LAB University of Applied Sciences

The impact of artificial intelligence on the future of digital advertising

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Abstract

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Abstract

This thesis examined how artificial intelligence may shape the future of digital advertising. It explored the current applications of AI in advertising, consumer familiarity with AI-driven tools, user behaviour, and associated ethical concerns. The study combined a review of existing literature with primary data collected through an online consumer survey. The findings indicate that AI tools are becoming increasingly integrated into everyday digital environments, contributing to both greater efficiency at daily tasks and more personalized advertising experiences. However, the study also revealed that many consumers are worried about data privacy and whether current regulations are strong enough to protect them. Examining these trends and concerns, the research contributes to an understanding of how AI is likely to transform digital advertising. This includes the rise of hyper-personalization, automated content creation, and evolving consumer expectations. The research concludes by highlighting the necessity for greater transparency in how personal data is managed in digital advertising and the importance of prioritizing user trust as AI becomes more deeply integrated into both digital marketing practices and consumers' daily lives.

Keywords

AI, artificial intelligence, digital advertising, advertising, future, marketing, customer behaviour

Contents

Abbreviations

AD – Advertisement

AI – Artificial intelligence

AR – Augmented reality

CPC – Cost per click

CPM – Cost per mille (thousand impressions)

DL – Deep learning

EPRS – European Parliamentary Research Service

GDPR – General data protection regulation

GPU – Graphics processing unit

ML – Machine learning

NLP – Natural language processing

PPC – Pay per click

VR – Virtual reality

1 Introduction

1.1 Background

For many years, Artificial Intelligence (AI) felt like a distant concept, something we encountered mostly in science fiction movies. While early forms of AI, such as website chatbots, have been around for a while, they were often seen as frustratingly limited, providing generic and unhelpful responses.

Today, however, the situation has changed a lot. AI has evolved at an incredibly fast pace, converting from an almost unknown concept to an essential part of our everyday lives. The release of user-friendly AI tools like OpenAI's ChatGPT and Google's Gemini (formerly Bard) has brought AI into our daily lives. AI is no longer a futuristic idea; it is a reality that is rapidly transforming how we live and work. It is now accessible to everyone, from students using it to get help with their homework to businesses using it for customer service, content creation and advertising.

AI's fast growth plus entry into digital advertising comes with both significant opportunities and challenges for the industry. On one hand, it promises more efficient campaigns, better customer experiences, and improved understanding of consumer behaviour. On the other hand, it raises important concerns around data privacy, algorithmic bias, and the possible misuse of personal information. (Odeibat 2024.) Since the current situation is still developing and changing, companies that want to use AI effectively need to be ready to deal with the ethical and practical issues it brings. This research aims to help make sense of these changes for both professionals working in the industry and consumers who are affected by them in their everyday lives.

1.2 Objectives and research questions

The main objective of this thesis is to explore how artificial intelligence is expected to shape the future of digital advertising. In order to understand where current developments are going, this thesis first examines how AI is being used today in areas like content creation, personalization, and programmatic ad delivery. Another important focus is how consumers perceive these changes, how familiar they are with AI, how they interact with it, and what concerns or expectations they might have as AI becomes more integrated into everyday

digital experiences. Ethical questions such as data privacy, algorithmic bias, and misinformation are also addressed, particularly where they affect consumer trust and future adoption.

Based on a combination of primary and secondary sources, this thesis aims to answer the following questions:

1. How is AI currently being used in digital advertising, and what are some of the most common AI tools and applications?
2. How common is AI usage amongst consumers and what AI tools are they most familiar with?
3. What concerns do consumers have about AI in advertising?
4. Based on current trends, what direction does AI in advertising appear to be moving toward in the near future?

1.3 Thesis scope

The main focus of this research is on the future of AI in digital advertising. While the theoretical chapters include an overview of past and current developments, these are used primarily to build a foundation for understanding what may come next. The thesis is limited to AI-driven methods within digital advertising and does not address offline marketing strategies or traditional forms of advertising. Special attention is given to the consumer perspective, particularly how people today respond to AI tools and how those responses may shape future expectations and adoption.

This thesis does not aim to explain how to build or program AI systems, nor does it focus on the underlying technical infrastructure, algorithms, or hardware. It also does not provide tutorials, technical comparisons between software tools, or detailed guides on how to implement AI solutions.

Other AI applications outside of advertising, such as those in healthcare, finance, or manufacturing, also fall outside the scope of this research. Because AI is a rapidly evolving field with many tools and models, this thesis highlights only the most relevant and widely used examples in advertising. The aim is not to provide a technical breakdown of every framework, but rather to offer a clear understanding of how AI is being applied in this specific area and how it may continue to develop.

1.4 Theoretical framework

The thesis is built on a combination of secondary and primary research, with the aim of understanding how artificial intelligence is influencing the present and future of digital advertising. Secondary sources include recent academic articles, industry reports, case studies, and published theses, which help explain how AI has evolved, how it is used in advertising today, and what future developments are expected.

Primary data comes from a consumer-focused survey, which focuses on how familiar people are with AI in advertising, how they use AI tools, and how they feel about AI being used in advertising. The survey also explores some of the concerns consumers have, such as data privacy and trust in current regulations. The goal is to bring together theoretical knowledge and real-world perspectives to build a more complete picture of how AI is shaping both the advertising industry and consumer experiences.

Rather than relying on a single theory or model, this thesis draws on insights from a range of recent studies to form a broader understanding of the topic. While some frameworks such as the Privacy calculus theory are briefly referenced in relation to consumer concerns, the overall aim is to explore the relationship between AI, advertising, and consumers, with a focus on how these dynamics may continue to evolve.

1.5 Data gathering and analysis

This thesis uses a consumer-focused online survey as the primary method of data collection. The survey was created to better understand how people feel about the growing use of artificial intelligence in digital advertising. It includes multiple-choice, scale-based, and a few open-ended questions. These were designed to measure how familiar people are with AI, how often they use AI tools, how confident they feel using them, and what their thoughts are about AI in advertising. The survey also examines consumer views on ethical considerations surrounding AI in advertising, including data privacy and trust in AI technologies.

The survey was shared online and aimed at reaching a general audience rather than a specific demographic. This was done to ensure a wide range of responses from people with different backgrounds, ages, and fields of work or study. The goal was to gather insights that reflect how ordinary consumers not just industry experts experience and understand AI in advertising. The results were analysed using simple statistics and grouped themes to identify patterns in awareness, usage, and attitudes.

2 The early stages of AI and digital advertising

2.1 Defining AI and its early days

Before looking deeper into AI's early days, it is important to first define what AI means. Most people know that AI stands for Artificial Intelligence, but what exactly is it? Many associate AI with a physical entity, like a humanoid robot that can talk and perform various tasks—an idea shaped by books and TV shows. However, in reality, AI is not a single item or concept, but a collection of different technologies. All of which share the same goal of imitating human thinking and solving various tasks. AI uses machine learning to follow patterns, process data, and create responses based on what it has learned, but it does not actually understand what it is doing, it only knows and does what we teach it. (Clark 2024, 12-21.)

