NEW TENDENCIES IN CONSUMER BEHAVIOUR

TENDINȚE NOI ÎN CERCETAREA COMPORTAMENTULUI CONSUMATORULUI

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Abstract. *The concept of neuromarketing derives from the neurological sciences that have been used in order to study the main diseases and abnormal behaviours. The neurological tests offer functioning charts of the brain at the moment in which the people take a decision or are exposed to the marketing message.*

The techniques used in neuromarketing are the magnetic resonance imagistic (MRI), the electroencephalogram (EEG), the positron transmission tomography (PET), the computerized axial tomography (CAT/CT) and following the line of sight (ECT). The MRI identifies the activity of the brain in several areas at the same time. The PET measures the blood flow and the intensity of the metabolism in the brain. The ECT indicates the areas on which the sight is concentrated.

Neuromarketing permits the researchers to find out why the consumers take the decisions that they take in choosing a certain brand, without the subjectivism of traditional research methods. It is also a means of validating a creative product or a strategic idea. The method replies to the consumer's reaction – wrapping, taste, visual.

Key words: *neuromarketing, science, consumer*

INTRODUCTION

The consumer behaviour is a field of study, more than a concept that has started being explored by researchers in the 50's and represents the study of consuming activities. When we talk about consuming activities we refer to three major groups of activities: mental activities (when we think about the product, we evaluate its price – we transform the price from lei to

dollars, for example), emotional activities – when we look at a publicity and we have certain physical reactions – when we go to the shop, we take the product from the shelf. In the researches tied to consumer behaviour we are also interested in the factors that influence these activities, factors that can be personal of environmental.

The need to found some objective business decisions determines the use of marketing research tools that can offer data as close as possible to the consumer's behaviour and their buying decisions. The traditional techniques of market research (focus group, questionnaire, interview) see what the clients declare, not necessarily what they do. Actually, the management decisions are based on declared preferences of the client and not necessarily on what determines them to buy. Thus there are frequent errors in traditional research such as: the projection effect, the tendency to reply desirably, social conformity etc.

In order to understand and anticipate the consumers' behaviours and buying decisions, there have been a new discipline that has been founded: NEUROMARKETING, which combines scientific data from neurobiology, physiology, psychology etc. The term designs the using the cerebral mechanisms identification techniques in order to understand the consumers behaviour, in order to optimize the marketing strategies. Thus, we follow the replies at the eye level (ETC) or of the brain (mainly through EEG and MRI) in order to see the way in which the consumer perceives, evaluates and reacts to the stimuli represented through a publicity message, product or service. The latest research in this field have shown that there is a tight bond between the way in which the brain processes stimuli and diverse contexts and their manifested behaviours. Thus, research tools were developed to measure objectively what triggers the behaviours, in fact the real motivation that leads to the buying decision.

MATERIAL AND METHOD

The concept of neuromarketing appeared at the end of the 80's – the beginning of the 90's in the United States of America. The first researched were done by professor Gerry Zeltman from Harvard University. A first

stage was during 1988 – 2006. During that period, there have been used brain scanning systems in order to make correlations between the activation of different areas in the brain and the reaction to products, wrappings or trailers to the Hollywood films.

Neuromarketing is an in development interdisciplinary field, that binds psychology and neurosciences knowledge with marketing. Also named the consumer's neuroscience, neuromarketing is a sub-area of neuroeconomy, that approaches the relevant marketing problems with methods and perspectives of brain research.

Being a new domain, the definition of neuromarketing is still forming:

- Patrick Renvoise declared that neuromarketing is the science that studies the people's decisions, measuring the biosgnals (arterial pressure, eye movement, ulse but also blood flow in the subjects' brain
- Brain Krausz added that neuromarketing is the science that measures anything except direct actions in marketing
- Sara Misell defined neuromarketing as being the application of neurosciences in marketing in order to understand either what happens in the human brain in regards to decision taking, attention, expectations, or the reactions by using devices to follow eye sight and then, using these results by integrating them in marketing decisions (applied neuromarketing).

The basic techniques used in neuromarketing refer to:

- Electroencefalogram (EEG) - registers the modifications of the electric potential of the brain during different activities. EEG can also measure the necessary time to process a stimuli.

- Magnetoencephalogram (MEG) – registers the activity and the inhibition of nervous cells in the brain, it offers precise information on the moment of activation and inhibition.
- Computer axial tomography (CAT/CT) – generates images of the body's organs.
- Positron emission tomography (PET) – measures the blood flow and the intensity of the metabolism in the brain
- Functional magnetic resonance imagery (fMRI) – identifies the activity of the brain in more areas simultaneously.
- Direct following of the line of sight (ECT) – registers the line of sight and indicates the areas where it concentrates.

