

NEUROMARKETING IN INTERNATIONAL COMMERCIAL LAW

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Abstract

Commercial advertising is absolutely necessary for traders who promote their products and services in order to attract consumers and to succeed on the market at the expense of their competitors. As consumers have developed resistance to traditional marketing practices, traders may make use of neuromarketing techniques while searching for other efficient tools.

Neuromarketing is a field that combines neurology, behavioral psychology and notions of economy and traditional marketing for the purpose of analyzing and understanding the processes that take place in the human brain when it is exposed to marketing stimuli.

Neuromarketing raises certain ethical and legal issues. On the one hand, there are concerns related to the protection of the persons involved in neuromarketing research. On the other hand, applying in commercial advertising the solutions offered by neuromarketing poses a series of problems, since these solutions have been qualified as techniques that distort the rational consumer's choice of products and services.

Given that on the background of the technological revolution the consumer (of advertising) has become an international one, the paper will be structured in three parts. First, we will tackle the meaning of neuromarketing and how its techniques are used in commercial advertising, particularly in online advertising. In the second part, we will reveal the mechanism of online and offline neuromarketing, highlighting the legal issues stemmed from the neuromarketing research, especially from the participants data protection. In the last part, we will analyze the effects of neuromarketing on the single European market. Within this framework, we will establish the effects of neuromarketing on competition and consumers' rights, determining the competent authority and the applicable law for dispute resolution.

Keywords: *neuromarketing, advertising, international trade law, unfair commercial practices, competition.*

1. Introduction

We live in a fast-growing economy that requires constant innovation from all of its participants in order to survive on the market. The fierce competition, together with the 'sophistication' of the consumer, has led to the necessity of using more advanced techniques. These techniques are meant to surpass the shortcomings of traditional marketing studies, being entirely focused on the consumer, from both physical and mental point of view.

In this framework, we aim at discussing the concept of neuromarketing and its role in the international commercial advertising. Neuromarketing is a field that combines neurology, behavioural psychology and notions of economy and traditional marketing for the purpose of analysing and understanding the processes that take place in the human brain when it is exposed to marketing stimuli. We are going to touch upon a few aspects related to these disciplines, from a legal standpoint. Our intention is to raise awareness about these sensible issues with pluridisciplinary connections, as, eventually, affect us all.

After clarifying the concept of neuromarketing, we will analyse its impact on participants to both neuromarketing studies and international trade. The issues raised by the violation of privacy and the concerns related to data protection will be examined.

Based on the quite technical portrayal of neuromarketing, in the second part of the paper we will focus on the dimension of advertising generated by neuromarketing. In the last part we are going to determine the path for counteracting the negative effects of neuromarketing, both on consumers and traders, having in mind the space of the European Single Market.

We consider that neuromarketing is a domain less analysed in legal studies. Based on our knowledge at this moment no domestic legal study on neuromarketing exists. In the attempt to draw attention to this subject, especially in the field of Romanian legal studies, a few tools at the disposal of legal practitioners are brought into light. As legal provisions do not keep pace with the rhythm of neuromarketing's development, legal analyses are needed for providing efficient legal ideas to neutralize the neuromarketing undesirable outcomes and our study is one of them.

2. Today's market and neuromarketing¹

The today's economy is rooted in a driven by profit society in which all its participants are searching for new and effective ways of increasing their earnings and putting competitors out of business. Meanwhile, technology passes through an unprecedented development as it starts to make use of human-applied

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research that provide precious knowledge for improving services and products for consumers. In addition, the nowadays competitive market requires more efficient advertising. Along these lines, had emerged, within marketing strategies, the use of consumer neuroscience which combines consumer research with modern neuroscience. Neuroscience is considered to bring an improvement in the field of consumer behaviour and marketing² and it comes as a refining tool for traditional marketing, leading to the development of a new field called neuromarketing.

The base for neuromarketing is consumer neuroscience³ which tries to recognize the primordial neural processes which determine the judgement of a consumer and the brain mechanisms that determine decision making. Neuromarketing focuses on identifying and extracting into data brain response to marketing stimuli. Neuromarketing went beyond the primordial scientific purpose and had become a model of business, as well as a tool for businesses. Within companies have been created special departments that deal with neuromarketing studies, while other companies have specialized⁴ themselves in running neuromarketing research⁵ and then selling and/or giving access to the findings. The specialized companies have reunited into the Neuromarketing, science & business association⁶ (hereinafter, 'NMSBA').

2.1. Neuromarketing: concept and scope

Neuromarketing has appeared as a field of research within neuroeconomics⁷ and it is founded on neurotechniques⁸. It has to be underlined that neuromarketing differs from consumer neuroscience, even if they are often presented as equivalents⁹. Neuromarketing is a separate field that uses consumer neuroscience for developing marketing strategies,

while consumer neuroscience is a much broader concept within neuroeconomics that encompasses marketing decisions and leverages given by neurological data¹⁰.

Various companies started to use neuromarketing within their marketing activity. It is noticeable that most of them are multinationals¹¹, which can be put forward reasonable presumptions regarding the considerable costs of using neuromarketing.

Neuromarketing is founded on neurobehavioral studies¹² and consequently it outperforms conventional marketing research¹³, as the latter is based on self-reports, while neuromarketing uses data collected through high state of art technology means. Neuromarketing compensates most of the downsides of traditional marketing research¹⁴ and it is also an important tool for validating, refining or extending the traditional marketing theories¹⁵ and techniques as it can be successfully used on persons already exposed to traditional marketing. Neuromarketing is suitable for identifying strengths and weaknesses of traditional marketing and providing methods to correct its errors¹⁶. It is considered that neuromarketing does not represent a substitute for the traditional research methods already used in marketing, but it would rather provide supplementary tools¹⁷ with the scope of improving and getting better results. One of the uses for neuromarketing in the area of traditional marketing that support its complementary nature is the assessment of the interpersonal mentalizing skills of salespeople¹⁸,

² Hilke Plassmann et. al, "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", *Journal of Marketing Research*, 52 (4) (January 2015): 3, https://www.researchgate.net/publication/272640846_Consumer_Neuroscience_Applications_Challenges_and_Possible_Solutions.

³ Mehrbakhsh Nilashi et al., "Decision to Adopt Neuromarketing Techniques for Sustainable Product Marketing: A Fuzzy Decision-Making Approach", *Symmetry* Vol. 12, no. 2 (305) (February 2020): 2, <https://doi.org/10.3390/sym12020305>.

⁴ Marcello Ienca and Roberto Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", *Life Sciences, Society and Policy*, 13:5 (2017): 4, <https://lssjournal.biomedcentral.com/track/pdf/10.1186/s40504-017-0050-1.pdf>.

⁵ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 3.

⁶ Neuromarketing, Science & Business Association (NMSBA)'s website, <https://www.nmsba.com/>.

⁷ Nicolae Al. Pop, Dan-Cristian Dabija, Ana Maria Iorga, "Ethical responsibility of neuromarketing companies in harnessing the market research – a global exploratory approach", *Amfiteatru Economic* vol. XVI, no. 35 (February 2014): 27, https://www.amfiteatruconomic.ro/temp/Article_1249.pdf.

⁸ Description of "Neuromarketing Market - Growth, Trends, COVID-19 Impact, and Forecasts (2021 - 2026)" Report ID: 4775033 (February 2021), accessed 16 March 2021, <https://www.researchandmarkets.com/reports/4775033/neuromarketing-market-growth-trends-covid-19>.

⁹ Bridget E. Blum, "Consumer Neuroscience: A Multi-disciplinary Approach to Marketing Leveraging Advances in Neuroscience, Psychology and Economics" (CMC Senior Theses, Paper 1414, 2016), 19, 20, https://scholarship.claremont.edu/cmc_theses/1414/.

¹⁰ Blum, "Consumer Neuroscience: A Multi-disciplinary Approach to Marketing Leveraging Advances in Neuroscience, Psychology and Economics", 11, 12.

¹¹ Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", 3.

¹² Ibid, 2.