The 50s was an important decade for the early development of AI. It is when Alan Turing published his paper *Computing Machinery and Intelligence* (1950), where he discussed the idea of machines being able to think like humans and ways to test their intelligence. This is where the famous Turing test originated from, a method still used to this day to see whether a machine can be considered intelligent. According to the test, if a human cannot distinguish a machine from another human being while speaking to it, the machine can be considered intelligent.

Around the same time, researchers started working on ways to teach computers to solve problems that required logic and reasoning. This led to early AI programs that could do tasks like play chess, proving that machines could perform tasks previously thought to require human intelligence. In 1956, at the Dartmouth Conference, John McCarthy introduced the term *artificial intelligence*, officially giving a name to a concept that would come to change the industry as we know it, only a few decades later. The 1960s brought more progress. One of the first major breakthroughs came in the late 1960s with Joseph Weizenbaum's ELIZA, the first chatbot ever created. ELIZA could have basic conversations by following a script, it responded based on patterns provided to it. Even though it was limited, ELIZA showed that computers could interact with people in a way that felt somewhat natural, paving the path for future AI chatbot technologies. (Haenlein & Andreas 2019.)

2.2 The beginning of digital advertising

It can be hard to believe that there was once a time without the internet and when digital advertising did not exist, but in reality, they are both relatively recent inventions. The highly personalized and automated advertising that we have gotten so used to today, only became possible with advancements in AI, however, the foundations for AI-powered digital advertising were laid already decades earlier.

Despite progress in the AI sector slowing down after the 1970s, development never stopped. By the early 1990s, the world was first introduced to the internet as we know it today, and with it came the first-ever digital banner ad as seen in Figure 1 (LaFrance 2017). This marked the beginning of visual digital advertising, but at this stage, ads were still very basic, usually mixes of colours and words.

Figure 1. The first banner ad (AT&T 1994)

It was not until a decade later, though, that AI truly stepped into the digital advertising scene. The early versions of Google Ads, launched in the early 2000s, are often said to have revolutionized digital advertising. One of the most important innovations was Google's ad-ranking algorithm, which analysed keywords and user searches to decide which ads to show to the user. This was an important moment because for the first time ads started to become personalized instead of being the same for everyone. (Geddes 2010, 1–40; Google 2003.)

This form of advertising where ads are displayed based on keyword searches is known as Pay-Per-Click (PPC) advertising. PPC is a broad term for any model where advertisers pay only when a user clicks on their ad. Within PPC, Google primarily uses the Cost-Per-Click (CPC) model, where advertisers bid on keywords and set a maximum amount, they are willing to pay per click. This system ensures that businesses are charged based on actual user engagement rather than just ad impressions. When Google Ads first launched in 2000, it did not initially use PPC. Instead, Google’s early model was Cost-Per-Thousand-Impressions (CPM), meaning advertisers paid based on how many times their ad was displayed, regardless of whether users clicked on the ad. Now, it is important to note that Google did not invent the idea of keyword-based advertising or PPC. Companies like GoTo.com (later Overture) had already introduced PPC advertising in the late 1990s. However, Google took the concept to a much larger scale and made it more efficient and accessible. Instead of simply ranking ads based on who paid the most, Google introduced a smarter system that

also considered ad quality, expected click-through rates, and how relevant the ad was to the user's search. Google 2003; Fain & Pedersen 2006; Geddes 2010, 1-40; Ungureanu & Popescu 2022.)

These innovations in automated ad ranking and targeting were just the beginning. As technology advanced, AI started doing more than just matching ads to searches. Digital advertising that started as simple static banners would soon be transformed to something much more personal thanks to the evolution of new AI tools.

2.3 The evolution of core AI technologies

As the world continued to grow more digital, the needs and possibilities of digital advertising also evolved. According to Simon (2013), a major turning point was the rise of Web 2.0, which completely changed the way people used the internet. Before this, the internet was mostly a place to find and read information, but with Web 2.0, also called the social web, online behaviour changed. Social media, blogs, and video platforms became part of everyday life, and suddenly, people were not just consuming content, they were creating and sharing it.

Simon (2013) also explains that with this change, the amount of digital information being generated grew faster than ever before and Big Data, a term used to describe the huge and constantly growing amounts of digital information created by users, quickly became one of the most valuable resources for companies. Due to this, the need to find ways to better use and make sense of this information also emerged. AI and automation play a big role in this by analysing big amounts of data, identifying patterns, and noticing trends that might not be immediately noticeable to the human eye.

A big breakthrough in AI came with advancements in deep learning. Deep learning, a subset of machine learning, uses artificial neural networks that mimic how the human brain processes information. These networks extract patterns from data, helping AI improve its ability to analyse images, speech, and text. Although deep learning is not a new technology either, it did not start to take off until computers became powerful enough to handle large amounts of data, something that has only become possible in the last couple of decades. Faster processors, like GPUs (Graphics Processing Units), allowed AI to process data at much greater speeds, significantly improving its ability to learn and adapt. With these advancements, AI became less dependent on constant human input, as it could now learn from large datasets and refine itself over time.

Another advancement that was greatly improved by deep learning and has become one of the most fundamental technologies in AI is Natural Language Processing (NLP). NLP allows machines to understand, interpret, and generate human language. The ability to process larger volumes of information with high accuracy has led to the creation of modern chatbots, virtual assistants, and AI-generated content, transforming how we interact with AI technology. (Di, Bhardwaj & Wei 2018; Johri et al. 2021; Shrifani & Amini 2023.)

The rapid advancements in AI have shaped the systems we use today. Still, the technologies covered in this section are only a small glimpse into a much larger and constantly evolving field. There are countless models, frameworks, and systems designed for different tasks and industries, all working together to push AI forward. Understanding them helps create a clearer picture of AI's evolution and why it is capable of so much today. As AI continues to evolve, its impact on industries like digital advertising and beyond will grow in ways we are only just beginning to understand.

3 AI and advertising today

When ChatGPT was released in 2022, life as we knew it changed. The previous sections of this thesis discussed how AI is not a new technology. However, despite having been known to professionals and researchers, it was not something the general public had paid much attention to. Many have been using AI-powered technologies for years without even realizing it. It has simply been something that works silently in the background, similarly to the way phones and computers are used without knowing exactly how they function. The release of ChatGPT, however, created a global phenomenon that suddenly brought AI into the lives of everyday people.

ChatGPT has become so widely recognized that some people have started to use it as a synonym for AI, similarly to how “Googling” has become a synonym for searching for information online through a search engine. According to a recent study, people have even begun relying on generative AI instead of search engines to quickly find information or answers to their questions. (Rowlands 2025.) While that shift comes with its own risks, it shows just how fast AI has been adopted into daily life.

If people had been asked just five years ago about their thoughts on AI, many would have most likely based their answers on what they had seen in movies, perhaps stories of machines taking over the world or computers becoming smarter than humans. Others might not have even known what AI was. Today, however, nearly everyone with access to the internet has heard of it, and it is already shaping industries in ways that few could have predicted. One of the biggest shifts has happened in digital advertising. In the past, perhaps the best way to get your product or company known was through methods such as physical newspapers, radio, and billboards Although these traditional methods are still used, digital advertising has become the most popular form of advertising today. As of 2025, it accounts for nearly 73 percent of global ad spending, and this percentage continues to grow each year. (Thomas 2024.) Businesses have already started to move most of their marketing budgets online. For many of them, the return on investment of digital advertising is significantly better than with traditional advertising, especially when ads are tailored to the right audiences. (Lalramchuani & Sharma 2022.)