RESULT AND DISCUSSION

The purpose of neuromarketing is to study the way in which the brain is physiologically affected by publicity and marketing. The brain activity resulted through viewing a commercial is monitored and measured by using neurimagistic techniques, such as the functional magnetic resonance imagery (fMRI), encephalogram (EEG) of brain topography (SST). The process implies wiring the subjects to different divices of neuroimagery, asking them to do all sorts of experimental tasks and control attribution tasks. These devices (the MRI, for example) generate instantaneous, coloured images, of the working brain, and the researcher is capable of comparing the differences in the images produced during the tasks. It then becomes obvious which parts of the brain have responded to the used stimuli.

The field evolves from the need to better understand the consumer's decisions (identifying the cause and the effect), the measure of interaction moment by moment for any type of stimuli and to reach where the traditional marketing has no access: in the subconscious. Neuromarketing can confirm, reconfigure or improve the conventional theories of marketing.

Eye tracking (ECT) is useful especially in studying and evaluating the efficiency of prints, outdoor panels and sites.

A test example was that the participants studied different images and texts on a screen. They have followed with their eyes a red dot that moved its position on the screen and then they were announced that they will see two photographs, one with lions and one with a landscape, and they had to concentrate their vision only on the photograph with the landscape; the next two images were of ads that have been let on for a few seconds and, in the end, there was an image with 3 shelves of vodka bottles, of many brands.

In the end, they were shown the results as well as what can be analysed with the eye-tracker. Thus, in order to show exactly the trajectory of the vision of the participants, they could study what was their capacity to look in a certain announced point and to avoid the others, what was the order in which they viewed the different components of the adds or the image of the shelves, on what part of the image did their vision stay fixed the longest.

The most used technologies in brain imagery for neuromarketing studies are the MRI, the EEG and the SST, which will be presented in the following pages.

EEG

The name of "electroencephalogram" comes from the fact that the electrical signals ("electro") from the brain ("encephala") are used to produce visual recordings ("gram") through the sensors attached to the scalp. The brute data are comprised of waving patterns, and in order to evaluate these data, there is a series of mathematical tools and algorithms that have the purpose to quantify the information and to present it in an easy to read form.

EEG in Marketing

This kind of technology permits marketing specialist to "peak" in the mind of the consumer while he watches a TV commercial, sees a leaflet, studies the shelves or the windows of shops, reacts to the new design of a

car, listens to the music in the background of a radio commercial, analyses the scent of a perfume or of a cup of coffee. Thus, the aspects that regard the consumer's cognitive and the emotional responses to the commercial messages that take place under the conscious level can be successfully monitored in real time and thoroughly analyzed, opening new horizons in the marketing decision making process.
Using the imagistic analysis offered by the encephalograph, we have the possibility to measure both the type of emotion experienced by the subjects, as well as its intensity at a profound level in the brain. These studies can reveal the attachment to a brand, giving the marketing and publicity professionals' access to the subconscious information of the consumers.

Thus, EEG can be useful in measuring a varied series of marketing stimuli, including sound, sight, aroma, taste and touch, being then used successfully in developing strategies or the brand, creative development, communication testing, segmentation based on emotions, the creation of an ambience, delivery of sensorial components, publicity and media evaluation, web site evaluation, video game development, trailers and promo movies, promotional evaluation, investigating the wishes of the consumer, identifying the en vogue elements and of those expired, the experience of using a product, wrapping and concept evaluation.

The advantages of the electroencephalogram include measuring the brain activity in real time, without interrupting the experience, measuring each second the levels of attention and emotional response and it can be used in a typical environment in which the consumers would have the experience. The technology offers the possibility to follow the change in patterns for each frequency in different areas of the brain, even for fractions of seconds, the instrument being the ideal tool in examining the modifications of consumers' reactions faced with the stimuli. Using brain imagery technologies, combined with the fast and sophisticated evolution in software and hardware can give considerable advantages in the present and promises a lot for the near future.

EEG measurements study the actions of the brain and are very useful in studying TV commercials, measuring which of the scenes are those that

invoke positive or negative emotions or which of the scenes have a cognitive engagement and which don't. It permits the evaluation of the emotions and the cognition based on sex or the voice that speaks at a certain time in the commercial (characters, voiceover).

MRI

An MRI scanner uses powerful magnets and radio waves in order to produce high resolution images of the brain and other structures of the body. In hospitals, these images are used to diagnose a large scale of troubles, including brain tumours, multiple sclerosis or trauma. In order to make the analysis, the subject must sit still on the examination table, with the head positioned in a giant magnetic ring. Thus, the brain protons align to the magnetic field. A pulse of radio waves is then directed to the head of the subject. Some of these waves are absorbed by the protons and eliminated from the elimination of the process. Then the protons gradually realign by themselves, while emitting radio waves. These waves are detected by a receptor and are transmitted to the computer which uses them to construct the image (by distinguishing the brain structures).

