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# THE CURRENT POSITION OF NEUROMARKETING AS A TOOL OF MARKETING AND COMMUNICATION STRATEGY

**Ladislav PÁTÍK**

**ABSTRACT:**
Neuromarketing is a tool used to investigate real consumer preferences that are not subjectively influenced, e.g. bias towards a certain brand, marketing communication tools, etc. It studies brain functions when deciding to buy a product. The goal is to find and identify the differences between the customer's conscious assertion and subconscious behaviour. It monitors how the brain reacts to certain stimuli contained in an advertisement, brand, etc. For this, it uses studies that examine the influence of marketing stimuli on consumer reactions. The goal of our study is to provide an objective and comprehensive overview of new scientific findings that point to certain gaps in research methods and thinking about consumer behaviour and decision-making. We focus on the field of neuromarketing in general, on its methods, the concept of intuitive consumer behaviour. The core parts are practical applications of neuromarketing in the field of marketing and marketing communication. The research part describes the course and results of the applied experiment, using two methods of neuromarketing research to influence the senses of the consumer and to find the differences between conscious and unconscious decision-making, and at the same time, how these findings can manifest themselves in the area of marketing and communication strategy. Key findings are clearly summarised in the summary and conclusion.

**KEY WORDS:**
behavioural response, concept, customers intuitive behaviour, decision-making, marketing, marketing communications, neuromarketing, perceptions, senses

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# 1 Introduction

Marketing represents the process of a continuous, repetitive cycle of consumer interaction with products and brands, the creation and sharing of marketing communications, through shopping to consumption and retrospective evaluation of product experiences (Genco, 2019).

The era when companies relied on quality products that would "sell themselves" has been replaced by a new approach focused on customers and markets. Through consumer research, they discover the needs and wants of consumers with the belief that this valuable information will allow them to better understand consumer behaviour and decision-making in the market. "In response, companies are moving away from managing their product portfolios to managing customer portfolios, gathering databases of individual customers to better understand them and deliver personalised offers and communications" (Kotler & Keller, 2013, p. 23). Currently, companies all around the world are investing considerable resources and reorganising their departments to effectively manage and set company goals, strategic planning and effective marketing communications. The traditional marketing approach assumes that people behave and make decisions rationally based on logical reasoning, and that effective advertising consists of the ability to gain their attention, stimulate interest, evoke emotions and, through persuasive arguments, move them to action.

However, the last decade has produced many new scientific findings and highlighted the gaps in traditional marketing including research methods and thinking about consumer behaviour and decision-making (Krajčovič et al., 2023). Neuroscience says that consumers are typically intuitive individuals who rarely make decisions based on information and logic. On the contrary, it emphasises that decision-making consists of unconscious processes and the natural resistance to effortful thinking, which the human brain usually prefers least. Neuromarketing has provided new methods and measurement techniques regarding how people consciously and unconsciously respond to marketing messages, products and brands.

Intuitive marketing relies on these conscious and unconscious processing systems in the human brain and tries to indirectly influence them through entertaining stimulation that would create positive associative connections with products and brands, resulting in subsequent activation at the point of sale.

## *1. 1 Neuromarketing*

Traditional marketing research methods, such as consumer surveys, self-reports and focus groups, have pointed out gaps in the collection of information based on which a customer makes a purchase decision. Consumers make 95% of their purchasing decisions subconsciously. By using different techniques of measuring unconscious physical reactions, it proves that consumers consciously formulate their preferences, and that therefore the information obtained through traditional marketing research tends to be greatly distorted by reason (Mahoney, 2003).

To detect the irrational behaviour and way of decision-making of the consumer in the market, it is necessary to see into the customer's head, i.e., to understand the human brain and its processes. The relatively young field of neuromarketing helps complete the missing part in traditional marketing research methods, which are not based on respondents' verbal messages, but on their actual subconscious reactions and emotional expressions. Nobel laureate Francis Crick's hypothesis describes: "The idea that all human feelings, thoughts, and actions – even consciousness itself – are just the products of neural activity in the brain. For marketers, the promise of this idea, is that neurobiology can reduce the uncertainty and conjecture that traditionally hamper efforts to understand consumer behaviour" (Harrell, 2019, p. 86).

In neuromarketing, there are many methods of measuring the physiological and neural signals of the brain to gain more insight into consumer decision-making, motivation, and preferences. Based on these research measurement methods, marketers obtain data not distorted by rational reasoning and preferences, but subconscious reactions and needs of the consumer, with which it is possible to effectively set marketing strategies or the correct

launch of a new product onto the market. In order for workers in the field of neuromarketing to be able to correctly interpret these results from research measurements, they must know the basic building blocks and functions of the human brain, which guides all cognitive processes-(Alsharif, 2021).

Neuromarketing tools and techniques used in research can be divided between the central nervous system, hereinafter referred to as CNS, and the peripheral nervous system, hereinafter referred to as PNS. Neurometric technology captures CNS activities inside the brain, while measurements of physical activities (muscle movements) controlled by the PNS brain are recorded through biometric measurements (Farnsworth, 2018). Within the framework of neuromarketing measurements of motor signals of the PNS, the division of the somatic (SNS) and autonomic (ANS) nervous system is essential. ANS signals are significantly slower and automatic, they are so-called involuntary reactions. In contrast, SNS signals are faster and can be partially controlled (Genco et al., 2013).

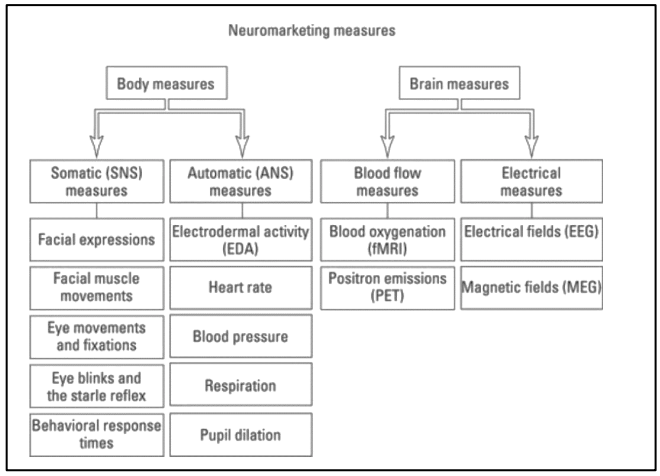


*Figure 1. Neuromarketing measurements from body and brain*
*Source: Genco et al., 2013*

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The most important tools currently used by neuromarketing are:

- Biometric measurements;
- Coding of facial expression (Facial Action Coding System – FACS);
- Electromyography (EMG);
- Eye-tracking (ET);
- Behavioural response;
- Pupilometry;
- Electrodermal Activity (EDA);
- Functional magnetic resonance imaging (fMRI);
- Positron emission tomography (PET);
- Electroencephalography (EEG);
- Magnetoencephalograph (MEG).

## *1. 2 Concept of Intuitive Marketing*

The last decade has seen many new scientific findings from the fields of neuroscience, social psychology and behavioural economics, which have contributed to the emergence of a new way of thinking about marketing, and that is intuitive marketing. This approach was based on a scientific model of consumer behaviour and decision-making, which includes the mechanisms and functions of conscious and unconscious mental processes. Like neuromarketing, intuitive marketing uses the insights of neuroscience to interpret the physiological responses and mental states triggered after being exposed to various marketing messages, brands and products. Social psychology elucidates how conscious and unconscious brain processes work together in consumer decision-making and behaviour, while behavioural economics provides information on what contexts have had an impact. Intuitive marketing was primarily intended to contribute to a new way of thinking about consumers and requires marketers to ask themselves new questions when setting marketing goals.

