



The Perception of Generation Z towards AI-Generated Visual Advertising in Finland

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Abstract

Generative Artificial Intelligence is a fundamental innovation of the 5.0 industry, which has significantly changed the process of creating visual content. AI began its development several decades earlier, but the public recognition that the technology has achieved is incredible. Marketing is one of the fields where images created by artificial intelligence have a decisive factor. Businesses can become more flexible in the market, change their marketing strategies and retain resources by using synthetic image creation. However, to make AI widely spread, it is necessary to understand all the features of the generated images, the process of their creation and consumer views on the use of AI in marketing campaigns.

The younger generation is very selective in their choice and conscious of their consumption, and even a minor factor can become crucial when choosing a product. Therefore, it was necessary to find out what perception Generation Z has towards the use of AI in marketing. To identify this, the capabilities of AI technologies had been studied, as well as the areas of application in which AI-generated content can be especially beneficial for companies. Quantitative and qualitative data was collected for a broad analysis by conducting a survey in which 91 people from the target demographic group of the study participated, and an analysis of secondary data in other countries' markets to compare the results was obtained.

As a result of the study, it was revealed that AI-generated images are not conceding to human-made images in terms of attracting attention and can be successfully utilised in various areas of marketing, and Generation Z in Finland shared positive impressions about AI visual advertising. However, there are many important aspects that businesses must consider when using AI images. In general, the younger generation has shown open-mindedness towards AI in image creation, seeing it as a positive influence on businesses and marketing strategies, on condition of maintaining transparency and ethical principles. The results of the study could be useful for marketing departments of companies in Finland, business strategists and AI developers for optimising the use of AI in marketing

Keywords/tags (subjects)

Artificial Intelligence (AI), Marketing, Generation Z in Finland, Visual Advertising.

Miscellaneous

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1 Introduction

Artificial intelligence is taking a significant niche on the market, and it is becoming necessary for the creation of content. All companies focus their attention on visual content, trying to improve it and introduce something new to attract an audience and influence it. Due to the rapid development of artificial intelligence technologies, it is difficult to avoid the media created by it. Businesses are actively using artificial intelligence-based technologies in their media and marketing communications to develop their brands from the moment of the launch of AI-based technologies.

The introduction of visual content generated by artificial intelligence is aimed at attracting the attention of consumers and community cannot resist the influence of technologies based on artificial intelligence. Companies must be aware of and consider using innovative technologies to stay afloat.

1.1 Background and motivation of the study

During this study, marketing is one of the topics that the authors will be focusing on. Marketing creates a favourable effect for both sides – consumers and businesses, providing opportunities for growth and gaining profits. Advertising is a part of society's life and culture because it is being found at every step, and as mentioned above, the marketing field is developing all the time. Businesses are trying to introduce something new to attract customers and arouse their trust. Therefore, companies create brand names and slogans, which are easy to remember, use social networks to raise awareness, develop packaging, and introduce promotions and other tools that help them advertise goods and services.

To stay afloat, companies also try not to lose sight of constantly developing technologies and implement them in their businesses (Kumar, et al, 2021). A breakthrough technology in our time is artificial intelligence, it differs from others by its learning ability and adaptability. Artificial intelligence can adapt to new situations and learn something without being manually programmed. Nowadays, AI generated visual advertising is becoming more and more relevant. Authors will dive into the research about it in the following chapters.

The motivation behind this thesis is to gain understanding of importance of visual advertising and the potential for synthetic advertising in our timelines, as well as to forecast how it may be developed in the future. It is necessary to first comprehend its current application. To determine whether AI-generated visuals help attract more consumers and inspire their trust, and to determine whether there are other ways to develop AI-generated visual advertising in the future.

1.2 Research Objectives and Questions

The aim of this research is to comprehensively observe AI-generated visual advertising and examine the role of the advertisement on younger ad-recipients in Finland, thereby contributing to a deeper understanding of the evolving dynamics between artificial intelligence and marketing strategies. Generative AI is still a relatively new tool for marketing specialists. It requires more time to develop the technology to make it a fully automated process. Even though it cannot completely replace human-made art, it has become a widely used phenomenon and tool. (Kshetri et al., 2023).

There are still multiple soft spots in AI-generated visual advertisings. It might not be emotionally engaging since the difference might be visible between AI-created and manually created content. However, there are cases when AI surpasses human-made art (Hartmann et al., 2023). Because of that, an ethical issue appears: AI content violates the rights of artists and designers by creating issues of copyrighting and originality (Nguyen, 2023).

These facts make clear that AI generative technologies still require a lot of improvement, but AI-created content is being published daily. In our reality it is difficult to track how advertising affects our community because we see it in immense quantities every day (Campbell et al., 2022). Despite these facts, data specialists keep investing into development of AI technologies.

Based on these facts, authors have determinate questions for the further research:

RQ1: "How aware is Generation Z in Finland of AI Generated Visual Advertising in Marketing?"

RQ2: "What factors form perceptions and attitudes of Generation Z in Finland towards AI Generated Visual Advertising?"

RQ3: "Can businesses benefit on using AI Generated Visual Advertising in promoting their brands, goods and services?"

1.3 Thesis Structure

In this paper, the analysis of primary and secondary data is carried out. In the next chapter, the authors gain knowledge base about the topic through analysing existing literature, which affects the results of the general research. For primary research the authors have collected quantitative and quantitative data by distributing a survey among young people in Finland. In the following chapter, after all the data is being collected, found information will be analysed. As a result of the work, after conducting the analyses of the collected data, authors produce a written conclusion and answer research questions.

2 Theoretical Framework

2.1 Generation Z

To analyse the modern market, it is necessary to study generation Z, namely young people born after 1995 (Dolot, 2018). This group of people is of interest to marketers and researchers, being important in today's market, which is emphasized in Anna Dolot's article "The characteristics of Generation Z" published in E-mentor magazine in 2018. This group of people needs to be analysed to understand their impact on today's economy and market.

Generation Z was born and grew up in the period of technology, internet, computerization, social media, which has significantly influenced their perception of the world around them, habits, lifestyle in a colossal way. Since their early childhood this generation has been immersed in the digital age, this fact influences their preferences as consumers as well as their expectations from brands and companies (Palfrey & Gasser, 2008, p. 59). By paying attention to the characteristics of generation Z it is possible to better understand their attitudes, values, and behaviours in the context of the consumer market. Knowing these characteristics helps to establish appropriate interactions with this demographic, as well as tailor marketing strategies to their wants and needs.

Anna Dolot's article demonstrates the characteristics and traits of Generation Z that help in understanding their impact on and role in the market. Studying and considering these factors will help to develop more effective marketing strategies, as well as create products and services that will meet the needs and expectations of consumers of this age group.

Generation Z itself was born after the 1990s and grew in the 2000s, while global changes were taking place in the world, namely digital revolution. Next smartphones, computers, laptops, tablets, and digital media appeared. Some specialists also say that this generation can operate freely in two worlds - real and virtual, switching from one to another, as for them these worlds complement each other. Because of the virtual world, Generation Z can perceive and share information on an ongoing basis thanks to communication devices or social media, and it is also easy to find any source they need. Generation Z not only actively uses digital content, but also creates and controls it (Dolot,2018).

The younger generation often uses the Internet, especially social networks, and carefully approaches the choice of goods and services, thoroughly evaluating them before purchasing. They actively give feedback, and expect the same in return, which is especially important in any development process.

Using this knowledge, marketers and researchers can create strategies that better align with the values and preferences of Generation Z, leading to more meaningful and effective interaction with this demographic group.

2.2 Importance of Visual Marketing

The main task of marketing is to create satisfaction and customer value. If marketers understand the needs of consumers, create the right offer at an affordable price, provide value, distribute, and promote it effectively, then the product or service is easily sold. This is all done to build strong customer relationships. To do this, it is worth paying attention to marketing tools, where the visual part is vital (Kotler et al, 2015). Visual advertising plays a crucial role in attracting Generation Z - a target group which interacts with digital content with an unprecedented rate. Young people are very receptive to visual stimulus, and expect content not only to be interesting, but want it to follow their personal values and interests (Fromm & Read, 2018). Marketers must develop innovative strategies based on the latest trends in digital technologies field to attract and to hold consumers' attention. By meeting these expectations to engage Generation Z, marketers can ensure that their brands will stay relevant and competitive in digital landscape.

Visual advertising is effective since it is better remembered by people. It has been proven that human brain can understand and process visual information faster than words and text (Potter,

2024). When people see an image, they remember up to 80% of it, and when they read a text, only 20% of the content is remembered (Sadler, 2022). This data confirms the importance of the visual component in advertising.

Visual marketing is a common and integral part of any business. It is the use of images, videos, and other parts of multimedia to give publicity to the brand and build communication with the customers. An example of visual marketing can be billboards, advertising on YouTube, advertising in newspapers and magazines, advertising on TV, and others. At this point, visual advertising is a key part of marketing, as it allows you to make sales more effective (Sadler, 2022). Visual advertising implies graphic design, which includes aspects such as size, shape, lines, texture, and colour. The quality of visual advertising of products and brands affects the reaction and perception of consumers. According to Wedel and Pieters (2007), the main task of visual marketing is to deliver a message to consumers through visual signs and symbols, where an important component is the design of visual communication, including the logo, advertising design, and packaging.

Despite the importance and prevalence of visual marketing, theoretical underline factors are not enough, or they were not fully synthesized, and thus its potential effectiveness was not achieved. At this point, the situation is changing thanks to marketing research groups (Wedel & Pieters, 2007). A lot of changes can occur due to emerging insights, some ideas can be adopted from others, therefore influencing brands, their packaging design, advertising, and other visual tools that affect consumer behaviour.

The development of theory in visual marketing also intersects with vision science, social psychology, and cognitive psychology. Based on vision science, vision is a computation that occurs first in the eyes, and then passes into the human brain, helping to build a representation of the world around us. The task of visual science is to determine the mechanisms and consequences of people's perception, which will further help to understand what consumers consider, and how the visual elements of the product, such as packaging and advertising affect their perception of the product.

The visual aspect is always the most important part of marketing since it helps to communicate the message about the product or service. It is the fundamental element in building strong customer relationships and leaving a positive impression of the company and that is why it is necessary to pay close attention to the visual aspects of the product. Nowadays it is possible to

create visual advertising quickly and profitably using modern technologies, namely artificial intelligence. The concept and capabilities of this tool will be described in the following chapters.

2.3 Definition of AI

It is worth understanding what Artificial Intelligence is and what types it includes, so theoretical basis will be formed. According to Du-Harpur (2020), it is difficult to determine what AI is and give only one answer, since it depends on the requests and goals of researchers and the methods they use. It can be stated that AI is the ability of machines, such as a computer, to simulate human intelligence.

In the modern world, AI is the capacity of machines to operate and to complete some functions independently and in a like a human manner. Artificial intelligence is a machine invented by people, that can execute intensive work, and develop human-like behaviour. AI can perform tasks like learning, problem-solving, simulating, logical reasoning, and others (Du-Harpur et al., 2020).

As is already known that Artificial Intelligence is being widely used by common users and companies by providing an opportunity to perform any researcher's tasks faster and better. Jiang et al. (2022) have mentioned that AI has made a huge impact on people's aspects of life, such as education, medicine, and transportation. The study of AI has been carried out for 65 years and during this time, the work of human-created machines has achieved impressive results. Artificial Intelligence is being used almost everywhere and is being considered as a core skill for the future.

As mentioned above, it is difficult to define artificial intelligence. Jiang et al. (2022) has mentioned several meanings of AI. In the Turing test was determined that AI is the ability of machines to communicate with people without showing that they are not real humans. Marvin Minsky believes that AI allows machines to perform what human intelligence requires. The symbolic school believes that Artificial Intelligence is a combination of the most primitive symbols corresponding to the physical entries. Thus, Definitions of AI can change according to the purposes and fields of usage.

Jiang et al. (2022) has stated that the fields that AI uses for research include engineering, psychology, brain science, connective science, computer science, mathematics, and other areas. Due to the huge influence of the technology, ethical concerns arose, indicating that AI can significantly change human society, liquidating some workplaces. Artificial intelligence is constantly evolving in structure, decisions, and behaviour, outperforming humans in some tasks

and in order to benefit from this technology, people must learn to coexist together and use it competently in their tasks.

In addition to the areas listed above, AI is actively used in visual marketing. The study of Artificial Intelligence as a phenomenon and its implications for the visual marketing industry provides access to an understanding of its actual impact. This knowledge is necessary to learn how to use AI to effectively create visuals, which are essential in today's fast-paced market. To better understand what AI technology is and how it works, it is worth paying attention to the history of its development.

2.4 History of AI

The development of artificial intelligence began several decades ago. Understanding the speed of development of the capabilities of this technology is important to track the pace of change in the innovation market. This chapter will identify the main milestones in the development of AI and how they have influenced progress in various fields.

The first studies on AI concepts started in the 1950s and it is widely believed that the main progenitor of AI is Alan Turing. He predicted that a computer could learn using human experience (Muggleton, 2014). Later, he introduced a game called "The Imitation Game" (Turing, 1950), and it was the first major milestone in AI history.

Nowadays, the game has a name given in honour of the creator – The Turing test (Turing, 1950). The task of the Turing test is to determine if a machine can behave in a human manner. "The Imitation Game" requires minimum three participants. The interviewer should identify machine among people based on the dialogue. All participants of the game must be in different rooms. This method has become the standard for evaluating AI skills and is a classic method conducted on simple AI models, but it is becoming less widely used since modern technologies can easily pass the test.

There is another milestone whose importance is equivalent to the Turing test – Eliza, first successful language processing program. In 1966 Joseph Weizenbaum created a program which was able to make its interlocutors believe that they are talking to a real human. The program was able to simulate a conversation by matching the input words with the program's database and create a logical answer (Sharma et al., 2017). It was supposed to act as a therapist and the logic of

the algorithm was to paraphrase the sentences of the interlocutor into questions which could navigate people in the search for a solution to their problems (Sharma et al., 2017). Nowadays, the idea of Eliza seems to be very primitive, since it was based on a “pattern matching” method, which is the very first technology used in chatbots. However, this approach is still widely used in simple programs (Bradeško & Mladenčić, 2012).

The next milestone is AlexNet, which is a model that could identify objects in images. It was introduced in 2012 and was significantly superior to other existing models whose purpose was to identify items. The development of the AlexNet model led to a revolution in machine learning (Krizhevsky et al., 2012). This model uses deep convolutional neural networks (CNN) and thanks to this, the company of researchers has achieved impeccable accuracy in recognizing objects. New opportunities have been opened for developing applications using artificial intelligence, including for creating visual content. When creating this model, ReLU (Rectified Linear Unit) technology was used, which is responsible for graphical acceleration and image dropout control. The influence of AlexNet has a great impact on the development of the advertising market because the benefits of this technology were incomparable with those that were used at that time in marketing and its influence improved the creation of images and visual effects for advertising (Krizhevsky et al., 2012).