AI has helped accelerate this transition. As digital advertising has grown, AI-powered technologies have made it even more efficient, allowing companies to reach audiences more effectively. For example, AI helps businesses decide which ads to show to different people based on their interests and browsing habits, making advertising more personalized. Additionally, AI can help businesses adjust their marketing strategies by analysing trends and predicting what customers might be interested in. (Kumar et al. 2024.)

3.1 Main types and most common uses

The two main types of AI used today are Generative AI and Predictive AI. Both fall under narrow AI, also known as weak AI, meaning that they are created for specific tasks, rather than using human level general intelligence. (Rodríguez De La Serna 2024, p. 23.)

Generative AI is what people are most familiar with. It creates new content such as text, images, videos, and music (Marr 2024). It is widely used in everyday applications, from assisting with homework and drafting emails to generating digital art. Chatbots like ChatGPT, Gemini, and DeepSeek are also examples of generative AI. Many companies have integrated generative AI into their products. Adobe, for example, has added AI-powered tools to its design software, making tasks like photo editing and content creation faster and easier for everyone.

Predictive AI, on the other hand, is mainly used to analyse and predict future outcomes based on past data. It helps companies improve their strategies and make more informed decisions. Predictive AI is commonly used in many different industries such as finance, healthcare, and marketing. One of its most well-known applications is in recommendation systems, which are used to make personalized suggestions based on user behaviour. Streaming platforms like Netflix use recommender systems to suggest shows and movies to users, while e-commerce sites like Amazon analyse customers shopping habits to offer more personalized product recommendations. When companies want to take predictions and turn them into better decisions, they can use prescriptive AI. It looks at the available data and suggests actions that are likely to lead to better results. In marketing, for example, it might recommend moving more budget to an ad that is working well or choosing a different audience if the current one is not responding. This helps companies act on insights more easily and improve their performance. (Zhang et al. 2020; Marr 2024; Rodríguez De La Serna 2024, 23.)

3.2 Advertising automation and ad creation

AI has become one of the most powerful tools in modern advertising, completely changing the way companies reach their audiences. According to Tanase (2021), tasks that once required large teams, can now be automated and optimized by AI. It has made advertising more efficient, more personalized, and reduced the manual workload for marketers. Gao et al. (2023) add that AI can watch how people behave online in real time, quickly figure out which ads work best, update campaigns right away, and deliver personalized ads without human intervention This helps advertisers save time, improve campaign performance, and ensure that ads reach the right audience at the right moment (Tanase 2021, 24-29; Gao et al. 2023).

Beyond placing and adjusting ads, AI is also used to help with advertising content creation. As explained by Chintalapati and Pandey (2021), it can generate different versions of advertisements, suggest improvements, and even assist in designing visuals. This gives marketing teams the chance to test ideas and make changes faster. While AI does not replace human creativity, it helps speed processes and offers more ways to customize ads.

While AI is already playing an important role in how advertising is planned, created, and delivered, its development is far from complete. The tools and strategies being used today are still evolving, and many of them are only just starting to show their full potential. To understand the direction AI might be taking next, the following chapter looks ahead and explores how AI is expected to shape the future of digital advertising.

4 Future of AI in advertising

AI is sure to affect many industries and lives in the future. As this thesis has already shown, it has had a noticeable impact on how people live, work, and interact with advertising. Although the future has not been written yet, it is safe to say that AI will become even more deeply integrated into daily life and business operations.

As technology advances, so do the systems that power AI. Under Moore's Law, which is a way of describing the rapid improvements in computer technology, computing power is said to roughly double every two years (Tardi 2024). But according to Microsoft CEO Satya Nadella (2024), AI capabilities are now doubling roughly every six months, following new kinds of scaling patterns. This shows just how fast AI is currently evolving. Nadella also noted that if this pace continues, AI might soon be able to solve problems so complex that they are hard for us to even imagine right now.

The size of the AI market is another sign of how fast everything is changing. As shown in Figure 2, it is expected to grow to 826 billion U.S. dollars by 2030, which suggests that companies will keep increasing their use of AI tools and technologies.

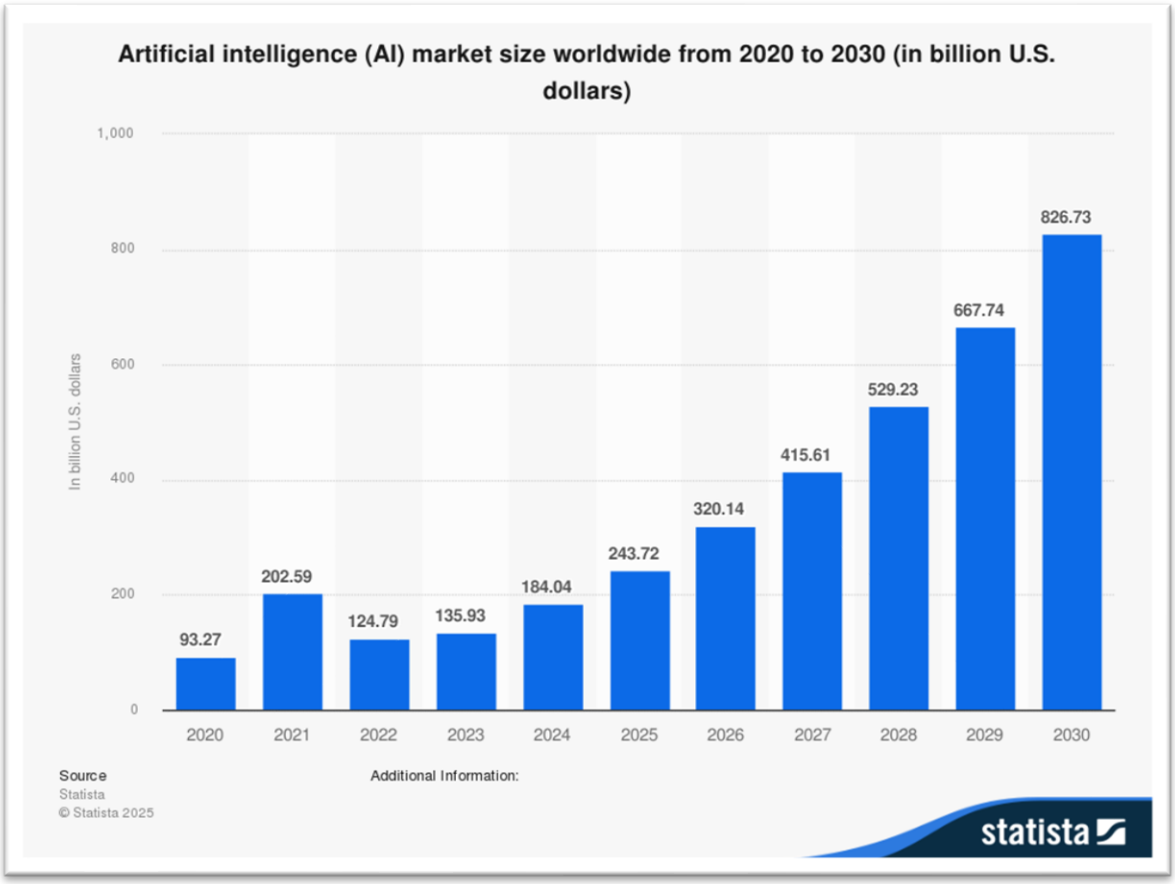

Figure 2. AI market size from 2020-2030 (Statista 2024)

With all the growth, funding, and rapid development happening around AI, we are starting to see early signs of what the future might look like. Some of the trends taking shape now could soon grow into key parts of how we advertise and how we live.