"Intuitive marketing does not deny that influencing consumers is the purpose of marketing, it just goes about achieving that goal in a different way than persuasive marketing" (Genco, 2019, p. 39). It mainly focuses on three concepts based on neuroscientific knowledge about the human brain, which are the dual system of thinking, respecting the subconscious and distinguishing between content, form and concept (Steffen at al., 2022).

Intuitive marketing focuses mainly, but not exclusively, on the thought processes, which it tries to influence, through pleasant marketing messages, their frequent repetition and strengthening of the associative connection of ideas. Unlike persuasive marketing, it does not require gaining people's attention by interrupting conscious thoughts, but rather gains it through positive emotional markers and priming (Mai, 2022). A good example is the 2007 Gorilla ad for Cadbury's chocolate bars, which broke all the rules of persuasive marketing and instead presented a visual musical experience. The ad did not contain any arguments or messages about the product, which was only mentioned in the last six seconds of the less than two-minute ad. Although the coherence of the stimuli seemed completely illogical, the advertisement was entertaining and meant a return on investment for the company that was 4.88 times the costs incurred (Genco, 2019).

The aforementioned Cadbury's Gorilla ad pointed to the minimal presence of content, which marketers mostly pay more attention to than the form of the message or the context of the marketing message. Scientific findings have drawn attention to the error rate of consumers who believe that they are responding to the content of a marketing message, while in reality they are reacting unconsciously to its form and context, which affects their perception, decision-making and behaviour. The specific message and its meaning represent the content of the marketing message, rather than the form of how the message is presented. The latter holds the most important part consisting in the simplicity and fluency of the processing of the given message and in terms of its decoding by the human brain, which scientists call metacognition.

Persuasive marketing, based on the AIDA sequential approach that marketers use to set up marketing messages, mainly tries to change the way consumers think and make them react in ways that are not natural to them. In a media saturated environment, most marketing messages are simply filtered out by unconscious processes. Often there is not even their unconscious processing, let alone conscious awareness, i.e., thinking. The cognitive timeline can provide marketers with valuable information about how consumers think, predict their mental state, and focus on long-term brand building and relationship development as opposed to short-term target activation (Genco, 2019).

In 2008, Bargh and Morsella presented a functional model of unconscious behavioural guidance that highlights hidden unconscious processes in the human brain that are evolutionarily modified to direct many aspects of behavioural response automatically, without the involvement of consciousness, thereby providing space for its more important operations. This model works completely without the involvement of conscious thought, i.e., System 2 in two steps:

1. By activating the four mutually integrating, unconscious systems of behavioural guidance (perceptual, emotional, evaluative, and motivational) through input sensations.

2. The combined outputs of these four systems, which are the observable behavioural responses of a person (Genco, 2019).

Leadership can be characterised as a combination of creating perception and determining meaning and value, the principles of which were clarified in the previous chapter. Unconscious management of perceptions is closely related to the processes of priming and associative activation, where the mapping of the surrounding world and events are automatically controlled by the so-called bottom-up attention (reading), which takes place completely unconsciously and quickly. This cognitive process can influence perception and future behaviour, even after the goal is activated through so-called top-down attention (Genco, 2019).

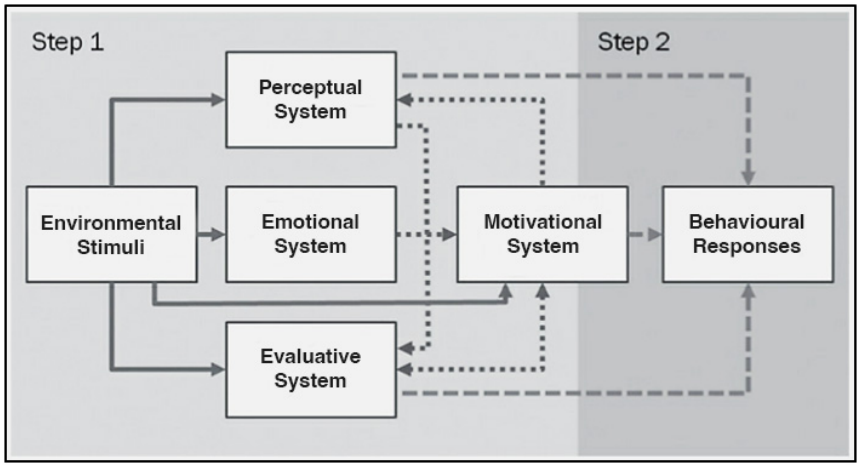


*Figure 2. Four unconscious systems of behavioural leadership*
*Source: Genco, 2019*

Exposure to environmental stimuli triggers emotional systems whose origins cannot be consciously controlled, and which can trigger motivational thoughts and influence behavioural response. Emotions can only be regulated after awareness of the emotional state, i.e., by System 2. Evaluation can be carried out both unconsciously, as part of determining meaning and value, and consciously, as part of reasoning (Genco, 2019). Intuitive marketing focuses primarily on unconscious evaluation systems, as they play an important role in forming preferences, activating attitudes and tendencies towards goal activation, i.e., approach or withdrawal. Motivational systems initiate and control unconscious goal tracking and activation, which can subsequently influence a person's actions. (Genco, 2019).

In marketing, motivational thoughts represent consumer goals, i.e., when a marketer sets a marketing message, for example, on a new brand or product in such a way as to change the motivational thoughts of a current or future customer through gained attention and persuasive arguments. In contrast, intuitive marketing focuses on pre-existing consumer goals and sets marketing messages based on metacognitive processes and deserved attention:

> Like traditional marketing, intuitive marketing seeks to influence consumers. But it does so by aligning with consumers' existing motivations and goals, primarily in the service of positive psychological needs, rather than by attempting to impose new, short-term, transactional goals on consumers using disruption, distraction, and persuasion. (Genco, 2019, p. 236)

## *1. 3 Intuitive Consumer Behavior*

The cognitive timeline together with the unconscious behavioural model provides a complex yet realistic picture of the intuitive consumer. The four unconscious systems that participate in the creation of a coherent image of the external world, amongst other things, fulfil the important function of identifying and eliciting the needs and wishes of the consumer (Genco, 2019).

Intuitive marketing distinguishes between these two concepts, i.e., wants and needs, due to the different characteristics of the motivational system. A wish has a voluntary character, which is based on desires to obtain or possess something, because we cannot have or fulfil them in the present. The needs can manifest as a state of perceived lack, which, if not satisfied, can represent a kind of threat. It acts as a mandatory decision that must be satisfied in a relatively short time frame, because they cannot be postponed for a long time and will not disappear by themselves. Human needs can be distinguished into physiological (homeostasis), psychological (so-called identity needs, cognitive and emotional motivation) and learned (repetitive and addictive reward-seeking episodes) (Genco, 2019). Traditional marketing approaches the needs and wishes of customers through intense emotional stories that emphasise so-called shortcomings in the form of a threat to, for example, the consumer's social status, with the aim of correcting these hardships and thus making unmotivated customers buy. Evoking emotions, however, is not the initial element that triggers consumer behaviour, motivation is. In contrast to traditional marketing, intuitive marketing emphasises motivating customers in accordance with their goals and identities in the form of entertaining advertisements that provide so-called small emotional rewards. These can strengthen implicit memory traces and influence the habits, loyalty and later behavioural behaviour of current or future customers without overt or covert persuasion (Genco, 2019).

The consumer cycle model in Figure 4 shows the consumer's interaction with the promoted product or brand from exposure to the marketing message, through acquisition, i.e. purchase, to consumption itself. Individual stages of the consumer cycle include expectations that are formed based on mental associations and metacognition in correlation with the previous ones. Every experience at any stage of the consumer cycle updates these mental associations' consumers have with the product or brand they have encountered (Genco, 2019). This update can positively or negatively affect or even change the consumer's previous associations, depending on the intensity of the associative connection, emotional valence and expectations achieved. Unlike the hierarchical AIDA model, these phases cannot be evaluated or optimised in isolation. By understanding the process of metacognition and expectations, it provides marketers with the ability to implement these insights throughout the consumer cycle and create a stronger emotional valence for consumers with products and brands (Genco, 2019).