¹³ Antonio Miletì, Gianluigi Guido, and M. Irene Prete, "Nanomarketing: A New Frontier for Neuromarketing", *Psychology & Marketing* Vol. 33, Issue 8 (July 2016): 664, <https://doi.org/10.1002/mar.20907>.

¹⁴ Rumen Pozharliev, Willem J.M.I. Verbeke, and Richard P. Bagozzi, "Social consumer neuroscience: neurophysiological measures of advertising effectiveness in a social context", *Journal of Advertising* 46:3 (July 2017): 352, <https://doi.org/10.1080/00913367.2017.1343162>.

¹⁵ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 5.

¹⁶ Ibid.

¹⁷ Ibid, 4.

¹⁸ Ibid, 8.

skills that refer to their ability to project mental states¹⁹ to consumers.

Amongst neuromarketing pledges is revealing the content of the human mind's 'black box'²⁰ and finding the legendary 'buy button'²¹. Even if there is no certain proof concerning the existence of a *buy button*, it is considered that knowledge provided by neuromarketing research can be used for inducing a certain consumer behaviour or for seeding memories and ideas in the brain that can later affect the decisional process and turn into an unconscious decision of buying a product that has been advertised²². Some argue that the scope of neuromarketing is influencing people's²³ brains at an unconscious level. Nevertheless, the current state of neuromarketing cannot provide means for completely manipulating consumers' behaviour²⁴.

Neuromarketing goes beyond advertising as marketing also implies market research, product creations and testing, price establishing, strategies of promoting²⁵ and so on. Neuromarketing is used in product design and packaging, pricing, store design, professional services and advertising²⁶, as it studies consumer attention, consumer arousal, product/brand appraisal, product/brand preference, purchase behaviour, memory and brand extension²⁷.

As to neuromarketing techniques, they are meant to identify physical changes and or psychological arousal²⁸ that are caused by the exposure of a consumer to particular advertisements²⁹, products or commercial contexts. They are also meant to recognize the moments of attention³⁰ of a consumer and to detect and record changes in brain activity. The main techniques of neuromarketing research are functional magnetic resonance imaging (fMRI), qualified

electroencephalography (EEG), eye tracking and galvanic skin response. Researchers are trying to expand neuromarketing's horizons by bringing new methods and techniques. A quite relevant example are the studies based on measuring the level of glucose in blood for analysing the brain processes implied in self-control and willpower³¹. Another innovative field is nanomarketing which interferes with neuromarketing.

2.2. Advertising as a scope of neuromarketing

The general aim of marketing is to create commercials that are appealing to consumers. Neuromarketing offers methods for increasing the attractiveness of commercials based on human instincts and emotions³² and it subsequently increases the probability of making purchases³³.

Neuromarketing is used mainly for determining and measuring consumers' response to different types of advertising³⁴ and products design. Neuromarketing has also the role of quantifying the impact of specific marketing strategies on the consumers³⁵ that are test subjects in the research studies. In doing so, it reveals human perceptions and emotions related to certain advertised products or advertisements and it identifies the mental mechanisms that shape the emotional and unconscious elements of decision making.

What can be firmly stated is that neuromarketing represents an extraordinary tool for optimizing advertising³⁶ both in online and offline environments. It can be used for predicting consumer's behaviour³⁷ and even manipulate it as the consumer is not aware of his decision because of unconscious processes³⁸ or cannot consciously explain the reasoning behind his

¹⁹ Annabel D. Nijhof, Marcel Brass, Lara Bardi, and Jan R. Wiersema, "Measuring Mentalizing Ability: A Within-Subject Comparison between an Explicit and Implicit Version of a Ball Detection Task", *PLoS ONE* 11(10): e0164373 (October 2016): 1, <https://doi.org/10.1371/journal.pone.0164373>.

²⁰ Pozharliev, Verbeke, and Bagozzi, "Social consumer neuroscience: neurophysiological measures of advertising effectiveness in a social context", 352.

²¹ David Lewis, "The Ethics of Neuromarketing", *Conway Hall*, May 29th, 2014, <https://conwayhall.org.uk/ethicalrecord/the-ethics-of-neuromarketing/>.

²² Alžběta Krausová, "Neuromarketing from a Legal Perspective", *The Lawyer Quarterly* 1/2017, (February 2017): 40, https://www.researchgate.net/publication/319352804_Neuromarketing_from_a_Legal_Perspective.

²³ Krausová, "Neuromarketing from a Legal Perspective", 41.

²⁴ Ibid.

²⁵ Ibid, 45.

²⁶ Andrew R. Thomas et al., eds., *Ethics and Neuromarketing. Implications for Market Research and Business Practice* (Springer, 2017), 1, 2.

²⁷ Terry Daugherty and Ernest Hoffman, "Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research", in *Ethics and Neuromarketing. Implications for Market Research and Business Practice*, eds. Thomas et al., 12 – 22.

²⁸ Daugherty and Hoffman, "Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research", 14.

²⁹ Krausová, "Neuromarketing from a Legal Perspective", 40.

³⁰ Ibid, 12, 13.

³¹ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 6.

³² Krausová, "Neuromarketing from a Legal Perspective", 43.

³³ Rumen Pozharliev, Willem J.M.I. Verbeke, and Richard P. Bagozzi, "The Autonomous Mind: The Right to Freedom of Thought in the Twenty-First Century", *Frontiers in Artificial Intelligence* Vol. 2 (September 2019): 4, <https://doi.org/10.3389/frai.2019.00019>.

³⁴ Pozharliev, Verbeke, and Bagozzi, "Social consumer neuroscience: neurophysiological measures of advertising effectiveness in a social context", 352.

³⁵ Krausová, "Neuromarketing from a Legal Perspective", 40.

³⁶ Ibid, 41.

³⁷ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 9.

³⁸ Pozharliev, Verbeke, and Bagozzi, "Social consumer neuroscience: neurophysiological measures of advertising effectiveness in a social context", 351.

decisions³⁹. In addition, neuromarketing identifies consumer preferences and impressions on both products and advertisements⁴⁰, giving an insight into people's views and intentions⁴¹ and offering understanding of the effects of online and offline ads on consumers⁴². Neuromarketing companies that activate in the field of advertising promise that their services help the client understand what catches the attention when viewing an ad. Among the services they provide are tests of the ads in online contexts, second-by-second analysis of an ad, determination of brand perception, tests of the emotional reaction to an ad, and reports with recommendations for improving the ads⁴³. Briefly, they promise to their client that they improve the effectiveness of the ads and reveal the real consumer's insights⁴⁴. The promise may actually be one to keep as it is considered that preferences are automatically retrieved, without a conscious control from the consumer⁴⁵ as the brain continuously encodes them even when the consumer is not aware. This is where neuromarketing steps in for mapping, predicting⁴⁶ and then building preferences with the help of ads.

2.3. Neuromarketing among pros and cons

Neuromarketing is constantly perceived different, through a dual pros-and-cons perspective.

With respect to the pros that plead in favour of neuromarketing, the accuracy and objectivity of the research results concerning consumer behaviour is higher than in the case of traditional marketing research, because data is collected in a controlled and technological environment, by a specialist, and is not offered by the consumer itself. Through neuromarketing, marketing researchers can access the unconscious reactions and decisions in the human brain, which cannot be recognized and verbalized consciously by consumers. On the grounds of this, neuromarketing is considered to be a method for better understanding the client and thus delivering him products and services in order to perfectly meet his needs⁴⁷. In this way, neuromarketing may also serve consumers' interests. Moreover, by accessing the

neuroscientific knowledge laid down in literature, consumers may get to understand their own decisional mechanisms⁴⁸ and recognize eventual persuasion tactic slipped unnoticed in advertisements.

Unfortunately, the balance is tipped against neuromarketing. More than a few cons have been highlighted in literature. The foundation of most of them is laid by ethical considerations.

