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CUSTOMER ENGAGEMENT AND THE USE OF AUGMENTED REALITY TECHNOLOGIES IN THE FOOD INDUSTRY MARKETING

Bachelor's thesis

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I hereby declare that I have compiled the thesis independently
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ABSTRACT

Augmented Reality (AR) is a prospective and expanding field in marketing that is arising as a strategic experience tool for establishing connections between customers and brands. Augmented reality was widely applied in games, and on social media. Now it is used by different companies for the promotion of products. Food is an integral part of everybody's life, and the modern world is full of food brands, that desire to sell as many products as possible and stand out among competitors. This study brings together food brands and marketing, and it is examining how AR technologies applied in the food industry could affect the customers' engagement.

The research problem is that augmented reality is quite new in the field and there is a research gap in connecting AR, engagement, and the food industry. To gather necessary data, the questionnaire was created, and 387 responses were collected. The descriptive and Cramer's V correlation statistics were used for the representation of results. The obtained information and further analysis of it showed that people are highly interested in augmented reality technologies, and they would engage with food brands more if AR technologies are used in food-related promotional campaigns. Moreover, the results reflected that a big number of respondents have already used or engaged with AR technologies. After all, future research suggestions were made.

Keywords: AR, augmented reality, customer engagement, marketing, augmented reality technologies, food industry, social media.

INTRODUCTION

Augmented Reality (AR) in marketing establishes a new trend for brands — to communicate with their audience through special mobile applications or by using interactive content. Until recently, AR could only be seen in high-budget science fiction films but technologies are developing and progress never stops that is why augmented reality has begun to be used in solving problems in business, education, medicine, and many other areas. Augmented reality allows brands to create fantastic content, and brands that have already realized the power of augmented reality marketing have successfully used AR in their marketing campaigns, achieving more pleasure, bigger visibility, and get revenue growth as a result. One of the first companies, which applied augmented reality technologies was Pepsi (Grand Visual, 2019) which installed AR technology in a London bus shelter in 2014, and the results were astounding, as viewers found the campaign innovative and supported the brand after watching it. Moreover, there were significant discussions among viewers, who desired to have such bus shelter's all over England (Feng, Xie, 2018).

AR technology has made it possible to visualize many types of digital content, thus easily accessing missing information about the size, shape, and/or other characteristics of the product. Augmented reality applications allow users to interact with products: reach out and "touch", look from different angles, take pictures, and much more. Due to the relative novelty, the combination of these functions allows brands to create a wow effect that leaves an impression so that users remember the product and its manufacturer. Innovative technologies are more and more integrated into human lives, and companies should not miss the opportunity to be as close to the consumer as possible. That is why 7 of the 10 most popular social media applications already work with AR (Boland, 2021). Moreover, the COVID-19 pandemic has accelerated the development of AR technologies all over the world, due to the switching from offline mode into online.

The motivation for writing this thesis evolves from issues related to the development of new technologies that are applied in marketing and have a significant influence on consumers, as augmented reality allows them to use unique and new tools to interact with products or services and can be applied in various spheres of peoples' lives (Moses et al. 2018). The author has been

working in the digital marketing sphere for more than two years and has seen the latest trends that appeared. It was noticed by the author that augmented reality is widely applied in the food and beverage industries, which might help to enhance the effectiveness of businesses, optimize processes and increase brand awareness by applying AR technologies in marketing (Rejeb et al. 2021). The study was made by the author's interest in understanding how augmented reality helps food brands to promote their products and how it affects the engagement of customers with brands. Moreover, the author believes that is necessary to study this topic more because the modern world is rapidly changing, and companies must use up-to-date marketing tools to attract customers and be able to compete with each other.

Current studies focus on VR technologies are applied in various spheres of peoples' lives, such as tourism because virtual reality technologies can assist them in planning and management of the trip, as it makes it possible to take a virtual tour and get a realistic picture of the destination place (Pestek, Sarvan, 2020), or on VR and AR technologies that are applied together, for example, in the educational field because they help students to develop knowledge and skills in a more attractive and efficient way (Ardiny, Khanmirza, 2018). However, only a few studies focus on AR, which explores the level of understanding of AR and the readiness of consumers to accept AR technologies (Rauschnabel, 2021). Some studies also analyze the influence of AR technologies on the beauty industry, as augmented reality technologies can stimulate the shopping experience, and add enjoyment during the purchasing process (Wang et al. 2021).

Many studies have been made about augmented reality marketing and the relationship between mobile AR apps and the improvement of brands that appeared due to applied augmented reality technologies (Rauschnabel et al. 2019). Moreover, studies were focused on the comparison of augmented reality marketing and traditional digital marketing, the potential, and future of AR, and challenges that can appear if companies apply AR technologies (Rauschnabel et al. 2022). The research problem is that AR is quite new in the field, engagement is evolving, the food industry is filling with new products and various promotions, and there is a research gap in connecting AR, engagement, and the food industry. The number of studies that were conducted from the consumers' point of view and companies' perspectives at the same time is much lower compared to the number of studies related only to companies' perspectives. The author decided to study the connection between customer engagement and AR technologies in the food industry, thus the aim of the research paper is to examine how customers would be engaged with brands in the food industry if they apply AR technologies.

The research questions are the following:

RQ1 – What are the main motivators for engagement with augmented reality technologies in the food industry?

RQ2 – How augmented reality affects the engagement with food-related content?

The study is divided into three main parts. The first part of the study is the theoretical background that focuses on the history of AR creation, existing theories, studies, and literature that are related to the description of augmented reality technologies, their implementation in marketing for the promotion in the food industry, and changes in consumer behavior that are related to the use of augmented reality technologies.

The second part of the paper explains why the quantitative method was used, provides the information related to the methodological part, and describes how the questionnaire was created, planned, and analyzed. The third part of the paper consists of the information related to the empirical analysis, in which the results of the study and analysis are covered. The study ends with the conclusion where the main findings are covered, the whole study is concluded, and suggestions for further studies are described.

The author wants to thank all respondents, who filled out the online questionnaire for their answers and feedback. The author expresses gratitude to the supervisor Airi Freimuth who was supporting, inspiring and guiding the author during the whole thesis process.

1. THEORETICAL BACKGROUND

The theoretical part includes information about the occurrence of augmented reality and its development over time. Then, the uses and gratifications theory is explained, as media is tightly connected with AR technologies and customer engagement. An overview of the dependence on customer engagement and augmented reality is given to explain how AR could influence customer engagement. The last part is related to the food chain engagement measurement scale to examine the food involvement among customers.

1.1. The history of augmented reality

The term augmented reality is well known in the modern world, as AR technologies are applied in the marketing strategies of companies to attract customers. Various companies started applying AR technologies, as it is a novel, distinctive, and fascinating way of promoting products and services. Augmented reality technologies are also tightly connected with search engine optimization, online marketing, and social media, and if they are used correctly, marketing campaigns will stay in minds of customers for a long time (Rauschnabel et al. 2022). Augmented Reality (AR) is a technology that allows complementing the physical world around us with digital objects using a computer, mobile phone, or other devices (Bimber, Raskar, 2005).

The history of augmented reality starts with inventions related to VR, and a cinematographer - Morton Heilig. On August 28, 1962, Morton Heilig patented the Sensorama simulator (Russo, Risch, 2017), where a virtual technology was created in which visual images were complemented by air movements and vibration. A three-dimensional stereo sound was added to the device and several fans were inserted to create a wind effect; vibrating mechanisms were built into the seat, thus a person could feel bumps when riding a motorcycle (Russo, Risch, 2017). As the result, a person not only saw a three-dimensional movie, but also felt the sound synchronized with the picture, felt the wind in the face, and bumps.

Since the late 70s, a man with a strange construction on his head and a giant backpack on his back began to appear on the streets of Toronto. The first prototype of smart glasses was invented and tested by the Canadian scientist and computer engineer Stephen Mann in 1978 (Mann, 1997). The design consisted of a huge helmet with a bunch of wires and radio antennas, while the computer was in a backpack behind the back. The computer display made it possible to overlay some graphic elements on real objects, thereby modifying, complementing, and improving reality.

Mann looked at the world through the lenses of microscopic cameras and filmed everything that was happening around on video. Soon, more miniature EyeTap smart glasses appeared. A small camera was implanted into the EyeTap (Mann, 2002). The video got into the computer improved, and only then the image was projected onto the retina of the eye. For example, EyeTap filtered out excess sunlight, so Mann could easily look at the sun. With the help of EyeTap, it was possible to see objects that a person with normal vision cannot see because they are too far away from him (Mann, 2004).

In 1992, a scientist and worker of the Boeing corporation, Tom Caudell first proposed the term "augmented reality" (Berryman, 2012). Further development of the AR took place rapidly. The leap made in the production of microprocessors, and, as a result, in the entire technology sector, has greatly accelerated the work. In 1996, Jun Rekimoto and Yuji Ayatsuka developed a Matrix Method or CyberCode, which described real and virtual objects using flat labels such as QR codes. This made it possible to fit virtual things into the real world by simply transferring labels (Rekimoto, Ayatsuka, 2000).

After mastering new augmented reality technologies, companies began to use them to promote their products, and printed publications were among the first ones to experiment. The December Esquire magazine of 2009 delighted readers, because when they brought the magazine to the web camera, Robert Downey Jr. appeared in front of the reader to advertise a new "Sherlock Holmes" film (Pavlik, Bridges, 2013). Later this year, ARToolKit became available for internet browsers.

More people were introduced to augmented reality when Google wanted to put smart glasses on people's noses (Glauser, 2013). After that came the era of masks on Snapchat which transformed users into cats, bunnies, and Leonardo DiCaprio to promote brands and create sponsored content (Hawker, Carah, 2020). Then, the Pokemon game captured the attention of people and forced them to run kilometers to find prizes (Rauschnabel et al. 2017). In a few decades, augmented reality

became an everyday technology, as well as a virtual reality. Every user can try AR technologies using a smartphone, and for example, if a person puts the camera to read QR codes or applies a filter to the real world on social networks, augmented reality technologies are used.

1.2. Uses and gratifications theory

The uses and gratifications theory claims that people use media to satisfy specific needs and wants, it also sees people as active users who control media consumption. In the 1940s, the uses and gratifications theory was introduced because scholars started to examine why people have preferences connected to the consumption of various forms of media (Ruggiero, 2009). During the next few decades, uses and gratifications research has concentrated on the exploring demands of gratifications media users. Later on, in the 1970s, researchers analyzed the outputs of media use and the psychological and social demands that media fulfilled. The theory is frequently credited to Elihu Katz's and Jay Blumler's work published in 1974 (Ruggiero, 2009).