4.1 How AI is shaping the future of advertising

Even though we cannot say for sure what the future will look like, current developments and expert opinions give a good idea of the direction AI in advertising might be heading. Based on current developments, it seems likely that AI will become more involved in both the creative and strategic sides of marketing.

One of the most discussed topics is hyper-personalization, which goes beyond basic targeting by using AI to deliver messages that feel more tailored to the customer (Russel 2025). According to Russell, this type of personalization helps brands connect with people more effectively. Another clear trend is the increasing use of AI tools in content creation. Many companies have already started using generative AI to develop advertising materials. Coca-Cola, for example, created a video commercial in 2024 using AI, and Heinz ran a campaign that featured AI-generated images of ketchup (Figure 3).

Figure 3. AI generated ketchup bottles (Heinz 2022)

Because AI can generate visuals and content quickly and at a lower cost than traditional methods, it is likely that more companies will continue using it to support their creative work. However, this is not without its challenges. AI has limitations when it comes to creative

thinking, and the results it can generate can only be as good as the data and training it is given. (Widen 2024.)

As tools like these continue to improve, it is not just content creation that is evolving, other technologies, like virtual and augmented realities, are also beginning to shape advertising in new ways. Kingsnorth (2024) speaks in his book about how this merging of digital and physical spaces can already be starting to be seen now. For example, AR dressing rooms and apps like IKEA Place are allowing users to explore how items would look in their homes, helping them with decision making. L'Oréal has also used AR filters that let people virtually try on makeup through social media or video calls (Figure 4).

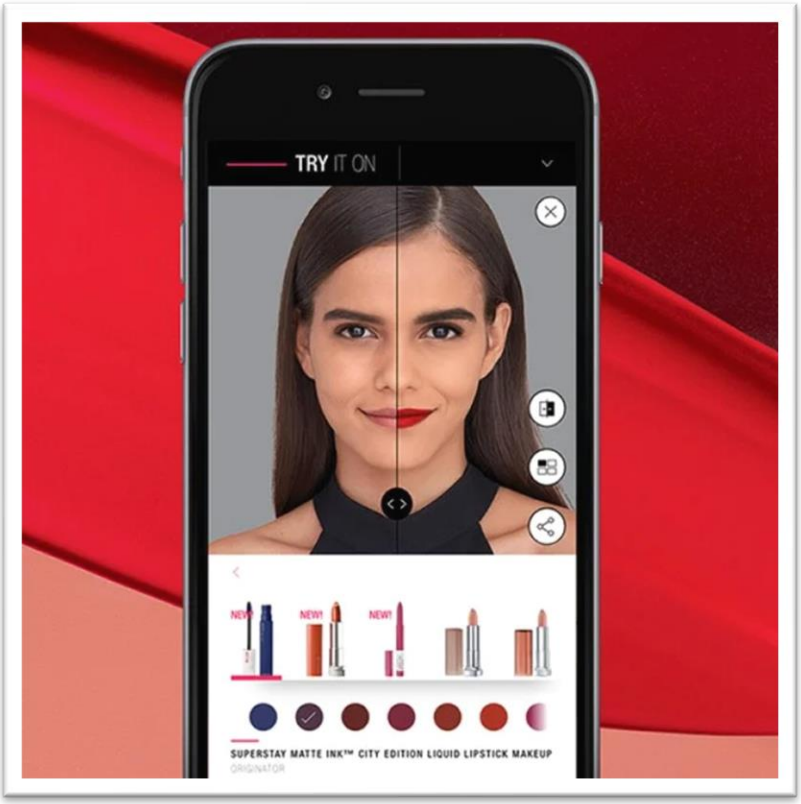

Figure 4. L'Oréal virtual makeup try-on (L'Oréal)

These early applications show the direction digital advertising might be heading, where virtual product trials and interactive spaces become a normal part of the shopping experience.

At the same time, the way brands interact with customers is also expected to change. Russell (2024) notes that chatbots and voice assistants are becoming more advanced and are already helping companies provide faster and more accessible support. As these tools improve, they are likely to become a more central part of advertising strategies. Kingsnorth (2024) also highlights that voice technologies are expected to become more precise and personalised, recognising individual speech patterns, preferences, and even emotions. This

could allow voice-based systems to act more like digital assistants, guiding people through offers, answering questions, or even responding in real time.

AI is also being used to improve how teams work behind the scenes. A recent study by Microsoft (2024) showed that employees using Microsoft 365 Copilot spent 31 percent less time reading emails and created documents 58 percent faster. While this research focused on office tasks, the same idea can apply to advertising work as well where AI can easily simplify routine tasks and speed up standard processes.

4.2 Changing consumer behaviour and expectations

AI has changed the way companies interact with customers, but not only that, also how customers interact with advertisements and their attitudes towards them. This shift can already be seen in the growing use of AI tools like recommendation systems and chatbots, which are now a standard part of many online platforms. These tools help personalize the experience for consumers and make it faster for people to find content or products that match their interests, especially among the growing amount of content and options available online. (Hironde 2023.)

As AI continues to shape how advertisements are shown and adapted to each user, it also influences how people respond to them. When ads feel relevant and match a person's interests or past behaviour, they are more likely to grab attention and lead to engagement. On the other hand, if an ad is irrelevant, it may simply be overlooked. (Mogaji et al. 2023.) At the same time, there is a limit to how personal ads can feel before they start to make people uncomfortable. In some cases, consumers may feel uneasy or even disturbed if an ad seems too targeted or if it is unclear how their data was collected or used. (Lee et al. 2024.)

AI does not just improve the customer experience; it changes what people expect from digital interactions. As advertising becomes more personalized, people are starting to get used to seeing content and suggestions that match their interests. Over time, these technologies are likely to become the norm, and many consumers may begin to take them for granted. Because of this, companies need to adjust their strategies to keep up with how consumers behave and what they expect from brands. (Hironde 2023.)