*Figure 3. A model of the intuitive consumer cycle*
*Source: Genco, 2019*

## *1. 4 Practical Application of Neuromarketing in Marketing and Marketing Communication*

Over the past decade, neuromarketing methods have been used in a large amount of research, mostly to identify customer preferences. In other words, since its inception, neuromarketing has mostly been used to find out what the customer really wants. In popular scientific literature, we can find neuromarketing mentioned in connection with the search for the "buy" button in the customer's brain, or the definition of neuromarketing as a method that opens the customer's "black box". However, these statements are somewhat misleading and contribute to the negative perception of neuromarketing by lay society. Neuromarketing is used to research the effect of marketing stimuli on the customer. Among other things, it represents a tool that could save millions in spending on developing products that are unmarketable from the start, if neuromarketing methods were already used during product development.

However, neuromarketing research also has a high benefit for the customer, which may not be apparent at first glance, but given that the methods used in neuromarketing help to reveal the customer's real wishes, which the customer themself is not aware of, they could the results of similar research can serve to better understand ourselves and, in connection with this, we could anticipate our reactions to marketing stimuli and further adapt our behaviour accordingly.

**Neuromarketing Research and Studies**

Most companies refuse to publish the results of neuromarketing research that serve to improve their marketing strategy, yet some practical studies are cited in the literature or are otherwise accessible to the public. A large part of the research serves the purposes of marketing communication. Amongst the first and most famous neuromarketing researches is the inquiry of the team led by Dr. Read Montague published in *Neuron*. It was the first experiment led by neuroscientist Read Montague to be conducted using the fMRI method. In the first part, the respondents drank from unmarked cups and the result was, based on the monitoring of brain activity, that the respondents liked Pepsi 50% more than Coca-Cola. In the second part, respondents had a choice of these two drinks and 75% of respondents chose Coca-Cola. The conclusion was that there was a battle between the rational part of the brain and the emotional part of the brain, and in a small moment there was indecision, and in the end the emotional part of the brain dominated, i.e., Coca-Cola. After the publication of this first study, interest in this issue was aroused, either from the point of view of criticism or the possibility of future contribution to marketing itself (McClure et al., 2004).

Another well-known study is aimed at measuring the effectiveness of using celebrities or people who are considered physically beautiful in advertising. When we look at a celebrity or a beautiful person, the part of our brains that is responsible for creating a feeling of recognition and trust is activated. For heterosexual men, seeing an attractive woman in an advertisement activates the part of the brain responsible for the feeling of reward and satisfaction. Similar parts of the brain are activated when we see small children or puppies. It follows from this research that the presence of beauty in advertising influences customer preferences and, consequently, purchasing decisions (Fortunato et al., 2014).

Using neuromarketing, it is possible to create advertisements that better target the customer. Businesses have images, phrases, sound effects and music evaluated to create advertising campaigns that will really appeal to the customer. In view of Scheier's statement, from which it follows that in only five percent of cases people act consciously and the remaining ninety-five decisions are subconscious (Lindström, 2009), all means that target all senses are currently used in marketing campaigns.

**Brand and Senses**

Lindström (2009) investigated the connection between sensory perception and product branding. The research used images of well-known products such as Johnson&Johnson's shampoo, Coca-Cola glasses and images

of meals from a well-known American fast-food chain, together with the characteristic aromas of individual products. During the research, it was found that if we see and smell something that together seems pleasant to us, different parts of our brain are in harmony, if the image and smell do not match each other, the part of the brain that is related to the feeling of resistance and aversion is activated. Therefore, if our visual and olfactory sensations match, we remember the stimulus more easily, but if they do not match, we forget it. Another interesting finding of this research was the fact that our brain can react to smells as well as to the appearance of a logo.

Thus, even a characteristic scent is immediately associated with a product without seeing the logo or the product (Lindström, 2009). Another use of neuromarketing is to develop products precisely according to the wishes and desires of customers. In this regard, a very well-known study was carried out at the request of the DaimlerChrysler Company, where it was found using fMRI that the parts of the brain responsible for the feeling of reward and satisfaction are activated when looking at products that increase a person's reputation, social status and dominance. In the marketing campaigns of the automotive industry, this fact is widely used (Fortunato et al., 2014).

**The Relationship between Quality and Price**

The results of the mentioned neuromarketing studies were also used in pricing, i.e., product valuation, as well as for determining various types of promotions and discounts. In Plassmann's wine tasting research (2008), which was conducted to investigate the link between perceptions of product quality and price, respondents drank different types of wine, each labelled with a different price, and were asked to rate the wine according to their actual taste preferences while connected to a device functional magnetic resonance imaging, and their brain activity was monitored throughout the research.

Even though the organisers of the research manipulated the prices of the wines, the research showed that the respondents considered the wines that were labelled with a higher price to be tastier. At the same time, when drinking more expensive wines, the place in their brain that is responsible for the feeling of reward was activated. A higher price in this case is therefore understood as a symbol of quality and increases the probability of purchase.

**Brand Loyalty**

The purchase decision is further influenced by brand loyalty. Results from functional magnetic resonance imaging showed that parts of the brain associated with reward are activated when we are exposed to a brand that we can identify with in some way.

In one of the studies, respondents were tasked with purchasing various products while being monitored by an electroencephalograph. The moment they bought the products they are loyal to, the front part of their brain, responsible for the feeling of reward, was activated. Thus, product loyalty and familiarity also increase the likelihood. At the same time, the results of neuromarketing research are used in the creation of the logo and product name. Using brain imaging methods, marketers can now find the product name and logo that will be most appealing to the customer.

**Emotions and Purchase Decisions**

In groundbreaking research conducted by Lee and his team, it was discovered what feelings and emotions make us ultimately decide to buy a certain product (Fortunato et al., 2014). Brands and products cause reactions in our brain that can be monitored, and therefore it can be deduced which emotions are linked to brain activity; based on these findings it is possible to predict what decisions customers will make. The mentioned examples only serve as an idea of the possibilities of neuromarketing research, and in which cases the use of neuromarketing would make sense.

Shopping at the point of sale is primarily driven by the habits of shoppers (Vysekalová, 2014). To increase market share, it is necessary to break consumers out of these habits, which is best achieved by engaging them emotionally. Investigating this connection is possible mainly by using EEG due to its easy portability and relatively low level of disturbance to the normal environment. In addition, ensuring a certain level of satisfaction throughout the purchase process is more important than unreservedly focusing on the product itself (Suomala et al., 2012), and

thus the use of data obtained by neuromarketing methods to adapt the environment has a great potential effect on the overall market product performance. However, neuromarketing also studies consumer behaviour at the point of sale. As part of this, he addresses, for example, the processes by which the consumer searches for products, or the question of what influences the decision at the point of sale.

Reutskaya et al. (2011) investigated the effect of the number of products offered, as well as the effect of their placement on the shelves, on their sales. Among other things, they found that shoppers tend to look first at products placed in the middle of all displays, and that products placed in this way sell the most. For a sample of 9 products, for example, the probability of buying products placed in the middle was 60% greater than for products placed elsewhere. The very placement of products at the point of sale thus significantly affects their sales, and its correct setting can play a significant role.

**Advertising**

According to Ariely and Berns (2010), the majority of neuromarketing practice has so far focused on measuring the effectiveness of advertisements. For advertisements, according to Żurawicki (2010), neuromarketing provides data on three categories of the impact of advertising perception on consumers. The first is the valence of the emotional reaction, i.e. if the researched subject perceives the advertisement emotionally positively or negatively. The second represents the level of involvement (arousal), or the intensity of the feelings experienced. The third then describes the degree of involvement of cognitive processes, including the focus of attention on the information in the advertisement, or the way it is transferred to memory.