The basis of the uses and gratifications theory consists of two concepts about media users. The first concept defines media users as active in their selection of the consuming media, and from this point of view, people are motivated and engaged in their media selections. The second concept is that people are conscious of their reasons to select various media options, they rely on the knowledge of their inducements to choose media that will meet their particular needs and wants. According to these concepts, five general gratifications were identified.

- Affective needs.

These needs are related to pleasure and emotional fulfillment, when people feel the emotions of characters on the screen, for example, when characters cry or laugh, the audience does the same. Such needs can be obtained from watching movies, soap operas, or emotional videos on social media. In the modern world, affective needs can be fulfilled through the use of social media networks, where people can gossip, share news, or seek for a relationship, which will affect emotions (Tanta et al. 2014).

- Cognitive needs.

For the fulfillment of intellectual and mental needs to get new knowledge or information (Ruggiero, 2009), people use media as well. Obtaining new knowledge keeps the minds of people engaged, helps to explore perspectives of the surrounding world, motivates them to gain new experiences, and trains the brain, therefore it becomes easier to handle new challenges. There are many options to satisfy these needs, such as the use of quizzes or arts programs, watching documentaries or how-to videos (DIYs), or reading the news.

- Social integrative needs.

Every person needs to socialize with others and to meet this need, people mostly use social media networks, such as Instagram, Facebook, Twitter, or Snapchat (Florenthal, 2019). Media is also used for increasing networking skills through making new work-related connections or interacting with friends, for example, which are directly related to socialization.

- Tension-free needs.

All people have different types of tensions in their lives that they do not want to face, thus media helps them to escape from them. Watching videos, listening to music, or writing posts helps to decrease the stress level or do something when people are bored.

- Personal integrative needs.

People want to be confident, respected and have a particular status, these are the needs for self-esteem and respect (Stafford et al. 2004). To establish this, people use media and watch advertisements to know about the latest fashion, lifestyle, or social media trends to stay up-to-date and fit in with other people.

The uses and gratifications theory was also investigated in relation to specific forms of augmented reality. In the research that was related to the use of AR technologies in the mobile game "Pokémon Go" was mentioned that the main motivators for playing the game were the need for social interaction with other players, the need for a challenge, achievement, and enjoyment (Ghazali et al. 2019). Another study that was aimed to examine the motivation to use AR smart glasses, and the key motivators were enjoyment, self-expression, release from stress and problems, and socializing (Rauschnabel et al. 2018). According to the aforementioned information, motivational factors for using AR technologies in various spheres, such as smart glasses and games differ, therefore uses and various types of augmented reality vary in that concern. In this case, motivators to use AR face filters will differ in comparison to other forms of augmented reality in terms of

content, the way they are used, and context. However, the main motivational factors for the use of AR face filters are enjoyment, self-presentation, social interaction, convenience, and creative content curation (Javornik et al. 2022).

1.3. Customer engagement and augmented reality

If a person has the technology in his hands, he owns the world or at least can control it. However, marketers need even less - to find an approach to customers and sell more and more products every day. The market for AR technologies is growing rapidly since smartphones and gadgets that support this technology or could work with it are available today to everyone with a smartphone. The technology is undemanding to the equipment - everyone can experience augmented reality in different cases. With the help of AR technologies, brands can easily interact with customers and build strong and trusting relationships. Augmented reality technology increases consumer engagement, which affects conversion rates and sales (Scholz, Smith, 2016).

Customer engagement involves cultivating a relationship far beyond the transaction itself. It is an intentional, consistent approach taken by businesses that provides value to customers with every interaction (Harmeling et al. 2016). Customer engagement greatly influences brands, as it directly affects relations between companies and customers, and there are many benefits that a company can get if customers want to interact with it.

- Improved customer relations.

Relationships between brands and customers have always been the foundation of any business, but in the digital age, it is becoming increasingly difficult to maintain them. Technology makes it easier to find and promote businesses to new potential customers, it helps to meet or even exceed the expectations of customers (Kunz et al. 2017). Therefore, the correct use of new technologies, such as augmented reality, will be able to simultaneously establish a connection with new customers and strengthen it with old ones.

- Boosts customer retention and loyalty.

An effective engagement strategy will keep companies informed about consumers' feelings towards the product or service, the traits they value, and areas that can be improved to deliver a

better experience. It is important for a company to make consumers feel acknowledged and valued, as customers are interested in receiving offers of greater value than other companies (Itani et al. 2019). Customers, who are engaged with companies are more likely to build stronger relationships, thus the company becomes a holistic answer or solution to a customer's problem, rather than just a firm that sells a product (Itani et al. 2019).

- Uncover new selling opportunities.

Companies can promote and sell items with additional features if they have a devoted consumer base, due to the fact that it is easier to sell to an existing customer than to a new one. Upselling helps companies to save time and money, as well as to increase profit margins. It is possible to easily review the product performance and uncover up-sell chances by looking at th consumer's patterns and data, such as proposing goods that are commonly bought together.

- Attract new customers.

Consistent engagement with people can help companies to gain consumers or at the least ignite their interest in the company and its products. When it comes to client retention, many businesses provide incentives and freebies to demonstrate their gratitude. AR can generate and stimulate impressions on social media, and successful campaigns are usually discussed in online magazines or blogs as well (Scholz, Smith, 2016). If campaigns meet customers' self-presentation goals, people will want to share them on social media or with friends, as a result, word-of-mouth for the brand will be generated (Scholz, Smith, 2016). As people get more familiar with the brand, it will ultimately become their preferred option and the product they choose over rivals.

Due to the fact that people use mobile devices every day, marketers are able to communicate with customers in diverse situations in their everyday lives. Mobile marketing has a particularly high potential for customer engagement. By entangling branded content in consumers' social and physical contexts, augmented reality provides marketers with a dynamic approach to communicating with customers and integrating branded content into their everyday lives and discussions (Scholz, Smith, 2016).

1.4. Food chain engagement measurement scale

It is a fact that people cannot live without food, and brands in the food industry must be aware of various ways of promotion to engage with customers as much as possible. The development of the Internet and social media led to changes in food advocacy due to the actions of brands, which use various marketing tools, as well as influencers to remind people about their products. That is why, nowadays, individuals can receive everyday food messages that are translated through social media or outdoor advertisements.

The theoretical basis for studying customer engagement in the food industry was taken a study: “The development and validation of a food chain engagement measurment scale” (O’Kane et al. 2022), and it was the first paper that introduced an assessment measure for the food chain engagement. “The measure and subscales can be used to assess the efficacy of food interventions, as well as provide further insight into broader concepts, which may influence food choice” (O’Kane et al. 2022). Three studies were carried out for the assessment of the psychometric properties of the measure and its validation. Studies included 434, 633, and 212 participants from the United Kingdom of Great Britain.

The first study was aimed "to identify six key behavioral components related to food chain engagement from the beginning to the end of the food journey: i) Food production and origin; ii) Food selection and shopping; iii) Cooking and preparation; iv) Eating and nutrition; v) Food waste and sustainability; and, vi) Food advocacy and sharing" (O’Kane et al. 2022). To conduct the study, 25 questions were developed by the research team in order to collect data on a person's food chain engagement behavior. These questions were sub-categorized into six behavioral components that were mentioned before. "Frequency was chosen with regards to food behaviors captured in the food chain engagement scale, as opposed to previous similar scales which measure beliefs or attitudes (i.e. rating agreement with statements)" (O’Kane et al. 2022). This decision was taken, as the authors believed that it is possible that frequency would accurately detect active engagement with behaviors.

Consumers between the age of 18 to 98 were invited by a research agency to participate in the survey. The sample assessment was completed according to the Kaiser-Meyer-Olkin (KMO) value. Items that measured food chain engagement were juxtaposed and validated with the help of the expert review in Study 1. Firstly, it was supposed that the study will include six categories but

some categories were collapsed, so the three-factor structure was used instead. " ‘Food Production and Origin’ and ‘Food Advocacy and sharing’ were combined to create ‘Origins and Communication' " (O’Kane et al. 2022), thus a renewed factor was related to the engagement with external stakeholders and their connection with food. " ‘Food selection and shopping’ and ‘Cooking and preparation’ were combined into ‘Planning and preparation’ " (O’Kane et al. 2022), considering that planning that is needed during the preparation process can be inextricably connected with the food selection. Besides, nutrition may be separated from other components of the food chain engagement because people can be extremely engaged with food or a food chain, but the nutritional sides of food might not be the priority among consumers.

The aim of Study 2 was to reaffirm findings from Study 1 in a separate sample. Consumers from the same research agency were invited to take a survey, thus the final sample size included 633 participants with an age range between 18 to 92 years. "The final set of 16 items from Study 1 were included in Study 2, and other items ranged from 1 (Never) to 5 (Always), covering the three factors (components of food chain engagement) identified in Study 1: Origins and Communications, Waste Reduction, and Planning and Preparation" (O’Kane et al. 2022). The most important parts of the author's study were social media engagement and food involvement.

Social media engagement was evaluated by using a 13-item validated measure and on a 5-point scale, where "1 was strongly disagree and 5 being strongly agree" (O’Kane et al. 2022). "This measure was included to examine the convergent validity of the ‘Origins and communication’ factor, as a number of the communication items in the new measure related to communication and advocacy of food through the use of social media" (O’Kane et al. 2022).

The Food Involvement was evaluated by using a 12-item validated measure, and on "a scale of 1 to 7, with 1 being disagree and 7 being strongly agree" (O’Kane et al. 2022). This method was "used to assess Food Involvement as a means of further examining the convergent validity of the overall Food chain engagement measure" (O’Kane et al. 2022). "It is proposed that there will be a relationship between the food chain engagement scale as it has some items relating to communication and preparation" (O’Kane et al. 2022). Results of Study 2 "indicated that the food chain engagement measure and factors have the face and convergent validity, as well as internal consistency reliability" (O’Kane et al. 2022).

The last study was used to set up "the temporal stability (test-retest reliability) of the measure" (O’Kane et al. 2022). All participants of the study were contacted again after two weeks of

finishing Study 2. As the result, 212 participants from Study 2 were chosen as a random sample to participate in Study 3, and collected responses were used to avert missing data. "Study 3 showed that the factors and overall measure had good reliability, and for the temporal stability, over time there was a good level of agreement between the participants' scores" (O'Kane et al. 2022). "This may be due to the rigorous development and testing of the instrument, indicating that the constructs are consistent over time" (O'Kane et al. 2022).