5 Concerns and ethical considerations

As artificial intelligence becomes more central in advertising, it also brings forth new concerns that cannot be ignored (Gao et al. 2023). One of the most common concerns is how personalized advertising systems collect and use different types of personal data, such as browsing history, location information, and purchase behaviour (Boerman et al. 2017). According to the Privacy Calculus theory, people weigh the benefits of convenience, such as seeing relevant ads or getting quicker results against the risks of giving up their personal information (Wang et al. 2016). This trade-off is not always clear or easy to make, especially when data collection happens in the background without clear explanation of how the collected data is used and for what purposes. According to a study in 2020 by the European Parliamentary Research Service (EPRS) regulations like the General Data Protection Regulation (GDPR) have been introduced to give users more control over their data. However, these laws are still developing, and the interpretation and application of GDPR rules to areas like AI-powered advertising is not always clear yet. At the same time, public awareness is growing. Scandals around data misuse have shown how easy it is for trust to be damaged when users feel their privacy has not been respected. A good example of this is the Facebook and Cambridge Analytica case, where the data of millions of users was collected without clear permission and used for political advertising (Graham-Harrison & Cadwalladr 2018). The scandal caused a lot of public anger and made many people more careful about how their personal information is handled (Weisbaum 2018).

Besides privacy and trust issues, there are also concerns about how AI can affect fairness in advertising. The study by the EPRS (2020) also highlights how AI systems can unintentionally reinforce bias. Because machine learning models learn from existing data, they can reflect and even amplify the biases already present in that data. In advertising, this can lead to targeting that unfairly favours or excludes certain groups. In addition to this, other studies have pointed out that AI recommendation systems can create filter bubbles, where people are shown information that matches their existing views. This can limit exposure to different opinions and make it easier for misinformation or biased content to spread. (Areeb et al. 2023.)

While technology itself is neutral, the way it is used matters. Companies must take steps to ensure that AI is used in ways that are fair, transparent, and respectful of user rights. This means building systems that reduce bias, being open about how consumer data is collected and used and making sure that humans are still part of making all important decisions. (Gao et al. 2023; EPRS 2020.) Without these steps, there is a risk that the very technologies meant to improve advertising could instead create new forms of harm.

6 Research implementation

6.1 Research methodology and data analysis

This study aims to explore how consumers understand, use, and feel about artificial intelligence in digital advertising. It focuses on consumer perspectives rather than company use cases or technical implementation. The goal is to better understand current awareness, usage patterns, and ethical concerns such as data privacy, trust, and manipulation, as AI continues to become more integrated into digital marketing strategies.

This research primarily takes a quantitative approach by a structured online survey, which was chosen as the most effective way to gather responses from a wide and diverse audience. While most of the questions were closed-ended and designed to collect measurable data, a few open-ended items were included to allow respondents to express personal opinions on topics in their own words. Surveys are a commonly used data collection method in consumer-focused digital marketing research because they allow for the collection of both measurable data and personal opinions (Saunders et al. 2019). This approach supports the main goal of the thesis, which is to investigate the future role of AI in advertising from the perspective of everyday users.

The survey included mostly multiple-choice and scale-based questions, along with some open-ended questions to give respondents space to share personal opinions. The main topics of the questions included:

- How familiar people are with AI tools.
- How often and why they use AI.
- Their comfort and confidence in using AI.
- Their opinions about AI in advertising, including trust and privacy concerns.

A few background questions were included too, such as age, country, and work or study field. This helped make sure the results come from people with different backgrounds, not just those who work with technology or advertising. This ensured that the data collected gives a balanced view of the current situation.

The survey (Appendix 1) was shared online, and the responses were collected anonymously. In total, 55 valid responses were received. The open-ended questions were also answered by most participants, with each one receiving between 35 and 39 written replies. The collected data was analysed mainly by using descriptive statistics such as percentages, averages, and frequencies to clearly present the findings. Open-ended responses were also

reviewed and grouped by common themes to better understand people's opinions. (Saunders et al. 2019.)

6.1.1 Ethical considerations

To support both ethical and responsible research practice, ethical considerations were also considered throughout the process. Participation in the survey was voluntary, and all responses were anonymous. Respondents were informed about the purpose of the study and how their answers would be used. While all multiple-choice questions were mandatory for those who chose to participate, the open-ended questions were optional. No personal data was saved, and all responses were handled with care to ensure privacy and confidentiality.

6.2 Research results

The results (Figure 5) showed that 91% of respondents had used AI tools, with a particularly high rate among younger participants. All respondents aged 18–24 reported having used AI. Among all users, 82% stated that they use these tools regularly (daily or weekly), while 14% said they rarely or never use them. AI tool familiarity was also high: 92% were familiar with chatbots or virtual assistants, 72% with AI-powered translation tools, and over half with AI voice assistants (56%) and image generators (54%).

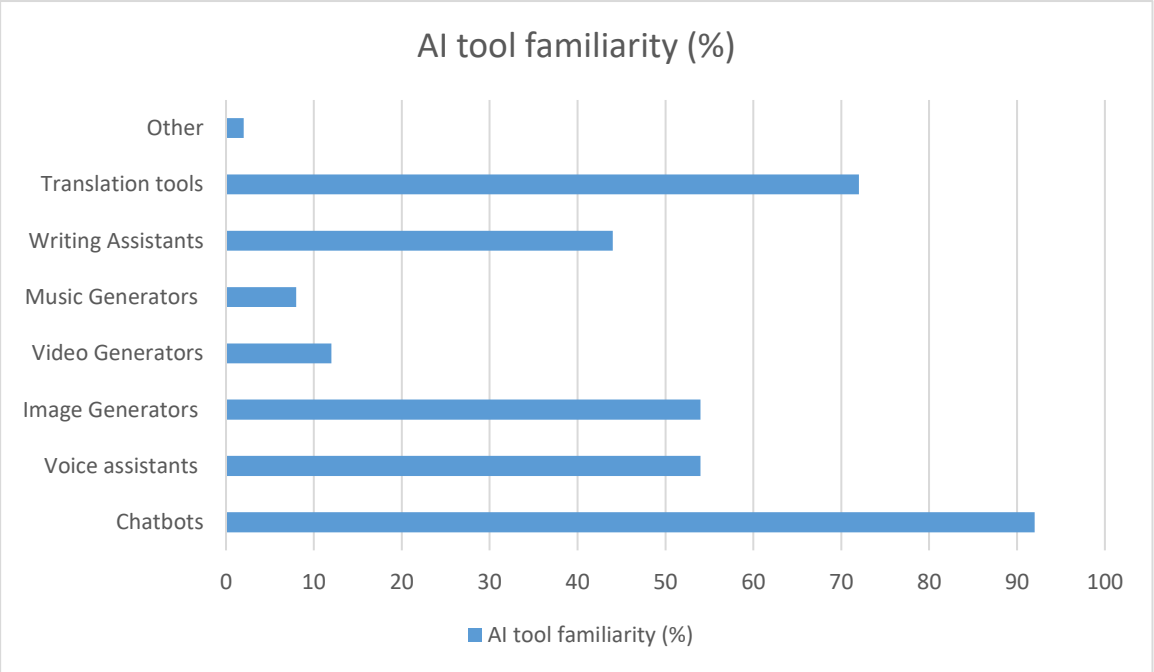

Figure 5. AI tool familiarity

This familiarity was also reflected in how people use AI in daily life. Most respondents reported using AI for work-related tasks, studying, or learning and research, often combining multiple purposes. 40 % of respondents also mentioned using AI for creative projects. In addition, 63.6% of respondents said that their workplace or place of study uses AI tools. The most common uses were chatbots or virtual assistants (66.7%), followed by AI-generated content tools (40%) and data analytics or predictive models (34.3%).