Another example of the use of neuromarketing in connection with television advertisements is given by Ohme et al. (2009). In the research, they tested two versions of an advertisement, which differed from each other only in one five-second scene, which was not consciously rated as important by the subjects. The use of conventional marketing techniques thus showed that both ads are rated almost identically. However, neuromarketing research using EEG and galvanic skin resistance measurements showed a significant difference in the effectiveness of the two ads, and based on it, it was possible to clearly recommend the use of one of them. Other possibilities of using neuromarketing are offered in print, outdoor or internet advertising. I will give an example of a so-called heatmap, which uses cameras that measure eye movements to track which points the subject is looking at while watching an ad.

It is true that the frequency of views is highest in the places shown in red in the image, and it decreases gradually through orange and yellow colours to green. Attention was then paid to the darkened places either only slightly or not at all. When comparing the two versions of this ad, we can clearly see that the one on the left attracts more attention to the advertised product and brand, and thus it can be assumed that it would bring a more positive result for the client. Researching ads using neuromarketing techniques can thus, especially when used in the testing phase preceding paid advertising itself, have a significant impact on its effectiveness.

**Digital Media**

Like the previous example of the use of heatmaps for printed advertisements, the measurement of eye movements is also used for website optimisation. The findings are important for the correct setting of the user environment, especially so that the visitor is guided to the intended places by the pages without unnecessary losses and thus performs the desired actions.

Šola et al. (2021), for example, in research using EEG and measurement of eye movements, tested three mobile applications enabling shopping on the Internet. In addition to identifying problem areas in the user experience of the shopping process, such as too many product offers leading to loss of user interest, the findings also included the fact that the user's choice of products depends significantly more on images than on text descriptions. Furthermore, it was found using EEG, contrary to what the subjects explicitly stated in the questionnaires, that the most positive emotional involvement does not come when choosing products, but after paying for them. For example, it can be recommended to direct the user's attention to the brand at this later stage.

Neuromarketing research also provides additional insights into new media. For example, McRae et al. (2013) suggest that a consumer experiences stronger emotional experiences when visiting a website from a mobile device compared to visiting from a desktop computer. Therefore, this finding may justify paying more attention to communication on these platforms, or a greater focus on mobile devices when allocating the marketing budget for advertising on the Internet, especially for companies that emphasise this communication channel.

**Product**

The use of neuromarketing offers great potential for testing products before they are launched on the market with the aim of improving them based on the knowledge gained. Ariely and Berns (2010) name the main areas of neuromarketing research associated with product development. They are the food and entertainment industries, architecture and politics. In addition to the products themselves, neuromarketing also examines their packaging.

An example of use can be demonstrated in research (Berns & Moore, 2012). In it, fMRI was used to test the reactions of a relatively small sample of subjects when listening to songs by mostly unknown artists. Based on the identification of the activated parts of the brain during listening, assumptions were made about the success or failure of the given songs, often in contradiction to the stated subjective experience of the test persons. It turned out that the predicted values of the sales of the given songs corresponded considerably to their real sales, which were calculated after three years of their availability on the market. The research thus suggests that neuromarketing testing of products before their launch provides information about the subjective evaluation of the product by the person being tested, and that the results can also be generalised and, as a result, we can estimate whether the product will be successful.

**Segmentation and Positioning**

Żurawicki (2010) divides the relationship of neuromarketing, segmentation and market positioning into two groups. The first contains general demographic information, according to which it is possible to better segment the market. These offer findings about the different functioning of cognitive and affective processes of people divided mainly on the basis of gender or age. The second relates to more specific findings, depending on the focus of the given company. It contains the division of target groups based on purchasing behaviour, their decision-making style or their degree of openness to communication stimuli.

As an example of application, research can be mentioned, which, based on an EEG study, presents the idea that the generation of people born during the economic prosperity in the USA following World War II (Baby Boomers), compared to other population groups, perceives complex visual and verbal information as more difficult, and that they experience fewer negative experiences when perceiving advertisements. Based on this finding, a company targeting this generation could adjust its marketing communication towards simpler, more frequent messages.

# 2 Methodology

The main objective of the study is to clarify the conscious and unconscious decision-making of the consumer in the market. The practical part is based on the comparison of the acquired knowledge, which is based on the research of professional literature, scientific publications and so-called desk research. The intention is to investigate the subject findings and apply new methods and measurement techniques of neuromarketing to the concept of intuitive marketing.

These are mainly methods of primary marketing and neuromarketing research in the form of experiment, observation and questioning. The experiment used two techniques for measuring PNS somatic signals, or biometric measurements, through eye-tracking combined with behavioural response. As already mentioned, these methods are important for measuring unconscious responses to stimuli and the environment, because of the faster response

of System 1 than System 2, which becomes aware of the act later. Considering that intuitive marketing tries to indirectly influence these conscious and especially unconscious thought processes in the form of entertaining stimulation and create a positive associative connection that would lead to subsequent activation at the point of sale, the eye-tracking measurement technique is preceded by the so-called priming principle. In connection with the concept of intuitive marketing, the intention of priming consists in creating a positive association with the target stimulus and increasing its value, which would lead to more intense interest, preference and corresponding behavioural response. This part was applied to the experimental group. The experimental group was questioned in the form of short open questions and one closed one, which should provide so-called rational data from the participant's conscious thinking and decision-making. For the experimental group, the effects of priming were assessed and compared with the results of eye-tracking measurements, in the form of heat maps, graphic outputs (gaze plots) and reaction times. As part of the primary research, we set the following research questions:

RQ1: What is the influence of priming elements on participants' decisions when choosing wallpapers?

RQ2: What is the effect of conscious decision-making on participants' reactions when choosing wallpapers?

RQ3: Can specific areas in the domain of interest be identified to which participants respond more in conscious than in unconscious decision-making?

RQ4: How to implement research conclusions into the marketing and marketing communication strategy of the company and products?

**Subject of Investigation**

Since 1992, the Italian joint-stock company Tecnografica SPA has been offering its customers the best in terms of design and technology. Its main philosophy lies in the ability to create unique designs that are industrially reproducible. At times it is on the edge of the eternal challenge between fantasy and reality, but the passion for new technologies and willingness to go beyond the stated goals make it one of the world leaders in the design of the ceramic industry. Based on its experience, expertise in the field of graphics and innovative modern technology, including ownership of the patented 3D express technology, the company has created the brand Tecnografica Italian Wallcoverings, which specialises in the design and production of designer wallpapers and decorative panels.

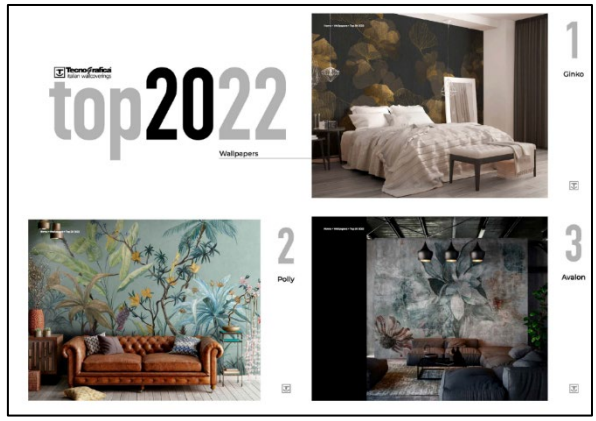


*Figure 4. Best-selling wallpapers 2022*
*Source: own processing, 2024*

The first three design wallpapers of Tecnografica Wallcoverings from the overall top 20 best-selling designs in 2022 provided by Tecnografica SPA were selected as research stimuli. These three top selling designs, Ginko,

Polly and Avalon, represent roughly 20% of the company's total turnover (excluding service revenue) which equates to around 1,600,000 EUR. The unit prices of the wallpapers are calculated per m2, which means that these three designer wallpapers correspond to approximately 20,000 m2. The other two designs were chosen randomly, but to match the overall composition, creating a natural atmosphere. The Kalos wallpaper by the Italian artist Cristina Iotti from the Art collection was chosen as the main subject of investigation, mainly because of the shades of colours used, i.e., white, light grey and green, which are considered optimistic colours in marketing and not only because they are a frequent choice of designers, but from the point of view of behavioural science, they can, through emotional impact, reach management abilities where people obstruct their vision and affect their cognitive functions (Tecnografica, 2024).