To begin with, economist and behavioural researchers claim that neuromarketing, as it uses neuroscience, provides an insight into the consumer brain, but not necessarily into the consumer behaviour⁴⁹. Consequently, it may not serve the purpose of marketing. As brain function may be irrelevant in depicting behaviour, it is stated that neuroscientific techniques may not have the expected results in terms of improving marketing strategies because they identify only the brain functions which may not be that helpful in the matter of behavioural influence.

In addition, another similar drawback is represented by the limited possibility of inferring psychological processes from neural data⁵⁰. It implies the difficulty to apply a reverse inference approach in order to determine if a certain brain response is inferred from an activity that involves a particular psychological process⁵¹. Due to not having previous information regarding the brain regions studied when exposed to a certain stimulus, reverse inference tends to pose problems to researchers⁵².

Furthermore, neuromarketing may affect personal autonomy⁵³, particularly the autonomy of will, potentially causing an interference with the right to respect for private life⁵⁴ and in certain circumstances, even with the right to respect for physical and mental integrity⁵⁵. There are several concerns regarding not necessarily the unlawful processing of data, but related to the unethical processing of data.

Finally, neuroimaging studies, thus neuromarketing through fMRI (a technique which is to be described below), are considered less reliable and generalizable compared to traditional marketing

³⁹ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 6.

⁴⁰ Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", 4.

⁴¹ Ibid, 3.

⁴² Daugherty and Hoffman, "Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research", 16.

⁴³ "Understanding reactions to advertising", Neurons Inc, accessed 29 February, 2021, <https://neuronsinc.com/products/adtest/>.

⁴⁴ "Advertising", Brain Signs, accessed 20 February, 2021, <https://brainsigns.com/en/services/neuromarketing/advertising>.

⁴⁵ Uma R. Karmarkar and Hilke Plassmann, "Consumer Neuroscience: Past, Present, and Future", *Organizational Research Methods* Vol. 22(1) (2019): 179, <https://doi.org/10.1177/1094428117730598>.

⁴⁶ Karmarkar and Plassmann, "Consumer Neuroscience: Past, Present, and Future", 182.

⁴⁷ Krausová, "Neuromarketing from a Legal Perspective", 41.

⁴⁸ Ibid.

⁴⁹ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 10.

⁵⁰ Ibid, 13.

⁵¹ Ibid.

⁵² Ibid, 14.

⁵³ Krausová, "Neuromarketing from a Legal Perspective", 41.

⁵⁴ Ibid.

⁵⁵ Article 3 of *Charter of Fundamental Rights of the European Union*, OJ C 326, (October 2012): 391–407, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A12012P%2FTXT>.

studies⁵⁶ as it uses small samples of consumers that are not necessarily representative. The greatest issue put forward is the opportunistic findings, also known as false positives⁵⁷ because of small samples of test subjects.

3. Neuromarketing's mechanism. Scientific and commercial marketing⁵⁸

Neuromarketing mechanism has slight variations depending on its type: scientific or commercial, online or offline. In general, it implies high costs⁵⁹ which are not public-funded⁶⁰, notwithstanding it is done for economic or scientific purposes.

Each company or research laboratory adopts an internal general research policy, also called 'protocol'⁶¹. This protocol provides primarily guidelines regarding the enrolment practices for test subjects. Most of the companies adopt, as well, methodologies that encompass the conditions and activities undertaken by the company, which basically depicts the established mechanism.

3.1. Types of neuromarketing

Scientific or commercial neuromarketing can be both online or offline. The difference between scientific and commercial neuromarketing is first given by their dissimilar aim. While scientific researchers use neuromarketing techniques for research and findings to be transformed in literature for academic attainment, company researchers are oriented toward monetizing the findings. These differences further generate distinct structures of the mechanisms.

Offline neuromarketing is the one conducted within the companies and special labs, in real life. They imply all the techniques detailed in paragraph 1.2. and more. Online neuromarketing has recently emerged. In advertising, it focuses on testing ads '*with online panels for customer attention, emotions, and memory*'⁶². In the context of the social media's boom, neuromarketing

companies have also explored this new source of earning and have created special service. Therefore, they provide solutions for testing and boosting ads on social media, particularly Facebook, Twitter, Instagram, YouTube and Pinterest⁶³.

There have also emerged neuromarketing online tests⁶⁴, mainly as a result of the pandemic times that require social isolation. These online tests can measure emotional reactions and continue to do eye tracking on users⁶⁵.

3.2. Human test subjects for the research neuromarketing studies

Neuromarketing research implies individuals⁶⁶ that are subjected to the investigative techniques. Depending on the type of neuromarketing (scientific or commercial), studies are conducted with a small number of people, an average of 25-30⁶⁷ persons, or with a larger number of people, with a minimum of 30 participants and a maximum of hundreds⁶⁸. In general, regardless of the type of neuromarketing, it is preferable a diverse group of people to be chosen, but it must be kept in mind that as diversity increases, the number of people would also increase⁶⁹. Test subjects are carefully selected and treated⁷⁰ during the studies. As a rule, minors cannot be included in such studies⁷¹; nevertheless, if the company conducting the research is interested in minors' behaviour, the studies cannot begin without the parental consent.

Participants are recruited long before starting the research study, because a certain degree of training is crucial⁷², mainly due to the biases (misconceptions) related to neuromarketing⁷³. Test subjects are requested to provide explicit consent under the personal data protection legislation⁷⁴. The participants are requested to go through procedures for informed consent⁷⁵ and are given disclosure of benefits and rights they are able to exercise during the studies, including the right to

⁵⁶ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 16.

⁵⁷ Ibid, 19.

⁵⁸ Aura-Elena Amironesei.

⁵⁹ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 17.

⁶⁰ Cristian Ducu, "Topoi in Neuromarketing Ethics", 39.

⁶¹ Ducu, "Topoi in Neuromarketing Ethics", 40.

⁶² "Understanding reactions to advertising", Neurons Inc, accessed 29 February, 2021, <https://neuronsinc.com/products/adtest/>.

⁶³ "Neuro Ad Test – Social Media", Neurons Inc, accessed 29 February, 2021, <https://neuronsinc.com/wp-content/uploads/2020/05/Neurons-UseCases-SoMe-2020.pdf>.

⁶⁴ "Neuromarketing On-line Tests", Brain Signs, accessed 20 February, 2021, <https://brainsigns.com/en/services/neuromarketing/on-line-tests>.

⁶⁵ "Neuromarketing On-line Tests", Brain Signs.

⁶⁶ Ducu, "Topoi in Neuromarketing Ethics", 39.

⁶⁷ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 16.

⁶⁸ "NeuroMethod: How to run a neuromarketing study", Neuro Inc, accessed February 29, 2021, <https://neuronsinc.com/insights/neuromethod-how-to-run-a-neuromarketing-study/>.

⁶⁹ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁷⁰ Ducu, "Topoi in Neuromarketing Ethics", 39.

⁷¹ Art. 8 of *NMSBA Code of Ethics*, accessed February 10, 2021, <https://www.nmsba.com/buying-neuromarketing/code-of-ethics>.

⁷² "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁷³ For more details about the biases ("misconceptions"), see Arianna Trettel et al., "Transparency and Reliability in Neuromarketing Research", in *Ethics and Neuromarketing. Implications for Market Research and Business Practice*, eds. Thomas et al., 104 – 105.

⁷⁴ Krausová, "Neuromarketing from a Legal Perspective", 47.

⁷⁵ David Hensel, Lisa-Charlotte Wolter, and Judith Znanewitz, "A Guideline for Ethical Aspects in Conducting Neuromarketing Studies", in *Ethics and Neuromarketing. Implications for Market Research and Business Practice*, eds. Thomas et al., 69.

withdraw at any time without any repercussion⁷⁶. The participants are also given explicit and detail information regarding the scope of the research, the possible outcomes and the publication of the results, the incidental findings policy, privacy and confidentiality of their data⁷⁷, the techniques that are going to be used, the concrete steps taken during the studies, and any eventual risk⁷⁸, regardless of its chances to occur. Test subjects receive enough information in order to be able to make a conscious and valid choice⁷⁹.