The conducted research was the first one that developed and validated the assessment measure for the food chain engagement. The measure was built relying on "previous measures of food relationships (such as the food involvement scale)" (O'Kane et al. 2022), and included the advocacy that might affect the food promotion. Due to the fact that the development of the Internet, food blogging, and social networks have changed the relationship to food, people are adopting new eating patterns, for example, veganism. "The measure has high levels of face validity, good internal consistency reliability, and excellent construct and temporal stability" (O'Kane et al. 2022). "The measure has a three-factor structure, where each factor or subscale, as well as the overall measure, has excellent construct validity and temporal stability, indicating that the individual subscales could be used in interventions where appropriate" (O'Kane et al. 2022). For instance, if there is a need to promote food through social media, an additional benefit can be obtained by using the subscale of communications. There are many various opportunities for customers to engage with food and the measure that was created during the study, will help not only to assess the engagement of customers but also pay attention to their nutrition habits.

2. RESEARCH CONTEXT AND METHODOLOGY

The following chapter includes information about the research context and research methodology that was used in this study. This part consists of three case studies that are related to the AR technologies applied in the food industry for the promotion of products to give a better overview of the topic and demonstrate how augmented reality can be applied in the food industry. Another part includes the quantitative study that was conducted by the author. The research methodology includes the following sub-chapters: case studies, data collection and analysis method, sample and sampling.

2.1. Case studies

The world is changing, and advertising is continuing to move into the digital world, therefore, if brands cannot adapt to changes and new technologies, then customers will give preference to their competitors who are able to engage the audience and communicate with it. Moreover, the usual advertising media from placement platforms are turning into strong PR tools. Companies that are not afraid to think out of boxes, use creativity and offer the advertising world new attractive campaigns will be discussed and remembered. However, online and offline channels can be combined, and then billboards, posters or even magazines will become a part of the user's interactive experience. People spend a lot of time in the online world which offers a huge number of ways to stay in touch with the audience, thus it is important for companies to find their perfect touchpoints with the audience.

2.1.1. "Smoke Trials" by Burger King

A great advertisement campaign by Burger King in the UK was launched in spring 2021. Due to changes related to Covid-19 restrictions, restaurants were able to open indoor dining again in May 2021. Those times, it was a great event for companies to remind customers about their products or services, and Burger King did not miss such an opportunity. Cooking whoppers on an open fire is

the hallmark of Burger King, of which the company constantly reminds people in various ways. The mission of this campaign was to motivate customers to try smoky-tasting burgers again by using "smoke trails."

The new and interactive AR experience was adopted across all large cities in the UK and included billboards that could activate the Instagram lens if a person scans a QR code (BBH, 2021). After activating a QR code, a Wopper Burger pops up with smoke coming off it, which showed the exact way to the nearest Burger King restaurant. The number of directional lenses was developed by a digital production company "Makemepulse" to show the precise location of the restaurant, bring customers to the right place, and avoid technical problems with aligning smoke and the right direction (Crain Communications, 2021).

Billboards were a part of a broader campaign that was focused on Burger King's smoky flavor, and it also included a 20-second TV advertisement that was created by Andrew Gaynord of MindsEye. The campaign, which included billboards, and a video was the first one in the UK that used Burger King's new branding and typography in the retro style (Crain Communications, 2021).

Figure 1. Burger King campaign “Smoke Trials”
Source: A YouTube Video Burger King "Smoke Trails" by BBH London

2.1.2. “Newstalgia” by Pizza Hut

Another campaign that used augmented reality technologies for the promotion was launched during the Covid-19 pandemic. The times people had not in 2019, or even the 2000s but 1980s with game machines in cafes. The Pizza Hut campaign was related to peoples' nostalgia, therefore, the aim was to bring the back in time and remind them about the amazing time they had. Every Friday, groups of students were gathering in Pizza Hut, drinking sodas from red cups and eating delicious cheesy pizza (Sanchez, 2021). But these days we're not only about pizza, they were also about games and adding names to the leaders' board.

Pizza Hut caught the online and delivery wave, and the company sees the future in takeouts. Therefore Pizza Hut decided to bring the unforgettable atmosphere of sitting in the cafe with game machines directly to customers' homes. An old-school yellow round labyrinth runner or just a Pac-Man was the main character of the Pizza Hut AR campaign, hence customers were offered to play a classic video game and become a part of a “Newstalgia” campaign (Sanchez, 2021). The company found a great way to engage customers through crossing augmented reality innovations with a legendary game - Pac-Man. The face of a Pizza Hut’s campaign - Craig Robinson said: “Growing up in the 80s, mine was going into Pizza Hut and devouring those little Pac-Man dots just like I did my pizza. Those arcade games in the restaurant—there was nothing better as a kid”.

Limited-edition pizza boxes were released by Pizza Hut with a great addition - an augmented reality PacMan game. To play the arcade game that came back from the 90s, a person needed to go to the website from a phone and scan a QR code that was on a box. Moreover, as a bonus, players had an opportunity to win an Arcade 1Up "Pac-Man" machine cabinet (Tayeb, 2021). In this case, Pizza Hut actively used social marketing to encourage users to share their results in order to participate in the contest and win a prize.

This creative positioning and a new "Newstalgia" campaign would help to improve the brand identity, increase brand awareness, and engage more customers. The creation of the campaign was also influenced by new realities, because the pandemic switched many users to the online mode, and as the result, digital tools such as AR began to be used more often. New technologies could help Pizza Hut to tell stories that a company wants to tell, thus such campaigns with AR technologies could become ground-breaking in the context of a brand's category (Tayeb, 2021).

Figure 2. The AR game Pac-Man created by Pizza Hut
Source: Pac-Man Bandai Namco Entertainment

2.1.3. “Focus face off lens” by Goldfish

A few years ago, lenses on Instagram and Snapchat were used by people for self-expression, image enhancement, or fun. Everything changed when marketers saw an opportunity to promote their products and services by creating unusual lenses and filters on social networks. The creative use of these tools in marketing strategies and advertising campaigns has shown that technologies own this world, and they need to be implemented more often. Various filters on Snapchat and Instagram have animations and features caused by certain actions, such as turning a head in a specific direction or opening the mouth (Kolm, 2021). In a focus face-off lens was used a facial mesh technology, which provided the filter with more sensitive and detailed facial detection (Kolm, 2021).

The attention span is decreasing, thereby advertisements must catch the attention of people in seconds, and Generation Z representatives mention that 15 seconds is the perfect duration of the advertisement, while 30 seconds is already too long for them (Munsch, 2021). Such changes happen because of the development of a digital world and encourage companies to stand out from competitors, thus, Campbell’s built the Goldfish Focus Faceoff Lens on Snapchat in the autumn

of 2021. Mariah Weir, the manager of media and digital platforms at Campbel said: “The primary target for the lens were teens, and the company wanted to connect with them in new and interesting ways to build a connection between them and Goldfish Flavour Blasted Kravin’ Ketchup”.

The concept of a Goldfish lens was that a goldfish cracker was slowly dropping out of the bottle of ketchup and falls down. The creation of a Snapchat lens was related to the promotion of a new flavor - “Kravin’ Ketchup” (Kolm, 2021). The use of augmented reality was very simple, as players needed to keep their attention on a Goldfish cracker. If players wanted to get a promo code for a discount, their attention should be kept for more than 9 seconds. Moreover, there were many distractors, such as pop-ups with messages or fake incoming calls. The idea of keeping the attention for only 9 seconds was chosen because the attention span of an actual goldfish is 9 seconds (Zulu Alpha Kilo, 2021). Therefore, players were able to see how their focus increases, and the longer players could focus on a goldfish cracker, the better score they had. Snapchat’s eye-tracking technology was used to indicate the focus among all types of distractions and notifications which were designed to make players lose (Zulu Alpha Kilo, 2021).

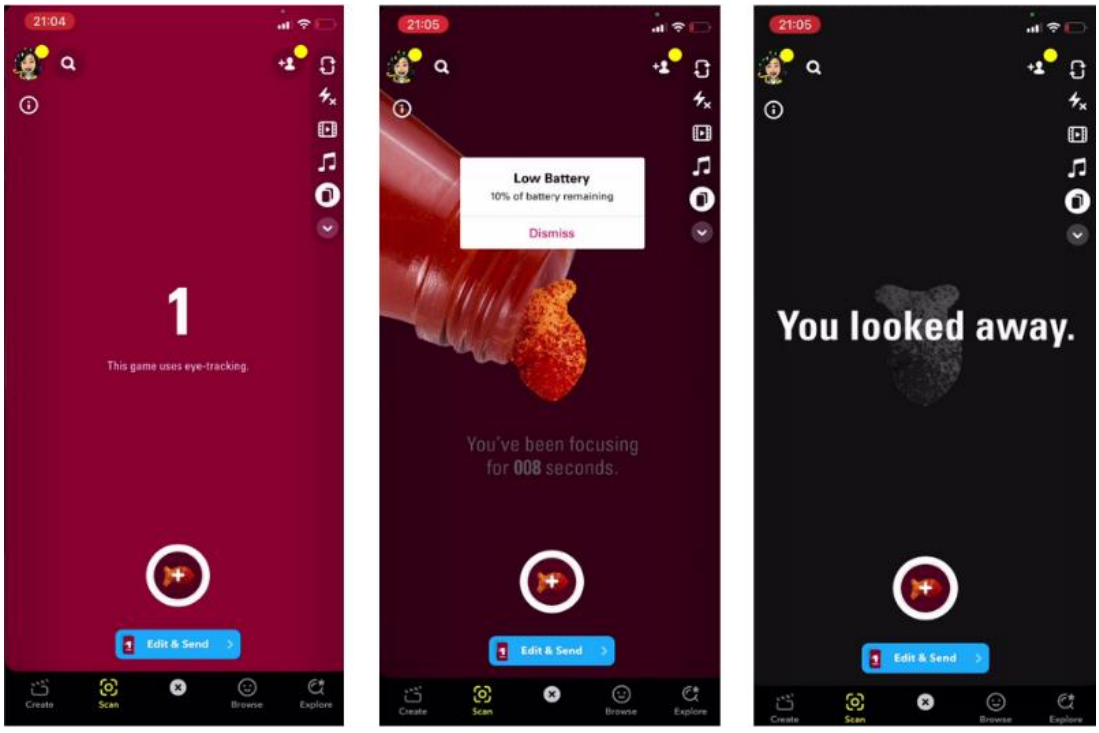

Figure 3. “Focus face off lens” by Goldfish
Source: The author’s screenshots

2.2. Data collection and analysis method

The quantitative approach was used to analyze the peoples' aspirations and readiness to use augmented reality technologies to engage with brands from the food industry on a daily basis. The main factors that influenced the choice of this method are accuracy because it is based on reliable measures, and the fact a quantitative method does not analyze pre-existing data but accentuates the statistical analysis of a questionnaire and objective measurements.

