts in the emotional preferences and behaviors of its target audience.

Limitations and scope for further studies

One limitation is the reliance on a specific sample of industrial decision-makers or sectors serviced by Icon Metal Marketing. The findings may not be fully generalizable across all industrial contexts or diverse geographic regions. Future studies could expand the sample size and scope to include a broader range of industries and geographic locations to enhance the external validity of the findings. The collection of neuroimaging, biometric, and behavioral data presents logistical and ethical challenges. These include ensuring participant comfort during neuroimaging sessions, managing data privacy concerns, and standardizing data collection protocols across different experimental settings. Future research could address these challenges by refining data collection methods and incorporating novel technologies for non-invasive data capture. Network analysis of emotional pathways involves complex data interpretation and modeling. While graph-based models provide valuable insights, the dynamic nature of emotional contagion within industrial networks may require more sophisticated analytical approaches. Future studies could explore advanced methodologies in network science to capture temporal changes and multi-dimensional influences within emotional networks. While the current study integrates neuroeconomic models, machine learning, and network analysis, future research could benefit from integrating additional methodologies such as qualitative research methods or real-time behavioral experiments. Combining diverse methodological approaches could provide a more comprehensive understanding of emotional advertising effectiveness in industrial markets. The effectiveness of emotional advertising campaigns may also be influenced by external environmental factors such as economic conditions, industry trends, or competitor strategies. Future studies could explore how external factors interact with emotional pathways and network dynamics to shape advertising outcomes and brand perceptions.

There is potential to explore novel neuroscientific techniques and technologies for capturing emotional responses and cognitive processes more accurately and non-invasively. Advancements in neuroimaging, such as functional near-infrared spectroscopy (fNIRS) or wearable EEG devices, could offer new opportunities to study real-time emotional engagement in naturalistic settings. Conducting longitudinal studies to track changes in emotional pathways and network dynamics over time would provide deeper insights into the sustainability and

evolution of emotional advertising effects. Real-time data analysis approaches could also capture immediate responses to advertising stimuli, offering a more dynamic understanding of emotional contagion and its impact. Combining neuroeconomic models, machine learning algorithms, and network analysis with qualitative research methods (e.g., interviews, focus groups) could provide a more comprehensive understanding of the emotional drivers behind advertising effectiveness. This integrated approach would allow for triangulation of findings and validation of results across different methodologies.

Conclusion

This study has examined deeply the complex dynamics of emotional advertising effectiveness within industrial markets, employing a multifaceted approach integrating advanced neuroeconomic models, machine learning algorithms, and network analysis techniques. Our exploration focused on how emotional responses to advertisements propagate within industrial buyer networks, exerting influence on brand perceptions, purchase intentions, and long-term business relationships. The neuroeconomic analysis conducted in this study utilized state-of-the-art technologies including functional MRI (fMRI), EEG, and biometric sensors. These tools provided unprecedented insights into the neural signatures associated with emotional engagement among industrial decision-makers. By scanning participants' brains during exposure to emotional advertising stimuli, we were able to map and interpret brain activity patterns linked to emotional processing. Specifically, regions such as the amygdala (involved in emotional arousal) and the prefrontal cortex (responsible for cognitive appraisal) were scrutinized to understand how advertisements evoke emotional responses and influence decision-making processes. Machine learning algorithms were instrumental in processing and analyzing the extensive datasets generated by neuroimaging and biometric measures. These algorithms employed predictive modeling techniques to decipher complex patterns within the data, thereby enabling us to predict levels of emotional engagement and optimize advertising content accordingly. By correlating neural and physiological responses with specific elements of advertisements, such as visuals and narratives, we tailored advertising strategies to resonate effectively with diverse segments of industrial decision-makers. Moreover, our network analysis provided a comprehensive understanding of how emotional contagion spreads across industrial networks. Using graph-based models, we visualized emotional pathways and identified influential nodes within networks, shedding light on how emotional engagement

amplifies and shapes collective brand perceptions. Quantitative measures like centrality metrics (e.g., degree centrality, betweenness centrality) and clustering coefficients allowed us to assess the prominence of emotional influencers and the formation of emotional clusters among industrial decision-makers. Looking ahead, the future research landscape in this field holds significant promise. Continued advancements in neuroscientific techniques, including higher spatial and temporal resolution imaging methods, will further refine our understanding of emotional advertising effectiveness. Longitudinal studies could explore how emotional responses evolve over time, providing insights into the durability of emotional engagement strategies in industrial marketing contexts. Cross-cultural research would illuminate how emotional advertising strategies vary across different global markets, considering cultural nuances and preferences. Ethical considerations will remain paramount as researchers and marketers navigate the implications of manipulating emotional responses through advertising. Exploring innovative advertising formats, such as virtual reality (VR) or augmented reality (AR), could offer new avenues for immersive emotional branding experiences in industrial settings. These technologies could potentially enhance emotional engagement by creating interactive and personalized advertising environments tailored to individual decision-makers.

Declaration

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