Test subjects do not sign up without the promise of a reward. Even if they participate on a voluntarily basis, they receive sums of money in exchange for they data. There is no standard established concerning the incentives awarded to participants or rules for determining them. Therefore, each company regulates its own rules on test subjects' remuneration.

3.3. Running the research studies

Every neuromarketing study starts with an idea that leads to a research question which incorporates a hypothesis, preferably a directional one⁸⁰. Subsequently, the question is fragmented according to the used techniques⁸¹. For example, if the question is whether a second ad is better than the first one, the researcher also puts the question whether during watching the second ad the test subject produces higher frequency brainwaves or has a more intense electrical brain activity. Based on the research question, it is decided the type of respondent that is needed⁸².

The next step is to take a decision on the structure and content of the test⁸³. Neuromarketing studies are likely to present a high level of complexity⁸⁴. It has been decided, accordingly, the proper approach together with the neuroscience methods to be used⁸⁵. Before conducting the real study, a few pilot sessions may be taken into account⁸⁶.

For a research study, the company needs to have a neuromarketing team⁸⁷ carefully chosen. Some of the

roles given to the members of the team are: account owner, project manager, researcher, marketing teams, coder, and analyst⁸⁸. It is of utmost importance to have science staff⁸⁹.

In contrast to traditional marketing studies in which test subjects are required to voluntarily self-complete questionnaires, in neuromarketing data is collected without being consciously given. Furthermore, the test subject is not even aware of the data he or she is delivering to the researchers, whereas in traditional marketing the subject has control over the information he or she provides⁹⁰. Data is collected by technologies that electronically read, collect and process biometric data provided during the studies by the test subjects. These technologies are generally named biometric systems⁹¹.

A proposed improvement for neuromarketing studies is to conduct them in two different environments, a social and an isolated one, and then to identify the differences⁹². This means that test subjects shall see the advertisements in two opposite contexts: surrounded by people and in social isolation. Such a proposal is of extreme importance particularly in these pandemic times.

Finally, during the running of the studies, the research team should avoid or at least minimize the harm done to participants⁹³ as neuromarketing tools may physically and psychologically affect them. Subsequently, companies shall take the appropriate measures for their protection.

3.4. Neuromarketing results and findings

Neuromarketing studies deliver knowledge derived from brain functioning analyses that may be used by marketers⁹⁴. The purpose of neuromarketing is to obtain general principles regarding brain functioning that can be applied when designing advertisements⁹⁵ in order to make them extremely attractive and effective.

⁷⁶ Yesim Isil Ulman, Tuna Cakar, and Gokcen Yildiz, "Ethical Issues in Neuromarketing: "I Consume, therefore I am!""", *Science and Engineering Ethics* 21 (Springer, 2015): 1276, https://www.researchgate.net/publication/282008481_Ethical_Issues_in_Neuromarketing_%27%27I_Consume_therefore_I_am.

⁷⁷ Ulman, Cakar, and Yildiz, "Ethical Issues in Neuromarketing: "I Consume, therefore I am!""", 1277.

⁷⁸ Eugenia Laureckis and Àlex Martínez Miralpeix, "Ethical and Legal Considerations in Research Subject and Data Protection" in *Ethics and Neuromarketing. Implications for Market Research and Business Practice*, eds. Thomas et al., 93.

⁷⁹ *Ibid.*, 96.

⁸⁰ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸¹ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸² "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸³ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸⁴ Plassmann et al., "Consumer Neuroscience: Applications, Challenges, and Possible Solutions", 17.

⁸⁵ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸⁶ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸⁷ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸⁸ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁸⁹ "NeuroMethod: How to run a neuromarketing study", Neuro Inc.

⁹⁰ Krausová, "Neuromarketing from a Legal Perspective", 41.

⁹¹ Article 29 Data Protection Working Party, *Opinion 3/2012 on developments in biometric technologies*, 00720/12/EN WP193, (April 27 2021):5, accessed January 29, 2021, https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2012/wp193_en.pdf.

⁹² Pozharliev, Verbeke, and Bagozzi, "Social consumer neuroscience: neurophysiological measures of advertising effectiveness in a social context", 359.

⁹³ Hensel, Wolter, and Znanewitz, "A Guideline for Ethical Aspects in Conducting Neuromarketing Studies", 71.

⁹⁴ Krausová, "Neuromarketing from a Legal Perspective", 40.

⁹⁵ *Ibid.*, 47.

Neuromarketing has at its core the processing of data collected during the research studies performed on the test subjects. The data collected is unique to individuals and consists mainly in information about their neurological processes⁹⁶, information which is designated as biometric data⁹⁷.

Raw data collected needs to be interpreted for reaching the actual findings that serve commercial or scientific purposes. During interpretation, errors may occur in the final findings due to misinterpreted data⁹⁸. There is the possibility for the results to be interpreted by artificial intelligence, especially when it comes to fMRI scans of test subjects⁹⁹ watching advertising. Regarding the accuracy of the raw results, considering the use of biometric systems which cannot generate 100% error-free results¹⁰⁰, there is a possibility that some of the results may not be fully-relied on. 'Breaches' in the accuracy of the raw results may afterwards reflect in research findings.

Internal validity tests should be performed on neuromarketing results to ensure their validity and effectiveness¹⁰¹ for the clients (interested companies) as there is a certain responsibility towards the clients that have entered into contracts for being delivered findings of neuromarketing research.

3.5. Neuromarketing: mining Big Data?

Primarily, it can be affirmed without a shadow of doubt that neuromarketing implies 'mining the mind'¹⁰². But does it also involve mining Big Data¹⁰³?

Big Data refers to gigantic sets of data that cannot be processed simultaneously by traditional technology because of their volume¹⁰⁴. Big Data is made of every single digital print and information about a consumer and it is mined for isolating his or her preferences and commercial behaviour. Neuromarketing and Big Data share the same purpose: to contribute in designing strategies as a means to attract and influence

consumers. They can also form a team by completing each other and giving rise to state-of-the-art business and marketing ideas. Both are meant to analyse consumer's behaviour¹⁰⁵, especially customer purchase process and reaction to ads, opening the way for predicting purchase behaviour¹⁰⁶. The nowadays trend is to either pass from big data analysis to neuromarketing studies in business activity¹⁰⁷ or to use neuromarketing in order to add a persuasion layer to the big data results¹⁰⁸.

Neuromarketing does not imply mining Big Data, there is no inclusion relation between these two, but rather a possible complementary relationship. While knowledge derived from Big Data mining targets identifiable consumers, neuromarketing generates general-applicable findings meant to be used on a larger segment of population.

With or without completing Big Data, neuromarketing knowledge is considered to lead to manipulative advertising which, in terms of European legislation, may represent misleading or aggressive commercial practices¹⁰⁹. The subject will be further developed in the part 3 of this article.

3.6. Personal data

Personal data is undoubtedly involved in neuromarketing, as the test subjects have to be identified first, to be asked for full and informed consent, and eventually to provide supplementary information necessary for the study, including contact information and medicines or previous health issues or conditions. Moreover, the data collected during running the studies is biometric data, as detailed *supra*.

By means of neuromarketing is done a form of brain-reading and storage of data 'bleed' by the human body¹¹⁰. The data collected represents biometric data and within the territory of EU falls under the protection of GDPR¹¹¹. Through neuromarketing techniques are

⁹⁶ Ibid, 46.

⁹⁷ Article 29 Data Protection Working Party, *Opinion 3/2012 on developments in biometric technologies*, 3, 4.

⁹⁸ Daugherty and Hoffman, "Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research", 8.

⁹⁹ Andrea Lavazza, "Freedom of Thought and Mental Integrity: The Moral Requirements for Any Neural Prosthesis", *Frontiers in Neuroscience* (February 19, 2018): 19, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5825892/>.

¹⁰⁰ Article 29 Data Protection Working Party, *Opinion 3/2012 on developments in biometric technologies*, 6.

¹⁰¹ Hensel, Wolter, and Znanewitz, "A Guideline for Ethical Aspects in Conducting Neuromarketing Studies", 79.