To obtain the necessary information, the author developed a logical, easy-to-understand and answer questionnaire for the respondents. The questionnaire was created in Google Forms and included 16 questions, where the estimated time for answering questions was 5 minutes. The questionnaire was sent through the Internet, and the author used social media networks, such as Instagram, Facebook, Linkedin, and messengers - Telegram, and WhatsApp.

The research's targeted group's age was from 18 to 50+, due to the author's desire to study how people in these age groups are engaged with AR, because they are assumed to be potential users of phones, media, and the Internet. Therefore, they might use or try augmented reality technologies. As a result, a total of 387 responses has been collected in two weeks and used in the final analysis. The most appropriate questionnaire types were used in the survey, among them were dichotomous questions that offer two options to choose from, matrix questions, multiple-choice questions, and rating scales giving respondents a chance to rate their experience.

A part of the questions was related to the food measurement engagement scale, as, according to the study it was rating the frequency of using social networks for the engagement with food content. The multiple-choice questions were used to understand how much time people spend on social networks, which network is the most frequently used by them, and how often social media networks are used to absorb food-related content. These questions were needed to determine the role of social media networks in customers' lives. Social media helps humans to learn how to cook, shows where the best food places are situated, and promotes food brands. Through learning peoples' habits, it would be easier for brands to integrate AR technologies into a human’s everyday life through social media.

Multiple-choice questions were used to understand which social networks are used more frequently because AR technologies are directly related to social media channels. The five-point

rating scale was used in the questionnaire to measure the constancy of scanning QR to understand how much people are interested in AR technologies, as QR codes are a part of them (1=Never, 5=Always). The same scale was used to rate the experience of users, who have already used augmented reality technologies (1=Negative, 5=Positive). For the questions, where the author needed to know whether people would be engaged with the food brand more if it uses AR technologies, was used a dichotomous question which offered two options of an answer "Yes" or "No". For a better respondents' understanding, were provided pictures from case studies, as not all respondents knew about or used AR technologies before.

The following Uses and Gratifications Theory components played a significant role in understanding people's motivations to engage with brands that are using AR technologies. Matrix questions were created to understand what peoples' needs will be met by using AR technologies: affective, cognitive, social integrative, personal integrative, or tension-free needs. The question "What kind(s) of Augmented Reality technologies would increase your desire to actively engage with brands in the food industry?" was aimed to get a better picture of AR technologies that would increase the engagement with food brands, thus, in future, it may become easier for companies to create engaging content. Moreover, it was important to learn what could stop people from engaging with brands and to get a necessary result, a matrix question was created, where respondents could rate every possible stop factor with the scale, which included the following options: "Definitely", "Probably", "Possibly", "Probably Not", "Definitely Not".

The analysis outcomes showed several factors that motivate people to engage with AR technologies. The data obtained from the questionnaire was analysed using Microsoft Excel 2019, and survey results were converted into graphs. The Cramer's V correlation statistics was used by the author to estimate the strength of an association (Akoglu, 2018) between two categorical variables: age and motivational factors, and gender and motivational factors. The Cramer's V coefficient was ranging between 0 and 1 without negative values.

2.2.1 Sample and sampling

According to Statista data, there will be 1.1 billion mobile users, who use AR technologies globally in 2022 (Alsop, 2021). To collect enough data for the research, it was important to choose the correct sample size, and choose the number of people, who will be representatives of all mobile

AR users. First of all, the author needed to figure out what sample size should be reached from 1.1 billion users, thus the answer also depended on the margin of error, and the response distribution. To calculate the sample size were used Calculator.net (2008) and Raosoft (2004) sample size calculator software to find out the proper sample size to conduct the survey. The population was considered to be 1.1 billion users with a 5% margin of error, and 50% response distribution, thereby the software result showed that the required sample size will be about 385. Due to the high volume of answers, the author collected 387 responses.

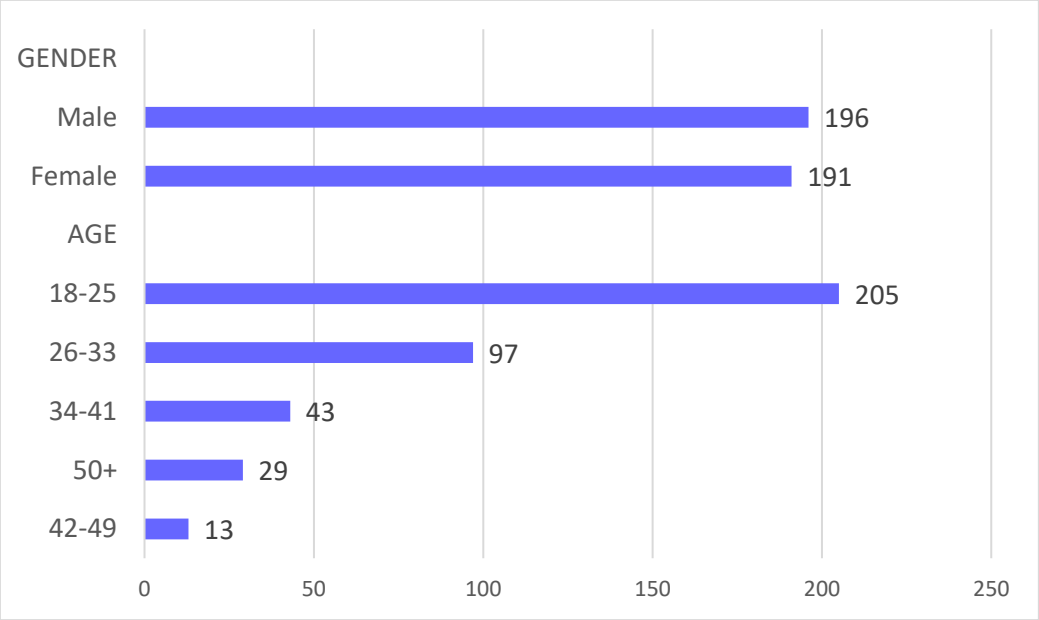

Figure 4. The demographics of the participants

Source: Completed by the author

The graph in Figure 4 represents the respondents' demographics, and it was noticed by the author that there is a big difference in the age group, where 205 participants were the aged between 18-25 and 97 respondents the aged between 26-33, such numbers indicate that AR technologies are becoming more popular and used among young people. It is easier for representatives of the Generations Z and Y to adapt to new technologies and start using them, compared to representatives of the Generation X. Representatives of older ager groups have good knowledge about mobile phones, new technologies, and the internet, however, people between ages 42-49 and over 50 plus, might be less aware of AR technologies and their implementation.

3. DATA PRESENTATION AND FINDINGS

In the following chapter will be presented the research outcomes with the help of line graphs. The questionnaire was aimed to look at augmented reality technologies from the peoples' perspective and understand whether they would engage more with food brands or not if companies apply AR technologies in the promotion. As it was written in the theory chapter, there are five main needs or motivators - affective, cognitive, social integrative, personal integrative, or tension-free, according to the Uses and Gratifications Theory that could be met through using AR technologies, and it was important to examine which needs are the most important. Therefore, it was necessary for the author to get practical answers related to social media usage because augmented reality is directly related to and used on social media networks, such as Instagram or Snapchat. Moreover, as AR is still a new concept and not a well-known technology in some parts of the world, it was also significant to make people aware of such technologies by providing visual examples of campaigns of big and world-known brands, such as Burger King, Goldfish, and Pizza Hut. The survey findings will be demonstrated in this chapter with the use of descriptive statistical expressions, such as linear charts, and Cramer V analysis. The information about demographics has been already presented in the chapter "Sample and sampling", hence the author will begin with data related to social media use.

3.1 Survey findings

As it is already known, the number of representatives of Generations Z and Y was much bigger in comparison to representatives of Generation X, and, as can be seen in Figure 5, almost one-third of respondents or 31.26% spend 6-8 hours every day on social media. Moreover, according to the “Digital 2022 Global Overview Report” (Kemp, 2022) the number of social media users equals 4.62 billion now, which is 3.1 times higher compared to the 1.48 billion users in 2012, and the average daily time spent on the Internet by a user is close to 7 hours (6.58h) (Kemp, 2022). Due to the fact that the author is a representative of the Generation Z, she knows why the Internet, as well as social media consumption increases, and it is connected with the possibility of the user’s

self-expression, sharing thoughts and ideas with others, and having the access to various kinds of information and simplified communication.