The next significant milestone which had an impact on the field of marketing is the invention of the Generative Adversarial Network (GAN) in 2014. This model, developed by Ian Goodfellow, uses new technology to create images and videos. It is based on the competition of two neuron networks: a generator and a discriminator (Goodfellow et al., 2014). In the next chapter, the logic of this technology will be schematically described. Its use made it possible to create more realistic synthetic images. In 2014, GAN established a new standard for digital image generation, heralded the transition to more advanced forms of machine learning, and this model is still used in the creation of artificial images (Goodfellow et al., 2014).

By tracking the above technologies, it is possible to identify the pace of development of artificial intelligence. Even though progress has gone far ahead, every discovery in the field of AI is of historical importance and plays an important role in shaping advertising strategies. By studying the historical trajectory of AI, it is easy to understand its impact on the future and on technology in digital marketing. To gain deeper knowledge about the topic it is necessary to understand the main basic models of generative artificial intelligence, which is the focus of the next chapter.

2.5 Generative AI Models

This paragraph is dedicated to the technical side of generative AI. To better understand the process of image generation, it is necessary to examine several basic terms:

1. Natural Language Processing models (NLP)
2. Generative Adversarial Networks (GAN)
3. Diffusion Models
4. Image-to-text
5. Convolutional Neural Networks

1. The first concept which is necessary to understand to have a general understating of work of AI is Natural Language Processing models (NLP) - a program that translates text or speech information into binary code, keeping semantic importance and context of input. This numerical data can serve as a map for AI and help in image generation (Chowdhary, 2020). NLP model is the main part of any Text-to-image and Image-to-text models.

2. There are plenty of advanced image generating models, including Generative Adversarial Networks (GAN). It works with binary code as well. GAN is composed of two parts: the generator, which is responsible for image generation, and the discriminator, which functions as a binary classifier. The task of it is to determine the quality of images by applying specified parameters to the generated images and creating diagnostics about the plausibility of the image. The entire process is also called the "Adversarial game", where the generator is trying to create an indistinguishable image sample and the discriminator tries to determine if the image is taken from external sources or it was generated. GAN training is based on the analysis of the long repetitive feedback loops and additionally discriminator is taking marked samples from external sources, which makes the program self-learning (Creswell et al, 2018). The outline of how the GAN architecture works can be seen on the Figure 1.

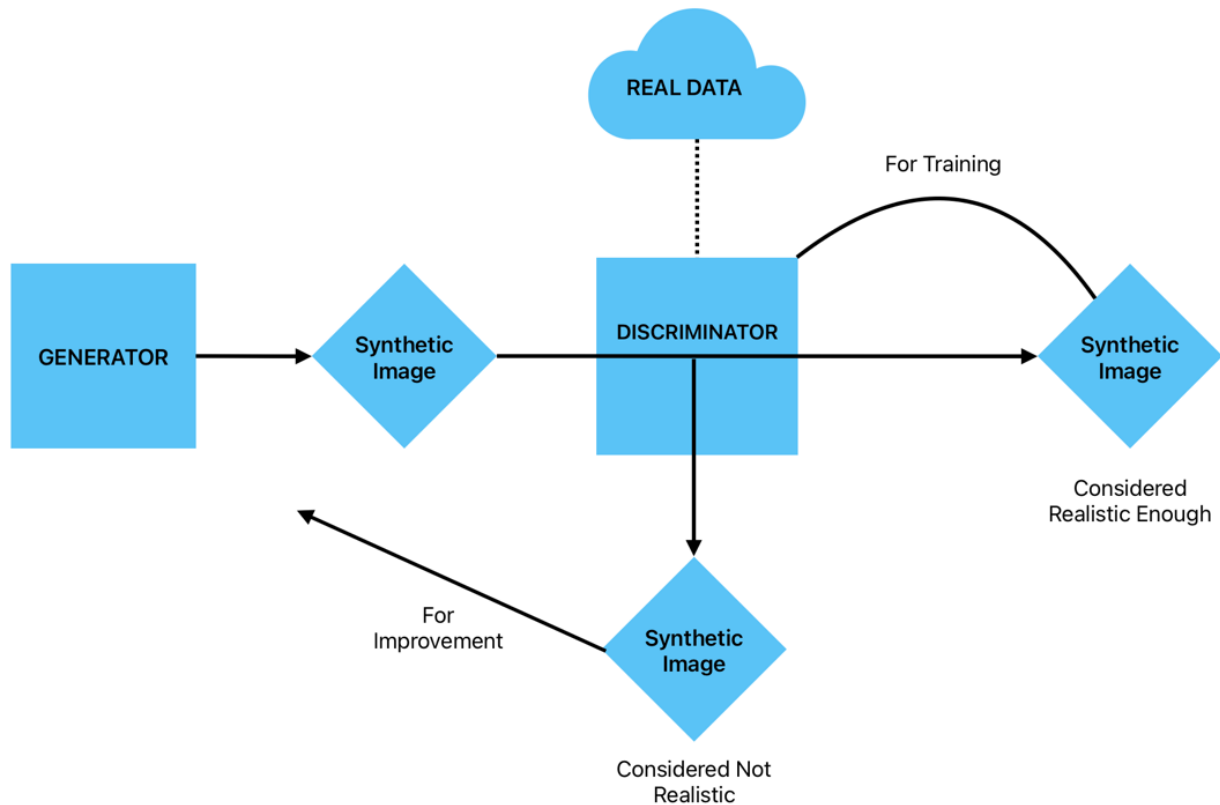


Figure 1 Schematic of Generative Adversarial Network (GAN) Architecture

3. Diffusion models are another subclass of image-generating models. This model generates data by adding visual Gaussian noise to an existing image and by reproducing this image again. Realistic images can be created by converting the noise into data. The program gradually “absorbs” the quality picture and the semantic meaning of it by putting layers of noise, until the picture turns into a pure noise. Then it recreates the image from the noise and analyses each layer that it has removed and added from the original image. The analysis of the noise layers helps to create more flexible data models which are easier to process. Nowadays Diffusion model has surpassed the quality of images generated by Adversarial Networks and it is considered the strongest image-generation program (Dhariwal & Nichol, 2021).

4. Image-to-text models are used for generating textual descriptions of videos or images. These models are based on NLP models and machine learning technics, such as convolutional neural networks, and they analyse the semantic content of the visual elements. CLIP is a prominent tool based on Image-to-text model. This model constantly improves understanding of visual and textual data by using contrastive learning. It can generate very accurate image descriptions

because of an extensive database used in CLIP model training. It is a very demanded model on market since it is accurately addressing challenges in visual communication (Radford et al., 2021).

5. Convolutional neural networks (CNN) are a tool that is being fundamental for many generative models. CNN is a machine learning model used to process data, including images. The task of this model is to "decompose" the image into layers and recognize objects on each of them. Using this program, modern generative models can learn from their own miscalculations and extract visual patterns to create better images (LeCun, Bengio, & Hinton, 2015).

2.6 Current state of Artificial Intelligence in Visual Marketing

It is believed that the visual content generated by AI can surpass humans by creating photorealistic images. Using 7 state-of-the-art generative text-to-image models (DALL-E 3, Midjourney v6, Firefly 2, Imagen 2, Imagine, Realistic Vision, and Stable Diffusion XL Turbo), 10,320 synthetic marketing images were produced, which were later compared with 2,400 human-made images. 254,400 human evaluations show that marketing content generated by artificial intelligence can surpass human-made images in quality, realism, and aesthetics. In addition, an experiment with more than 173,000 impressions showed that online ads generated by AI can compete with those made by humans while gaining 50% more clicks than human-made images (Hartmann et al., 2024). Generative AI helps to make content for marketing not only faster and cheaper but also at the human level in terms of quality.

Generative AI has greatly influenced the marketing industry by offering a new way of producing marketing content. Many companies have switched to synthetic content produced by artificial intelligence, seeing a perspective in it. An example is Heinz company, which received the A.I. Ketchup award, gaining 850 million impressions (Hartmann et al., 2024). Looking at the excitement caused by generative AI, it is not surprising that firms began to apply this technology to own marketing campaigns. By utilising generative AI, they pay attention to its effectiveness in achieving advertisers' goals, including whether it implements significant cost savings or not.

Pioneering studies show that the generation of marketing text by artificial intelligence has brought tremendous productivity and excellent quality of performance. However, despite the strong demand and relevance of generative AI and the difficulties in creating marketing images in a traditional way, not everything is yet known about its destructive potential for visual marketing content. Understanding downsides, as well as the efficiency of AI-generated images is crucial

because images are one of the most important components of marketing communications (Hartmann et al., 2024).

The fact that artificial intelligence can produce marketing content on par with humans could challenge the traditional way of creating advertising content and accelerate the adoption of AI. Speaking about the advantages of AI-generated marketing images, the very first one is cost savings. Using AI to create a marketing visual could be beneficial for companies due to the high cost of creating professional visual materials in a traditional way. For example, buying a stock photo can cost from \$5 to \$10, without considering the cost of licenses. Hiring a freelancer to create a custom image will cost about \$100, and renting a top creative agency or organizing a photo shoot can cost from thousands to tens of thousands of dollars. In contrast, creating a single image using, for example, DALL-E from OpenAI will cost only \$0.04. This shows a huge difference with traditional methods of creating visual marketing advertising in costs, so there is an opportunity to save resources (Hartmann et al., 2024).

As mentioned above, there is a possibility that generative AI can significantly reduce the cost and time of creating marketing content, while not impairing the effectiveness and attractiveness of the product. However, a simple query and the right AI model are not enough for advertisers. Most AI methods do not have special optimization for marketing purposes, as they were developed as universal tools in computer science. Therefore, it is unclear whether modern text-to-image generative tools will be able to create effective marketing content that attracts consumers. Also, there is insufficient scientific data on which AI models show consistent results in various marketing applications (Hartmann et al., 2024).

Several studies have been conducted to determine whether AI-generated images for marketing are superior to human-generated images. In the first study, 8 real-world marketing databases covered a huge number of marketing applications, where the goal was to call users to action and convey the corporate identity of the company. For this study, 2,400 real images made by humans and 7 text-to-image generating models were used, namely Realistic Vision, DALL-E 3, Midjourney v6, Imagine, Firefly2, Imagen 2 and Stable Diffusion (SD), and XL Turbo to create 10320 synthetic images. As Hartmann et al. (2024) pointed out, 254,400 ratings of all these images show that artificial intelligence-generated marketing images can surpass human-created images in realism, quality, and aesthetics.

In the second study, the same tasks were given to freelancers and 7 artificial intelligence models, where advertising, perception, and attitude of the customers were tested. The actions of freelancers and artificial intelligence models in the framework of interdisciplinary design were evaluated using 10 dependent variables (N=1575 participants from the Prolific group). By the end of the study, it was found that the DALL-E3 model creates higher-quality content surpassing freelancers in five marketing metrics, receiving higher ratings. The study participants point out that the images generated by DALL-E3 are more creative than those created by humans. In addition, it was noted that generated images are more cost-effective than marketing human-created content. For instance, to create 2500 images using the DALL-E3 model, the same amount of money is spent for one freelancer image (Hartmann et al., 2024).

The third study was based on the launch of a real marketing campaign to analyse AI-generated banner ads and their effectiveness, considering the clickability index (CTR). During the study, 173,000 views were collected and analysed to compare photos created by a person, namely an online marketing specialist with a synthetic image created in DALL-E3 generative model. According to the results of the study, it was revealed that images generated by DALL-E3 achieve a 50% higher CTR compared to human-created ads while being 225 times cheaper than stock photos. In addition, during the experiment, it was found that the choice of text-to-image model is very important because the CTR DALL-E3 is much superior to the SDXL Turbo model, namely by 100% (Hartmann et al., 2024).

These studies make an important contribution. Firstly, the effectiveness of marketing images made by AI is revealed, compared to those made by humans. Based on the results of experiments, it can be revealed that generative AI automates the process of creating images, helps in marketing activities, and can probably radically change the process of creating marketing content in the future. In addition, these studies help to understand how people perceive AI-generated content and how they relate to it in general. Due to the recent emergence of text-to-image models, there is still little information about consumers' perceptions of synthetic marketing images. At the beginning of the study, it was necessary to find out whether the level of marketing images generated by AI reaches the level of images created by humans, not only in terms of quality, and efficiency in terms of production costs, but also terms of perception. According to the results of the study, synthetic images are superior in quality and aesthetics to those created by humans. The text-to-image Realistic Vision model can even generate images that are more realistic than those made by humans, as stated in "AI hyperrealism". In addition, it was found that there is a negative

attitude of consumers towards the strong colour saturation, and this affects quality, realism, and aesthetics. Thirdly, this study helps to understand generative text-to-image models. Despite the performance and efficiency of all AI models, choosing the right model is important. For example, the SDXL Turbo model is less efficient compared to other models such as the DALL-E3 and Midjourney (Hartmann et al., 2024).

This study shows that generative artificial intelligence can increase the efficiency of advertising content creation, saving resources and improving the quality of images created traditionally. According to Hartmann et al. (2024), it was found that images created using AI technology outperform human-created images in terms of effectiveness, realism, and aesthetics. Together, these factors strongly influence the level of customer perception.

AI is evolving every day, changing the marketing landscape. To stay afloat, marketers should keep up with the latest technologies and adopt AI to stay competitive and optimize workflow. However, they should approach the choice of generative model with caution. Modern technologies including AI and understanding consumer behaviour are key aspects of developing effective marketing strategies for the future. Together, they can create innovative digital advertising, leading to effective results.

An important aspect of synthetic images is their quality. If an image looks unnatural or has poor quality, it can negatively affect audience engagement statistics. The field of image generation has seen significant growth, with image quality improving and application development techniques constantly evolving. Currently, many generative models are available on the market, but not all of them are able to handle requests effectively, highlighting the need for ongoing evaluation of their performance.

Hartmann et al. (2023) have conducted a few more studies to assess the quality of modern synthetic images and they have used various techniques to analyse the results. Figure 2, adapted from their work, shows the main research questions, important aspects, and essential conditions that guided their research. The aim of the first study was to compare the quality and realism of images created by humans and artificial intelligence. For the analysis, human made images were taken from three categories: product design, images for publications in social media, and images for advertising in printed products. Each artificial image was created based on a text description generated by AI by analysing images created by humans. That is, six human-made images were

used as benchmarks, which were then uploaded to the image-to-text model CLIP. Then, 20 images were created from each of these text descriptions using 13 different neural networks (Hartmann et al., 2023).