¹⁰² Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", 4.

¹⁰³ Wei Fan and Albert Bife, "Mining Big Data: Current Status, and Forecast to the Future", *SIGKDD Explorations*, Vol. 14, Issue 2 (January 2014): 1, 2, https://www.researchgate.net/publication/303165833_Mining_big_data_Current_status_and_forecast_to_the_future/link/5ab6ac34aca2722b97cdfd76/download.

¹⁰⁴ Zilong Fang, Pengju Li, "The Mechanism of "Big Data" Impact on Consumer Behavior", *American Journal of Industrial and Business Management* 4 (2014): 45, https://www.researchgate.net/publication/276494999_The_Mechanism_of_Big_Data_Impact_on_Consumer_Behavior/link/5ac0276e0f7e9bfc045bfa04/download.

¹⁰⁵ Carla Nagel, "Big Data vs. Neuromarketing", NMSBA, accessed January 10, 2021, <https://nmsba.com/neuromarketing/news-blog/630-big-data-vs.-neuromarketing>.

¹⁰⁶ Mweathe, "So, WHY did the chicken cross the road? – From Big Data to Neuromarketing", April 4, 2016, accessed January 12, 2021, <https://mpk732t12016clustera.wordpress.com/2016/04/04/so-why-did-the-chicken-cross-the-road-from-big-data-to-neuromarketing/>.

¹⁰⁷ Mweathe, "So, WHY did the chicken cross the road? – From Big Data to Neuromarketing".

¹⁰⁸ Carla Nagel, "Big Data vs. Neuromarketing".

¹⁰⁹ Krausová, "Neuromarketing from a Legal Perspective", 43.

¹¹⁰ Pozharliev, Verbeke, and Bagozzi, "The Autonomous Mind: The Right to Freedom of Thought in the Twenty-First Century", 2.

¹¹¹ European Union, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119, (May 4, 2016): 1–88, <https://eur-lex.europa.eu/eli/reg/2016/679/oj>.

identified and measured the physiological characteristics of the test subject, as well as his or her behaviour.

Particular attention should be paid to storing the raw data in cloud for the neuromarketing companies that have concluded cloud computing contracts. Data protection policy and protocols should be adopted. In such documents should be included the identities of the persons who have access to the data, the persons who process and work with the data on the basis of authentication and authorization, a contingency plan for cases of confidentiality breaches¹¹².

3.6.1. Complying with data protection regulations. Anonymization

As data collected during the studies represents biometric data and some of the results of neuromarketing may take the form of biometric templates, which contain key features extracted from the collected raw biometric data, stored for later use¹¹³, its processing falls under the protection of GDPR.

Companies and scientists could comply with data protection regulations by using techniques of anonymization¹¹⁴. Neuromarketing has no interest in future identification of the test subjects, especially as the aim is to obtain generalizable findings following the processing of data. The identity of test subjects is of no interest for either the neuromarketing company or the buying company.

Neuromarketing companies could opt for anonymous interpretation of the data or apply other procedures that impede test subjects' identification after their data having been collected¹¹⁵. In certain cases, if needed, companies or scientists could use pseudonymization¹¹⁶.

3.7. 'Disseminating the results' among interested companies for commercial purposes

After processing the collected data, in commercial neuromarketing, the findings of the researchers have economic value and represent the

'product' that is further 'disseminated' to interested companies. In general, the initial data collected is of no value to such companies, because for drawing conclusions there are needed specialists in neuroscience that can interpret the data. Exceptions may exist when the companies have their own specialists and prefer to receive 'raw' data.

An important aspect that governs the B2B (business-to-business) relation between the neuromarketing company and the company interested in its research findings is transparency¹¹⁷, in particular when it comes to the dissemination. There is a fear of possibly sharing the knowledge with their competitors¹¹⁸. If the study has been performed at a client's particular behest, as an *ad hoc task force*¹¹⁹, then the results would probably be available and disclosed only to that client. Neuromarketing companies should be more transparent to their business clients with regard to what is not possible to be obtained as a result of the research findings. Furthermore, they should inform their contractors about the used techniques and methodologies, because most of the companies tend to present the procedure as a mystery fulfilled with the best and miraculous methods that are extremely efficient¹²⁰. This 'mystery' also impedes any third-party evaluation as the used tools are unknown.

Besides disseminating the findings, there are companies offering marketing advice based on their own findings¹²¹. Most of the companies provide both findings and consultancy¹²². In the field of scientific neuromarketing, scholars argue that the results should be shared or sold anonymously¹²³.

3.8. Neuromarketing and privacy. Neurolaw. Nanomarketing

The results of neuromarketing are said to be a key¹²⁴ for entering into the human brain in order to control mental mechanisms and determine commercial decisions. As the right to privacy (or the right 'to be let alone'¹²⁵) includes aspects related to the interior privacy of an individual, using the results in marketing

¹¹² Laureckis and Miralpeix, "Ethical and Legal Considerations in Research Subject and Data Protection", 95.

¹¹³ Article 29 Data Protection Working Party, *Opinion 3/2012 on developments in biometric technologies*, 4.

¹¹⁴ Data Protection Commission, *Guidance Note: Guidance on Anonymisation and Pseudonymisation* (June 2019): 2, 3, <https://www.dataprotection.ie/sites/default/files/uploads/2019-06/190614%20Anonymisation%20and%20Pseudonymisation.pdf>.

¹¹⁵ Pop, Dabija, and Iorga, "Ethical responsibility of neuromarketing companies in harnessing the market research – a global exploratory approach", 35.

¹¹⁶ European Union Agency for Cybersecurity, *Pseudonymisation techniques and best practices. Recommendations on shaping technology according to data protection and privacy provisions* (November 2019): 7, https://www.enisa.europa.eu/publications/pseudonymisation-techniques-and-best-practices/at_download/fullReport.

¹¹⁷ Hensel, Wolter, and Znanewitz, "A Guideline for Ethical Aspects in Conducting Neuromarketing Studies", 78.

¹¹⁸ *Ibid.*

¹¹⁹ "Ad hoc task force. Neuroscience to solve your deep research challenges", Neurons Inc, accessed January 12, 2021, <https://neuronsinc.com/products/neurotaskforce/>.

¹²⁰ Trettel et al., "Transparency and Reliability in Neuromarketing Research", 106.

¹²¹ For more details about the existing neuromarketing companies and their specialities <https://www.nmsba.com/buying-neuromarketing/neuromarketing-companies>

¹²² See, for example, "Committed to solve your marketing and management pains", Ilicense, accessed January 10, 2021, <https://www.license.org/consultancy.html>; "Our product portfolio for your research needs", Neurons Inc, accessed January 10, 2021, <https://neuronsinc.com/products/>.

¹²³ Ulman, Cakar, and Yildiz, "Ethical Issues in Neuromarketing: 'I Consume, therefore I am!'", 1277.

¹²⁴ Krausová, "Neuromarketing from a Legal Perspective", 47.

¹²⁵ For further details, see Sabah S. Al-Fedaghi, "The 'Right to be let alone' and private Information", in *Enterprise Information Systems VII* (Springer, 2007), https://doi.org/10.1007/978-1-4020-5347-4_18.

may represent a breach of mental privacy. Once again, we mention that consumers have no proper control over the data they offer during studies. Thus, they may give unintended information which may infringe the privacy of their mind and thoughts. The right to freedom of thought¹²⁶ with his internal dimension¹²⁷ (the *forum internum*¹²⁸) is guaranteed by ECHR. Thought is also found in the UN Declaration¹²⁹ in Article 18 which protects 'free thinking'¹³⁰.

Mining the mind can also lead to gaining enough information in order to be able to prime or trigger consumer's preferences¹³¹, which would weaken his or her will autonomy, affecting the physical and mental integrity.