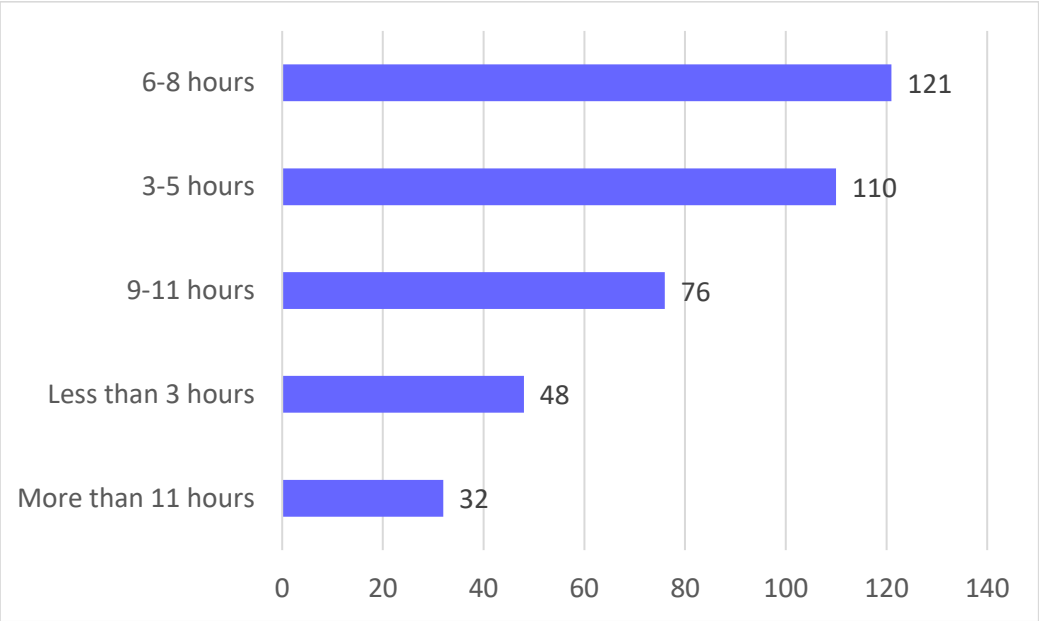

Figure 5. The time spent by respondents on social media
Source: Completed by the author

The question: "What social media network is most frequently used by you?" was asked to understand what social media networks are most frequently used by respondents because various networks, such as Instagram, TikTok, and Snapchat have many AR masks that users can try on. Therefore, if respondents are active users of these networks, they could be aware of augmented reality technologies or even used them. As can be seen in Figure 6, among the most frequently used social media networks are Instagram (31.52%) and TikTok (24.54%), and it is understandable because TikTok was the most-downloaded application in 2021, while Instagram took the second place, Facebook had the third place, and Snapchat had the sixth (Kemp, 2022). However, Facebook was the most-used application in the world in 2021, while Instagram was the fourth and TikTok was the sixth, Snapchat took the eleventh place (Kemp, 2022). Social media networks adopt each other's features, such as "Stories" on Instagram and Facebook were inspired by Snapchat, and "Reels" on Instagram were inspired by TikTok. But still, the most entertaining social media networks are TikTok, Snapchat, and Instagram, which offer to try on filters, AR masks, play games, and have lifestreams, thus these are the reasons why people choose them.

In the option "Other" in the questionnaire, some respondents wrote Telegram and Vk but Telegram is a messaging application and Vk or Vkontakte is a Russian-created social media network that is

mostly used by people in countries that are related to the Commonwealth of Independent States (CIS).

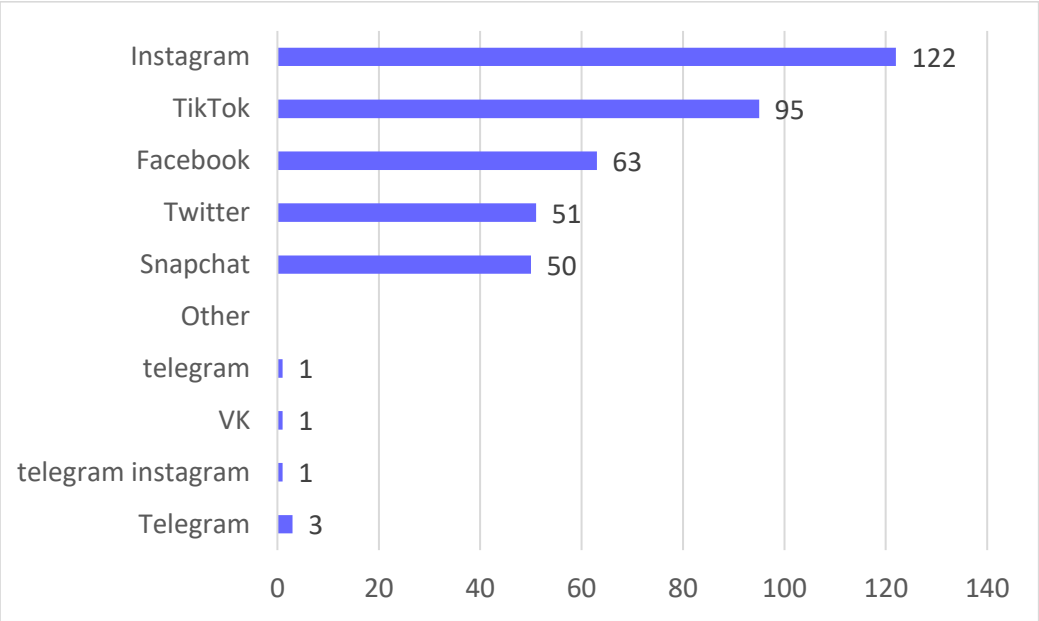

Figure 6. The most frequently used social media networks

Source: Completed by the author

The following questions were related to the content consumption related to food and were aimed to examine how often people read and watch food-related content. Looking at Figures 7 and 8, the author noticed that there is no big difference in numbers, and it is shown that the great percent of respondents – 25.84% and 26,87% read and watch food-related content 1-2 times per week. Moreover, summarizing the number of respondents in both cases – reading and watching content, who chose answers “Once in two weeks” and “Once a month”, the result will be 120 or 31% and 122 or 31.52% of the whole number – 387. These numbers show that respondents consume food-related content and are interested in it, as they watch or read about food during the week. Leaning on previous numbers, the author supposed that respondents mostly watch or read about food on Instagram or TikTok because there are a lot of food-related posts and videos on these social media networks that might catch the attention of people.

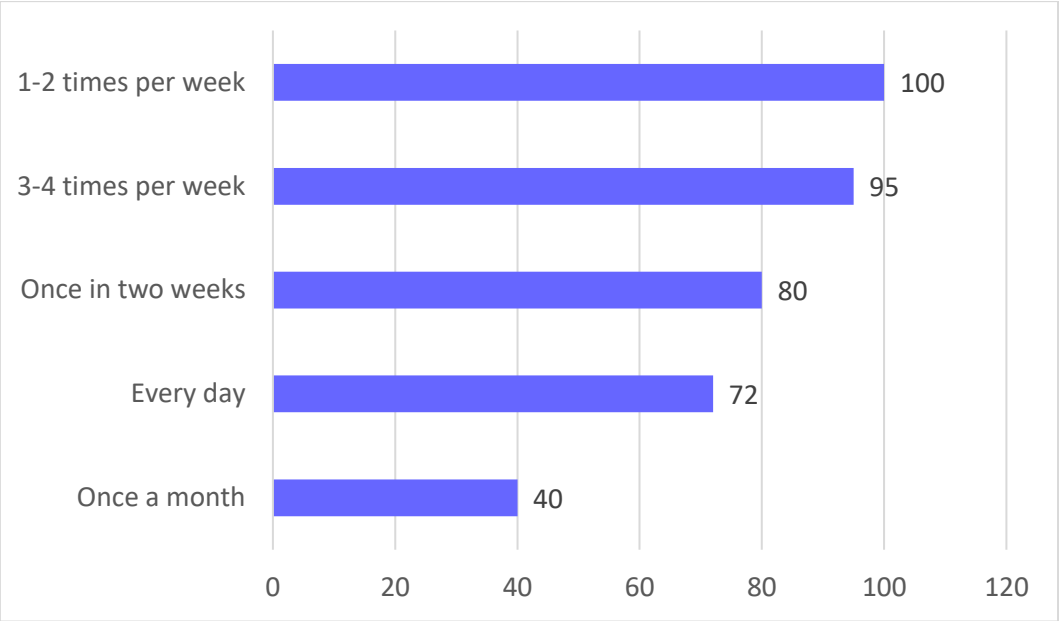

Figure 7. The frequency of using social media networks to read about food

Source: Completed by the author

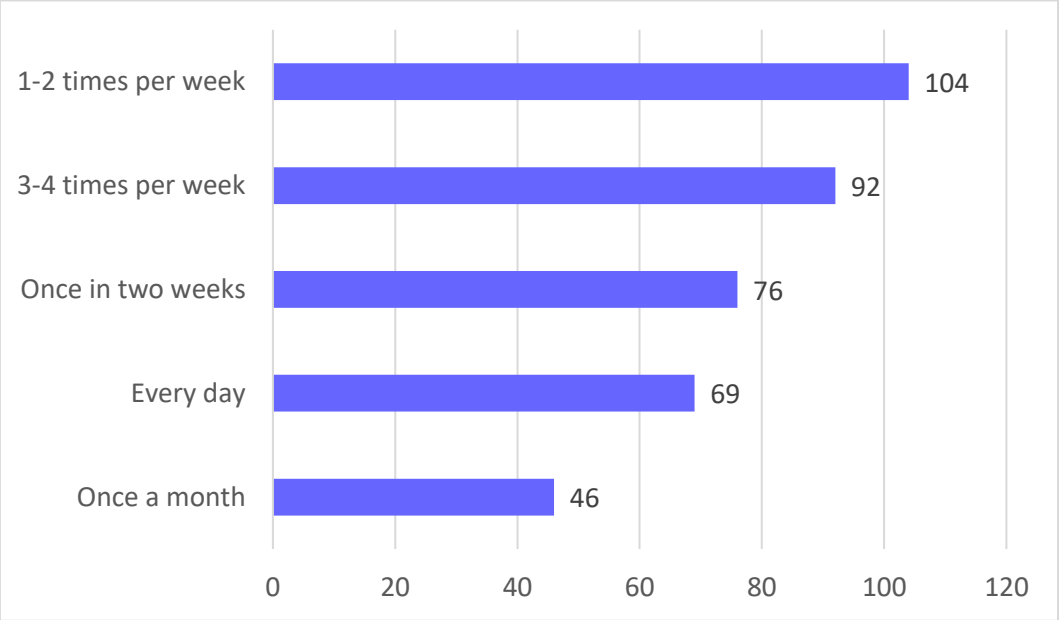

Figure 8. The frequency of using social media networks to watch food-related content

Source: Completed by the author

The next questions were directly related to the use of AR technologies and rate of the experience that respondents had if they used them. The question “How often do you scan QR codes?” was asked in order to get an overview of how often respondents pay attention to things that surround them and want to engage with them. QR codes can be seen in public transport, outdoor

advertisement, magazines, etc. and QR codes are the augmented reality technology itself because when we scan them, something appears on our phone, a website, picture, or video. Based on the numbers from Figure 9, the author found that 28.9% or 112 respondents frequently scan QR codes, which leads to the conclusion that almost one-third of respondents are frequently engaged with brands through AR technologies, and 25.83% or 100 respondents often engage with brands.