# 3 Results

The experiment was carried out by a combination of two neuromarketing methods, i.e., biometric measurements within the concept of intuitive marketing. The data was recorded and analysed through the Eye-tracking platform Loceye (2024) in the form of primary, soft data (survey) and hard data in an Excel spreadsheet, including graphic outputs in the form of heatmaps, gaze plots and video recordings. Due to the number of participants in the experimental group, as well as the amount of data, significant findings will be presented, which are the goal of our study, namely, to clarify the conscious and unconscious decision-making of the consumer in the market.

In the first part, the obtained data on the unconscious behavioural response, i.e., the behavioural reaction times of the experimental group to the target stimulus using the eye-tracking method, is clarified and evaluated. The second part contains data obtained from a questionnaire survey carried out through the Loceye platform, i.e., the consciously formulated answers of the participants, which will be used to compare the results of the unconscious behavioural response in the experimental group.

**Analysis of Research Results**

The first part of the experiment, after the application of the visual and sensory priming method, includes the behavioural reaction times of the participants, which were recorded and analysed by the Loceye biometric platform without the interaction of human intervention. All experiment data was available for download on the Loceye dashboard, including a record of the overall experiment score, i.e., the degree of similarity between the aggregated results and the average participant's sessions. Statistical accuracy is calculated based on the R-squared approximation and available data from the research and consulting firm in the field of user experience (UX) Nielsen Norman Group. If the statistical accuracy is evaluated as 40%, it means that the R-squared is equal to 0.4 (Loceye, 2024). Approximation is an alternative to an analytical solution.

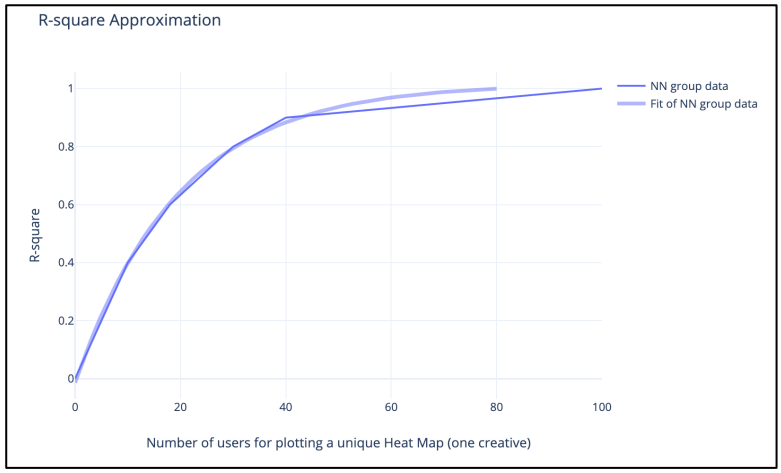


*Figure 5. R-squared approximation*
*Source: Loceye, 2024*

The statistical accuracy of the experiment at a score of 70% indicates that the Loceye algorithm was able to evaluate and record the AOI locations observed by the participants, without creating clusters at the expense of the predictive value, thus providing a 70% prediction of the behavioural response. The accuracy is defined depending on the eccentricity, i.e., the angle of the viewing path from the centre of the screen. Loceye's algorithms record these gaze paths of individual participants and based on accuracy, classify them into groups that are denoted by letters of the alphabet. Marking (A) represents the highest level of accuracy recorded, (B) shows slight variations with the angular error of the line of sight, but it does not represent significant values affecting the overall score. Group (D) is evaluated as unsuccessful and Loceye does not process this data further. It only provides information about the total number of failed records, which can be filtered during output and only data with a high level of accuracy can be downloaded.

The statistical accuracy of the experiment achieved a total score of 65%. AI prediction on the Loceye platform can predict participants' behavioural response with up to 95% accuracy. The results of the research investigation were recorded in the table, which consists of three parts. The first part under the name "Overview" contains brief information about the entire experiment, i.e., duration of exposure, date of execution, name, total number of participants, including the number of recorded successful and unsuccessful sessions, and supplementary questions proposed by the author. The second part called "Participants" provides comprehensive statistics and hard data from measurements of the eyes of individual participants in the experiment in the AOI areas selected by the author, including the classification of groups. The data are sorted individually in columns according to the name of the selected AOIs. Measurement results are recorded in each area:

- Percentage (%);
- Time: duration of fixation on the studied stimulus;
- Discovery (time of discovery): the time of discovery of the researched area;
- Bounces (saccades): the number of saccadic movements or bounces between different stimuli or areas.

The last part "Areas of Interest" includes comprehensive results of the research investigation and investigated stimuli of control group, which were subsequently divided by the author. Comprehensive results included individual defined points of interest (AOIs) and statistical data including mean, maximum and minimum values from the data presented in the previous section. The biometric platform Loceye provides only two experiments for free, the first experiment was used to investigate the suitability of the tool in constructing an experiment for our study. A paid version is available upon request, but no response was received to the request sent. This disadvantage also affected

the processing of graphical outputs in the form of Heatmaps and Gaze plots, available on the Loceye dashboard, which were downloaded individually by taking screenshots.

*Table 1. Area of Interest in a table – comprehensive results of the experimental obtained from the research*

| Area of interest (AOI) | Avg Percentage | Avg Time | Avg Bounces | Avg Discovery Time | Max Percentage | Max Time | Max Bounces | Min Discovery Time |
|---|---|---|---|---|---|---|---|---|
| Company info | 2.51% | 0.25s | 0 | 5.58s | 25.76% | 2.576s | 3 | 4.01s |
| Kalos | 31.16% | 3.12s | 3 | 3.19s | 75.76% | 7.576s | 7 | 0.03s |
| Social media logo | 0.00% | 0.0s | 0 | - | 0.00% | 0.0s | 0 | - |
| Madame | 12.05% | 1.21s | 1 | 4.37s | 47.97% | 4.797s | 7 | 0.0s |
| Polly | 7.28% | 0.73s | 0 | 4.34s | 43.96% | 4.396s | 5 | 1.21s |
| Avalon | 13.51% | 1.35s | 1 | 3.04s | 44.26% | 4.426s | 4 | 0.37s |
| Plumier | 19.17% | 1.92s | 2 | 1.18s | 55.94% | 5.594s | 6 | 0.0s |
| Ginko | 10.04% | 1.00s | 1 | 2.57s | 27.46% | 2.746s | 6 | 0.0s |
| Titulek | 11.05% | 1.11s | 1 | 1.63s | 71.56% | 7.156s | 6 | 0.2s |
| Logo | 1.56% | 0.16s | 0 | 1.5s | 8.19% | 0.819s | 2 | 0.85s |

*Source: own processing, 2024*

After obtaining and processing the statistical data of measurements with the eye-tracking biometric tool, unconsciously tracked targets and behavioural reaction times of participants in the experimental group were determined and evaluated.

**Experimental Group**

As part of the research investigation of the experimental group, during which the effects of applied visual and sensory priming were observed and measured using the eye-tracking neuromarketing method, the following results were found and evaluated (see Table 1). The selected priming method, based on the concept of intuitive marketing, had the goal of triggering motivational thoughts, evoking positive emotions that should activate unconscious systems and influence the behavioural responses of participants in the experimental group.