	 Study 1	 Study 2	 Study 3
Research question	Are synthetic images just as qualitative and realistic ...	Are synthetic images just as engaging ...	Are synthetic images just as likely to be clicked ...
	•----- as human benchmark images? -----•		
Dependent variables	7-point Likert scale: <ul style="list-style-type: none"> • Perceived quality • Perceived realism 	7-point Likert scale: <ul style="list-style-type: none"> • Likelihood to like • Likelihood to comment 	Click-through rate (CTR)
Study setup	•----- 13 AI text-to-image models -----•		
	Lab setting: <ul style="list-style-type: none"> • 6 benchmark images • 1,560 synthetic images • 5 ratings per image 	Social media lab setting: <ul style="list-style-type: none"> • 1 benchmark image • 13 synthetic images • 50 ratings per image 	Field experiment: <ul style="list-style-type: none"> • 1 benchmark image • 13 synthetic images • 86,804 impressions

Figure 2 Overview of Key parameters used in assessing the quality of images, comparing human-generated and AI-created images (Hartmann et al., 2023)

The results of the initial study, which involved five participants from Amazon Mechanical Turk, were based on a comparison between each image generated by different models, using specific criteria. The quality and level of realism of each image was evaluated on a scale from 1 to 7. The study showed that an AI-generated image of a product design can surpass images created by humans in quality and realism. On Figure 3, it can be seen that most models have created a better and more realistic product design. However, AI did a worse job of creating images for print advertising. The reason for this is the complexity and quality of the original image. The realism and quality of the advertisement, taken as a benchmark, were highly appreciated and the AI failed to cope with the task of creating images of people (Hartmann et al., 2023).

AI can also surpass benchmarks for posting on social media, however, not all models were close to the quality of the originals, which shows that the choice of model significantly affects the quality of the image result. However, even though some synthetic images are superior in quality and realism, this does not determine that AI images will be as effective at attracting an audience.

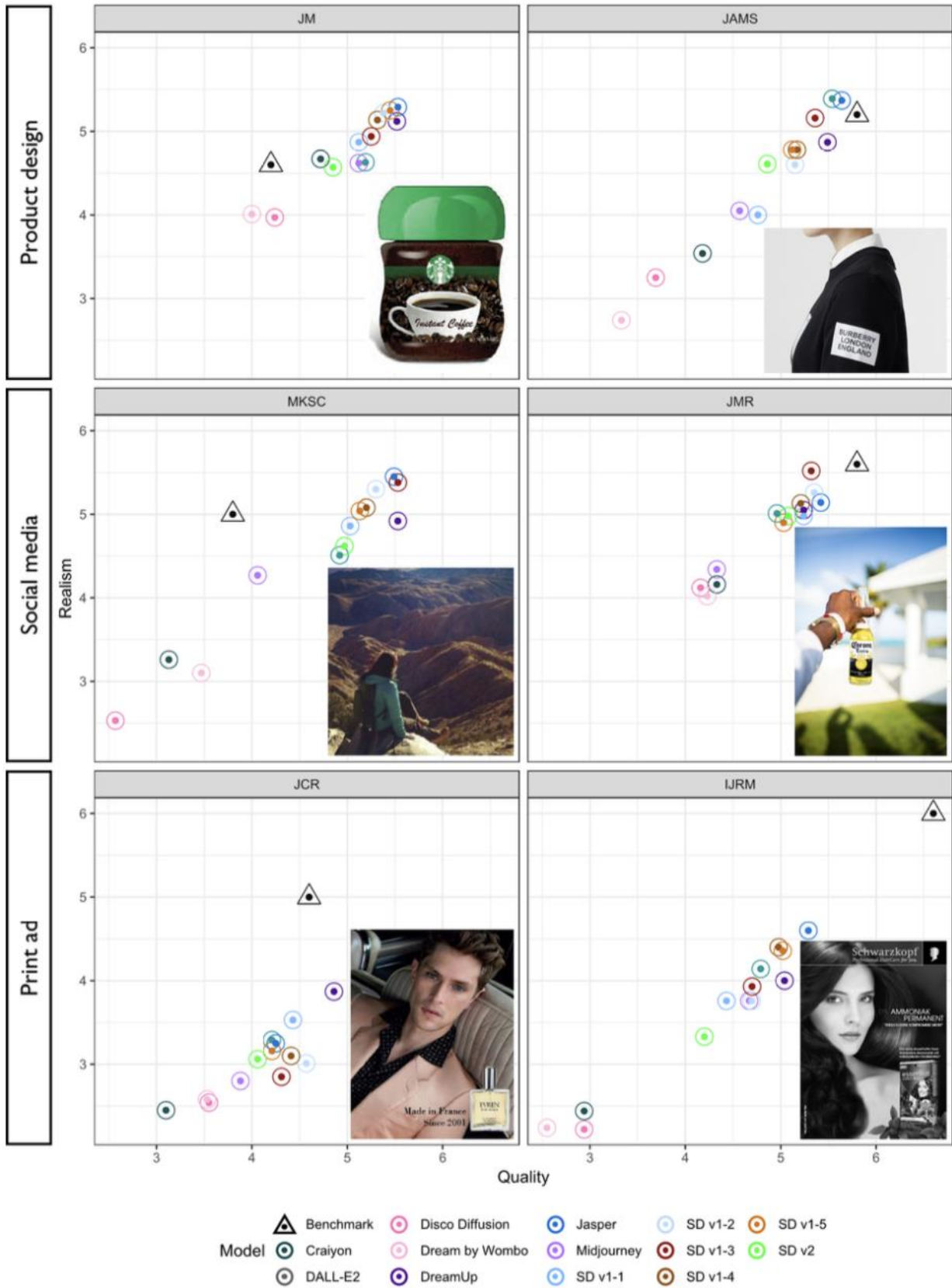


Figure 3 Index of Realism and Quality of Synthetic Image according to Harmann’s et al. study (2023)

To find out the effectiveness of synthetic images, Hartmann et al. (2023) conducted two more studies. Study 2 shows the probability that the audience will rate and/or comment on the image. The data for this study was obtained by interviewing 701 people and the analysis of the result showed that synthetic images are also able to collect many likes, but not all AI models have impressive indicators. Especially, the images created by the DALL-E2, Stable Diffusion v1-1 and Stable Diffusion v1-4 models stood out with a high rating (Hartmann et al., 2023). The rest of the benchmarks are illustrated in Figure 4.

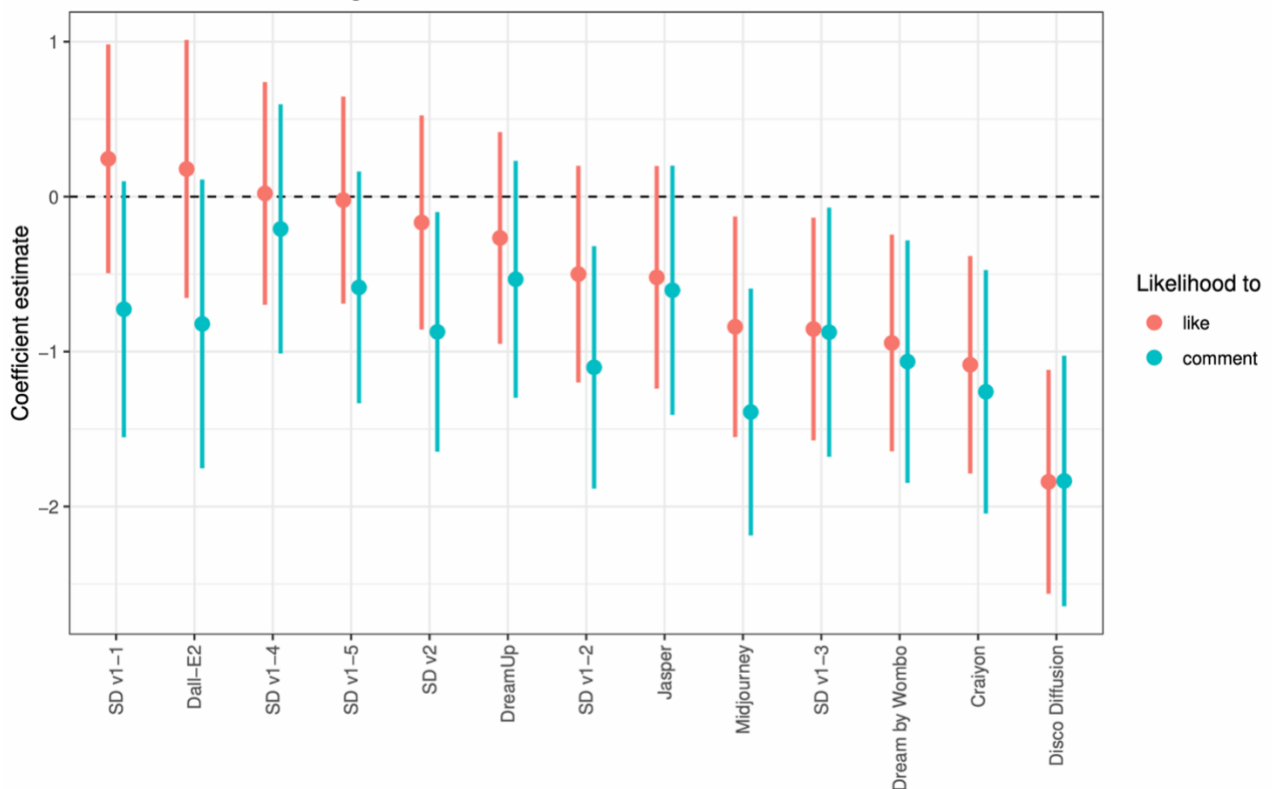


Figure 4 Ratio of Likelihood to Like and Comment images generated by different AI models (Hartmann et al., 2023)

A different situation has occurred with the involvement of commentators. The indicators of likelihood of commenting on AI images could not surpass the benchmark of human-created images. However, it is necessary to highlight the SD v1-4 model, which was able to create an image that collected almost the same number of comments as a human-created image. The authors, summing up the results of the second study, found that AI can certainly achieve high rates in collecting likes and comments, but the probability of this will depend on the choice of the model since the quality of image matters, confirming the result of the first study of Hartmann et al. (2023). The image created by the three best models was liked by people more often than those

created by human. The second study confirms the results of the first one, which indicates that synthetic images have sufficient quality to be used in publications on social media platforms (Hartmann et al., 2023).

The third study was conducted to confirm the validity of the findings from the first two studies. The conclusions were drawn based on the calculation of the click-through rate (CTR), which can be used to assess the effectiveness of AI-generated advertising in real-world scenarios. The first two studies were based on the same images and the third study used an image that was purchased from Adobe Stock. To generate synthetic images, the same process as in the first study was used: the original image was uploaded to the image-to-text model and then converted to text using the text-to-image model. All the images in total were shown 86,804 times and the CTR of the images was 702. The results of the study turned out to be impressive. The benchmark image ranked tenth out of fourteen, behind nine other models based on artificial intelligence. Although the original image achieved a score of 79%, this is only tenth among 14 indicators. Stable Diffusion v1-3 achieved a rating of 96%, which is 21.5% higher than the benchmark. However, there are other models that performed worse. This study also shows that not all generative models can produce images that are suitable for a wide range of applications (Hartmann et al., 2023).

Even though the quality of images generated by artificial intelligence has reached a point where they can surpass those created by humans in terms of attractiveness on the market, it's important to consider which model the image will be created with. It's necessary to monitor developments in artificial intelligence and the limitations of different models to stay ahead of market and marketing trends. Due to the rapid pace of technological advancement, especially in the creative field, where the balance between automation and artistic quality is crucial, constant changes and improvements are necessary.

2.7 Summary of The Knowledgebase

During the chapter of theoretical framework, several topics were covered, namely: Description of Generation Z, Importance and strategies of marketing, Visual Marketing, Artificial Intelligence: its definition, implications, advances, and role in visual marketing.

The first key point of the study is characteristics of Generation Z. During the research it was found out that the representatives of this age group are people born after 1995. They have grown up in the era of technology, the internet, and social media. These factors have influenced their

perceptions, brand expectations, and consumer behaviour (Dolot, 2018). The younger generation often consumes online content, which is why companies need to adapt to their desires and preferences, as well as consumption habits.

The importance and strategies of marketing is the second important part of the study. Modern marketing has changed its traditional strategies to sophisticated digital interactions where the most important criteria are value creation and customer interaction (Kotler et al., 2015).

Understanding and properly utilizing digital platforms and visual content are the most important things to effectively engage with the younger generation.

During the chapters regarding visual marketing, it was found that visual advertising is more attractive and memorable compared to textual advertising, which is why it is the most important component of marketing strategies. The second point of the article is the fact that graphic design elements, namely size, colour, lines, texture, and shape influence consumer perception and behaviour. Thus, visual content improves memorization and creates strong relationships with consumers through aesthetically appealing and contextually relevant stimuli (Potter, 2024; Sadler, 2022).

During the chapters describing definition and implications of AI it was found out that Artificial Intelligence is the ability of machines to replicate human intelligence to perform tasks such as learning, logical thinking, and problem-solving (Du-Harpur et al., 2020). The study also revealed that the AI market is currently growing as it is increasingly being integrated into various industries, increasing productivity by performing tasks faster and better compared to humans (Jiang et al., 2022).

In the chapters describing advances in AI, it was mentioned that over time, the role of Artificial Intelligence in marketing has grown rapidly, and so has its relevance to companies. Generative AI models can create human-level marketing content, and even surpass it in terms of quality, speed, aesthetics, creativity, and cost-effectiveness. These technologies, namely Generative AI models can change the process of creating and consuming visual marketing content.

The last key point of the study is AI in Visual Marketing. The articles Hartmann et al. (2023) and Hartmann et al. (2024) have mentioned that AI can create visually appealing advertisements and resonate with consumers, including Generation Z. Visual content generated by artificial

intelligence can exceed the expectations set by humans, which can influence and change marketing strategies.

3 Methodology and Implementation

This chapter presents a comprehensive overview of the methodological approach utilized in this research. It includes a discussion on the reasoning of the chosen methodology, the strategies for data collection, the types of used data, and the analytical techniques employed to interpret the findings and address the research questions.

3.1 Research Approach

Research Philosophy

In any study, it is important to choose the right philosophy to guide the identification of the results of the study. Referring to the chosen philosophy, the authors find the appropriate method of data collection, analysing which they conclude the study. This is important to build the right logical chain of the research process as well as establish a causal relationship between the question and the answer (Saunders et al., 2019).