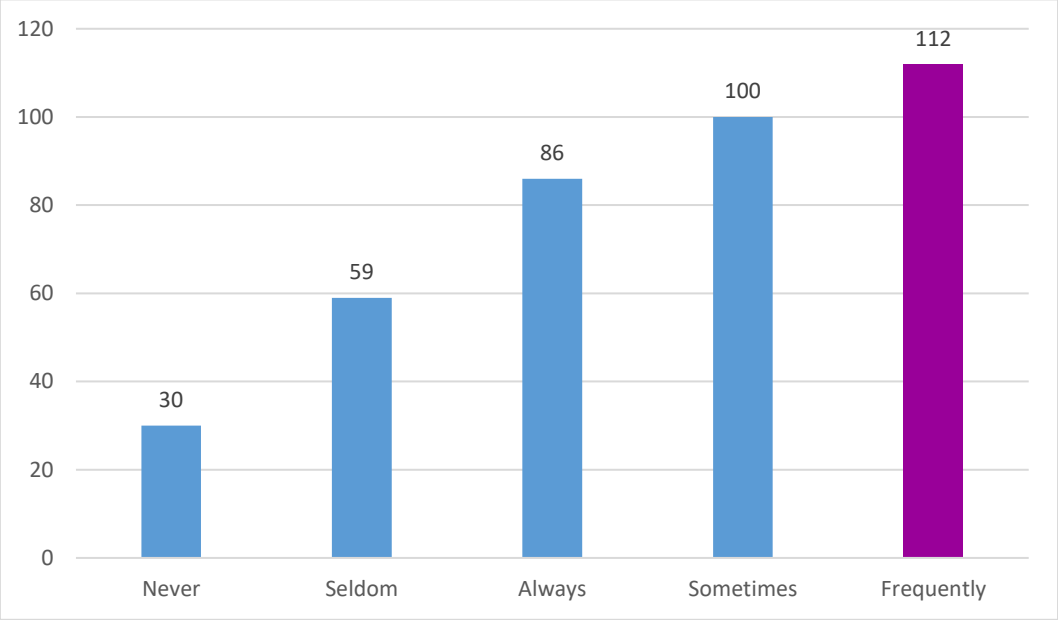

Figure 9. The frequency of scanning QR codes
Source: Completed by the author

The question “Did you engage with brands through AR technologies?” was added to the questionnaire to understand how many respondents had experience with AR technologies before, and 48.6% or 188 respondents had experience with AR technologies before, and 51.4% or 199 respondents did not. Following this question, the author asked respondents, who were interacting with brands through augmented reality technologies to rate their experience. Overall, 44.44% or 80 out of 188 respondents had a positive experience, taking into account answers “Somewhat positive” and “Positive”. The neutral experience had 47 respondents or 25%, and the negative – 61 respondents.

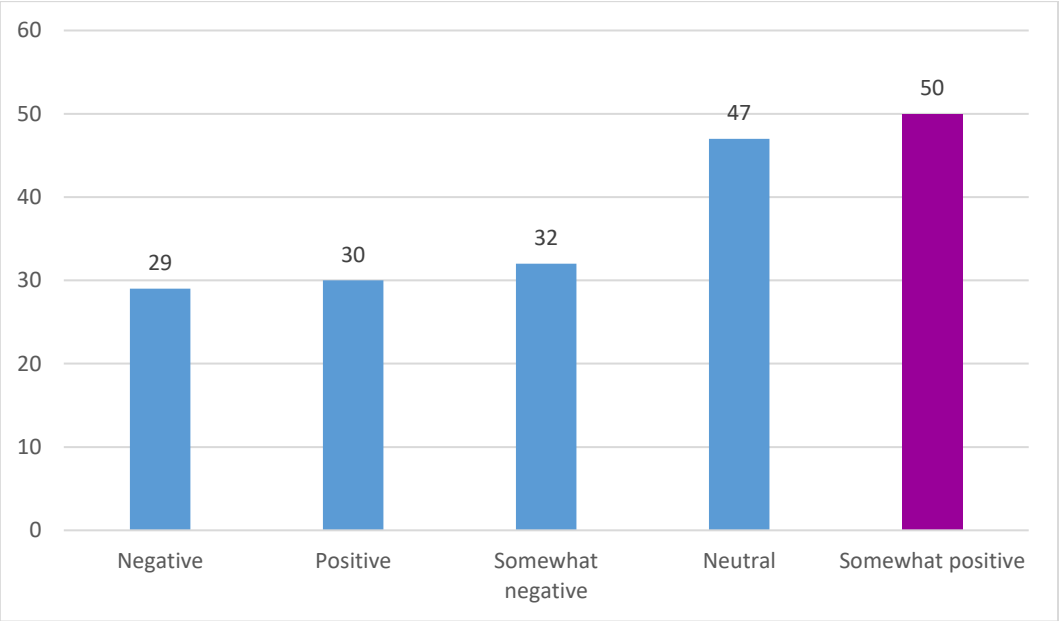

Figure 10. The assessment of the experience with AR technologies

Source: Completed by the author

The following three questions included real-life examples – pictures of promotional marketing campaigns that applied AR technologies, and these campaigns were listed in the paper under the paragraph "Case studies". This was made to give respondents an overview of campaigns in which they may want to participate in the future, and to understand would people engage with brands more if they apply AR technologies in their promotional campaigns. Data obtained from questions related to the desire to participate in AR promotional campaigns showed that 75.5% or 292 respondents would engage with the Burger King campaign, 73.6% or 285 respondents would engage with the Pizza Hut campaign, and 68.7% or 266 respondents would engage with the Goldfish campaign. These results show that respondents have a great desire to engage with AR promotion campaigns if they have a chance to do this. The desire of customers would give companies a weighty reason to create more AR campaigns in the future.

The question "Would you engage with brands more if they use AR technologies for the promotion of products?" was created to see how many respondents would like to engage with brands if they use AR technologies. The results were the following: 79.6% or 308 respondents will engage with brands if they use augmented reality technologies, and this number is high which leads to the point that there is a demand for AR technologies in promotional marketing campaigns.

The last questions were related to the motivation of people to engage with brands that use AR technologies, kinds of technologies that will be more engaging, and exploring the possible demotivators. Five needs from the Uses and Gratifications Theory - affective, cognitive, social integrative, personal integrative, and tension-free were taken as the basis for the question about the main motivators to use AR technologies.

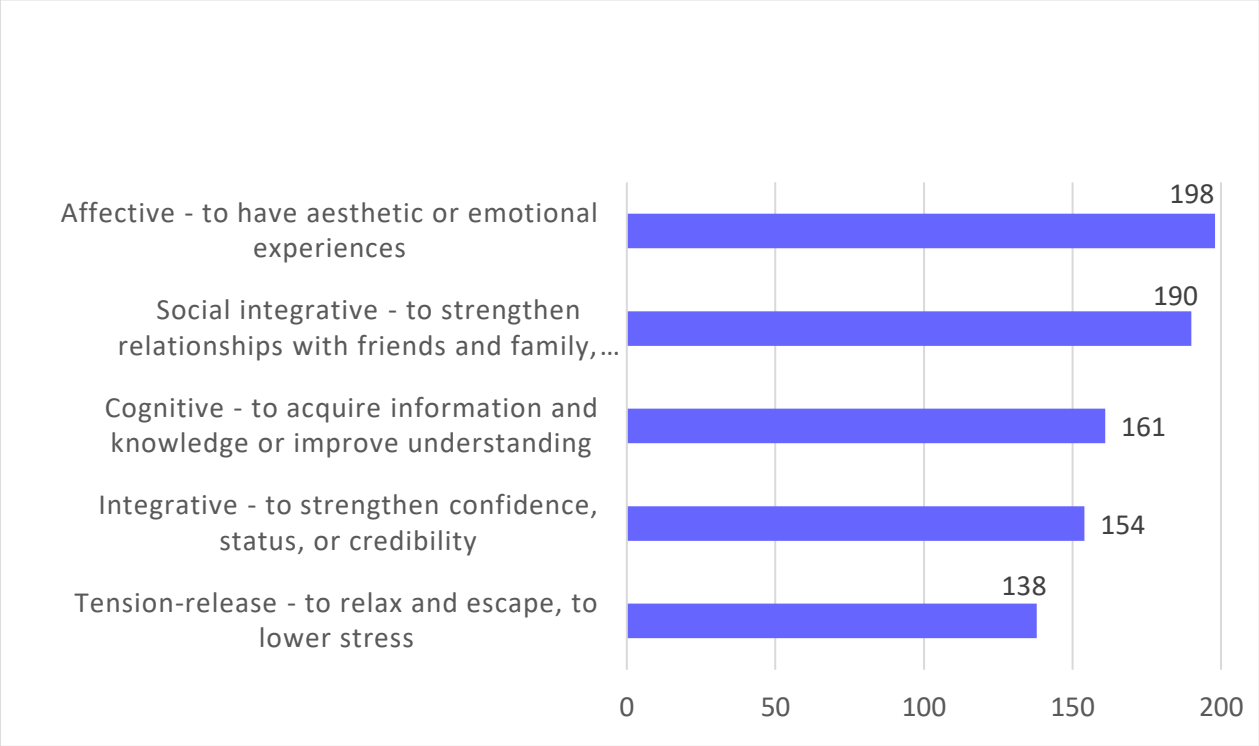

Figure 11. Main motivators to engage with AR technologies in the food-related content
Source: Completed by the author

As the result, the most common needs were affective which are related to aesthetic or emotional experiences (198 respondents or 51.16%), social integration that are aimed to strengthen relationships with friends and family, interact with others (190 respondents or 49.10%), and cognitive that are aimed to acquire information and knowledge or improve understanding (161 respondents or 41.60%). A smaller number of respondents voted for integrative needs that are aimed to strengthen confidence, status, or credibility – 154 respondents or 39.79%, and for tension-release needs, that help to relax and escape, or to lower stress – 138 respondents or 35.66%. In accordance with the provided data, it can be mentioned that respondents would engage with AR technologies mostly to get emotional experiences, interact with other people, and acquire knowledge.

The Cramer's V correlation statistics was used to identify whether a relationship between motivators and age of respondents, as well as between motivators and gender is strong or weak. "Similar to Pearson's r, a value close to 0 means no association" (Akoglu, 2018). "However, if a value of the Cramer's V coefficient is bigger than 0.25 is named as a very strong relationship for the Cramer's V" (Akoglu, 2018). According to calculated results, the Cramer's V coefficient was equal to 0.0965, thus the association between age and motivational factors is very strong and almost perfect, as 0.965 is very close to 1. Such a high coefficient means that motivational factors are determined by age.

However, the second set of data and results showed that the relationship between gender (Male, Female) and motivators to engage with AR technologies is not as strong as between the age and motivators. The value of the Cramer's V coefficient is less than 0.25 and equals 0.0129, thus the association between two variables - gender and motivational factors is a moderately strong, as 0.129 is closer to 0 rather than to 1. Such a low coefficient means that motivators are not determined by gender. Based on the presented results, it can be noted that the association between age and motivators is 7 times higher than the association between gender and motivators, thus motivators are more connected with age rather than with gender.