*Table 2: Eye-tracking measurement results – experimental group*

| Area of interest (AOI) | Avg Percentage | Avg Time | Avg Bounces | Avg Discovery Time | Max Percentage | Max Time | Max Bounces | Min Discovery Time |
|---|---|---|---|---|---|---|---|---|
| Company info | 3.58% | 0.36s | 0 | 5.31s | 25.76% | 2.576s | 3 | 4.07s |
| Kalos | 33.21% | 3.32s | 3 | 3.58s | 58.31% | 5.831s | 7 | 0.26s |
| Social media logo | 0.00% | 0.0s | 0 | - | 0.00% | 0.0s | 0 | - |
| Madame | 11.54% | 1.15s | 1 | 3.47s | 22.76% | 2.276s | 3 | 0.0s |
| Polly | 7.65% | 0.76s | 1 | 4.14s | 43.96% | 4.396s | 5 | 1.21s |
| Avalon | 13.51% | 1.35s | 2 | 2.82s | 28.72% | 2.872s | 3 | 0.37s |
| Plumier | 16.1% | 1.61s | 2 | 1.93s | 33.56% | 3.356s | 3 | 0.0s |
| Ginko | 7.6% | 0.76s | 1 | 4.33s | 27.46% | 2.746s | 6 | 0.78s |
| Titulek | 8.08% | 0.81s | 1 | 2.27s | 32.31% | 3.231s | 4 | 0.95s |
| Logo | 1.84% | 0.18s | 0 | 1.92s | 7.17% | 0.717s | 1 | 1.22s |

*Source: own processing, 2024*

From the above measurement results, it can be observed whether the used method of visual and sensory priming caused the experimental group to unconsciously follow the target, which influenced their behavioural response (see Table 2). For the target stimulus, which was the Kalos wallpaper, the average gaze fixation time of the participant in the experimental group was found to be 33.21%. The lowest average steady eye movement time was found for the Ginko wallpaper at 7.60%, closely followed by the Polly wallpaper with an average time of 7.65%. The average fixation time of the target stimulus also shows the highest measured values, with a time of 3.32 seconds, while the lowest value, i.e., 0.76s, was measured simultaneously for the two wallpapers Polly and Ginko. The average discovery time for the target stimulus was 3.58 seconds, while the highest values were recorded for the Ginko wallpaper, i.e., 4.33 seconds, and Polly wallpapers, i.e., 4.14 seconds. The average discovery time of the target stimulus, which was shorter than the average fixation time, suggests that priming had a positive effect on attention

and unconscious tracking of the target stimulus, which participants were able to identify more quickly and devote more time to closer examination. This suggests that the priming stimulus influenced the unconscious systems of the participants in the experimental group, in which motivational thoughts, preferences, and associative links were activated, leading to metacognition and unconscious behavioural responses without the participants being aware of this influence.

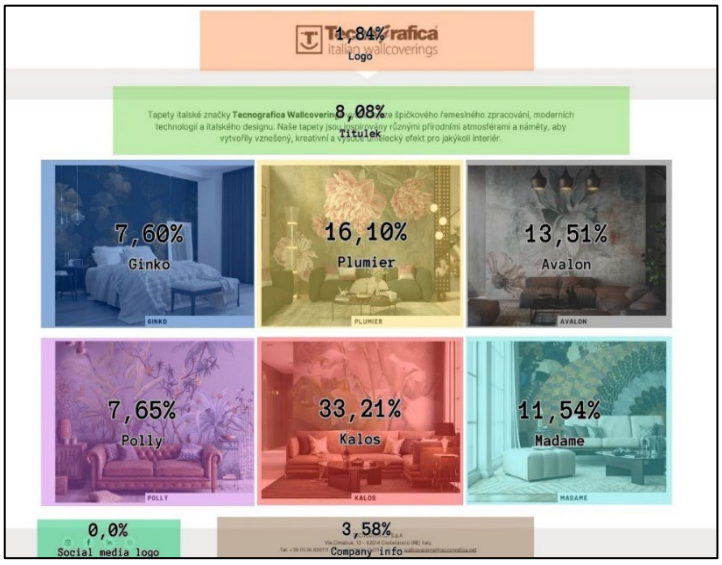


*Figure 6. Point of interest (AOI) survey results of the experimental group*
*Source: own processing, 2024*

The interpreted results of the investigation confirm the effectiveness of priming in the average of the experimental group, however, in the column with the maximum fixation time in %, individual differences in the behavioural response of the participants can be observed.

The most significant result of the data collection that deserves mention is the experimental group participant represented by a woman aged 59 years. Before presenting the specific data obtained from measurements using eye-tracking and the influence of the priming method, it is worth clarifying the meaning of the number nine from the point of view of behavioural sciences. Psychologists Alter and Hershfield made a surprising discovery that people are more likely to want to change their lives when their age ends in nine. Based on the World Values survey, when psychologists analysed data obtained from 42,063 participants, they concluded that nines more often doubt their current life and rather decide to take major steps, whether positive or negative, leading to change. Other investigations point out that the so-called nines can represent a perspective group in the marketing environment (Shotton, 2020).

The results obtained from the participant survey indicate the presence of a positive priming effect on the target stimulus with a total fixation time of 56.9% and a measured fixed gaze time value of 5.69 seconds. A higher number of accelerated movements, so-called saccades, may indicate an active exploration of different parts of the target stimulus, which in this case were measured with a total of 6. This phenomenon may indicate a search for key points and information in the investigated area, or a significant effect of the influence of emotions that triggered the participant's motivational thoughts with the target stimulus that captured their attention. The time of the discovery itself was recorded as the second with the lowest measured value, i.e., 1.83 seconds. Furthermore, steady eye movement values were measured in the AOI areas, i.e., company info 10%, Madame wallpaper 22.76%, and Plumier wallpaper 12.41%. The overall results are explained in Table 2, under the graphical outputs. In the comparison of the unconsciously controlled behavioural response, it is worth mentioning that the participant stated in the

questionnaire that she was interested in the second wallpaper on the top row (i.e., Plumier), she did not remember the exact name of the wallpaper, but she remembered the brand name of the wallpaper manufacturer. Due to the time of examining information about Tecnografica in the AOI, i.e., company info, which was measured with a value of 1 second, it cannot be confirmed whether the participant identified the wallpaper brand based on the observation of the distributed elements in the experiment location, using steady eye movement when measured by the eye-tracking, or whether she has already encountered this brand on the basis of previous experience, i.e., by incorporating explicit memory. The statistical accuracy of the Loceye algorithm noted slight deviations in the angle of the participant's gaze path from the centre of the screen, which are observable in the comparison of the graphic outputs of gaze plot and heatmap.