An aligned paradigm in the study helps to identify research questions and methods to answer them and integrates different research techniques to ensure consistency of results. There are several paradigms, for example, positivism and interpretivism, which help the authors of the study to understand their work and influence the interpretation of the results (Farrow et al., 2020; Weller & Pitt, 2020).

Positivism is a research approach that based on quantitative data. The researchers apply positivism to test hypotheses and theories. Interpretivism is the second research approach that uses qualitative data to explore the complexities of reality and gain a deep understanding of the causes of people's behaviour. Pragmatism is a flexible paradigm in research. Authors using this approach choose research methods that best fit their needs in the process of collecting the data needed to achieve their goals. Pragmatism incorporates both qualitative and quantitative research methods (Farrow et al., 2020).

This research paper is based on the pragmatic paradigm as it is appropriate in exploring the topic of the study, namely the perception of visual advertising. Emphasis is placed on the practical application of findings and results and the use of mixed methods to help achieve the research objectives. Using the pragmatism paradigm, it is possible to collect both quantitative and qualitative data through interviews and secondary information, finding valuable insights and forming useful conclusions.

Research approach

The next step involves selecting the appropriate research approach. This chapter delves into the various research approaches, ensuring it aligns with the objectives and requirements of the research. According to Saunders et al. (2019), there are multiple kinds of approaches: exploratory, descriptive, and explanatory.

The exploratory type of approach is used in those studies, where the research questions start with "What?" or "How?". Basically, this type of research is used in cases where there is not much information about the research objectives yet. In this type, various ways to collect information can be used: literature reviews, interviews, focus group discussions or surveys, which are usually not strictly structured. This allows the authors to collect as much high-quality and in-depth information as possible about the subjective experience of each participant in the study. The benefit of exploratory research is that researchers can change the direction of their studies even after collecting data (Saunders et al., 2019).

According to Saunders et al. (2019), descriptive approach is a systematic collection and presentation of data for drawing a precise description of characteristics of phenomenon. This research approach does not manipulate the variables but observes them for creating a connection between facts and patterns. However, it does not require delving into causal relationships of subjects of study, rather collecting information in particular study field.

Explanatory research approach is used for determining and studying causal relationships and reasons of its appearance. This approach usually requires more structured methodology since it focuses on understanding of connections between variables with hypothesis testing or theory testing methods. Explanatory approach is used for studies the aim for giving explanations that can elaborate how a variable affects another in a certain context (Saunders et al., 2019).

Explorative approach is the one that will be implemented in this study. Since the phenomenon of Generation Z perception of AI generated visual advertising in Finland is not yet widely explored, there is not much research about this topic available yet and the field of this phenomenon is changing and developing constantly. Application of explorative approach let the authors to conduct wide research and determine new variables in the field of study and to understand regularities without limitations of the initial hypotheses. Such flexibility has a crucial importance in developing fields, where research is limited because it allows authors to form the basis for further detailed research and the construction of hypotheses and cause-effect relationships (Saunders et al., 2019). This approach will allow to understand the interaction of Generation Z and the latest trends in marketing technologies and provide a fundamental understanding of their views and behaviour.

Research methodology

In this chapter, 3 types of data methodology, namely qualitative, quantitative, and mixed methods are explored. The qualitative method refers to the collection and processing of non-numerical data such as text. This type of data collection focuses on understanding motivation, behaviour, human attitudes, beliefs, and experiences. Qualitative research is very effective for understanding complex issues, as it captures the diversity of human experience (Leung, 2015). Talking about the main characteristics of the qualitative research method, it can identify subjectivity and interpretation, use of open-ended questions and interviews, in-depth detailing, and interaction with participants. Subjectivity and interpretation mean that in collecting and analysing information, the researcher is recognized as subjective and to discover hidden meanings and patterns, interpretation plays an important role. The use of open-ended questions and interviews in the qualitative research method means that researchers allow participants to express all their thoughts and opinions freely. Researchers make prolonged observations through which they seek to obtain detailed data and interact with participants. Examples of qualitative data collection are interviews, text analysis, observations, and focus groups.

According to Saunders et al. (2019), the quantitative method of data collection is based on the analysis of numerical information to understand the relationships, trends, and patterns within the data. Quantitative research is needed to collect and present accurate numerical data that can be further reflected in statistical findings. The quantitative method's characteristics are objectivity and replicability of results, the use of structured questionnaires and surveys, statistical analysis,

and data processing. To collect data from many participants, researchers create instruments under a common standard. Researchers analyse the data obtained using statistical methods to identify relationships, generalizations, and correlations. Examples of quantitative methods of data collection are experiments, surveys, secondary data analysis, and observational studies.

A mixed method of data collection is a combination of qualitative and quantitative approaches in collecting information to gain a full understanding of phenomena. This approach is utilizing both methods' benefits and helps to complement the results to obtain more in-depth research conclusions. The mixed method uses triangulation, which refers to multiple data sources and uses multiple ways of analysing the data to increase the study's validity. The second point is parallel or sequential data collection, which helps in gaining a deeper understanding of the problem under study. Researchers blend different types of data to obtain comprehensive findings.

A mixed method of collecting data was chosen for this thesis as it combines both secondary data collection for theoretical base and a survey implementation, helping to collect both qualitative and quantitative data. This research method was chosen because there is an integrated analysis, quantitative and qualitative understanding, augmented data, and a focused research approach.

1. Integrated analysis: A mixed method of data analysis helps to gain a broader understanding of the perception of Generation Z on AI-generated visual advertising. Secondary data analysis helps to understand the background and context of the topic, while the survey helps to collect both participants' opinions and numerical values.

2. Quantitative and qualitative understanding: The survey presents qualitative data, namely the opinions and views of Generation Z from Finland, as well as quantitative data such as statistical findings of the responses.

3. Augmented data: Secondary data helps to understand the state of the AI advertising market at a given point in time. This provides a basis for explaining the results of the survey as well as assessing their significance in the context of the whole topic.

4. Purposeful Research Approach: Choosing a mixed method of gathering data that includes qualitative and quantitative research helps in answering the research questions precisely as well as more accurately determining the perception of Generation Z on AI-generated Visual Advertising.

To summarize, this research method was chosen to combine the benefits of both qualitative and quantitative research using survey. The objective of the study was to get a complete picture of the perception of Generation Z from Finland on AI-generated Visual Advertising. The mixed method provides in-depth research results that will be useful for launching and improving advertising strategies focusing on Generation Z in Finland, and possibly worldwide.

3.2 Sample

Saunders et al. (2012) noted that it is worthwhile to use sampling, based on collecting data from the target group of the study. There are two methods of sample collection: probability and non-probability. The probabilistic sampling method ensures that each member of the population could be selected. This method is used to collect statistically reliable results that can be further generalised. Non-probability sampling method does not ensure that every member has an equal opportunity of being selected. This method is most used in studies where the goal is to gain insight rather than generalize the findings to the entire population (Saunders et al., 2012).

It will not be possible to collect data from all age groups due to resource constraints, and it will not be relevant to this study. Thus, this study utilizes the non-probability method of sample collection since not every person who has responded was given the probability of being selected. The authors of the study sought to gain insight and understanding of the perception of visual AI-generated advertising specifically among members of the younger generation, not the entire population. Non-probability method allows focusing on just those responses that represent relevant information. The survey conducted was a purposive sampling. The authors of the study focused on a specific demographic group, namely Generation Z from Finland, as their opinions were a key aspect of the study. Purposive selection helped to focus on a specific group of respondents relevant to this study.

The target group of the study is Generation Z from Finland, which is why the focus will be on them. The survey was designed to collect both quantitative and qualitative data, following a pragmatic research paradigm. This method allowed for the integration of different research methods, gaining a holistic understanding of the topic. The survey included both open-ended questions to collect qualitative data and multiple-choice questions to collect quantitative data.

The completed survey was sent to 400 people, of which the authors of the study received 100 responses. Out of 100 responses received, only 91% were Generation Z living in Finland and

further focus was concentrated on them. Thus, the total response rate is 22,75. The formula used for calculating the total response rate is given below.

$$\text{total response rate} = \frac{\text{total number of responses}}{\text{total number in sample} - \text{ineligible}}$$

Figure 5 The formula of total response rate (Saunders et al., 2012)

The demographics of the target respondents represented a roughly balanced gender ratio and different regions of Finland. The diversity of responses ensured the collection of findings that can be broadly applicable to Generation Z from Finland.

3.3 Data Collection

To produce high-quality research, it is necessary to collect relevant data and then analyse it. Data is divided into two types, namely primary and secondary. This research uses a mixed method of data collection that includes both qualitative and quantitative data to accurately answer research questions.

In the book "Research Methods for Business Students" primary data is the information collected by the study's author for research. Primary data is information collected through sources, namely surveys, experiments, interviews, focus groups, and observations. Secondary data can include publications, journal articles, statistical reports, books, and other pre-existing sources that help researchers draw conclusions and arguments regarding a particular topic. The characteristics of primary data are freshness and relevance, control and accuracy, purposeful collection, individual approach, and contextual understanding. The main difference between primary data and secondary data is that the primary information is original and secondary data has already been collected by other authors (Saunders et al., 2019). To generate primary data, a survey was conducted to collect the opinions of the age group of interest regarding the given research topic, which helped to answer the main research questions of the thesis.

Research articles, reports, and surveys taken from credible sources were reviewed and analysed to collect secondary information. Secondary data used in this study, provided historical background

and context, which helped to better understand trends and developments in the research area of this thesis. The scientific articles were taken mainly from Google Scholar sources. The secondary data provided in this study helped the authors to delve into the topic of the study, provide a detailed explanation of terms and concepts within the research topic, and form a theoretical background.

Survey design and implementation

The method of collecting primary information in this study is a survey for several reasons. Firstly, preferences and opinions were provided to the authors of the study to help them understand the views of the participants. Secondly, by using this data collection method, an objective representation of the survey participants' opinions was provided. In addition, the survey allowed the authors to obtain direct answers to the research questions defined in the study by providing specific data. This method of collecting primary data information allowed the authors to collect valuable information directly from the target audience, ensuring the reliability and preciseness of the data needed in this study.

Before conducting the survey, all the necessary information related to the topic was collected and then a draft survey was created. The questions were further divided into groups to cover all the aspects of interest of the topic and to analyse the collected information.

The structure and division of the questions:

Block Q0: Demographic Characteristics

This is a group of questions focusing on demographic characteristics of the survey participants, such as age and country of residence (in this study the authors are focusing on Generation Z in Finland only).

Block Q1: Experience with AI-Generated Visual Advertising

In this block, questions about the experiences and opinions of the participants on the visual advertisements generated by artificial intelligence were presented. The purpose of the questions was to identify the level of awareness of Generation Z regarding this type of advertising, as well as to identify their attitudes towards it.

Block Q2: Preferences towards AI-Generated Visual Advertising

This group of questions was based on assessing survey participants' preferences for AI-generated visual advertising images compared to human-generated images. In addition, this group of questions identified the factors influencing participants' perceptions.

Block Q3: Image selection preferences

This set of questions was designed to identify preferences for images where one picture was created by a human and the other by AI. Pictures were selected to match in realism, image content and quality. This group of questions was aimed on identifying which image is more appealing to members of the young generation.

Block Q4: Opinion on AI's use of visual advertisements

In this group of questions, members of Generation Z were asked about their opinions regarding the usefulness of AI-created visual advertisements for businesses. The second question in this block revealed whether respondents' attitudes toward brands would change if they switched to AI-generated visual advertising.

Block Q5: Open comments

In this block of questions, respondents shared additional thoughts and comments about their experiences with AI-generated ads and how businesses can utilize AI. This helped to gather additional qualitative data that was useful in analysing the results.

The survey questions were designed to fully cover the research topic and gather as much information as possible, from experiences and preferences to perceptions and opinions of respondents about the use of AI in visual advertising. The goal of the survey was to gather the complete and objective information needed to analyse and draw conclusions and to answer the research questions as accurately as possible.

The link to the survey was further sent out to Generation Z people living in Finland via social media such as WhatsApp, Instagram, VK. To collect the maximum number of responses, the survey was sent out to group chats and direct messages to people who were the research's target audience. The data was further collected and analysed.

Questions	Topic
Questions 1-3	Age and place of residence of the respondents
Questions 4-8	Respondents' experience and opinion on AI-generated visual advertising
Questions 9-12	Respondents' preferences, as well as qualities of AI generative visual advertising that influence their perception
Question 13	Identifying the images that the participants find more appealing: made by AI- generative models or made by a human
Questions 14-16	Identifying business areas where AI-generated visual advertising is applicable
Question 17	Open comments regarding the topic

Table 1 Structure of the survey questions

3.4 Data Analysis

After implementing all the data collection methods, the authors conducted a thorough study and analysis of the responses received during the survey. The original survey was crafted in the Google Forms utility. This utility is not only useful for data collection, but also for preliminary analysis of responses. Further analysis was carried out in Microsoft Excel to obtain more accurate statistics of quantitative data, while qualitative data was transferred and analysed in Excel sheet to create a comprehensive understanding of the information collected.

Quantitative data analysis

As mentioned earlier, the survey was drafted in Google Forms. Google Forms are the most common platform for conducting surveys as this utility has a very simple interface. After collecting the required amount of information, the utility automatically generates an analysis of the collected data based on the response rate, and this analysis allowed the authors to build a preliminary understanding of quantitative statistics and trends. After collecting the required number of responses and preliminary analysis of statistics, the results were transferred to Microsoft Excel. The software was used for conducting advanced statistical analysis of variables to identify data relationships and to correlate results with research questions. Moreover, data was sorted in Excel and irrelevant answers were eliminated. Even though the survey was aimed to reach a certain demographic group, not all respondents belonged to it. Using a wide range of tools

in Excel allowed the authors to effectively visualise data for a deeper understanding of patterns in survey responses.

Qualitative data analysis

To analyse qualitative data, the authors needed to transfer the data collected through open-ended questions to an Excel table. In total, 91 responses were received that matched the parameters of the study. To derive the results, it was necessary to compile statistics on the responses and their popularity. To do this, the authors encoded all the results in an Excel spreadsheet. First, it was necessary to reveal keywords from each answer that carried the main ideas of the respondents. After deducing all the keywords and conducting initial analysis, it could be concluded that the total mass of keywords could be divided into 6 groups: Audience attraction, Creativity and inspiration, Cost efficiency, Content Modification, Publication frequency, Negative opinion, and Areas of utilisation.