It is debatable if the present rights in the sphere of individual privacy have the strength to cope with the emerging neurotechnologies, as brain data has a direct link to someone's inner life and personhood¹³². Some argue that there should be regulated a new and individual rights, namely right to mental privacy¹³³ and cognitive liberty¹³⁴, known as neurorights¹³⁵. This right shall protect every single individual from intrusions into his brain processes and decisional mechanisms, and his ultimate aim would be the protection of freedom of thought (FoT) which includes the right not to have the thoughts manipulated¹³⁶.

Considering the danger posed by neuroscientific techniques, there have been made a few attempts to introduce neurorights as human rights, including *inter alia* the right to cognitive freedom, the right to psychological continuity, and the right to mental integrity¹³⁷. The umbrella term used to for naming the new field of law that encompasses all of the provisions related to neurorights is 'neurolaw'¹³⁸ and the case-law based on it would represent 'jurisprudence of the mind'¹³⁹. Until legally binding set of norms will be enacted, moral rules provided in the field of ethics

governs for the moment the theoretical neurorights¹⁴⁰ and tend to protect even the right to human dignity. There has also been proposed to be founded a 'monitoring gatekeeper'¹⁴¹ in order to supervise the process and use of neuromarketing studies. Future legally binding regulations in the field of neuromarketing and marketing in general, applicable to companies, shall ensure and secure mental autonomy of the consumers.

4. Legal considerations on neuromarketing and advertising based on it. Liability for use of neuromarketing techniques¹⁴²

Commercial advertising, particularly online advertising, has transnational effects. Both consumers and traders are exposed to and affected by neuromarketing. In order to determine the path for counteracting the negative effects of neuromarketing, the legal characterization of this new type of advertising is first to be done and, afterwards, it is argued whether and in which manner it is to be sanctioned, having in mind the space of the European Single Market.

4.1. Legal classification of commercial advertising based on neuromarketing techniques

In the European Union (hereinafter, EU), the main regulations that cover commercial advertising, including advertising based on neuromarketing techniques, are:

- Directive 2006/114/EC concerning misleading and comparative advertising¹⁴³ (hereinafter, Directive 2006/114), transposed into Romanian legislation by the Law no. 158/2008 concerning misleading and

¹²⁶ Article 9 of European Convention of Human Rights (1950), https://www.echr.coe.int/documents/convention_eng.pdf.

¹²⁷ Sjors Ligthart et al., "Forensic Brain-Reading and Mental Privacy in European Human Rights Law: Foundations and Challenges", *European Human Rights Law: Foundations and Challenges. Neuroethics* (June 2020): 3, <https://doi.org/10.1007/s12152-020-09438-4>.

¹²⁸ Jim Murdoch, *Freedom of thought, conscience and religion. A guide to the implementation of Article 9 of the European Convention on Human Rights*, Human rights handbooks, No. 9, Directorate General of Human Rights and Legal Affairs Council of Europe, F-67075 Strasbourg Cedex (June 2007): 13, <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=090000168007ff4f>.

¹²⁹ United Nations, Universal Declaration of Human Rights (1948), <https://www.un.org/en/about-us/universal-declaration-of-human-rights>.

¹³⁰ Ligthart et al., "Forensic Brain-Reading and Mental Privacy in European Human Rights Law: Foundations and Challenges", 4.

¹³¹ Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", 4.

¹³² Ligthart et al., "Forensic Brain-Reading and Mental Privacy in European Human Rights Law: Foundations and Challenges", 10.

¹³³ Pozharliev, Verbeke, and Bagozzi, "The Autonomous Mind: The Right to Freedom of Thought in the Twenty-First Century", 6.

¹³⁴ Marcela Ienca, "Do We Have a Right to Mental Privacy and Cognitive Liberty?", *Scientific American*, (May 3, 2017), accessed 15 January 2021, <https://blogs.scientificamerican.com/observations/do-we-have-a-right-to-mental-privacy-and-cognitive-liberty/#:~:text=A%20right%20to%20mental%20privacy%20would%20protect%20individuals,as%20against%20the%20unauthorized%20collection%20of%20those%20data>.

¹³⁵ Roberto Garbero, "A new category of human rights: neurorights", *Springer Open Blog*, (April 26, 2017), accessed 15 January 2021, <http://blogs.springeropen.com/springeropen/2017/04/26/new-category-human-rights-neurorights/#:~:text=The%20right%20to%20cognitive%20liberty%20protects%20the%20right,the%20coercive%20and%20unconsented%20use%20of%20such%20technologies>.

¹³⁶ Pozharliev, Verbeke, and Bagozzi, "The Autonomous Mind: The Right to Freedom of Thought in the Twenty-First Century", 1.

¹³⁷ Lavazza, "Freedom of Thought and Mental Integrity: The Moral Requirements for Any Neural Prosthesis", 26.

¹³⁸ Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology", 5.

¹³⁹ *Ibid.*, 7.

¹⁴⁰ *NMSBA Code of Ethics*.

¹⁴¹ Hensel, Wolter, and Znanewitz, "A Guideline for Ethical Aspects in Conducting Neuromarketing Studies", 79.

¹⁴² Carmen Tamara Ungureanu.

¹⁴³ Directive 2006/114/EC of the European Parliament and of the Council of 12 December 2006 concerning misleading and comparative advertising, OJ, L 376/21, (December 2016), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32006L0114>.

comparative advertising¹⁴⁴;

- Directive 2010/13/EU concerning the provision of audiovisual media services¹⁴⁵ (hereinafter, Audiovisual Directive), transposed into Romanian legislation by the Audiovisual law no. 504/2002, as amended and supplemented¹⁴⁶; Audiovisual Directive has been recently amended by Directive (EU) 2018/1808 (which is to be transposed into Romanian legislation¹⁴⁷);

- Directive 2005/29/EC concerning unfair business-to-consumer commercial practices in the internal market¹⁴⁸ (hereinafter, Directive 2005/29), transposed into Romanian legislation by the Law no. 363/2007 on unfair traders' practices towards consumers and harmonization with European consumer protection legislation¹⁴⁹.

Commercial advertising based on neuromarketing/neuroscience research findings has been characterized in the legal literature as *subliminal advertising*, which makes use of techniques that distorts consumer rational choice of products and services¹⁵⁰. Subliminal advertising leads to changes in preferences, opinions and consumers wishes by using stimuli that influence and even manipulates consumers' decisions, having direct effects on market competition, as well.

If the advertising founded on neuromarketing techniques equates with subliminal advertising, it should be banned. Subliminal advertising is already prohibited according to EU regulations and Member States national laws. The things, though, are not as simple as they seem. Subliminal advertising is sneaky and putting this label on advertising based on neuromarketing techniques is not an easy task.

The meaning of subliminal advertising is not explained in the Audiovisual Directive, the Member States undertaking the burden of providing a definition in their national legislation that transposes the directive. The Audiovisual Directive (as revised) bans subliminal advertising for any products or services, the provider of audiovisual services being prohibited from using surreptitious audiovisual commercial communication [art. 9(1)(b)]. According to art. 4 (d) of the Romanian Advertising Law¹⁵¹, subliminal advertising is considered „any type of advertising that uses stimuli too weak for being consciously perceived, but which

can influence the economic behavior of an individual”. A similar definition is provided in art. 1.18 of the Audiovisual Law.

The provisions of the Audiovisual Directive are supplemented by the ones from Directive 2005/29, which aims at protecting consumers against traders' unfair commercial practices. The Directive is applicable to both B2B and B2C (business-to-consumer) relations. It explicitly prohibits unfair advertising as it is being considered an unfair commercial practice.

‘Commercial practice’ means any act, omission, course of conduct, proceeding or commercial communication, including marketing and advertising, done by a trader directly linked with the promotion, sale or supply of a product to consumers [art. 2 (d)]. According to art. 5(2), a commercial practice is unfair if it is contrary to the requirements of professional diligence and if it distorts or may significantly distort the economic behavior regarding a product of the average consumer whom it reaches or to whom it is addressed. To significantly distort the economic behavior means to make use of an unfair commercial practice in order to appreciably affect consumer's ability to make an informed decision, causing the consumer to take a commercial decision that he or she would not have taken otherwise [art. 2 (e)]. The notion of average consumer is not explained; it is left to national courts and authorities the mission of interpreting the typical response of an average consumer in a certain given situation, according to CJEU case-law¹⁵².

