

Summary of sub-project 4 activities: "Experimental development of emerging technologies in the field of neuromarketing at the level of online social networks and study of their impact at the level of users" (NeuroMedia)

-Summary 2019-

Activity 4-1: Exploratory research to identify the needs and expectations of potential users of the online social network AR Media that will implement augmented reality (AR - augmented reality) technologies and recognition of locations, people and objects with the help of mobile cameras

At this stage, concrete technical and scientific steps and activities were carried out to meet the proposed indicators.

From a scientific point of view, three research services have been carried out based on the method of qualitative research, which is par excellence an exploratory research that studies in depth the motivations, emotions, perceptions, feelings that determine people to use augmented reality in online social networks. The three qualitative researches identified the needs and motivations of potential users of augmented reality, as follows: education of children with special needs, how young people anticipate the future development of social networks; opinions on the link between AR technologies (including facial recognition) and the development of social networks; the positives and negatives of technological developments in the field of social networks; the needs and expectations of potential users of augmented reality technologies in online social networks as well as obtaining as many ideas as possible that could guide the future development of the AR Media network.

The third exploratory research was conducted by the method of structured pencil-paper interviews, to anticipate the opportunity to introduce facilities to meet the needs of potential users of the AR Media network.

Also, a project website was created, the activities related to the development of institutional capacity were planned, the positions of young researchers were put out to

competition, the offer of services was published on Erris and a research report was made on the needs and augmented reality user expectations on online social networks.

Scientific and technical description

In order to achieve the indicators assumed by the project, three qualitative researches were carried out, which are par excellence exploratory, their purpose being to identify the needs and motivations of potential users of augmented reality in online social networks.

A first research carried out through focus group aimed the education of children with special needs (a research conducted through two focus groups), another research - also through focus group - aimed to capture how young people predict the future development of social networks ; opinions on the link between AR technologies (including facial recognition) and the development of social networks; the positives and negatives of technological developments in the field of social networks; the needs and expectations of potential users of augmented reality technologies in online social networks as well as obtaining as many ideas as possible that could guide the future development of the AR Media network. The third exploratory research was conducted by the method of structured pencil-paper interviews, to anticipate the opportunity to introduce facilities to meet the needs of potential users of the AR Media network.

The practical utility of these scientific approaches consists in:

- Identification and development of absolute hypotheses necessary in future quantitative research (in the other stages of the project);
- In-depth understanding of the behaviours needs of the of individuals and groups of people who will use augmented reality in online social networks.

From a technical / methodological point of view, the interview method was chosen, the investigation technique being the focus group, and for a technical research it was the one called “pencil-paper”.

The research was organized between June and October 2018, the interview procedure was the semi-structured interview, and the interview guide was used as an investigation tool, in all cases.

For each of the three qualitative exploratory researches, transcripts of the focus group interviews / discussions were made, and based on them, complete research reports were made.

Another indicator was to conduct an exploratory research to identify the needs and expectations of potential users of the online social network AR Media that will implement augmented reality (AR) technologies and the recognition of locations, people and objects using mobile cameras.

For this report, an initial methodological design was carried out in several meetings of the working group, meetings in which the samples related to the three researches organized and presented above were also established. In order to establish the most susceptible areas and in accordance with the purpose and objectives of the project, a scientific method established in the field was applied, respectively brainstorming, being identified several areas of interest that will be presented below.

As the main method of qualitative exploratory research, the case study was chosen, in association with the capitalization of the results obtained through the research organized and presented above. The main specialized works published at international and national level in the field of reference were studied, including a synthesis of websites and the main aspect regarding the categories of needs, expectations and behaviours of augmented reality users in online social networks. The needs, expectations and possible behaviours identified can be structured by areas, as follows:

1. E-commerce. Today's shoppers do not always go to the nearest store to buy certain products, but use the digital devices, especially mobile, they have at their disposal. For this reason, the "ecosystem" of online retail is evolving rapidly, as recent studies have shown that online retail sales will double and account for over 14.6% of global sales by 2020. Adapting the technology to specific purposes and improving the infrastructure to bring more services online provides familiarity and convenience to users. However, today there is great uncertainty regarding the convergence between online and offline buyer behaviour and how it can increase profitability in both online and offline environments. This is especially reflected in e-commerce, which is still largely a national business, where retailers mainly address customers in their own country.
2. The educational field. To have a more complete picture of the needs regarding the use of AR in education, a qualitative research was conducted based on the analysis of secondary data sources. An analysis was made from

the perspective of participants in the educational process: pupils / students, teachers, parents, educational institutions. education.