Opinions about AI in advertising were more divided. 47% of respondents agreed or strongly agreed that they prefer advertisements that are personalized to their interests. However, only 16% expressed confidence that current regulations are doing enough to protect their data and privacy. A line chart in Figure 6 was used to illustrate the contrast between these two results, showing that support for personalization did not align with trust in regulatory frameworks.

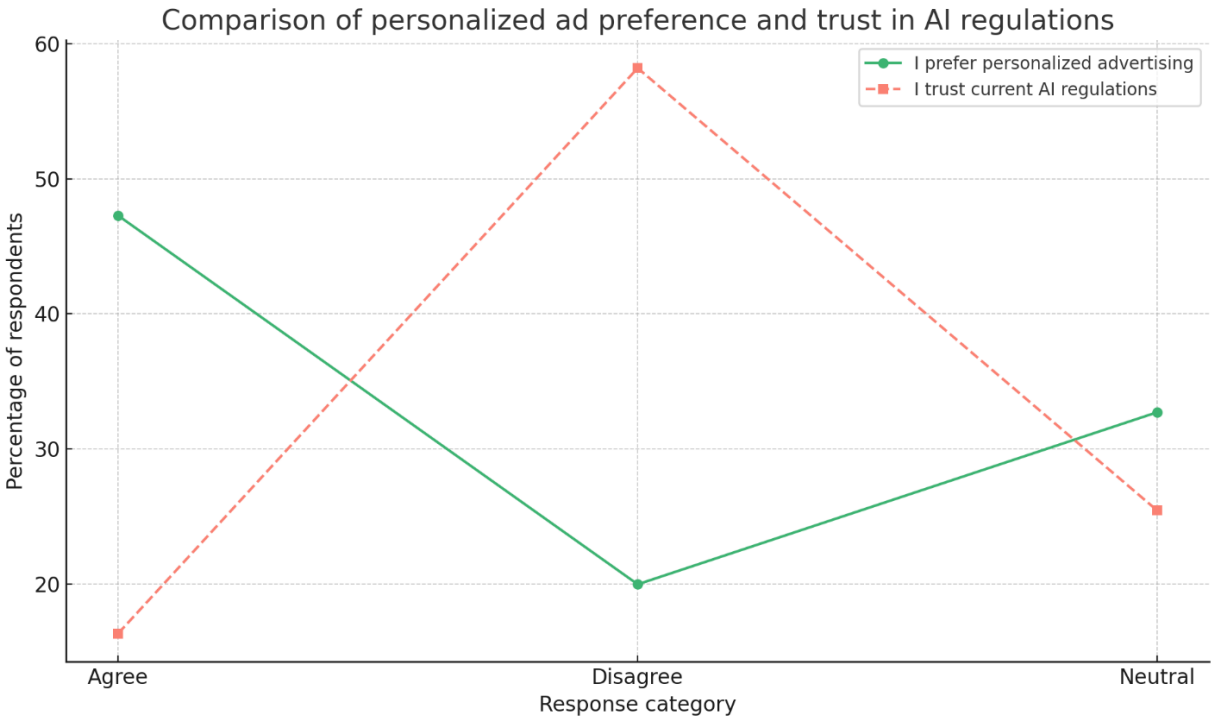

Figure 6. Preference for personalized advertising vs trust in current regulations

Open-ended responses provided further insights into how people use AI in everyday life. Many respondents described how it had changed the way they work or study by making routine tasks easier, speeding up research or writing, and helping with planning or idea structuring. While AI was often associated with increased productivity, many respondents also noted concerns.

Commonly mentioned issues included data protection, identity theft, job displacement, and over-reliance on AI for cognitive tasks. Some respondents also mentioned problems like

content originality, copyright concerns, and a lack of transparency in how AI operates. Others pointed out that AI tools often struggle with smaller languages and suggested the need for improvements in both accuracy and reliability. One respondent shared a personal worry: “I am worried about myself using too much AI before I build a solid base in my field.”

When comparing usage groups, 85.4% of regular users agreed or strongly agreed that AI is an important part of future technology, compared to 42.9% of rare users. A stacked bar in chart was used to show that belief in AI’s future role was more common among regular users than rare users (Figure 7).

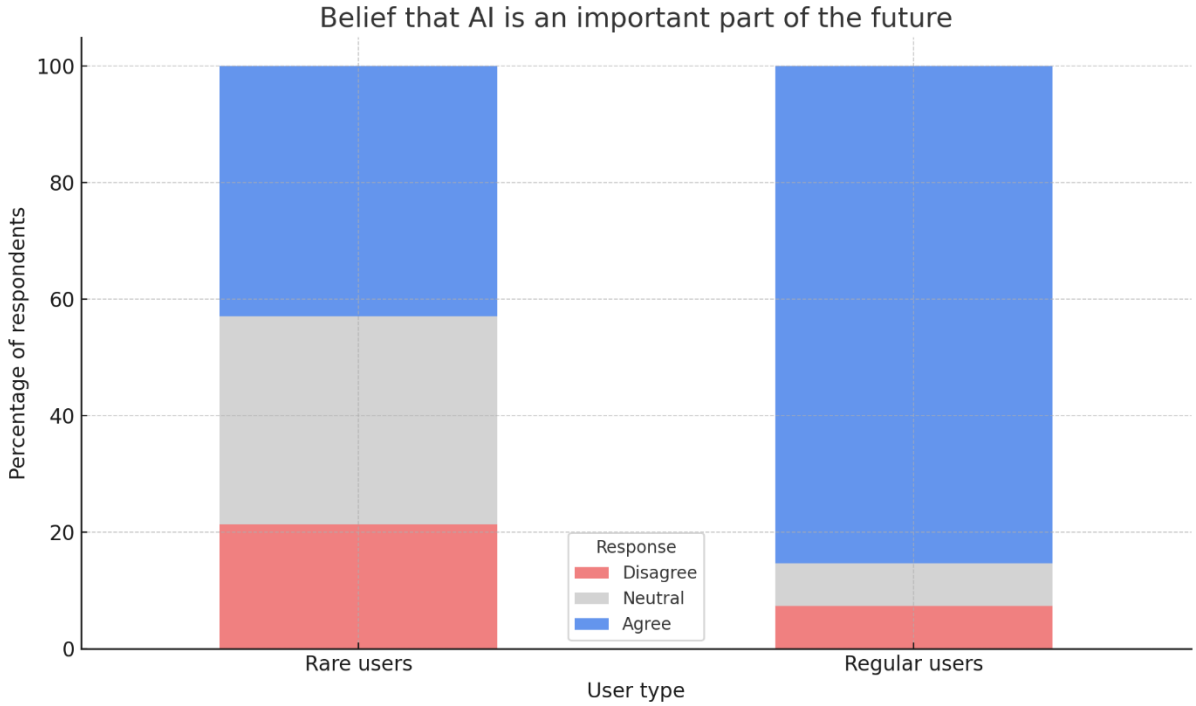

Figure 7. Belief in AI’s future role among regular and rare users

A similar difference was seen in views about job creation. 61.5% of regular users believed that AI could help create new job opportunities, compared to 41.2% of rare users.