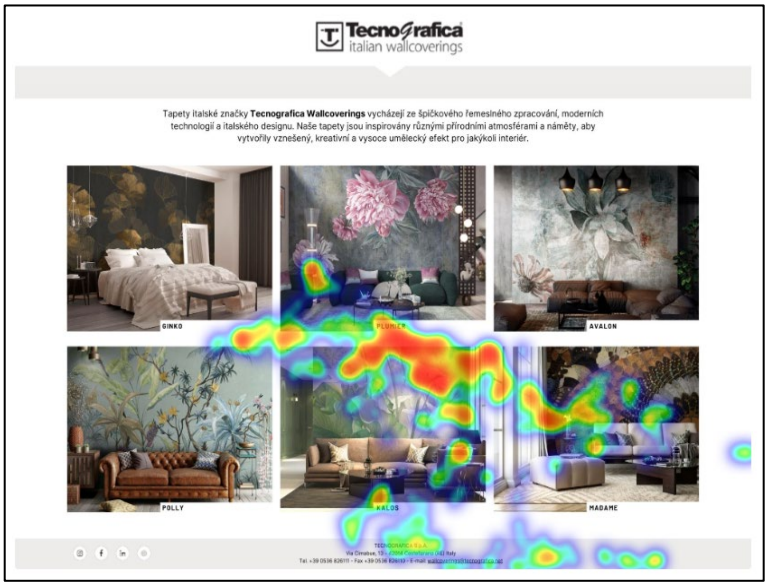


*Figure 7. Graphical output of Loceye, heat map of experimental group participant #18*
*Source: own processing, 2024*

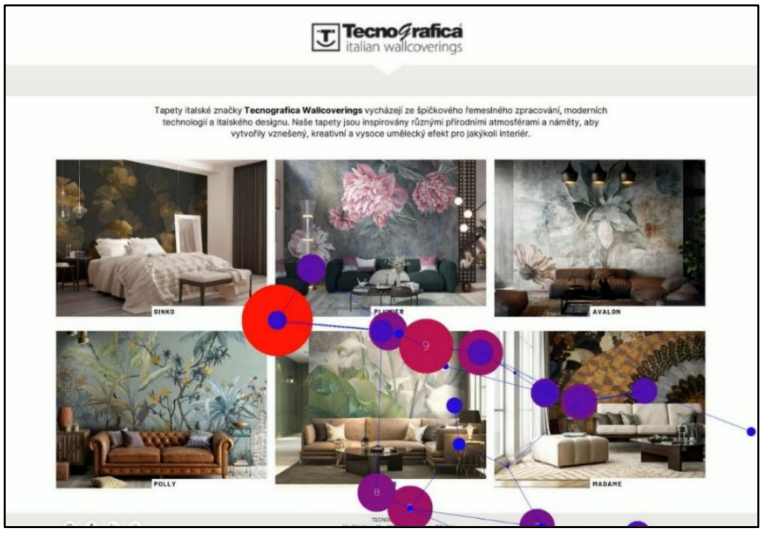


*Figure 8. Graphical output of Loceye, gaze plot of experimental group participant #18*
*Source: own processing, 2024*

*Table 3. Eye-tracking measurement results – experimental group – participant #18*

| BIOMETRIC MEASUREMENT RESULTS OF THE PARTICIPANT Nr. 18 FROM THE EXPERIMENTAL GROUP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **AOI** | **Company info** | **Kalos** | **Social media logo** | **Madame** | **Polly** | **Avalon** | **Plumier** | **Ginko** | **Titulek** | **Logo** |
| *Percentage* | 10 | 56,9 | 0,00 | 22,76 | 0,00 | 0,00 | 12,41 | 0,00 | 0,00 | 0,00 |
| *Time* | 1 | 5,69 | 0,00 | 2,276 | 0,00 | 0,00 | 1,241 | 0,00 | 0,00 | 0,00 |
| *Discovery* | 6,55 | 1,83 | - | 1,48 | - | - | 0,93 | - | - | - |
| *Bounces* | 1 | 6 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 |
| | | | | | | | | | | |
| **Question 1** | *Which wallpaper intrigued you the most?* | | | | | | The second wallpaper in top row | | | |
| **Question 2** | *Do you remember the wallpaper's name that intrigued you the most?* | | | | | | No | | | |
| **Question 3** | *If yes, what was its name?* | | | | | | Don't know | | | |
| **Question 4** | *What is the brand name of the wallpaper manufacturer?* | | | | | | Tecnografika | | | |
| **Question 5** | *What is your gender? Please fill in (femaie, male, other)* | | | | | | Female | | | |
| **Question 6** | *What is your age? Please fill in.* | | | | | | 59 | | | |

*Source: own processing, 2024*

The comprehensive results of the experimental group recorded in Table 2 indicated that none of the participants paid attention to the area (AOI) with the logo of the social network located in the lower left part of the composition. Also, out of a total of 10 participants, two did not pay attention to any area referring to the brand, logo or description of designer wallpaper manufacturer Tecnografica. At the end, the experimental group was interviewed in the form of short open questions and one closed one. The results should point to the aforementioned gaps in data collection, when respondents consciously formulate their answers. The outputs from the questioning, i.e., the participant's conscious thinking and decision-making, will be compared with the measurement results obtained through the eye-tracking neuromarketing tool. Table 4 records participant responses within individual groups that were consciously formulated after the last calibration of the eye-tracking tool, and which should provide information on whether the participants' behavioural responses corresponded with the stated responses.

*Table 4. Eye-tracking follow-up survey results – experimental group*

| | ***Which wallpaper caught your eye the most?*** | ***Do you remember the name of the wallpaper that caught your eye the most?*** | ***If yes, what was its name?*** |
|---|---|---|---|
| **Experimental group** | bottom row | Yes | Kalos |
| | left in corner | Yes | Polly |
| | bottom row | Yes | Kalos |
| | Ginko | Yes | Ginko |
| | Avalon | Yes | Avalon |
| | down in the middle | Yes | Kalos |
| | Kalos | Yes | Kalos |
| | 2 participants did not remember the name, 1x incorrectly wallpaper name | | |

*Source: own processing, 2024*

Data outputs obtained from the Loceye platform recording revealed that of the total number of participants in the experimental group, 80% remembered the name of the wallpaper that caught their attention. However, the wrong wallpaper names were found in the open questions, and therefore the mentioned percentage value was reduced from 80% to 70%. Table 4 shows that a total of 4 participants in the experimental group remembered the name of the target stimulus, i.e., the Kalos wallpaper.

The survey results also pointed to the memorability of the wallpaper manufacturer's brand, when a total of 8 participants from the experimental group remembered the name. Based on these results, it can be concluded that the participants of the experimental group who were influenced by visual and sensory priming had an activation of associative thoughts and a behavioural response. To determine whether consciously formulated answers resonate with the results of eye-tracking measurements, statistically significant data that could confirm or refute this issue will be characterised below. Two participants were selected from the experimental group in connection with the concept of intuitive marketing.

*Table 5. Eye-tracking measurement results – experimental group – participant #13*

| BIOMETRIC MEASUREMENT RESULTS OF THE PARTICIPANT Nr. 13 FROM THE EXPERIMENTAL GROUP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **AOI** | **Company info** | **Kalos** | **Social media logo** | **Madame** | **Polly** | **Avalon** | **Plumier** | **Ginko** | **Titulek** | **Logo** |
| *Percentage* | 0,00 | 10,38 | 0,00 | 8,65 | 14,88 | 28,72 | 33,56 | 15,92 | 0,00 | 0,00 |
| *Time* | 0,00 | 1,038 | 0,00 | 0,865 | 1,49 | 2,87 | 3,356 | 1,59 | 0,00 | 0,00 |
| *Discovery* | - | 3,25 | - | 3,01 | 4,12 | 2,35 | 0 | 5,43 | - | - |
| *Bounces* | 0 | 1 | 0 | 2 | 1 | 3 | 3 | 2 | 0 | 0 |
| | | | | | | | | | | |
| **Question 1** | *Which wallpaper intrigued you the most?* | | | | | | Left in corner | | | |
| **Question 2** | *Do you remember the wallpaper's name that intrigued you the most?* | | | | | | Yes | | | |
| **Question 3** | *If yes, what was its name?* | | | | | | Polly | | | |
| **Question 4** | *What is the brand name of the wallpaper manufacturer?* | | | | | | Tecnografika wallcover | | | |
| **Question 5** | *What is your gender? Please fill in (femaie, male, other)* | | | | | | Female | | | |
| **Question 6** | *What is your age? Please fill in.* | | | | | | 38 | | | |

*Source: own processing, 2024*

The results of the survey and measurement using the eye-tracking tool indicated that participant #13, who represented the experimental group, found the Polly wallpaper the most interesting. From the result of the eye-tracking measurement, it can be emphasised that high steady eye movement values of 14.88% were measured for the specified stimulus, while the discovery time showed the second highest value, i.e., 4.12 seconds. This fact may indicate that the studied area was recognised for a longer time than the participant was able to consciously identify it. The results of the measurement make it clear that the fixation time on the target stimulus, which was the Kalos wallpaper, reached the second lowest value, i.e., 10.38%. The low steady eye movement time may indicate that the priming application in participant #13 did not achieve a strong enough effect to activate unconscious targets and influence behavioural responses, even though a mental process of association occurred. The number of saccadic movements for the target stimulus also shows that the participant made decisions based on conscious preferences after recognising it.