If one of the answers had several keywords, such as "saving resources" and "product design", it means that the respondent's comment was divided into two groups, namely "Cost efficiency" and "Areas of utilisation". If the popularity of the answers about resource retention could be quantified for statistics, then the ideas about the areas of application were rewritten manually, but they were also systematically encoded. After collecting all the keywords about the areas of application, it was calculated how many respondents see the successful application of AI in certain areas, namely social media, graphic design, branding, etc. The number of responses about each area of application were also counted.

The approach used in this study to analyse qualitative data implies the extraction of keywords and grouping by topic. This approach is an established practice in scientific research. It is not only systematic, but also allows transcribing a large volume of complex qualitative data into manageable units over which processes of comprehension and interpretation can be carried out (Miles et al., 2014).

By dividing the data into categories and individual topics, the researchers apply the thematic analysis described by Braun & Clarke (2006). According to their study, thematic analysis is a very flexible method of identifying patterns. In addition, qualitative interpretation followed by quantitative analysis of generalised variables increases the reliability of the results obtained, as it allows to clearly describe the patterns and frequency of generalisations and ideas. This approach

not only confirms the logical consistency of the methodology, but also follows the scientific rigour required in conducting research.

By implementing all the techniques, tools, and chains of analytical and critical action sequences, it was possible to achieve a comprehensive understanding of the results. The exploratory approach and the use of quantitative and qualitative data analysis made it possible to better understand the dynamics of the topic of this study.

3.5 Plan for Research Quality and Ethics

This chapter provides information about the ethics, quality, validity, and reliability of this research.

Research must be of high quality to produce valid and reliable results. According to Saunders et al. (2019), it is important to maintain high standards of research integrity throughout the whole process, which also includes adherence to ethical principles. Ethics in research means maintaining confidentiality, protecting the rights of participants, ensuring informed consent, and minimizing possible harm.

The next key aspect of the research is validity and reliability, it is what ensures the accuracy of the phenomena being studied and the replicability of the results. According to Saunders et al. (2019), validity is how well the research method, and its results correspond to the objectives set, and reliability is the stability and consistency of the study results over time and across various conditions.

Ethical principles are the next important part of research to pay attention to. These involve respect towards participants' autonomy (their ability to make decisions on their own, controlling their participation in the research), fairness (sharing benefits and risks and being treated honestly), beneficence (acting in the best interests of participants), and integrity (transparency and honesty) (Saunders et al., 2019). In a research study, the authors must follow the above ethical principles throughout the work, from collecting to analysing the information.

In this study, based on topic of the Perception of Generation Z in Finland on Visual Advertising Generated by AI, the authors followed the rules and ethical principles mentioned above, namely:

1. Anonymity: The names and identities of participants were anonymized throughout the survey to encourage honest and unrestricted responses.

2. Survey link security: The survey link provided to respondents was secure to prevent unauthorized access to responses and protect participant confidentiality.

3. Data security: All the information collected in the survey was treated with confidentiality and only summarized results were used to ensure the anonymity of the participants.

4. Respect for Participants: The study authors respected the rights and freedoms of respondents, ensured that they participated voluntarily, and without coercion, and provided informed consent and protection from potential harm as a result of the study.

5. Quality, validity, and reliability: The data collected in this study is reliable, of good quality, and valid. The authors adhered to ethical rules and standards of research to ensure the reliability and quality of the results, as well as the possibility of using the data in further research works.

This thesis also includes secondary data used in the theoretical framework chapter and other parts of the study. Sources of information were cited in the text as quotations and in the reference list.

When the authors collected the data, they did not explain to the participants which answer would affect the statistics in what form. A deep explanation of the background could trigger additional biases in the participants' responses. The presence of biases in the responses would lead to collection of less credible data.

4 Results

Quantitative data analysis

Once the survey was ready, the authors sent it out to about 400 people, of whom only 100 responded, which was enough to do the analysis. Of the 100 participants, only 91% respondents' answers confirmed that they belong to Generation Z (15-27 years old) and live in Finland. Since our study is based on the narrow scope, answers of only 91 respondents were analysed by the authors because their demographic characteristics follow the research objectives.

During the analysis of the first block of questions, it was found that most of the survey respondents live in Finnish cities such as Helsinki and Jyväskylä. In addition to these cities, the responses included Kuopio, Tampere, Seinäjoki, Kotka, Vaasa, and Espoo.

The next question in the survey aimed to find out the level of awareness of Generation Z in Finland about advertising created using AI-generative models. The question was whether the respondents had seen advertisements that they thought were created by AI technology. 39 people responded that they have seen *a few* advertisements that they believe were created using AI technology. The second highest number of answers is 38 respondents who said that they have seen *several* advertisements that they believe were created using AI technology. 6 people indicated that they had only seen *one* image that they thought was created by the AI. The number of people who have not seen any ads created using AI at all is 4. The remaining 4 participants indicated that they did not know if they had seen advertisements created by AI.

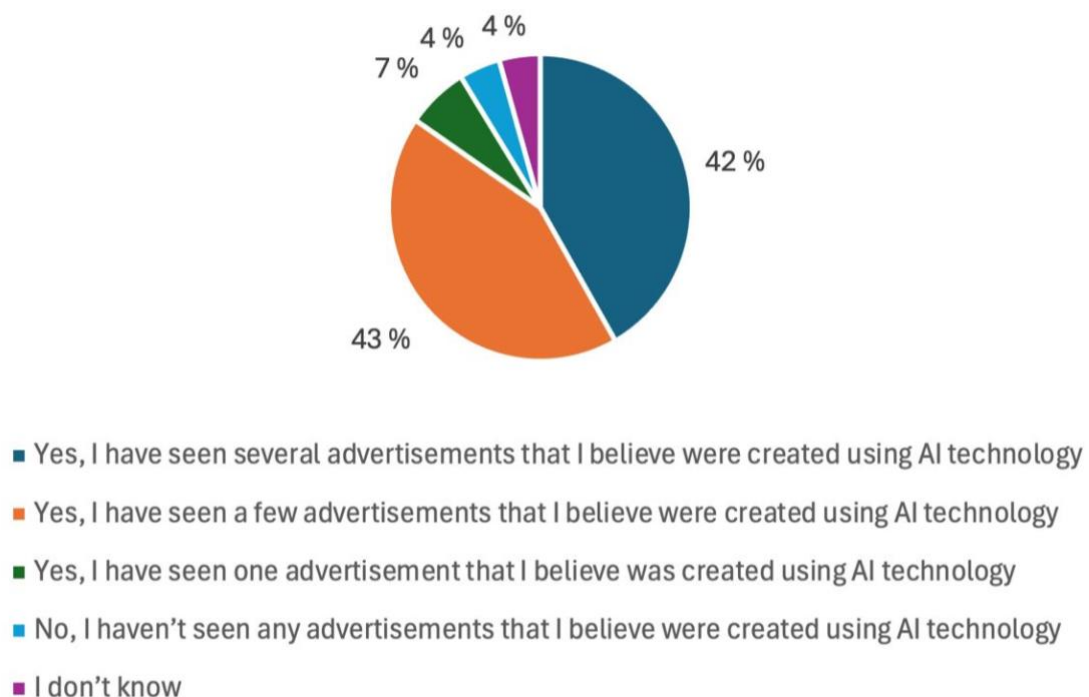


Figure 6 Level of awareness of respondents about AI-generated visual ads

The fifth question of the survey was aimed at identifying the frequency of participants encountering visual advertisements created by AI. Most respondents, namely 35, said that they come across AI-generated ads several times a week. The second highest number of responses was "Every day," with 23 people responding. 17 respondents said they see visual ads created by AI several times a day. 15 people said they rarely come across AI-generated advertising content. Only 1 survey participant mentioned that they had never come across AI-generated visual ads.

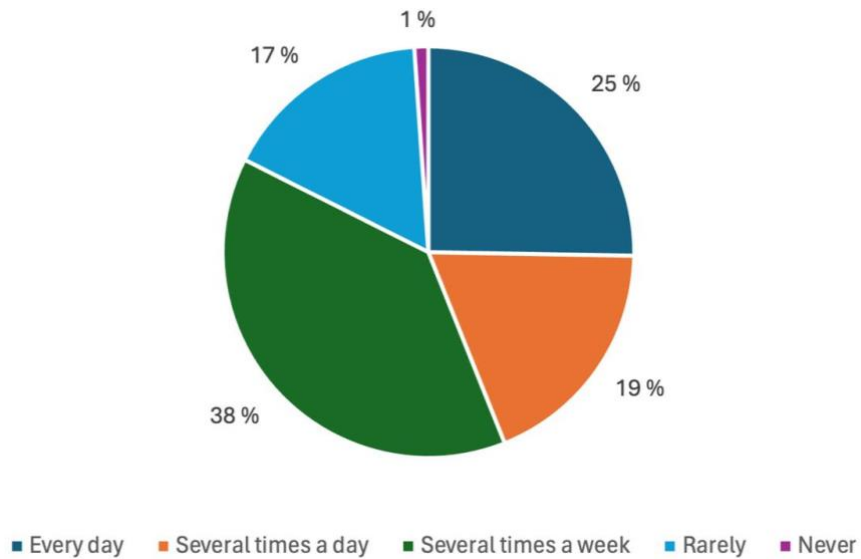


Figure 7 The frequency of seeing AI-generated visual ads

The next question sought to identify the places where survey participants have seen AI-generated ads recently. Most respondents, namely 74, said they saw advertisements created by AI in social media. Only 8 responded that they have recently seen artificially generated ads in mobile applications. 4 respondents said they have come across AI-generated advertising content on web pages or articles. 2 respondents said they have encountered AI-generated ads in print media. 3 survey participants chose the "other" response option.

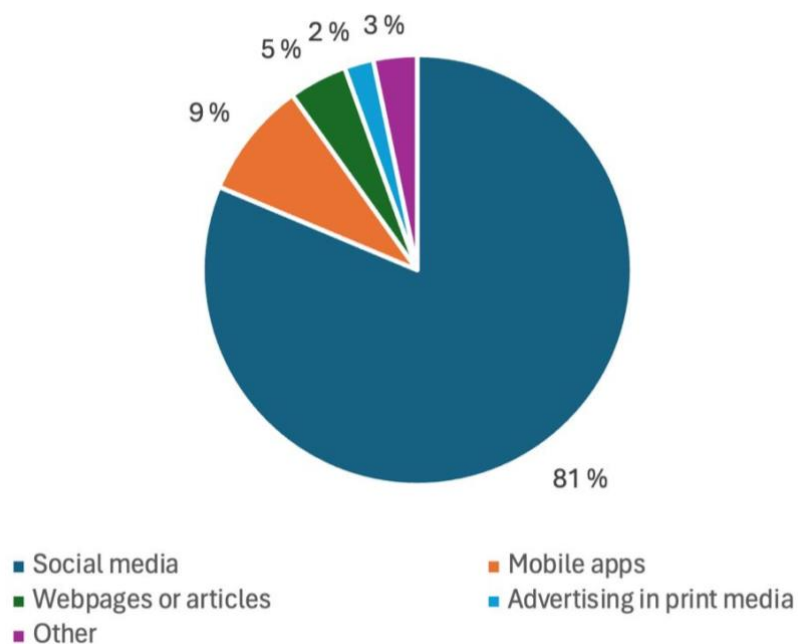


Figure 8 The places where participants come across AI-generated visual ads most often

The next question of the survey was to determine the respondents' experience with AI-generated ads and whether it left a positive impression on them. Of the 91 people surveyed, 9 respondents said that the ads they had seen left a very positive impression. Most respondents - 46, said that AI-created advertising left a somewhat positive impression. 23 survey participants said that this advertisement did not leave any impression. 12 respondents indicated that AI-generated ads left a somewhat negative impression. The remaining 1 survey participant indicated that the visual AI-generated advertising left a very negative impression.

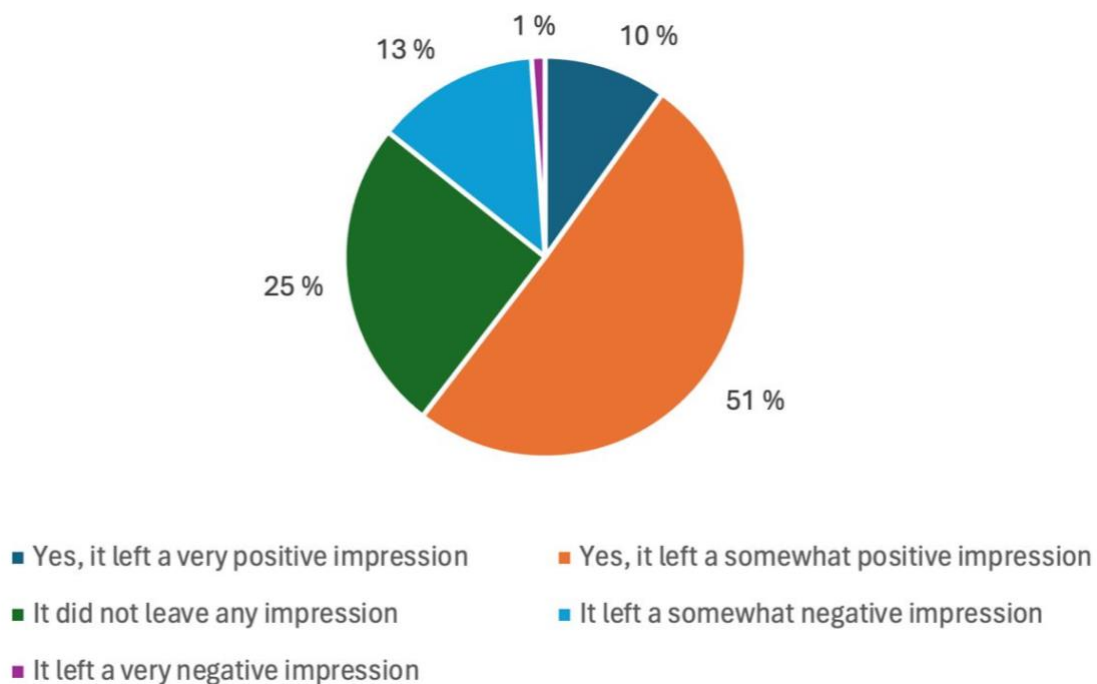


Figure 9 Experience with AI-generated visual ads

The purpose of the seventh question was to determine whether the survey respondents preferred AI-generated or human-generated ads. The survey results revealed that most people (52) prefer human-made images. 11 respondents said they preferred AI-generated images. For the remaining 28 respondents, the way the advertising was created was not important.