Overall, the results showed high levels of AI familiarity and usage among respondents, particularly among younger respondents and those who use it regularly. AI tools were commonly used for work, studying, and creative tasks, both individually and in organizational settings. While many respondents preferred personalized advertising, only a small number felt confident about current regulations. The differences between regular and rare users were also clear, especially in how they viewed AI’s future role and its potential to create new jobs.

7 Discussion and conclusion

7.1 Answering the research questions

The purpose of this thesis was to better understand how artificial intelligence may shape digital advertising and consumer interactions in the future. To explore this, a survey was conducted to learn how familiar people are with AI tools, how they use them, and what concerns or hopes they have for AI in the future. The results help build a clearer picture of how people today are reacting to the growing role of AI in advertising and everyday life.

The first two research questions focused on how AI is currently used in advertising and daily life, how common its usage is, and which tools consumers are most familiar with. The literature review showed that AI is already widely applied in areas like personalization, automation, and content generation. The survey results supported this, showing that most respondents had used AI and were familiar with tools such as chatbots, translation tools, and voice assistants. Many said they use AI regularly, especially for studying, work, or learning. These results support earlier research by Gao et al. (2023) and Tanase (2021), which described how AI is already helping people and companies work more efficiently. One thing is clear: AI is no longer something only used or known by organizations. The fact that most participants reported using it for daily tasks shows how much AI has become a regular part of people's lives.

The third research question explored what kinds of concerns people have about AI. The research findings showed that while AI use is common and even appreciated, people still have serious concerns. The concerns included data protection, job security, content originality, and worries about becoming too dependent on AI for thinking. Some participants also pointed out that AI tools still struggle with smaller languages and that there's room to improve both the accuracy and transparency of these systems. These concerns reflect some of the issues mentioned in the literature as well. For example, the EPRS (2020) noted that AI can harm trust when systems feel unclear or poorly regulated, and Lee et al. (2024) pointed out that users can feel uneasy when it's not clear what personal data is being collected or how it will be used. This was supported by the survey, where even frequent AI users showed low levels of trust in current regulation. At the same time, nearly half of respondents said they prefer personalized advertising, showing that people still enjoy the benefits of AI, even when they don't fully trust how it works behind the scenes. This reflects the Privacy Calculus theory, where users try to weigh the value of personalization and convenience against possible risks to their privacy.

The final research question asked what direction AI in advertising appears to be moving toward in the near future. Based on the literature, the use of AI in advertising is expected to grow rapidly, with more focus on hyper-personalization, predictive analytics, and AI-generated content. Newer trends like emotion recognition, voice search, and immersive experiences using AR or VR are also becoming more relevant (Kingsnorth, 2024). These developments show that AI will likely play an even bigger role in how companies try to connect with consumers. The survey results supported this direction, as most respondents believed AI is an important part of future technology.

Together, these findings show that AI is becoming a regular part of people's lives, both in advertising and beyond. People are using AI tools more often, are familiar with a range of technologies, and generally see AI as something that will keep growing. At the same time, there are still concerns, especially about regulation, privacy, and long-term effects of AI usage. As advertising continues to evolve, listening to customer opinions and experiences is important because they help us understand how people are reacting to changes and what they want from AI going forward. This kind of insight can help make sure AI is used in ways that feel more fair, clear, and useful for everyone.

7.2 Conclusion

As discussed in section 7.1, this thesis examined how artificial intelligence is becoming part of everyday life and what that means for digital advertising. The results showed that people are already using AI tools regularly at work and at home. Worries about privacy and uncertainty around data use remain major concerns for consumers. The need for more transparency in how personal data is handled in digital advertising is especially important as AI use continues to grow. These results highlight the importance of focusing on everyday user experiences as AI becomes more integrated into both marketing and daily life.

7.3 Limitations and suggestions for future research

While the results of this thesis offer useful insight into how consumers view and use AI in advertising and everyday life, there are still some limitations related to validity and reliability that should be considered. In quantitative research, validity refers to how well the questions reflect the concepts they are meant to measure, while reliability means that the results would likely be the same if the study were repeated using the same method (Saunders et al. 2019).

One of the main limitations was the size and composition of the sample. Although the survey received 55 responses, most participants were based in Europe and were quite young. Because of this, the findings can give a general picture, but they cannot be fully applied to all age groups or regions. The survey also relied on self-reported answers, which means the results depend on how people interpreted the questions and how honestly they shared their views. This may influence the overall reliability of the data.

There were also some limits in the scope of the survey. While it gave a good overview of people's general usage, attitudes, and concerns, some topics could have been covered more in-depth. For example, the survey focused more on current use and attitudes, but didn't ask many detailed questions about people's understanding of how AI works in advertising or how AI influences their decisions as consumers. Future research could look more closely at these areas to better understand how people interpret AI's role in shaping their choices, especially as advertising becomes more personalized and automated. The research was also limited by time constraints, which affected how many questions could be included and how deeply some areas could be explored.

Future research could involve a larger and more diverse group of participants, especially from different countries and age groups. This would help give a more complete picture of how AI is being used and understood in different parts of the world. It could also be useful to explore more closely how much people really understand about how AI makes decisions or how they feel about data use and transparency in personalized advertising.

Another important direction would be to explore how growing AI use might affect people in the long term, especially when it comes to thinking, decision-making, and creativity. As AI becomes more common in everyday life, it is important to understand not just how it is used, but how it might shape human behaviour and expectations in the future.