Compared to the rational choice, i.e., the Polly wallpaper, the activation of the participant's unconscious goal and behavioural response can be observed in the results of the eye-tracking measurements. The Plumier wallpaper with the highest measured value of 33.56% gained the participant's unconscious attention. A zero-discovery length also confirms that the participant's attention, preferences, and decision-making have been influenced completely without their knowledge.

Another interesting finding is the results of the eye-tracking measurement compared to the responses of participant #16, the experimental group. The interviewee stated that he did not remember the brand of the manufacturer, but he remembered its location and that it was an Italian brand. It is likely that the priming stimulus, which was an element with the colours of the Italian national flag placed in the experimental location, could have induced an unconscious association with this symbol.

Fixation values of 33.33% were measured for the target stimulus with the lowest measured detection time, i.e., 0.6 seconds. Gaze returns, or saccades, reached a total of 6, which represented the highest value of the total recorded results. The short time of discovering the target stimulus and the high % of fixation confirms that the application of priming also had a positive effect and gained the participant's attention, which activated the cognitive processes of the fluency of the processing of the target stimulus (metacognition), including unconscious tracking of the target and associative connection with the Kalos wallpaper. From the results, it is clear that the target wallpaper was not the only one that captured the participant's unconscious attention. The highest reaction time value was measured for the Polly wallpaper with a fixation time of 4.40 seconds, 43.96% and with the second highest number of saccadic movements, i.e., 5.

*Table 6. Eye-tracking measurement results – experimental group – participant #16*

| BIOMETRIC MEASUREMENT RESULTS OF THE PARTICIPANT Nr. 16 FROM THE EXPERIMENTAL GROUP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **AOI** | **Company info** | **Kalos** | **Social media logo** | **Madame** | **Polly** | **Avalon** | **Plumier** | **Ginko** | **Titulek** | **Logo** |
| *Percentage* | 0,00 | 33,33 | 0,00 | 15,02 | 43,96 | 5,49 | 13,92 | 12,82 | 0,00 | 0,00 |
| *Time* | 0,00 | 3,333 | 0,00 | 1,502 | 4,40 | 0,55 | 1,392 | 1,28 | 0,00 | 0,00 |
| *Discovery* | - | 0,26 | - | 0 | 1,21 | 6,12 | 6,48 | 4,29 | - | - |
| *Bounces* | 0 | 6 | 0 | 3 | 5 | 1 | 1 | 2 | 0 | 0 |

| | | |
|---|---|---|
| **Question 1** | *Which wallpaper intrigued you the most?* | Ginko |
| **Question 2** | *Do you remember the wallpaper's name that intrigued you the most?* | Yes |
| **Question 3** | *If yes, what was its name?* | Ginko |
| **Question 4** | *What is the brand name of the wallpaper manufacturer?* | Italian manufacturer, don't know the brand |
| **Question 5** | *What is your gender? Please fill in (femaie, male, other)* | Male |
| **Question 6** | *What is your age? Please fill in.* | 34 |

*Source: own processing, 2024*

# 4 Discussion and Conclusion

In today's world and dynamically developing market environment, marketing is an important part of the process of gaining a competitive advantage in the market. Scientific findings from the fields of neuroscience, behavioural economics and social psychology have pointed to certain gaps in the research methods of a holistic approach to marketing and thinking about consumer behaviour. A new perspective on consumer behaviour has been made possible by the relatively young field of neuromarketing, which has provided new sets of methods and tools for measuring how people consciously and unconsciously respond to marketing messages, products and brands. Due to misinterpretation by the media and the public, when neuromarketing was considered as a field dealing with the search for the so-called buy button in the human brain, scientific researchers and experts in the field of neuromarketing decided to present a new concept of intuitive marketing. This approach is based on a scientific model of consumer behaviour and decision-making, including conscious and unconscious mental processes. Intuitive marketing relies on these cognitive and behavioural processes and tries to influence them indirectly by positive stimulation through a priming method that would create positive associative connections with products and brands, resulting in subsequent activation at the point of sale.

The aim of our study was to clarify the conscious and unconscious decision-making of consumers in the market using the knowledge gained from neuromarketing and intuitive marketing. With the help of an experiment in which two methods of neuromarketing research were combined, i.e., biometric measurements of the peripheral nervous system, supplemented by questioning, this goal was sufficiently clarified and fulfilled.

*RQ1: What is the influence of priming elements on participants' decisions when choosing wallpapers?*

The results of the investigation showed that visual and sensory priming influenced the behavioural response of participants in the experimental group when choosing wallpaper. For the target stimulus, which was the Kalos wallpaper, participants showed an average fixation of 33.21% with an average looking time of 3.58 seconds and an average number of saccades of 3. From the point of view of cognitive processes, it was found that the elements of priming had a positive effect on the unconscious systems of the participants, whose stimulation gained attention, activated associative connections and unconscious tracking of the goal, which influenced the preferences of the participants of the experimental group without being aware of it fully.

*RQ2: What is the influence of conscious decision-making on participants' reactions when choosing wallpapers?*

Conscious decision-making had a positive effect on the reactions of participants in the experimental group when choosing a wallpaper where priming elements were used. Of the ten participants, eight recalled the

manufacturer's brand and four correctly reported the name of the target Kalos wallpaper, three based on metacognition and unconscious behavioural response. Four of the total number of participants recalled the manufacturer's brand and three correctly stated the name of the consciously preferred wallpaper. This suggests that priming enhanced participants' conscious perception and memory of the target stimulus.

*RQ4: Can specific regions in the domain of interest be identified to which participants respond more in conscious than in unconscious decision-making?*

The results of the investigation indicate that in the conscious decision, the participants marked the Kalos wallpaper as the most interesting, while in the unconscious decision, the same decor achieved a high mean fixation value of 31.16%. From the point of view of behavioural science, according to which light shades of white and grey, including green, are identified as positive colours, it can be assumed that this combination gained the conscious attention of the participants when choosing the wallpaper.

*RQ5: How to implement research conclusions into the marketing and marketing communication strategy of the company and products?*

The results of the research show that the contribution of neuromarketing as part of the creation of marketing and communication strategies is indisputable. In the field of marketing, the results are suitable for creating the design of individual product lines (for example colours, elements, shapes), and also for their positioning. The development of the product is also closely related to the determination of the correct pricing strategy based on the consumer's perception of the ratio of the product's quality, its luxury (material and design) and price. As part of the marketing communication strategy, the results have an impact on the use of several communication mix tools. It is mainly the overall creative idea of the communication strategy applied to the key visual, texting (slogans and other components). Furthermore, for the correct distribution of individual elements (heatmap is an excellent tool here). It is good to use the results in other tools such as media, digital and online marketing, store design, overall visibility.

The knowledge gained and the results of the research investigation reveal how various aspects influence consumer behaviour, and that it is possible to gain attention without using persuasive techniques or big emotions in marketing messages, which are in conflict with the cognitive process of processing fluency. On the contrary, by understanding the dual thought process and the positive motivation of the consumer in accordance with their goals and identity, it can help marketers to correctly set marketing messages focused on form and context, which can strengthen implicit memory traces and associative thoughts and influence loyalty and later behavioural behaviour of the consumer.

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