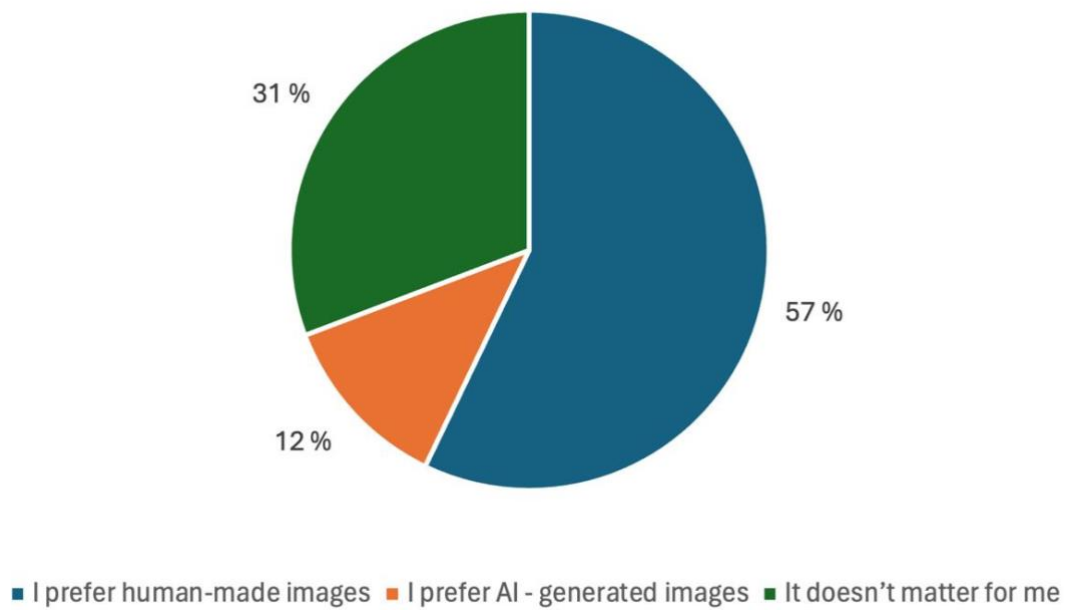


Figure 10 Preference towards AI or human created visual ads

The next question focused on determining the factors influencing the survey participants' perception of advertising in general. Respondents were asked to choose at least 3 answer options out of 6 offered. Most people (74) chose an aspect such as "Creativity". 59 respondents indicated that the factor "Personalization" is most important to them in advertising. 57 respondents selected "Authenticity" as an aspect that influences their perception of advertising. 38 responses to this question were "Brand's mood representation". The next group of respondents, namely 33 people chose the factor "Simplicity" to influence their perception of advertising. The remaining 26 respondents chose "Context & place of publication".

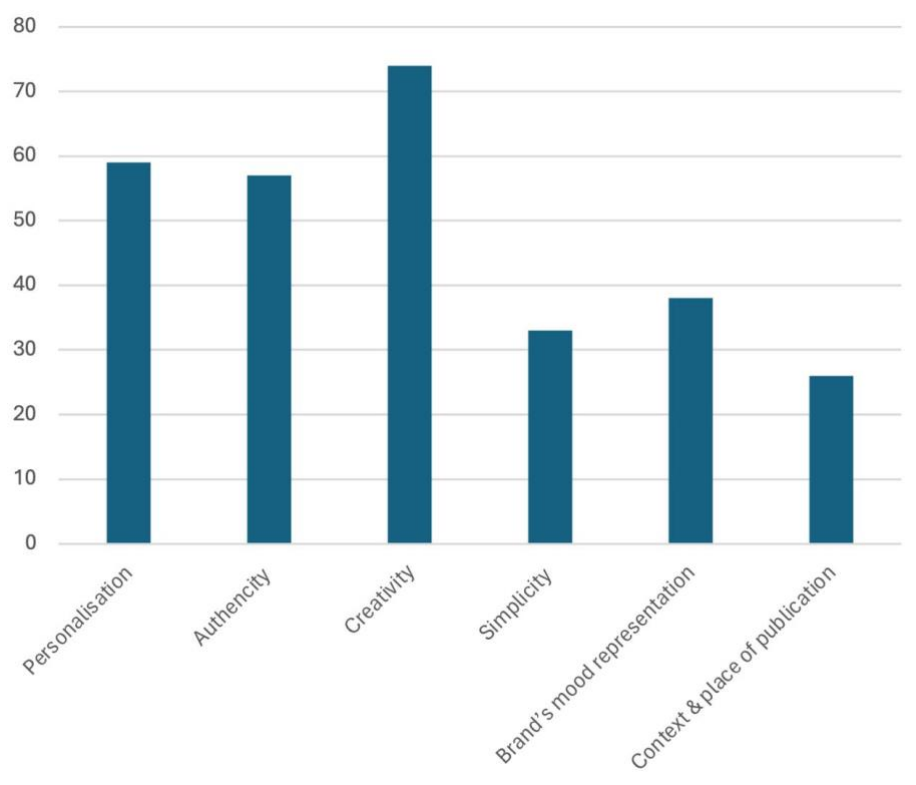


Figure 11 The factors influencing the survey participants' perception of advertising

The ninth question was to find out whether the respondents found AI-generated visual advertisements more effective in capturing their attention. The majority of Generation Z (36 respondents) chose "Yes". 32 people answered this question as "No". The remaining number of respondents (23) said that they did not know whether artificial intelligence-generated ads are effective in capturing attention.

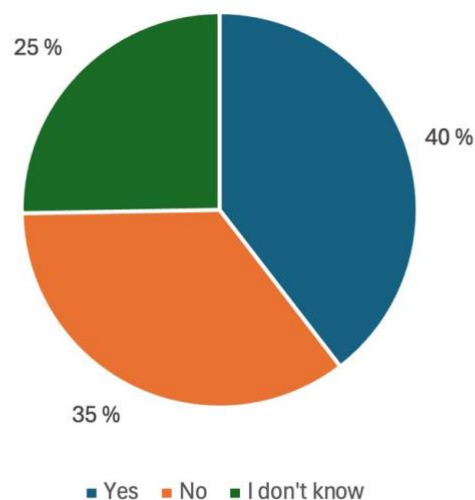


Figure 12 The opinion of the participants regarding the effectiveness of AI-generated visual ads

The next survey question was to find out if respondents' opinions would change in any way if a company switched completely to AI-generated advertising and openly admitted it. 13 respondents said they would have a more positive attitude towards the company. 15 respondents said their attitude towards the company would become more negative. Half of the survey participants (50) said that their attitude wouldn't change. 13 people said they don't know if their opinion of the company would change in any way if it switched to AI-generated advertising.

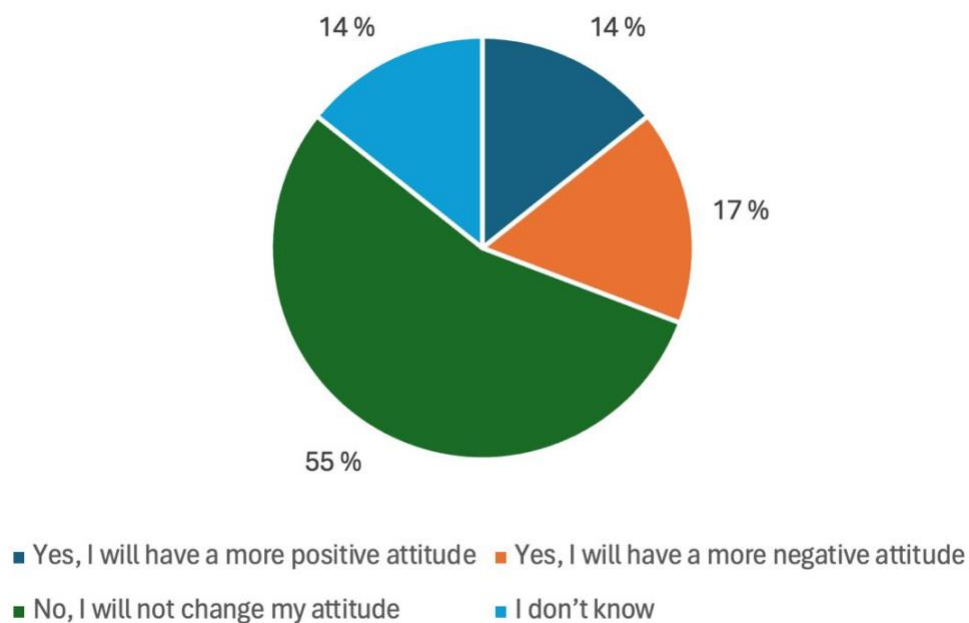


Figure 13 Opinion of the participants towards company using AI-generated advertising

Questions number 12, 13, and 14 were aimed to show which images respondents find more appealing: those created by humans or those generated by artificial intelligence. Question 12 presented 2 images of croissants where 64 people chose option 1 (AI-generated) and the remaining 27 respondents chose option 2 (human-made). In question 13, respondents were asked to select the chair image that they found more appealing. According to the results of this question, 56 people chose the first option (AI-generated) and 35 chose the second (human-made). In the last question, when choosing a watch image, 48 people chose the first option (human-made) and the remaining 43 chose the second option (AI-generated).

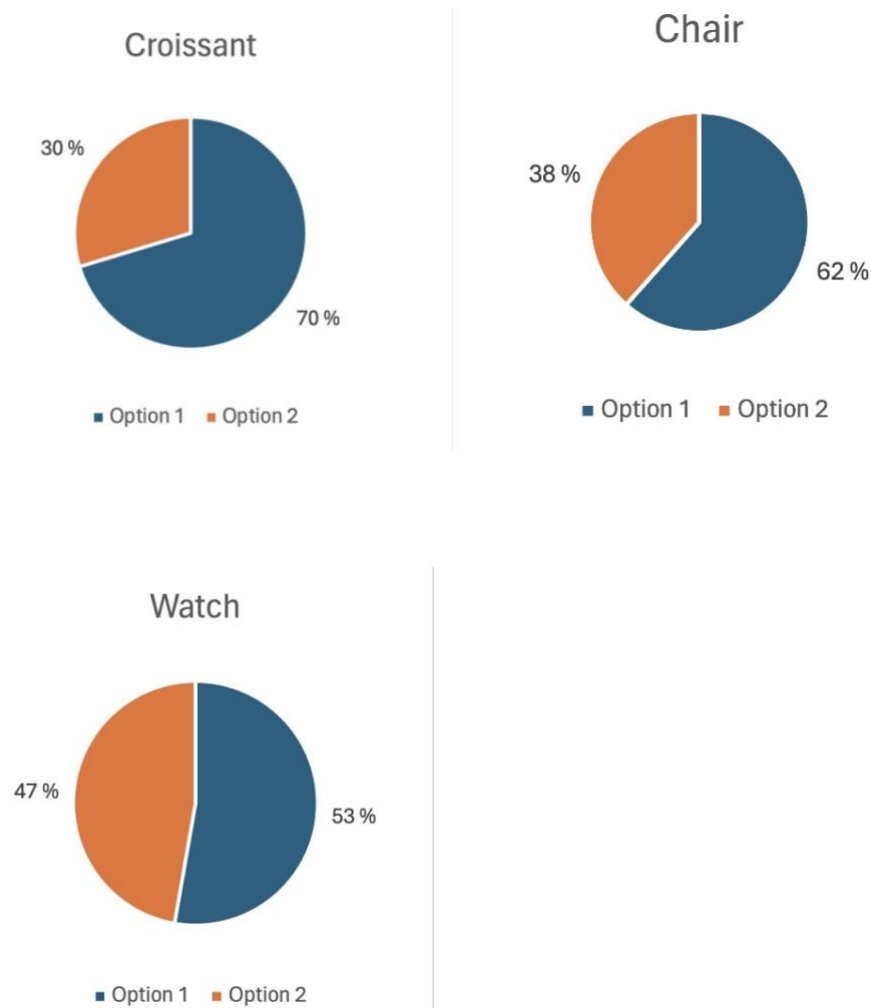


Figure 14 The attractiveness of AI-generated and Human-made images

Question number 15 was aimed at identifying areas where visual AI-generated advertising would be beneficial for businesses. The respondents were asked to choose at least 2 out of 4 possible options. Most survey participants (72 people) chose the "Website graphical parts design & apps" option. The second highest number of respondents (60) chose the "Social media posts" option. 50 people chose such area as "Product design". The 18 remaining respondents answered, "Printed advertisement".

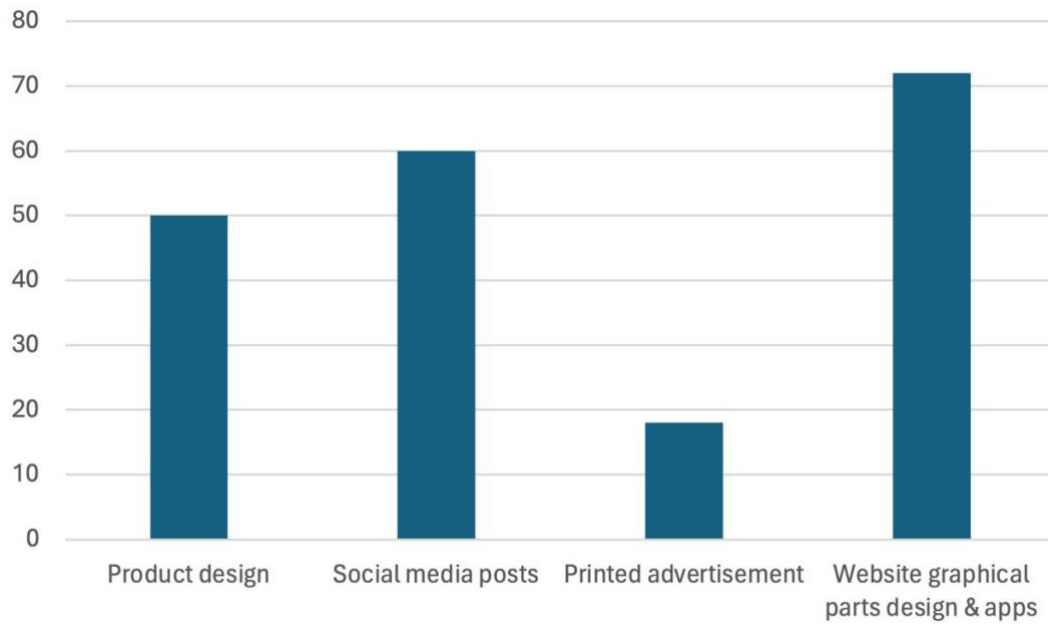


Figure 15 Areas where visual AI-generated advertising would be beneficial for businesses

The last question in the quantitative part of the survey was aimed to identify how the survey participants would respond to visual ads created by AI if it was tailored to match their interests. 21 respondents said they would respond very likely. 43 of the survey participants said they would respond likely. 21 people chose the “neutral” option. The number of people who would be unlikely to respond to such an advertisement is 4. The remaining 2 people in this survey indicated that they would very unlikely respond to visual advertising generated by AI if it was tailored to match their interests.