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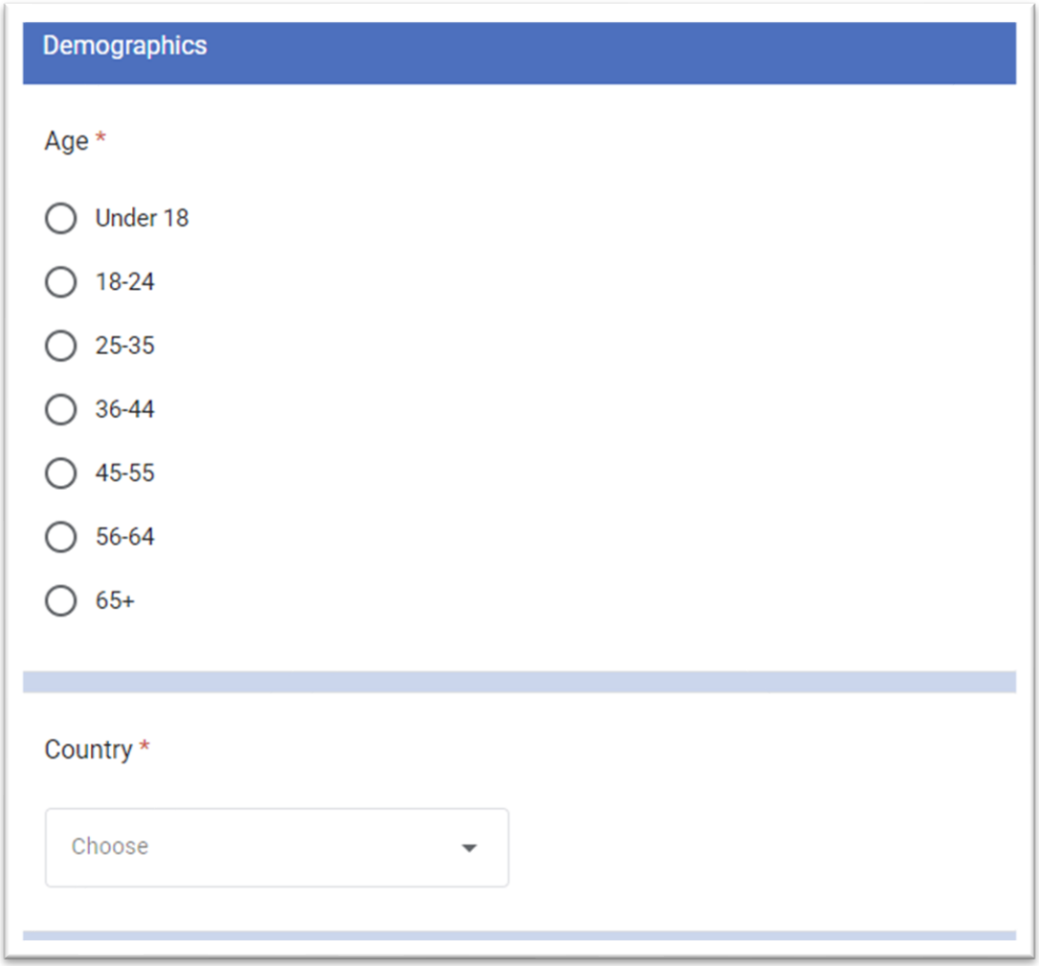
Appendix 1. AI survey



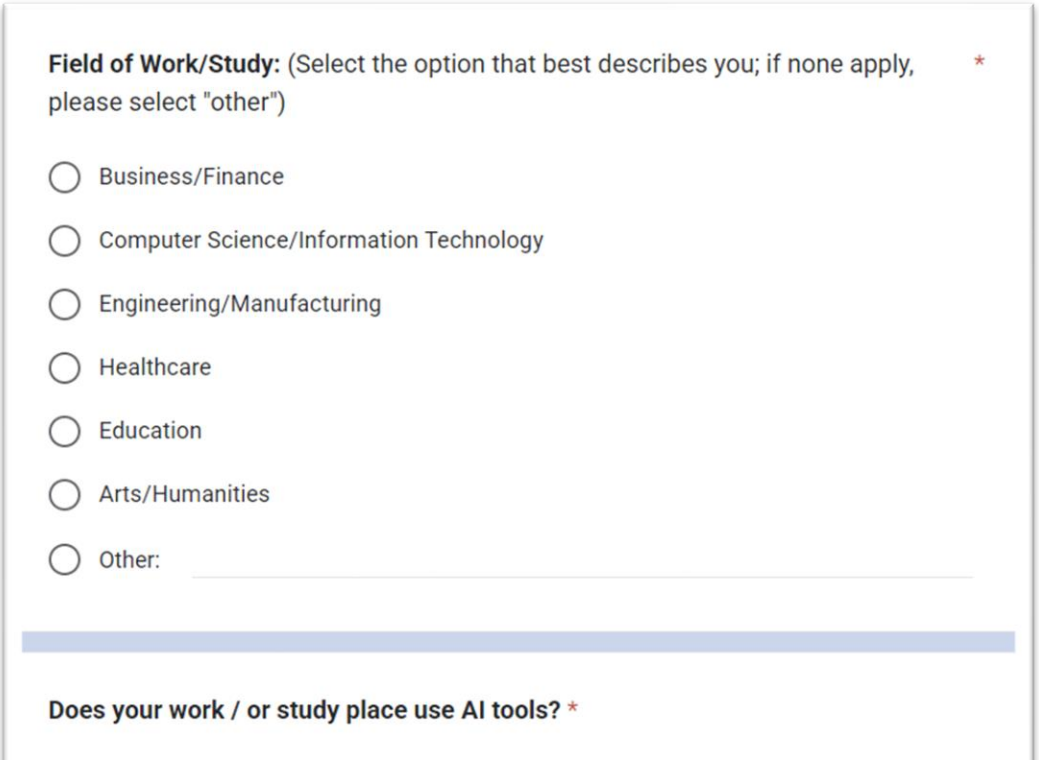
Demographics

Age *

- Under 18
- 18-24
- 25-35
- 36-44
- 45-55
- 56-64
- 65+

Country *

Choose



Field of Work/Study: (Select the option that best describes you; if none apply, please select "other") *

- Business/Finance
- Computer Science/Information Technology
- Engineering/Manufacturing
- Healthcare
- Education
- Arts/Humanities
- Other:

Does your work / or study place use AI tools? *

Organizational Use of AI

In which industry is your company or organization primarily involved? (Please select the closest match. If none apply, select "Other")

- ○ Digital Advertising/Marketing
- ○ Technology/Software
- ○ Retail/E-commerce
- ○ Finance/Banking
- ○ Healthcare
- ○ Education
- ○ Other: _____

Which of the following best describes the AI applications used in your organization? *(Select all that apply)*

- ☐ Recommendation systems
- ☐ Chatbots/Virtual Assistants
- ☐ Data analytics or predictive models
- ☐ AI-generated content tools
- ☐ Other: _____

Personal AI Usage

Have you ever used AI tools? *

- ○ Yes
- ○ No

Familiarity with AI tools

Which AI tools are you familiar with? (Select all that apply) *

- [ ] Chatbots & Virtual Assistants (e.g., ChatGPT, Gemini, DeepSeek)
- [ ] AI Voice assistants (e.g., Siri, Alexa)
- [ ] AI Image Generators (e.g., MidJourney, DALL·E, Adobe Firefly)
- [ ] AI Video Generators (e.g., Runway, Synthesia, Kling)
- [ ] AI Music Generators (e.g., Suno, AIVA, MuseNet)
- [ ] AI Writing Assistants (e.g., Grammarly, Quillbot)
- [ ] AI-Powered Translation Tools (e.g., DeepL, Google Translate)

How frequently do you use AI tools in your personal or professional life? *

- ○ Daily
- ○ Weekly
- ○ Monthly
- ○ Rarely

For what purposes do you typically use AI tools? (Select all that apply, if none apply, select "Other") *

- [ ] Work-related tasks
- [ ] Homework or studying
- [ ] Creative projects (e.g., art, writing)
- [ ] Hobbies
- [ ] Learning or research
- [ ] Other: _____

Opinions on AI and Its future

Please indicate your level of agreement with the following statements. (1 = Strongly disagree , 5 = Strongly agree)

I believe that AI will create new opportunities for jobs in the future. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I believe AI is an important part of the future of technology. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I prefer advertisements that are personalized to my interests. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I believe that most companies are using AI responsibly. *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I trust current regulations to protect my data and privacy in the age of AI *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Insights and Reflections on AI

How has AI changed the way you work or study?

Your answer

What improvements or changes would you like to see in AI technology over the next 5-10 years ?

Your answer

What concerns, if any, do you have about the increasing use of AI?

Your answer