Unfair advertising may take different forms. Pursuant to art. 5(4), misleading and aggressive commercial practices are particularly labelled as unfair. Could neuromarketing techniques be considered unfair advertising? The consumer exposed to neuromarketing techniques is not aware of their use and neither of their influence, thus the consumer may mistakenly believe that he or she has control over his/hers own decisions. The consumer is not, in essence, deceived, but seduced, persuaded through subconscious methods. Neuromarketing does not represent mind-control, but change-thoughts, as it bypasses consumer's rational

¹⁴⁴ Republished in Official Journal of Romania no. 454, 24.07.2013.

¹⁴⁵ Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive), OJ L 95/1, (April 15, 2010), <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010L001>.

¹⁴⁶ Published in Official Journal of Romania no. 534, 22.07. 2002.

¹⁴⁷ An infringement procedure was taken on 23 November 2020 against 23 EU Member States, which have not transposed the directive within the stipulated time limit, including Romania; information available online: https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2165, accessed February 2, 2021.

¹⁴⁸ Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive'), OJ L 149/22 (June 11, 2005), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005L0029>.

¹⁴⁹ Published in Official Journal of Romania no. 899 (December 28, 2007).

¹⁵⁰ Krausová, "Neuromarketing from a Legal Perspective", 41.

¹⁵¹ Law no. 148/2000 on advertising, as amended and supplemented, published in the Official Journal of Romania no. 359, (August 2, 2000).

¹⁵² Recital 18 from the Directive 2005/29/EC. For a portrait of an average consumer, see Lucian Bercea, "Standardul "consumatorului mediu" și consimțământul pentru prelucrarea datelor cu caracter personal", *Revista Română de Drept Privat*, no. 1/2018.

control¹⁵³. Consequently, consumer's consent is altered¹⁵⁴, but it is questionable whether the lack of consent or the vitiated consent falls under the meaning of any defects of consent (error, fraud, or violence/fear) regulated in Romanian Civil Code¹⁵⁵. Even supposing a consumer would admit the idea of being manipulated and, as a result, he would invoke an error induced by fraud, it would be incredibly difficult for him to prove it¹⁵⁶.

Could advertising based on neuromarketing represent another unfair commercial practice, different from a misleading or aggressive one? On the grounds of considering as unfair *in particular* the misleading and aggressive commercial practices, the Directive 2005/29 leaves room for other types of unfair commercial practices, as well.

In the Directive 2006/114, which aims at protecting, mainly, the traders against misleading advertising (with beneficial consequences on consumers), misleading advertising is forbidden. As pointed out before, to invoke the misleading nature of the advertising which is based on neuromarketing may not represent a viable solution. Nevertheless, if a competitor is affected by other competitors' practices, which fall under the categories listed in art. 101 or 102 from the Treaty on the Functioning of the European Union¹⁵⁷, then the first competitor may seek compensation for damages according to Directive 2014/104/EU on certain rules governing actions for damages under national law for infringements of the competition law provisions of the Member States and of the European Union¹⁵⁸.

In the light of the above, when the criterion of manner of delivery to the recipient is used, the commercial advertising based on neuromarketing techniques may be characterized as *subliminal advertising*; when the criterion of the result achieved comes into play, it can be qualified as *unfair commercial practice*, which could result in violating EU competition rules.

4.2. How could be the traders held responsible for promoting their products and services by means of neuromarketing?

There are no provisions in EU regulations referring to the persons to be held responsible for unlawful advertising. Pursuant to art. 18 of Romanian

Advertising Law, *the author, the advertising director and the legal representative of the means through which the ads are disseminated* are jointly held responsible with the trader who advertises his/hers products or services.

According to art. 19 of Romanian Advertising Law, if the person that advertises is not based in Romania or cannot be identified, the liability should be borne by, where appropriate, her legal representative in Romania, the author, the advertising director or the legal representative of the means of disseminating advertising.

Moreover, in accordance with art. 1(a) and (aa) of the Audiovisual Directive (as revised), which represents a special law in relation to the Romanian Advertising Law, the provider of a video materials sharing media has no editorial responsibility.

4.2.1. Types of liabilities for unlawful advertising through neuromarketing techniques

There are two types of liability for unlawful advertising: administrative liability and civil liability.

Unlawful commercial advertising, whether subliminal or an unfair commercial practice, generally triggers administrative liability. The competent bodies of each EU Member State can impose fines and other additional administrative penalties¹⁵⁹. Imposing sanctions that are characteristic to this particular field is based on the principle of territoriality. Even if the practices of commercial advertising that attract liability incorporate cross-border elements, the law applicable to the administrative liability stays the law of the Member State in which the competent bodies operate.

The facts which constitute contraventions according to the administrative law could be considered delicts/torts in civil and commercial law, attracting thus civil liability, if its conditions are fulfilled¹⁶⁰. Civil liability may occur especially in the field of unfair competition following unlawful commercial advertising. It can also occur when consumer rights are violated having as a result individual or collective damages.

If the civil delicts/torts contain cross-border elements, it is necessary to determine the competent court for dispute resolution, and the applicable law. In

¹⁵³ Jan Christoph Bublitz, "Freedom of Thought in the Age of Neuroscience", *Archives for Philosophy of Law and Social Philosophy*, Vol. 100, No. 1 (2014):13, <https://www.jstor.org/stable/24756752>.

¹⁵⁴ See also, Krausová, "Neuromarketing from a Legal Perspective", 44-45.

¹⁵⁵ Art. 1204-1220 Romanian Civil Code.

¹⁵⁶ For a detailed analysis, see Carmen Tamara Ungureanu, *Drept civil. Partea generală. Persoanele* [Civil Law. General Part. Persons] (Hamangiu Publishing House, Bucharest, 2016), 137 and the following.

¹⁵⁷ Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, Official Journal C 326, 26/10/2012, 0001 – 0390 (October 26, 2012), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT>.

¹⁵⁸ OJ L 349 (December 5, 2014); the directive was transposed in the national legislation by Government Emergency Ordinance no. 39/2017 on actions for damages in cases of violation of the provisions of competition law, as well as for amending and supplementing the Competition Law no. 21/1996, published in Official Journal of Romania no. 422 (June 8, 2017).

¹⁵⁹ For a detailed analysis, see Carmen Tamara Ungureanu, *Drept internațional privat european în raporturi de comerț internațional* [European Private International Law in International Commercial Relations] (Hamangiu Publishing House, Bucharest, 202), 386-388.

¹⁶⁰ See also, Christine Riefa, "Séverine Saintier, Unfair Commercial Practices Directive: remedying economic torts?", in *Research Handbook on EU Tort Law*, ed. Paula Giliker (ed.), (Edward Elgar Publishing, UK, 2017), 293- 297.

the EU, the provisions of Brussels I bis Regulation¹⁶¹ and Rome II Regulation¹⁶² are mainly applicable, to which may be added conflict rules from a few European directives¹⁶³.

According to art. 1 (1) of the Brussels I bis Regulation, its provisions do not apply to administrative matters. In tort liability matters, the plaintiff can choose between the court at the defendant's domicile (art. 4) and the court at the place where the harmful event occurred or may occur (art. 7.2).

The place where the harmful event occurred is, according to the case-law of the CJEU, either the place of the causal event or the place of the direct and immediate damage suffered by the direct, immediate victim. In the case of a plurality of damages, the place where the harmful event occurred is either the place of the causal event for the full reparation of the damage, or the place of the damage occurring in each Member State for the reparation of the damage in that State, or the place where the centre of the victim's interests is located. The plaintiff may choose any of the competent courts according to these criteria.