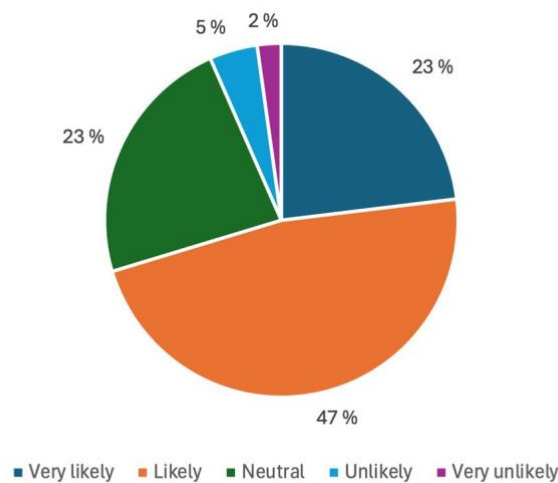


Figure 16 Response of the participants on AI-generated visual ads

Qualitative data results

91 participants from the target group took part in the survey, however not each of them has provided meaningful answers for the open-ended questions. Authors have carefully coded each response for each question and have determined key words. These key words collected after analysing answers for the first question were distributed into 7 different thematic groups, namely audience attraction, creativity and inspiration, cost efficiency, content modification, publication frequency, negative opinion, and areas of application. If one of the answers had several keywords, such as "saving resources" and "product design", it means that the respondent's comment was divided into two groups, such as cost efficiency and areas of utilization.

Positive attractiveness	Creativity and inspiration	Cost efficiency	Areas of utilisation	Improvement	Publication Frequency	Negative
16	18	34	Social media 6	6	7	8
			Promotion 4			
			Graphic design 4			
			Personalisation 5			
			Branding 5			
			Posters 2			
			Printed advertisement 1			
Sum of positive mentions:	81					

Table 2 Qualitative data results

The approach to qualitative data analysis was described in the Data Analysis chapter, but for a broader understanding, it is necessary to explain the process and principles of dividing responses by topic. There were only two open-ended questions in the survey, and the first question was aimed at identifying respondents' opinions on how businesses can benefit from using AI generated advertising.

The first thematic group "cost efficiency" has the largest number of mentions - 34. Answers in which contained such key words as "saving costs", "saving resources", "saving time" were assigned to this group. The most relevant comments in this topic group said that artificial intelligence in advertising leads to cost savings, since it does not require the active participation of many work units.

The next most popular topics raised by the participants in the first question were "Creativity & Inspiration" and "Audience attraction". In 18 responses, participants mentioned that AI images can be used as inspiration when creating images for advertising. Some participants suggested that it is possible to create references in AI software to recreate images manually while adding realistic details and semantic context. Also, those answers were attributed to this thematic group, in which

it was mentioned that Generative AI creates images with a high level of creativity and does not require any additional adjustments in uniqueness on the part of a human. 16 participants said about attracting the attention of the audience. In their opinion, AI creates images that are appealing enough to capture human attention. Many people think that AI advertising is engaging, these answers were also included in the group about AI advertisement attractiveness.

Six respondents mentioned that AI can be used to improve the quality of source images created by people. They suggest using AI to improve the design of existing products or to finish a sketch created by a human. At the same time, in most of the responses related to this topic group, it was mentioned that the quality of generated images from scratch is not yet reliable for immediate publications without editing.

The next thematic group is Publication frequency. It included responses from seven people who believe that by using AI, companies can produce a variety of image advertising in shorter frequency. Most of the respondents based their answers on the fact that it is necessary for the development of social media marketing. A few of them suggested utilizing AI for automated image creation for different audiences, for example, differing in cultural or demographic characteristics, creating various images to attract narrower targeted groups of potential customers.

Most of the respondents who gave a detailed answer about how businesses can apply AI visual content talked about specific areas of application. The answers related to this topic group were the most important for getting the result on the first open-ended question. The process of analysing this thematic group required the implementation of another level of coding, since it was important to count the mentions of each field of application separately.

Six people said that the most beneficial method of using AI generated images is creating publications on social media. When mentioning social networks in the answer to this question, people were saying that this allows to make publications with a shorter frequency. The next most popular field of application is graphic and product design. According to four respondents, AI can be used to improve the existing design of a product or the design of a website or logos. Five of the responses carried the idea of using AI for personalization and ad targeting. This could be a potential tool to increase brand loyalty and to improve public relations. It can be used in such cases when marketing campaigns consider holding an event or following real-time trends.

Even though the first question is direct and does not imply a manifestation of one's own attitude towards AI in the creation of images, the authors received five answers that partially express a negative opinion about the use of AI. According to some respondents AI cannot create high-quality images that could benefit businesses marketing campaigns. Someone does not trust the use of Image generators and believes that "AI is super scary". Some people think that this is completely unethical towards working units, since it occupies workplaces.

The process of results analysis for the second question had a two-stepped coding process. After reading each answer, the keywords were written out, in the same way as in the case of the first question. This question was designed in such a way that it was possible to collect different answers with the widest possible range of opinions and user experience. Therefore, the next stage of coding was the distribution of comments on the emotional spectrum. Each of the answers could be categorized into Positive or Negative experience. There were a few cases where responses contained multiple ideas belonging to different emotional groups or different experiences of the same person, so these answers were moved to both coding groups.

25 positive and 19 negative answers were collected. The answers to this question were especially important, as they could affect the subjective insights of representatives of Generation Z in Finland. Some of the questionnaire participants provided useful examples of successful implementation of AI generated images into marketing campaigns.

Most of the participants shared their positive experiences. According to their responses, AI images are impressive and innovative in the advertising market. Several participants shared good impressions about existing companies that openly use AI in creating marketing images and these images are of high quality. Some of the respondents shared their personal experience in creating AI images and most of them were impressed by how fast it was and how high the results were. However, two mentioned that it took them a while to figure out how to achieve the desired result in the AI generator.

Keywords from the negative responses had a much wider range in topics. At least 10 of the participants have mentioned ethical consequences. It's no secret that the job market for designers and artists is narrowing, as the need for human-made images is decreasing. The ethical issue is the decisive factor in forming an opinion towards usage of AI in marketing. The rest of the participants from the negative thematic group think that AI level is not good enough for creating images for

actual use, by saying that the AI content is soulless, and it is missing some very important parts that only human artists could recreate.

During the coding process, the authors decided to create a third thematic subgroup. Answers that do not have a bright emotional colour were placed there. Several participants claim that they cannot determine if the image was created by a human or artificial intelligence. Such responses were not accompanied by positive reviews about the high quality of the AI images. It can be assumed that the authors of such answers had mixed emotions about artificial intelligence. Also, there were several people who openly stated that they did not understand what artificial intelligence is, namely how it works and how the result of the work looks like.

Two participants shared interesting ideas about the prejudices about companies using AI images in marketing. According to them, scammers and fake businesses are found on the Internet that create AI-generated images of products that differ in quality from the real product. Therefore, receivers of such advertising have formed biases that companies using AI in their own marketing are dishonest.

In conclusion, the part about the results of the qualitative analysis of the data from the survey shows a multifaceted attitude towards the use of images created with the help of AI in advertising. The main results show that the most mentioned advantage of AI in advertising is economic efficiency, which is confirmed by significant savings in time, resources and labour for creation of high-quality content. Other topics that highlighted AI's ability to create innovative and engaging content are the use of AI to gain inspiration and expand the creativity of content, as well as the use for building strong audience engagement. Despite all the positive facts, there are also concerns about the ethical consequences and the quality of images, which can significantly worsen attitudes towards the brand. Many responders are concerned about the impact of AI on employment and express scepticism about the ability of AI to emotionally detain customers. These results highlight the need for a balanced approach to AI in advertising. The benefits of technology must be recognized, and ethical and emotional engagement issues must be considered. Understanding the fine lines is crucial in integrating AI technologies into a company's marketing strategies.

5 Conclusion

The purpose of this study was to identify the awareness of Generation Z from Finland regarding AI-generated visual advertising in marketing. As well as to identify certain factors that influence the opinion and attitude of the young generation from Finland towards AI-generated visual advertising. Additionally, the study aimed to determine the usefulness of AI-generated visual advertising for businesses and to understand if it helps in promotion of brands, goods, and services.

RQ1: "How aware is Generation Z in Finland of AI-generated Visual Advertising in Marketing?"

According to the results of the survey conducted in the study, it can be found that the younger generation in Finland is significantly aware of AI-generated visual advertising.

Referring to the answers of 91 respondents who fit the target group of the study, it was discovered that Generation Z in Finland is aware of AI generated advertisement. Results of the survey have showed that 85% of respondents have seen advertisement which was created by artificial intelligence. Consequently, 15% still do not understand or do not think about the difference of synthetic images. This was also confirmed in the results of the open-ended questions: people honestly share that they do not have extensive knowledge about the use of AI in image creation, so they may not pay attention to the differences or ethical consequences.

The survey conducted in the study revealed a high frequency of seeing AI-generated ads by generation Z. Out of 91 respondents, 35 respondents said that they see it several times a week, 23 respondents encounter it daily and 17 people come across it several times a day. These results indicate the young generation's frequent interaction with AI-generated ads, which contributes to their habituation of this type of advertising content.

Furthermore, it is possible to identify where the generation Z sees the AI-generated advertisement most often. Since the younger generation nowadays uses social media a lot, most respondents (74) said that they have encountered AI-generated ads there last time.

In summary, Generation Z in Finland is highly aware of such phenomenon as AI generated Visual advertisement and according to the survey primarily, they encounter it on social media most often. Based on a fact of a frequent interaction, it can be concluded that the potential of acceptance of synthetic advertising is growing among young people.

RQ2: "What factors form perceptions and attitudes of Generation Z in Finland towards AI-generated visual Advertising?"

For AI-generated visual ads to be effective, it is important to identify the factors that shape Generation Z's perceptions and opinions regarding them. In the survey among the target demographic group, respondents provided various factors that influence their attitudes towards artificially created visual advertisements.

Out of 91 survey participants, the majority (74 respondents) said that creativity is an important factor in advertising for them. In their opinion, artificial intelligence can create unique images that are appealing. 18 survey participants indicated that AI can be inspiring when producing creative advertising content. However, on a contrary, a few people have mentioned that the level of creativity of AI is not on a high enough level yet, but AI tools can be used for making references for inspiration of artists, who can improve the creativeness of the result.

59 survey participants indicated that personalization is a very important factor in advertising that shapes their attitudes and opinions about the company. Respondents indicated that they like advertisements that are customized to their interests and needs as it makes them even more attractive and relevant.

57 survey respondents mentioned authenticity as an important factor in any advertisement. The younger generation wants to see honest and transparent advertising that is trustworthy. The above 3 factors are the most important for Generation Z in Finland in shaping attitudes toward AI-generated visual advertising.

In addition, the survey revealed other factors that influence Generation Z's perceptions of visual advertising in Finland. 42 respondents said that the brand's mood representation is most important to them in advertising, 37 participants mentioned simplicity and the remaining 30 chose context & place of publication.

When creating visual ads using AI technology, companies should also consider ethical issues. Some survey participants are concerned about the consequences of using AI technology in creating advertisements. In their opinion, this can have negative consequences for artists and designers as it reduces the need for their work. Ethical issues are a very important aspect for the younger generation in forming an opinion about artificially generated advertisement.

A factor that also influences Generation Z's perception of visual advertising is the quality of images. In open-ended questions, respondents said that the quality of advertising images created by AI is not high enough yet to be used in advertising campaigns. Survey participants also said that artificially generated images are not soulful and emotional like those created by humans. This fact has a great impact on the perception of advertising by the younger generation.

For a smooth and beneficial implementation of silicon images into marketing campaign it is essential to take into consideration such factors as creativity, personalisation and authenticity, alongside with brand representation and simplicity. The content must be not only innovative, but also ethically produced and of high quality.

RQ3: Can businesses benefit from using AI-generated Visual Advertising in promoting their brands, goods, and services?

The study showed that companies can significantly benefit from using AI-generated visual advertising in promoting their goods or services and their brand. Specific benefits of the process of creating advertisements using AI technology will be listed below.

1. Increased creativity

In a survey conducted during the study, 18 respondents said AI can inspire for making creative advertising. The survey participants think that by using AI-generative models it is possible to create unique marketing images that do not require human edits. By utilizing AI, companies can introduce new approaches and incorporate interesting ideas into their advertising campaigns. Also, it will simplify process of content creation for human artists since they can get inspiration from AI content generation or use AI-generated images as initial canvas.

2. Cost-effectiveness

In the survey tested, 34 respondents said that using AI technology in image generation saves time, labour costs, and resources overall. The younger generation also noted that the use of AI does not require the involvement of many employees, thus reducing the cost of producing ads and increasing profitability. According to recommendations of a few surveyed, it is especially beneficial for small businesses and startups to implement AI into their marketing campaigns.

3. Audience engagement

16 survey participants said that AI-generated ads can help to attract the attention of the target

audience. Respondents believe that ads created by AI are very appealing and can hold people's attention, which ultimately improves interaction and increases customer engagement.

Based on the initial theoretical framework of the study, it was found that some images created by AI (such generative models as DALL-E2 and Stable Diffusion) collect more likes and comments compared to those created by humans. In addition, it was found that AI-generated images exhibit high CTR (Click-Through Rate), which shows their effectiveness of advertising.

4. Specific applications

The respondents who participated in the survey mentioned that AI can be useful in certain areas. 72 survey participants believe that AI can help produce graphic elements of websites and apps. 60 survey participants said that AI can be useful in developing social media posts. According to the collected answers to the open-ended questions, young people see that the most beneficial application of AI-generated images is utilising them on the social media flow. They have also mentioned that AI can be used in different spheres of graphic design, since it can draft the initial samples and reduce routine work.

5. Frequency of publication

Several survey participants said that AI can make it possible to produce and publish advertising materials faster and more frequently, which is very important for marketing. Respondents believe that AI automates the process of creating and distributing images, which can increase the effectiveness of advertising campaigns, which is true, since AI reduces time spent on one task.

6. Personalization and targeting

5 survey respondents believe AI can be used in the development and distribution of targeted advertising, and personalization, which improves engagement with audiences, increasing their loyalty. According to them, AI can better customize advertising messages based on consumers' interests and needs. Implementing AI technologies in business marketing campaign helps in reaching, narrower demographical and cultural groups.