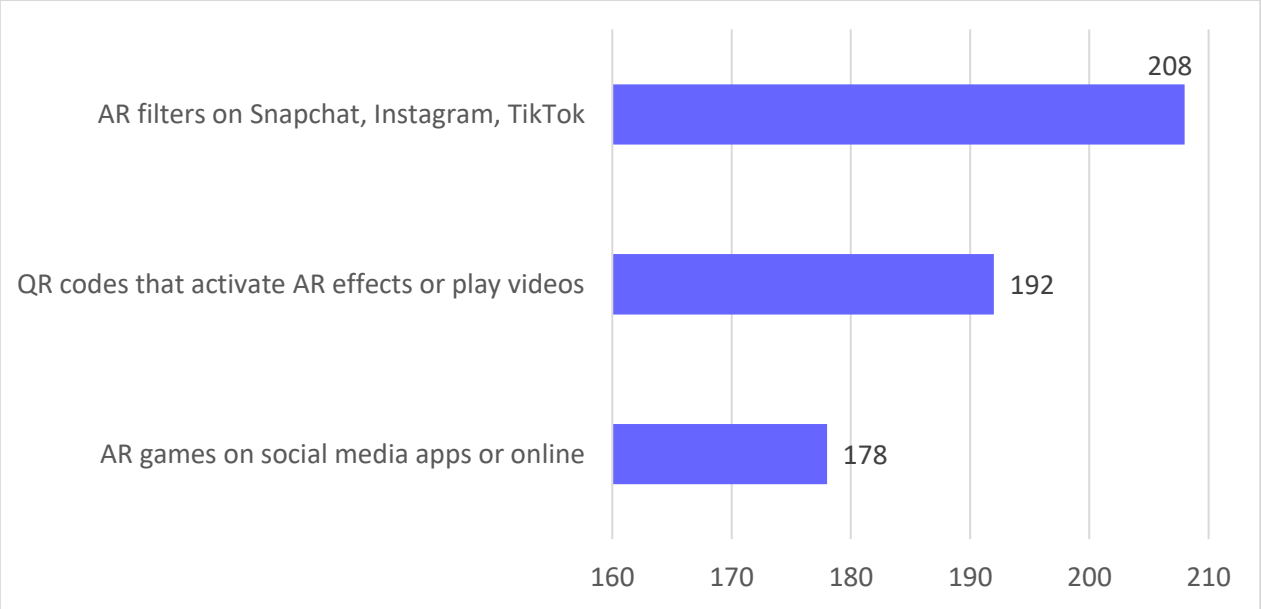

Figure 12. Kinds of Augmented Reality technologies which would increase the desire to actively engage with brands in the food industry

Source: Completed by the author

Three kinds of AR technologies were offered to respondents to choose from, which could help to increase the desire of people to engage with brands, among them were: AR games on social media apps or online, QR codes that activate AR effects or play videos, and AR filters on Snapchat, Instagram, TikTok, which gave the following results – 178 respondents or 45.99%, 192 respondents or 49.61%, and 208 respondents or 53.75%. Proceeding from the results of Figure 17, it can be seen that the biggest impact on the respondents' desire has AR filters on social media, and the lowest impact has AR games on social media applications or online.

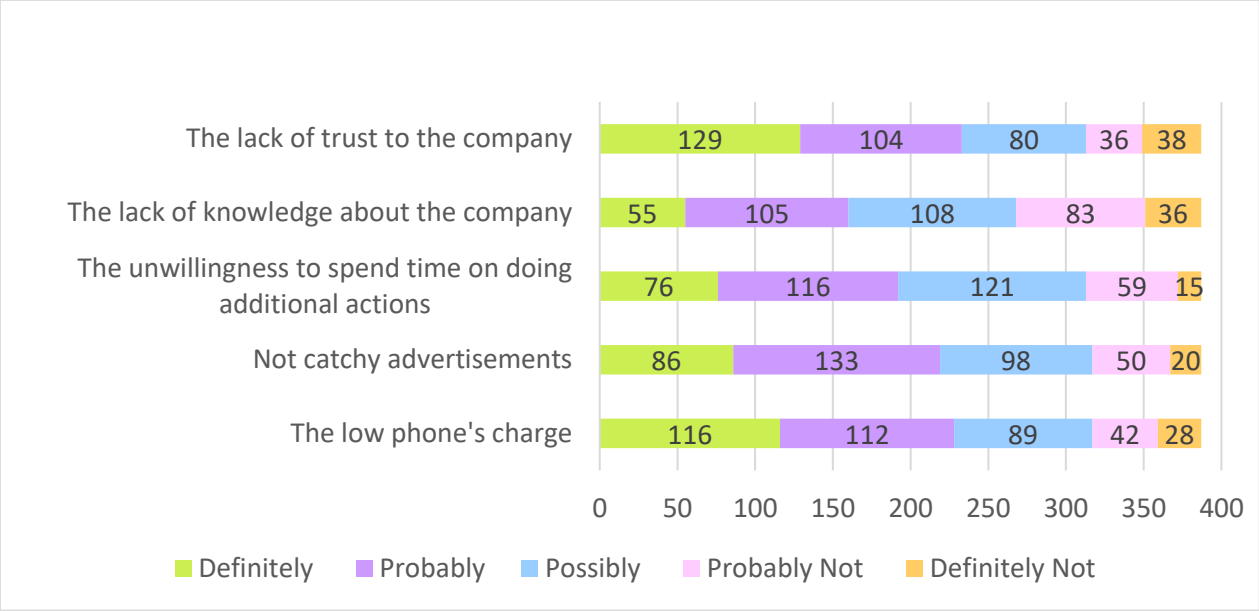

Figure 13. Factors that could prevent people from engaging with interactional content
Source: Completed by the author

Figure 13 represents factors that could prevent people from engaging with interactional AR content. The biggest part of respondents – 129 or 33.33% and 104 or 26.87% agreed that the lack of trust will definitely or probably could stop them from engaging with AR technologies. Moreover, the low phone charge and not catchy advertisements could cause the same effect – repel people from engagement with brands (116 or 29.97%, 112 or 28.94%, and 86 or 22.22%, 133 or 34.37% - definitely and probably stop). The smaller effect on peoples' decisions would have the lack of knowledge about the company and the unwillingness to spend time on doing additional actions (55 or 14.21%, 105 or 27.13%, and 76 or 19.63%, 116 or 29.97% - definitely and probably stop).

3.2 Outcomes and recommendations

The purpose of the research paper was to explore how companies use augmented reality technologies and examine how customers would be engaged with brands in the food industry if they apply AR technologies. The research paper consisted of two questions that as believed to have a link between customer engagement and AR technologies. The first research question aimed to examine the main motivators for engagement with augmented reality technologies in the food industry. The survey included five motivators or needs, according to The Uses and Gratifications theory, and the three main motivators were emotional experience, social integration, and cognitive. The biggest number of responses was related to aesthetic or emotional experiences (198 respondents or 51.16%), showing that people are searching for experiencing new emotions, and after analysing case studies, the author supposes that among such emotions can be joy, gratitude, or amusement. The next factor is social integration which is aimed to strengthen relationships with friends and family, interact with others (190 respondents or 49.10%), and this can be achieved through sharing AR filters on social media, for example. Cognitive motivations are aimed to acquire information and knowledge or improve understanding (161 respondents or 41.60%), and the author claims that people are highly interested in obtaining new information and expanding knowledge, thus AR can help them to meet this need. A smaller number of respondents voted for integrative needs that are aimed to strengthen confidence, status, or credibility – 154 respondents or 39.79%, and for tension-release needs, that help to relax and escape, or to lower stress – 138 respondents or 35.66, and the author assumes that the status cannot be improved or created through AR technologies in the food industry, and for the relaxation, people may prefer to watch videos, read books, or listen to podcasts rather than play AR games, for example. Moreover, according to the Cramer's V coefficient, age and motivators to engage with AR technologies are strongly associated (Cramer's V coefficient = 0.965), while motivators to engage with AR technologies are not determined by gender (Cramer's V coefficient = 0.129).

As an answer to the second research question related to the engagement of people with food-related content on social media and AR technologies, the author found out that the respondents were interested in spending time reading or watching food-related content on social media. Due to the fact that augmented reality technologies are bound to social media networks, it was necessary to understand how much time respondents spend on social media and how often they engage with the food content. According to the obtained information, food content evokes great interest among respondents. This information leads to the statement that AR could affect consumer engagement

and improve customer relations, increase loyalty to the brand, uncover new selling opportunities, and attract new customers. Customer engagement could be brought to a new level, and augmented reality can increase engagement through offering to share stories between brands and customers, providing an additional exchange of informative experiences in the real world. AR also provides an opportunity to create new experiences for customers, thus these technologies give completely new opportunities and ways to interact with the world. Following collected data, 25.84% and 26,87% of respondents read and watch food-related content 1-2 times per week, and 31.26% of them spend 6-8 hours every day using social media, thus it was proved that consumers are willing to spend time and engage on social media with food brands that use AR technologies, and that augmented reality could positively affects customer engagement.

To conclude results, 79.6% of respondents answered "yes" to the question: would you engage with brands more if they use AR technologies for the promotion of products? Moreover, 192 respondents or 49.61% of the total number of respondents will interact with promotional campaigns if there are QR codes that activate AR effects or play videos. At the same time, according to the survey results, more than two-thirds of respondents wanted to engage with provided examples of campaigns - "Smoke Trials" by Burger King, "Newstalgia" by Pizza Hut, and "Focus face-off lens" by Goldfish.

Based on research results, the author has some recommendations for the examination of AR technologies:

- To encourage companies to learn more about AR technologies and integrate them into promotional campaigns. The research showed that such interactive campaigns could motivate customers to engage more with brands, increase brand awareness, and offer an experience, which people will want to discuss and share.

- To use research outcomes for future researchers, and it also could provide help for students or academics information to get a broader vision of the desire of customers to engage with AR technologies and show that promotional campaigns which use AR technologies may be highly successful.

- To spread information about AR technologies among people of all ages, especially among the younger ones, because AR technologies could become an integral part of future

promotional campaigns, bring many benefits, and show companies from a different perspective.

- To focus on the negative and neutral engagement with AR in the food industry, and demotivators that could prevent people from engaging with AR in future research because the current study was focused on the positive engagement, and motivators that affect customer engagement.