As to the applicable law, the Rome II Regulation does not apply to administrative matters [art. 1(1)]. In civil liability for torts/delicts, the general rule is included in art. 4(1) according to which the law applicable to non-contractual obligations arising out of an unlawful act is the law of the country in which the damage occurred (*lex loci damni*), irrespective of the country in which the event giving rise to the damage occurred or in which the indirect consequences of that event occur. This rule does not apply if the situation falls within the exceptions to the general rule or into categories for which special rules of conflict have been established.

When an information society service provider is held liable for unlawful commercial advertising, the *law of the country of origin* is the applicable law, meaning the law of the country where the provider is based/has its seat¹⁶⁴. The rules of conflict from the Rome II Regulation are not applicable at the matters

that fall within the regulatory field of the Directive on Electronic Commerce, as it results from art. 27 Rome II Regulation. The same rule (the law of the country of origin) applies to situations, which fall within the scope of the European directives concerning commercial advertising.

As to the unfair competition, the market effects principle is used. According to art. 6(1) of the Rome II Regulation, the law applicable to non-contractual obligations arising out of an act of unfair competition is the law of the country in which the competitive relations or collective interests of consumers are or may be affected. For non-contractual obligations arising out of restrictions of competition the applicable law is the law of the country in which the market is or may be affected [art. 6(3) of the Rome II Regulation]. Yet, when an unlawful commercial advertising produces effects in several countries, the market effects principle leads to the application of different laws, one for each affected market. In order to avoid such a situation and taking into account the provisions of art. 27 of the Rome II Regulation, the country of origin principle is used instead.

4.3. Class actions

In view of the fact that subliminal advertising cannot be easily recognized and invoked, it seems that class actions, named representative actions, could be an efficient remedy made available to consumers by the Directive 2020/1828 on representative actions for the protection of the collective interests of consumers¹⁶⁵ (hereinafter, Directive 2020/1828), which is to be transposed into national legislations¹⁶⁶.

According to art. 2(1) of Directive 2020/1828, its provisions apply to representative actions lodged against violations of the EU law committed by traders, including with respect to commercial advertising¹⁶⁷. Such violations harm or have the potential to harm the collective interests of consumers.

For the purpose of bringing representative actions, there are designated qualified entities, such as

¹⁶¹ Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ L 351/1, (December 12, 2012), <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32012R1215>.

¹⁶² Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), OJ L 199/40, (July 31, 2007), <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32007R0864>.

¹⁶³ For example, from the Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce'), OJ L 178/1 (July 17, 2000), <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32000L0031>. For details, see Ungureanu, *Drept internațional privat european în raporturi de comerț internațional*, 390-392.

¹⁶⁴ For a detailed analysis, see Ungureanu, *Drept internațional privat european în raporturi de comerț internațional*, 390-392.

¹⁶⁵ Directive (EU) 2020/1828 of the European Parliament and of the Council of 25 November 2020 on representative actions for the protection of the collective interests of consumers and repealing Directive 2009/22/EC, OJ L 409/1 (December 4, 2020), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.409.01.0001.01.ENG.

¹⁶⁶ The directive is to be transposed in national legislations by 25 December 2022. The provisions adopted are to be applied from 25 June 2023 (art. 24).

¹⁶⁷ As provided in the annex of the directive, points 14 and 33, referring to the Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive'), OJ L 149, (June 11, 2005): 22, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005L0029>, and the Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive), OJ L 95, (April 15, 2010): Articles 9-11, 19-26 and 28b.

NGOs for consumers' protection. Qualified entities can bring both domestic and cross-border representative actions (art. 3.5) and they may lodge, on behalf of consumers, actions for injunction or for redress before a court or an administrative or civil/commercial authority.

Pursuant to art. 8(3) of Directive 2020/1828, a qualified entity may seek an injunctive measure, e.g. to cease the display of an advertisement based on neuromarketing techniques, without the consent of the consumers represented, without the existence of an actual loss or damage and in the absence of a proven intent or negligence on the part of the liable trader. The injunction measures are meant to protect the collective interests of consumers, regardless of the existence of an actual loss or damage at an individual level.

For being granted redress measures, such as compensations, contract termination, reimbursement of the price paid and so on, it follows from art. 9 that there is needed the existence of an injury/harm.

As to the traders damaged through neuromarketing techniques, they should rely on the unfair competition laws¹⁶⁸.

4.4. Liability for breach of fundamental human rights, the right to freedom of thought

Until the transposition of Directive 2020/1828 into domestic legislations, a solution that could be taken into consideration is the use of human rights mechanism. Hence, in legal literature¹⁶⁹, there has been put forward the idea of invoking art. 9 of the European Convention on Human Rights¹⁷⁰ (on the right to freedom of thought). Even if courts and doctrine¹⁷¹ do not deal with the freedom of thought, taking for granted the idea that thoughts are intangible and beyond the possibility of control, neuromarketing threatens it by using stimuli that exceed the sphere of commercial information and enter into the sphere of manipulation.

In order to make use of this mechanism, first there should be exhausted all national channels of appeal that the person whose freedom of thought has been violated is entitled to. In Romania, this sort of action could be founded on the provisions of art. 29 (1) of Romanian Constitution ('Freedom of thought, opinion, and religious beliefs may not be restricted in any form whatsoever. No one may be forced to adopt an opinion or to adhere to a religious belief contrary to his or her

beliefs'). Nonetheless, it would be hard to prove such a violation. In the legal literature¹⁷², it is affirmed that for proving the negative effects of neuromarketing there might be used means of proof provided by neuroscience.

Some authors argue, furthermore, that there should also be recognized other human rights in the context of neuroscience's development, namely the right to cognitive liberty, the right to mental privacy, the right to mental integrity, and the right to psychological continuity¹⁷³ for the reasons already discussed in paragraph 2.8.

5. Conclusions

Neuromarketing is still in its infancy¹⁷⁴, being labelled as an emerging field¹⁷⁵. Despite its relative incipient stage, it plays a major role in international trade as its main aim is to contribute to the improvement of marketing, particularly to the persuasive effect of advertising upon worldwide consumers. It is a great and innovative tool for traders, but it may result in competitive advantages that are likely to cause disruptions on the market, affecting traders with more reduced financial resources as neuromarketing is highly-costing.

From the consumers' perspective, neuromarketing is sketched mainly as a harmful instrument meant to alter their will autonomy and consequently to influence economic decisions in favour of traders. The literature seems to be constantly working on the subject for discussing means of protecting the individuals, but the proposals that have been put forward appear to be utopic for the moment, especially the regulation of neurorights. In these circumstances, both consumers and the organisms that act on their behalf, along with the traders less powerful and disadvantaged on the market have to rely on the existing European instruments that have been considered in the third part of the article.

The reader of this article should be aware of the fact that '*Neuromarketing is here to stay; it's not a summer fashion*'¹⁷⁶. It will continue to develop itself and pose new legal issues for all the participants to international trade, as well as for consumers.

¹⁶⁸ We do not examine here this issue. For an analysis, see Ungureanu, *Drept internațional privat european în raporturi de comerț internațional*, 392-394.

¹⁶⁹ Pozharliev, Verbeke, and Bagozzi, "The Autonomous Mind: The Right to Freedom of Thought in the Twenty-First Century", 5.

¹⁷⁰ https://www.echr.coe.int/documents/convention_eng.pdf.

¹⁷¹ Bublitz, "Freedom of Thought in the Age of Neuroscience", 3.

¹⁷² Anne Lise Sibony, "Is EU Law Neuro-Friendly?", *Neuroscience in European and North American Case Law* (Italie Pavia and Milan, du 16/09/2010 au 17/09/2010): 4, <http://hdl.handle.net/2078.1/163031>.

¹⁷³ Ienca and Andorno, "Towards new human rights in the age of neuroscience and neurotechnology".

¹⁷⁴ Daugherty and Hoffman, "Neuromarketing: Understanding the Application of Neuroscientific Methods Within Marketing Research", 6.

¹⁷⁵ *Ibid*, 31.

¹⁷⁶ Laureckis and Miralpeix, "Ethical and Legal Considerations in Research Subject and Data Protection", 91.

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