Based on the above factors, it can be noted that the use of AI can help businesses promote brands, goods, and services by increasing the effectiveness of marketing campaigns, saving resources, and improving audience interaction. However, using AI technologies, companies should consider ethical and qualitative aspects to ensure consumer trust and loyalty.

Thus, the use of AI in marketing strategies to create visual advertisements gives business many benefits, from saving time and resources to developing the quality of advertising content, they need to be careful and consider the possible threats of using AI technologies.

6 Discussion

6.1 Assessment of result and process quality

In the research "Perceptions of Generation Z in Finland on Visual AI-generated Advertising" qualitative and quantitative data was collected, both primary and secondary. It is very important to assess the quality of the data collection process to produce valuable results and reliable conclusions.

The main way of collecting primary data in this study was surveying 100 participants representing Generation Z in Finland. The primary data's objective was to ensure qualitative and reliable survey findings.

The steps to collect high-quality primary data

1. Designing and testing of the survey

The questions were short, clear, relevant, and fully reflected the topic of the study. Before sending out the survey to all participants, a pilot test was conducted among a group of a few people who were the target audience for the study. This process helped in identifying and coping with errors in the survey, making it better and more accurate.

2. Respondent selection methodology

The study authors performed purposive sampling to select survey participants and chose people who represent Generation Z (15-27 years old participants) and fit the demographic criteria of the study topic. This sampling method produced relevant results.

3. Data collection process

The survey was conducted online, allowing participants to respond at a convenient time for them. In addition, the survey was anonymous, which allowed participants to express their thoughts

freely and to be honest in their responses. The authors of the study also instituted information validation checks to minimize potential inconsistencies and response errors.

4. Data cleaning and analysis

Upon completion of data collection, the authors performed statistical analysis in Excel software. The data obtained was cleaned and non-relevant responses were removed.

Quality of secondary data

For the theoretical framework, the authors used secondary data that was collected from reliable and relevant sources. Secondary data provides the theoretical background and context of the study, which is why its quality is important.

Ways to achieve high-quality secondary data:

1. Reliability of data

The secondary data had been collected from research articles, journals, academic books, and other reputable sources. In addition, the authors referred to the basic rules and methods in the research process.

2. Comprehensive Coverage

The secondary data collected in the study described the aspects of AI relevant to the marketing strategies needed in the study, as well as the characteristics and preferences of Generation Z and the context of the Finnish market. The comprehensive approach introduced in the study helped to produce a full overview and provided a theoretical framework.

3. Relevance of the study

The data collected in this study fulfils the objectives of the study and answers the research questions. Most of the sources referred to in the study are fresh and relevant and show the current state of knowledge and applications in the field of visual advertising generated by AI.

Balanced information collection

Throughout the study, the authors collected primary and secondary data in a systematic and balanced approach.

1. Systematic literature review

To gather reliable secondary data the authors followed a systematic literature review process, selecting and analysing sources that are relevant to the research topic. This process helped to provide a balanced view of the findings in the literature.

2. Even distribution of data

The survey conducted in the study captured several cities and regions in Finland, which made it possible to examine different perspectives of Generation Z and increase the generalizability of the findings.

The high quality of primary and secondary data is the basis for the reliability and validity of the study "The Perception of Generation Z towards AI-Generated Visual Advertising".

Adhering to certain research methodologies, the authors developed a research strategy, and selected and analysed the survey data, which helped to ensure the accuracy and reliability of the collected responses.

The selection of reliable and relevant sources for secondary data collection ensured that a good theoretical basis for the study was established. These two processes contributed to the validity and reliability of the study, providing useful insights for academic researchers and for businesses looking to improve their marketing strategies.

6.2 Theoretical and practical contributions

Theoretical contribution

This study helps to understand how Generation Z in Finland perceives AI-generated visual advertisements, which is important since this field is not fully studied. The data obtained from this study will help to understand how modern technology influences marketing strategies and consumer behaviour. The research adds new knowledge about the factors influencing the attractiveness and effectiveness of AI-generated visual content to engage the younger generation.

Identifying and tracking these factors will help to understand how people's opinions and preferences are changing in the digital age.

This research work also deepens the already existing knowledge regarding the role of visual stimuli in advertising. By studying AI-generated visual content, it is possible to explain how technology shapes consumer opinions and preferences. The information gathered can be useful for future research in marketing.

Practical contribution

From a practical perspective, this research provides important information for businesses that target Generation Z. If companies want to implement AI-generated visual advertising, they can utilize the information from this study. By understanding the desires and preferences of the age group, marketers can produce advertisements that appeal to the audience. The study is based on young consumers from Finland and shows that the use of AI technology can create advertisements that are attractive to Generation Z.

This research points to certain recommendations for marketers to help create and distribute appealing advertising campaigns. Businesses can apply the findings of the study to improve their advertising strategies and make them attractive to young consumers. The study shows the effectiveness of using content created with AI technology in marketing since it increases brand engagement.

6.3 Limitations of the study and future directions

The study "The Perception of Generation Z towards AI-Generated Visual Advertising" has some limitations in the study as well as directions for further research which must be defined for a correct results interpretation. This chapter will describe both points in detail.

Limitations of the study

The first limitation of the study is the small number of survey respondents, namely 100 people interviewed in Finland, which makes it difficult to generalize the results. According to Saunders et al. (2019), it is difficult to generalize the results due to the small sample size. It is also difficult due to a selection of a specific demographic group (Generation Z) in a small country like Finland.

The second limitation of the study is the geographical context. The unique characteristics as well as the small size of the country (Finland) on which the study focuses may limit the application of the results of the survey to other countries, as they have different cultural characteristics and socio-economic conditions. Context plays an important role in the study and since the study is specific and focused on only one country, the results cannot fully reflect global trends and perceptions.

The third limitation of this study is the specific form of visual advertising. The study was focused only on generated visual advertising in the form of static images. Other kinds of content such as personalized ads, videos, and gifs created by AI were not addressed in this study. As mentioned by Saunders et.al (2019), it is very important to clearly define the boundaries of the study, but these boundaries can narrow the scope of the research findings.

The next aspect is technology and market trends. The creation of visual advertising by AI-generative models is a new trend in marketing, and accordingly, the development and prevalence of such advertising varies from market to market. Finland is a small country and therefore it has a small market and may have limited exposure to AI-generated visual advertising compared to larger and more technologically advanced market landscapes.

Future development directions

The first prospect of developing this topic may be to expand the scope of the research. In the future, other authors may expand the scope of the study to include other forms of AI-generated advertising besides static images. It can be interactive visual materials or personalized advertising. This would help to gain a better understanding of Generation Z's interactions with AI-generated advertising.

A second area of research could be cross-cultural comparisons. Studies comparing Generation Z in different countries or regions can provide information about cultural differences as well as perceptions and opinions regarding AI-generated advertising. According to Saunders et. al (2019), cross-cultural research is very important to understanding global trends and behavioural patterns.

The next option for the development perspective could be to conduct a long-term study. Conducting a longitudinal study would help to determine how people's perceptions and opinions

about AI-generated visual advertising change over time as technology evolves and consumer preferences change.

A further example of a research perspective could be the use of qualitative methods. In addition, this study can be supplemented with qualitative methods such as interviews or focus groups. This could help to gain a deeper understanding of the young generation's perceptions and attitudes towards AI-generated visual advertisements.

A final example of research development could be the expenditure of the objected demographic group, specifically including members of other generations such as Generation Y, Generation X, and Baby Boomers. This would allow a broader knowledge and opinions about artificially generated advertising to be gathered not only from young people but also from older generations.

Despite the quality and importance of the findings regarding the perception of Generation Z in Finland of AI-generated visual advertisements, it is necessary to understand the limitations and perspectives of the research. By paying attention to the possible study perspectives mentioned above, future researchers can conduct a more in-depth analysis of the impact of AI on marketing strategies and consumer behaviour.

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Appendices

The Survey

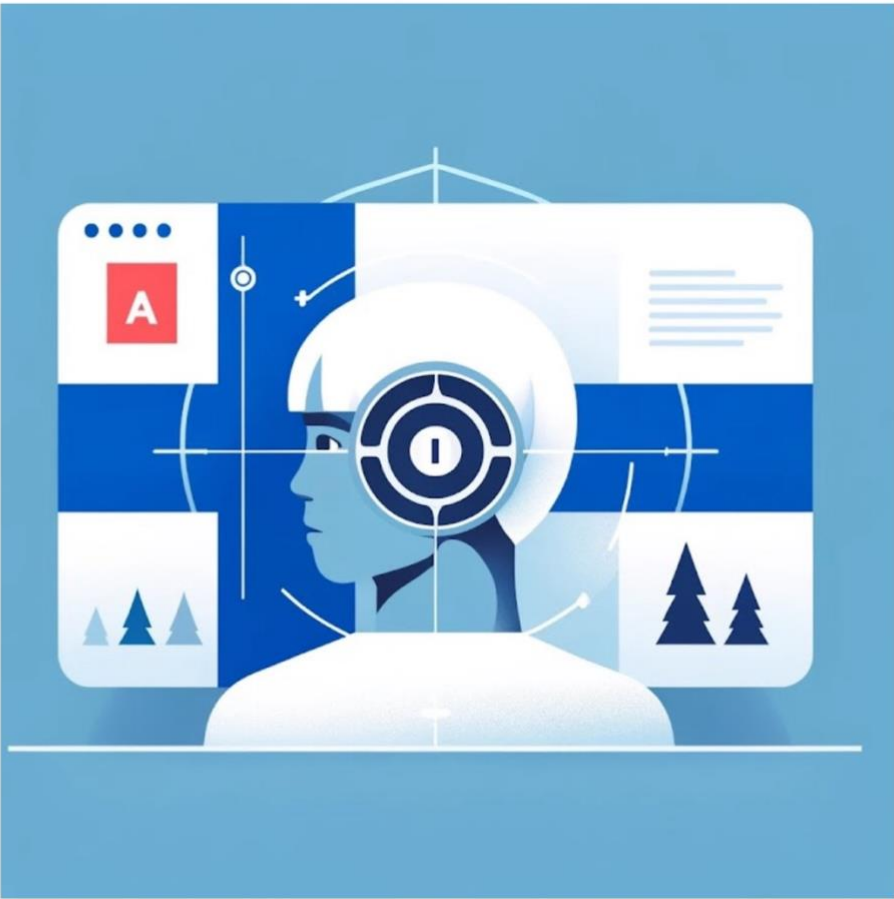
Perception of Generation Z of AI Generated Visual Advertising in Finland

This survey was designed to investigate the level of awareness, perception, and attitudes of Generation Z towards AI-generated visual advertisements in the Finnish market. The questions were carefully selected to ensure that they covered the most significant aspects of our research goals and allowed us to gather the data needed to draw conclusions and understand the results of our research clearly.

Not shared

* Indicates required question

What is your age? *



15 - 27 years

28 - 43 years

- 15 - 27 years
- 28 - 43 years
- 43 - 43< years

Do you live in Finland? *

- Yes
- No

If yes, in which city do you live?

Your answer _____

Have you heard or seen advertisements that you believe were created using artificial intelligence technology? *

- Yes, I have seen several advertisements that I believe were created using AI technology
- Yes, I have seen a few advertisements that I believe were created using AI technology
- Yes, I have seen one advertisement that I believe was created using AI technology
- No, I haven't seen any advertisements that I believe were created using AI technology
- I don't know

How do you think, how often do you encounter online visual advertisements which was generated by AI? *

- Several times a day
- Every day
- Several times a week
- Rarely
- Never



How do you think, how often do you encounter online visual advertisements which was generated by AI? *

- Several times a day
- Every day
- Several times a week
- Rarely
- Never

Where did you encounter AI-generated advertising last time? *

- Social media
- Webpages or articles
- Mobile apps
- Advertising in print media
- Other (please specify)
- Other: _____

Did the advertising that you have encountered leave a positive impression on you? *

- Yes, it left a very positive impression
- Yes, it left a somewhat positive impression
- It did not leave any impression
- It left a somewhat negative impression
- It left a very negative impression

Do you prefer AI-generated visual advertising images compared to human-made images? *

- I prefer AI - generated images



Do you prefer AI-generated visual advertising images compared to human-made images? *

- I prefer AI - generated images
- I prefer human-made images
- It doesn't matter for me

How do you think, what factors influence your perception the most? *

Please pick 3 options

- Personalisation (content tailored to individual preferences)
- Authenticity (content originality and genuineness)
- Creativity (innovativeness and uniqueness)
- Simplicity (easiness in perception)
- Brand's mood representation
- Context & place of publication
- Other: _____

Do you believe that AI-generated visual advertisement is more effective in capturing your attention? *

- Yes
- No
- I don't know

Brand X has started using fully AI-generated advertising openly. Will you change your attitude towards this brand? *

- Yes, I will have a more positive attitude
- Yes, I will have a more negative attitude
- No, I will not change my attitude
- I don't know

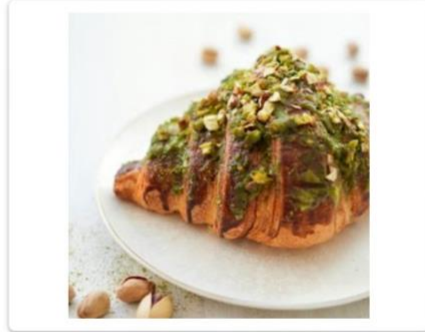


Below you will find a few picture pairs. Please pick the ones that you find more attractive to you.

Which one do you find more appealing to you? *



Option 1

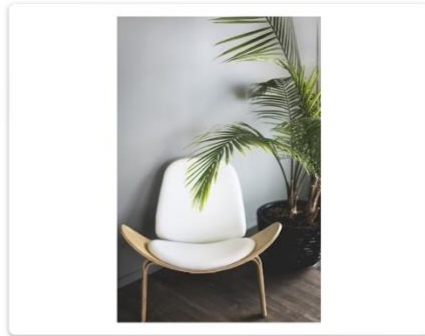


Option 2

Which one do you find more appealing to you? *



Option 1



Option 2

Which one do you find more appealing to you? *



Option 2



Option 1



How do you think, in which areas Visual AI Generated advertising would be more beneficial for businesses? *

Please pick 2 options

- Website graphical parts design & apps
- Social media posts
- Printed advertisement
- Product design

How likely would you respond to a visual ad created by AI if it was tailored to match your interests? *

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

In your opinion, how businesses could utilise AI-generated visual advertising to benefit themselves? *

Your answer

Is there anything else you would like to share about your experience or thoughts on AI-generated visual media in advertising? *

Your answer

Back

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