CONCLUSION

The aim of the research paper was to explore how companies use augmented reality technologies and examine if customers would be more engaged with brands in the food industry if they apply AR technologies. After studying articles about augmented reality technologies, the author collected information about factors that affect customer engagement with brands through social media and AR technologies. The information about benefits that companies can get by using augmented reality in promotional marketing campaigns and AR technologies that provide opportunities to create new experiences for customers was analysed as well.

The following frameworks were used in this thesis: uses and gratifications theory and food chain engagement measurement scale because this theory and study were relevant to the research problem, and questions and were used in previous studies related to food engagement and AR technologies. The questionnaire was created with Google Form, and questions were distributed through the author's social media channels to collect data. As a result, in two weeks, 387 responses were collected and used in the final analysis. In this thesis, the targeted group was between 18 and 50+ ages because people of this target group are supposed to be active mobile users. Results were analyzed by using Microsoft Excel 2019 and the Cramer's V coefficient was calculated to understand whether there is an association between the age and motivators to engage with AR technologies, and the association between gender and motivators to engage with AR technologies. Survey outputs were represented by linear graphs.

Obtained and analyzed by the author information, answered the RQ1: "What are the main motivators for engagement with augmented reality technologies in the food industry?" Thus, outcomes showed that the biggest motivator to engage with AR technologies for respondents is aesthetic or emotional experiences, and it can be noticed that people searching for experiencing new emotions. Moreover, many respondents chose social integrative motivators because they are interested in strengthening relationships with friends and family, and interacting with others. Three other motivators – cognitive, integrative, and tension-release motivations got a smaller number of

responses, thus, it can be said that respondents are less interested in obtaining new information and expanding knowledge, strengthening confidence, and relaxing, escaping, or lowering stress by using AR technologies. Moreover, according to the Cramer's V coefficient, age and motivators to engage with AR technologies are strongly associated (Cramer's V coefficient = 0.965), while motivators to engage with AR technologies are not determined by gender (Cramer's V coefficient = 0.129). In accordance with results and analysis, people are interested and motivated in exploring AR technologies if such an opportunity can be offered by food brands.

Based on the results, the RQ2 "How augmented reality affects the engagement with food-related content?" was answered. The author found out that the respondents were concerned about spending time reading or watching food-related content on social media. Due to the fact that augmented reality technologies are bounded to social media networks, it was necessary to understand how much time respondents spend on social media and how often they engage with the food content. According to the obtained information, food content evokes positive and great interest among respondents. If promotional campaigns include attractive AR filters, games, masks, videos, etc. customers will engage with them to close their needs. Such campaigns will be discussed and shared with friends. Moreover, as the result, the growth of customer engagement would lead to increased sales, thus, companies can greatly benefit from applying augmented reality technologies in their promotional campaigns.

According to collected and analysed data, AR technologies can diversify people's lives with new experiences and motivate them to try products and services, and if earlier AR was seen as only entertainment, today it is an effective addition to the promotional campaigns, especially since social networks are making the AR experience as comfortable and interactive as possible. Augmented reality has become not only an image-based visual tool, but also a functional sales and marketing tool that allows companies to increase conversion, awareness, increase the reputation, and consumer loyalty, as it allows them to exceed the indicators of the usual, traditional forms of communication and interaction with customers.

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APPENDICES

Appendix 1. Questionnaire

How old are you?	18-25	26-33	34-41	42-49	50+	
What is your gender?	Male	Female				
How much time do you spend on social media every day?	Less than 3 hours	3-5 hours	6-8 hours	9-11 hours	More than 11 hours	
What social media network is most frequently used by you?	Instagram	TikTok	Snapchat	Twitter	Facebook	Other
How often do you read about food on social media? (E.g. receipts, nutrition advice, news from companies in the food industry)	Every day	1-2 times per week	3-4 times per week	Once in two weeks	once a month	
How often do you watch any food-related media? (E.g. videos on social media, TV shows, documentaries)	Every day	1-2 times per week	3-4 times per week	Once in two weeks	once a month	

Appendix 1. Continuation

How often do you scan QR codes? (E.g. QR codes that are allocated on outdoor advertisements, in magazines, in public transport) 1 - Never 5 - Always	1	2	3	4	5	
Did you engage with brands through AR technologies?	Yes	No				
If your answer on the previous question was yes, then rate your experience, please. 1 - Negative 5 - Positive	1	2	3	4	5	
Would you engage with a such advertisement as shown on picture? (If a person scans the poster, the smoke appears on phone screen and shows the direction to the nearest fast-food restaurant)	Yes	No				

Appendix 1. Continuation

Would you engage with a such advertisement as shown on picture? (If a person scans the QR code on the pizza package, a Pac-Man game appears, and a person can play it)	Yes	No				
Would you engage with a such advertisement as shown on picture? (If a company creates a Snapchat mask/game that can be played by a person on the mobile phone)	Yes	No				
What are your main motivators to engage with AR technologies in the food related content?	Cognitive - to acquire information and knowledge or improve understandin g	Affective - to have aesthetic or emotional experiences	Integrative - to strengthen confidence, status, or credibility	Social integrative - to strengthen relationshi ps with friends and family, interact with others	Tension-release - to relax and escape, to lower stress	

Appendix 1. Continuation

What kind(s) of Augmented Reality technologies would increase your desire to actively engage with brands in the food industry?	QR codes that activate AR effects or play videos	AR filters on Snapchat, Instagram, TikTok	AR games on social media apps or online			
What could prevent you from engaging with interactional content from brands? (E.g. You are standing on the bus stop and there is an advertisement which has a QR code. If you scan it, something will be shown up on the phone's screen - a video, game, Instagram filter, etc.) Options to choose from: Definitely, Probably, Possibly, Probably Not, Definitely Not	The low phone's charge	Not catchy advertisements	The unwillingness to spend time on doing additional actions	The lack of knowledge about the company	The lack of trust to the company	

Appendix 1. Continuation

Would you engage with brands more if they use AR technologies for the promotion of products? (E.g. Social media filters/lenses, games)	Yes	No				

Appendix 2. Data from the questionnaire

Variable		Frequency	Percentage
How old are you?	18-25	205	53
	26-33	97	25.1
	34-41	43	11.1
	42-49	13	3.4
	50+	29	7.5
What is your gender?	Male	196	50.6
	Female	191	49.4
How much time do you spend on social media every day?	Less than 3 hours	48	12.4
	3-5 hours	110	28.4
	6-8 hours	121	31.3
	9-11 hours	76	19.6
	More than 11 hours	32	8.3
What social media network is most frequently used by you?	Instagram	122	31.5
	TikTok	95	24.5
	Snapchat	50	12.9
	Twitter	51	13.2
	Facebook	63	16.3
	Other	6	1.6
How often do you read about food on social media? (E.g. receipts, nutrition advice, news from companies in the food industry)	Every day	72	18.6
	1-2 times per week	100	25.8
	3-4 times per week	95	24.5
	Once in two weeks	80	20.7
	Once a month	40	10.3
How often do you watch any food-related media? (E.g. videos on social media, TV shows, documentaries)	Every day	69	17.8
	1-2 times per week	104	26.9
	3-4 times per week	92	23.8
	Once in two weeks	76	19.6
	Once a month	46	11.9
How often do you scan QR codes? (E.g. QR codes that are allocated on outdoor advertisements, in magazines, in public transport) 1 - Never 5 - Always	1 (Never)	30	7.8
	2	59	15.2
	3	100	25.8
	4	112	28.9
	5 (Always)	86	22.2

Appendix 2. Continuation

Did you engage with brands through AR technologies?	Yes	188	48.6
	No	199	51.4
If your answer on the previous question was yes, then rate your experience, please. 1 - Negative 5 – Positive	1 (Negative)	29	15.4
	2	32	17
	3	47	25
	4	50	26.6
	5 (Positive)	30	16
Would you engage with a such advertisement as shown on picture? (If a person scans the poster, the smoke appears on phone screen and shows the direction to the nearest fast food restaurant)	Yes	292	75.5
	No	95	24.5
Would you engage with a such advertisement as shown on picture? (If a person scans the QR code on the pizza package, a Pac-Man game appears, and a person can play it)	Yes	285	73.6
	No	102	26.4
Would you engage with a such advertisement as shown on picture? (If a company creates a Snapchat mask/game that can be played by a person on the mobile phone)	Yes	266	68.7
	No	121	31.3

Appendix 2. Continuation

What are your main motivators to engage with AR technologies in the food related content?	Cognitive - to acquire information and knowledge or improve understanding	161	41.6
	Affective - to have aesthetic or emotional experiences	198	51.2
	Integrative - to strengthen confidence, status, or credibility	154	39.8
	Social integrative - to strengthen relationships with friends and family, interact with others	190	49.1
	Tension-release - to relax and escape, to lower stress	138	35.7
What kind(s) of Augmented Reality technologies would increase your desire to actively engage with brands in the food industry?	QR codes that activate AR effects or play videos	192	49.6
	AR filters on Snapchat, Instagram, TikTok	208	53.7
	AR games on social media apps or online	178	46

Appendix 2. Continuation

What could prevent you from engaging with interactional content from brands? (E.g. You are standing on the bus stop and there is an advertisement which has a QR code. If you scan it, something will be shown up on the phone's screen - a video, game, Instagram filter, etc.) Options to choose from: Definitely, Probably, Possibly, Probably Not, Definitely Not	The low phone's charge	Definitely	116	29.97
		Probably	112	28.94
		Possibly	89	23
		Probably Not	42	10.85
		Definitely Not	28	7.24
	Not catchy advertisements	Definitely	86	22.22
		Probably	133	34.37
		Possibly	98	25.32
		Probably Not	50	12.92
		Definitely Not	20	5.17
	The unwillingness to spend time on doing additional actions	Definitely	76	19.64
		Probably	116	29.97
		Possibly	121	31.27
		Probably Not	59	15.25
		Definitely Not	15	3.87
	The lack of knowledge about the company	Definitely	55	14.21
		Probably	105	27.13
		Possibly	108	27.91
		Probably Not	83	21.45
		Definitely Not	36	9.3
	The lack of trust to the company	Definitely	129	33.33
		Probably	104	26.87
		Possibly	80	20.68
		Probably Not	36	9.3
		Definitely Not	38	9.82
Would you engage with brands more if they use AR technologies for the promotion of products? (E.g. Social media filters/lenses, games)	Yes		308	79.6
	No		79	20.4

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