MRI in Marketing

The images produced are the results of computer high level processing and they cannot be interpreted without a detailed comprehension of the analytical models through which they are generated and the MRI can be used in order to observe the activity of certain brain structures for any type of minimum stimulation, be it sounds, images or simple touches. The interesting part is that the area responsible for each activity is well marked in the human brain and it is the same for all people. Some of the recognised brain centres are the reward centre, the facial recognition centre, the pleasure centre, the anticipation centre etc. This fact has extraordinary applications for marketing and publicity. For example, if the participants to the study are shown a series of publicity prints and some have the medial prefrontal cortex activated, indicating an increased neural activity, it means that they are thinking of the product. Thus, we can deduce what prints have an impact and do not on those that see them. Real time imagery is a sure way of testing which elements of the print are effective and which are not,

learning which are responsible for "neuro-attachment". For example, in a Rolls Royce publicity print, the image would create "neuro-attachment", while the exorbitant price would be a counter strike.
The physical components of the equipments used are big and heavy, thus they can be used in fixed, specialized locations. Thus, the subjects need to come to the location of the tool (the consumer's behaviour cannot be recreated in a laboratory) and they can be tested one by one. Also, any movement from the subjects can distort the scanning. The process is considered harmless. Although recording the images takes only little time (approximately 10 minutes) processing the images on the computer can take up to 20 hours. Although spatial resolution is much better than that of the EEG, the temporal resolution is weak and thus it cannot offer a solution in analysing a commercial that has a series of sequences, images and sounds.

The last years have brought great progress in brain study, demonstrating that the emotions represent the foundation of thoughts and actions that we undertake. Thus, the emotions are the ones that coordinate the consumer's response and have an impact on the marketing actions. Companies like Yahoo, Google, Hyundai, Microsoft, Disney, Frito-Lay or Heineken already use the advantages of neuromarketing studies for their products, services and campaigns.

Because the MRI techniques are too expensive to be taken into consideration for the majority of the products, after 2006 – 2007 the interest for neuromarketing has receded. In the United States those who have used the technique are obtained results and are now capitalizing them, and for cheaper products there are not enough funds.

Also, neuromarketing studies do not need to be repeated for each product.

Since 2000, in Europe neuromarketing has developed through the cheper techniques like recording line of sight when the buyer comes in contact with a new publicity message.

During the same period the electroencephalographie, recording the electrical signals of the brain, were also perfected and portable encephalographs have appeared, that can be transported by the interviewed person.

At present, neuromarketing is developed more and more in Europe, especially in France, Germany and Austria as well in Argentina.

Communication specialists say that the Romanian market is not ready for neuromarketing, thus the local firms will not allot resources for this in the near future and the concept is only theoretical.

It can also be said that Romanian firms are not even ready for the traditional marketing research methods.

At present, with the development of the field in Europe, the use of neuromarketing in our country may not be so unusual.

Making a neuromarket study is similar to that of a traditional focus group. A preselected number of 30 to 100 people is needed, chosen by type of product or area.

The price for a neuromarketing study varies by objective. For example, for a study regarding the positioning of a product on the shelf the costs are of approximately 3000 euro, including the pre selection of a group of 30 people to apply the tests on and the result evaluation. The prices refer to the tests on the European system, with electroencephalograms.

The verification of a print or a publicity spot, by number and variants, can cost between 5000 and 15000 euro. The spots for television are more costly because they imply collecting more information and processing it.

A neuromarketing study in Romania based on American techniques can be very expensive, because the tests would be administered on a large number of persons, more tests done for the same person and the cost of a test is high. Another impediment is tied to fact that in our country there are not enough MRI scanners for medical use, thus they would be difficult to use for marketing research.

CONCLUSIONS

There are at least two major obstacles that limit the use of neuromarketing techniques at present, not only in Romania, but also in Western Europe and the United States of America. One impediment is tied to the development, validation and interpretation of neuromarketing test

worldwide. The second impediment is tied to the cost of the equipment that permit the administration of these tests and the cost of the testing in itself.

Identifying what determines the consumers to take the buying decision, neuromarket offers significant data for different projects: client segmentation, price studies, product design, publicity efficiency verification, growth of loyalty to the brand. The research data that can be generated: who clients respond to discount, if they interested in the new (innovative products vs. familiar products), how they evaluate the price of the product vs. the product characteristics, if they are attracted to the design of the product, how they perceive the value of the product, if they will search for products that are certain or, on the contrary products that would give them thrills, how much is the decision influenced by social conformism, if they take impulsive decisions because of frustration, if they are risk oriented or not, when they are confronted with the choice of a new product or when investing in something new.

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