3. The medical field. One of the biggest advantages of AR is its ability to demonstrate and visualize clearly complicated concepts. The competitive landscape between drug manufacturers and suppliers means that small advantages can lead to big gains. For sales replicas that compete for a doctor's attention, the ability to quickly demonstrate the benefits of a new drug through AR could be extremely beneficial. For example, viewing a 3D organ on a doctor's desk and demonstrating the effect of that drug has a greater impact than a simple image. Healthcare professionals could scan the page to see the effects of the condition in 3D, to find out how the treatment works, to see the potential cost savings and much more. In this field, the following categories of needs were identified: the need for correct medical diagnosis by non-invasive or minimally invasive methods; the need for security in identifying the diagnosis; the need for accessibility; the need for prevention; the need for continuing education; the need for economy (low costs in terms of diagnosis / treatment; the need for simple patient-physician communication; the need for professional development; the need for performance; the need for recognition by evaluation.
4. The tourist field. In the tourism industry, technological innovation plays an important role in the process of satisfying the needs of tourists, offering them special experiences. The use of new technologies is becoming a necessity for tourist destinations in the fight to maintain their competitiveness. Augmented reality is a facet of technological innovation with a great potential in the development of tourism, being considered part of "smart tourism" it provides information about tourist destinations and attractions. Augmented reality aims to introduce the tourist to a digital environment, so that he feels in that environment, has a sense of spatial presence and increasing the availability of smartphones and other such devices leads to its use more and more. in tourism. Studies show that one in 5 people has a smartphone and spends a lot of time using various applications. At the same time, social networks can play an important role both for the bidders and for the potential clients on the tourist market,

because through the created platforms a favourable environment can be created for the direct interaction of the potential visitors with the tourist destinations. Online social networks are favourable "spaces", able to generate multiplier effects in the space of the proposed stimuli, given the content, diversity, and ways of presenting information from many users.

5. Gaming. Augmented reality has been explored for many applications, from games and entertainment to medicine, education, and business. Video game companies have quickly adopted this technology to create games that are quasi-real, delivering unforgettable experiences. There are already several games on PC and mobile devices that use augmented reality, but many players are turning to console-type devices for the best experience. PlayStation and Wii offer incredible games, in which players can play role-playing games and use physical actions to control the movements and actions in the game. With augmented reality, games are livelier and give the user the feeling of being present right in the middle of the action. This type of technology is quite common in fighting games as well as in sports games, where players can have complete control over their experience by using an AR device. A key element of AR systems is the extent to which they integrate augmentations with the real world seen through the camera. The software must obtain real-world coordinates through a process independent of the camera, using a process called image recording. At the same time, different computer vision algorithms are used, mostly related to video tracking. With the advent of frameworks such as Apple's ARKit or Google ARCore, developers can build AR-type games without the need for any real-world counterparts. The results of the exploratory research show that hedonic, emotional, and social benefits, as well as social norms determine consumers' reactions, while physical risks (but not data privacy risks) prevent their reactions. However, the importance of these channels differs depending on the players behaviour. They also show that consumers' attitudes towards AR mobile games are largely determined by the level of joy they get and the social image that a particular game conveys to others. In addition, nostalgia, the experience of flow and physical activity in the game contribute to a positive association. However, the risk of being injured

during the game decreases this attitude, confirming previous research in the context of mobile AR. Surprisingly, although AR mobile games are an extremely social activity, socialization is not related to any of the target variables. A potential explanation is that players face such a strong flow of data and information that they do not appreciate or use the benefits of the socializing modules that games offer.