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BAKALÁŘSKÁ PRÁCE

Ethics of AI in Marketing

Ethics of AI in Marketing

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Studijní program: Ekonomika a management

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Abstrakt

Tato bakalářská práce se zabývá etickými otázkami, které přináší umělá inteligence. Nejprve se zaměřuje na samotnou umělou inteligenci. Stručně popisuje historii, popisuje různé typy a ukazuje několik příkladů. Kapitola 2 se zaměřuje na budoucí možnosti, zejména na Singularitu a její dopady. Kapitola 3 pak upozorňuje na efekty umělé inteligence v marketingu. Věnuje se tématu "personalizovaného obsahu". Popisuje, jak může být používán k formování veřejného mínění a zdůrazňuje, proč je pro spravedlivou demokracii extrémně nebezpečný. Kapitola 4 vysvětluje metodologii použitou v procesu výzkumu, zejména proč byl použit dotazník a poskytuje podrobný rozbor. Kapitola 5 prezentuje výsledky provedeného výzkumu a nabízí doporučení pro budoucí použití umělé inteligence. Závěrem práce konstatuje, že je naprosto nezbytné dále vzdělávat veřejnost v těchto otázkách, aby tlak od informované veřejnosti na firmy vyvíjející a nasazující technologie umělé inteligence neustával.

Klíčová slova

Umělá inteligence, Etika, Marketing, Veřejné mínění, Algoritmy, Sociální média.

Abstract

This bachelor's thesis delves into the ethical implications posed by Artificial Intelligence. Firstly, it focuses on Artificial Intelligence itself. It goes briefly over the history, describes the different types of it and provides some examples. Chapter 2 centres around the future possibilities, mainly the Singularity and its effects. Chapter 3 then spotlights Artificial Intelligence in marketing itself. It dives into the rabbit hole that is "Curated/personalised content". How it can be used to form public opinion and highlights why it is extremely dangerous to a fair democracy. Chapters 4 explains on the methodology used in the research process, specifically it explains why a survey was used and provides a detailed breakdown. Chapter 5 presents the findings of the research conducted and offers recommendations for the future use of Artificial Intelligence. It concludes that it is absolutely vital to further educate the public on these issues, as to keep the pressure from an educated public on companies developing and deploying Artificial Intelligence technology.

Keywords

Artificial Intelligence, Ethics, Marketing, Public Opinion, Algorithms, Social Media

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Introduction

As technology progresses, the use of Artificial Intelligence (AI) in marketing is becoming more common than ever. Advertisers are no longer restricted to traditional advertising mediums such as newspapers or billboards. Advanced algorithms can analyse massive volumes of consumer data to better understand buyer habits and deliver adverts to specific target demographics through social media platforms ranging from Instagram or Facebook to Twitter or Discord. It is surprisingly easy to do so, when user data is being sold extensively among abovementioned networks

Artificial Intelligence allows for increased efficiency and ease within marketing, which can also lead to very positive customer experiences, steering towards favourable reviews. Even possibly boosting smaller businesses which would otherwise not have such reach.

There are moral considerations to take into account with this technology, as with any other. In this context, the use of artificial intelligence in marketing raises a number of serious concerns regarding privacy, transparency, safety and bias. These issues must be examined in order to guarantee that the utilization of AI stays ethical and beneficial to both businesses and consumers. The issue of the length and unclarity of Terms of Service, which users are pressured into signing due to lack of alternatives, is critically large, as barely anyone goes out of their way to study the lengthy and complicated documents.

It is hoped that by the end of this thesis, a better understanding of the ethical issues at hand will be reached, and lead to a more responsible use of this technology. Through the use of pressure from a more educated public.

THEORETICAL PART

1 Artificial Intelligence

1.1 Definition

There are 2 ways of defining artificial intelligence. The first one refers to the simulation of a human mind in machines with learning and problem-solving skills. The other one would define AI as anything that takes an input and based on that it outputs something. By that definition, any contraption complex enough would be AI, for example, a toaster that turns off after a timer runs out. The actual definition by the Cambridge Dictionary is "the study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognize pictures, solve problems, and learn" (1).

1.2 Narrow vs Strong vs Super

There are 3 different types of artificial intelligence. The narrow/weak, the strong/general, and the super. Their main difference is the level of thinking and independence.

1.2.1 Artificial Narrow intelligence - ANI

ANI stands for Artificial narrow intelligence. It is the only type we have achieved to create so far. It is an intelligence capable of doing a single task extremely well for example chess. Today half of the world uses bots, whether it is for customer engagement or managing a CNC machine. Bots are extremely useful and even more popular. They can provide rapid answers to questions and requests like, "What's the weather today". All operating systems come built-in with one of these, whether it is Cortana, Siri, or any of the others. Many sites use some sort of bot for customer care- if they struggle trying to find something. They can just ask the bot and it will guide them to their target. Overall ANIs are relatively simple task-driven AIs that do not possess critical thinking nor problem-solving skills.

Some people believe bots like Siri to be Artificial General Intelligence that is however not the case. Yes, you can have a basic conversation with them but that doesn't mean they understand it. Imagine it like the Chinese room argument. You are in a dark prison cell, and you get passed several papers with Chinese symbols on them through the slot and told in which order to pass them back. From the other side, it may appear like you just had a conversation, but you on the inside have no idea what was on those papers. (2)

Figure 1

1.2.2 Artificial General Intelligence

AGI stands for Artificial general intelligence. It is an AI that has equalled human intelligence. It possesses problem-solving skills, critical thinking, fine motor skills, language understanding, creativity, etc. The estimates differ extremely when AGI will be achieved. Some say as soon as 2030 and others 2300 or even never.

A nice example of AGI from pop culture are the androids from Detroit: Become Human.

1.2.2.1 Turing Test

The point of the Turing test is to determine whether an AI is capable of thinking like a human being. It consists of two humans and one AI. One of the human's questions and the other human and AI answer. The questioner must determine which one of the answers was from the human. If he picks the AI at least 50% of the time, then the AI passes the test. As its behaviour is indistinguishable from a human. (3)

1.2.3 Artificial Super Intelligence

Artificial super intelligence has surpassed the human mind. Once an AI of this level is created "The Singularity" will happen, but more on that in 3.2. Most examples of AI in pop culture fall into this category. A few examples: Cortana (Halo), Date (ST:NG), Cylons (BSG), Asuran Replicators (SG: A) or Skynet (Terminator). All estimates say that ASI is going to be possible hundreds of years away into the future.

1.3 The big one

On May 11^{th,} 1997, a supercomputer called IBM Deep Blue defeated the chess world champion, Garry Kasparov. This was the first time when artificial intelligence reached a stage that it could outsmart humanity at a single task. It was still an ANI, and it did several big mistakes during the game however it won, and it signalled the exponential technological growth and the societal shifts that go with it.

1.4 Usage

1.4.1 Weak AI

1.4.1.1 Plane Autopilot

It is a flight control system that allows the plane to fly without continuous hand-on control of the plane. Allowing the pilot to focus on other things.

It has a set of possible inputs (for example set altitude), and it compares them to the data from sensors. Depending on how they compare it sends signals to the flight control systems. More advanced versions can follow a pre-set route in a GPS. (4) (5)
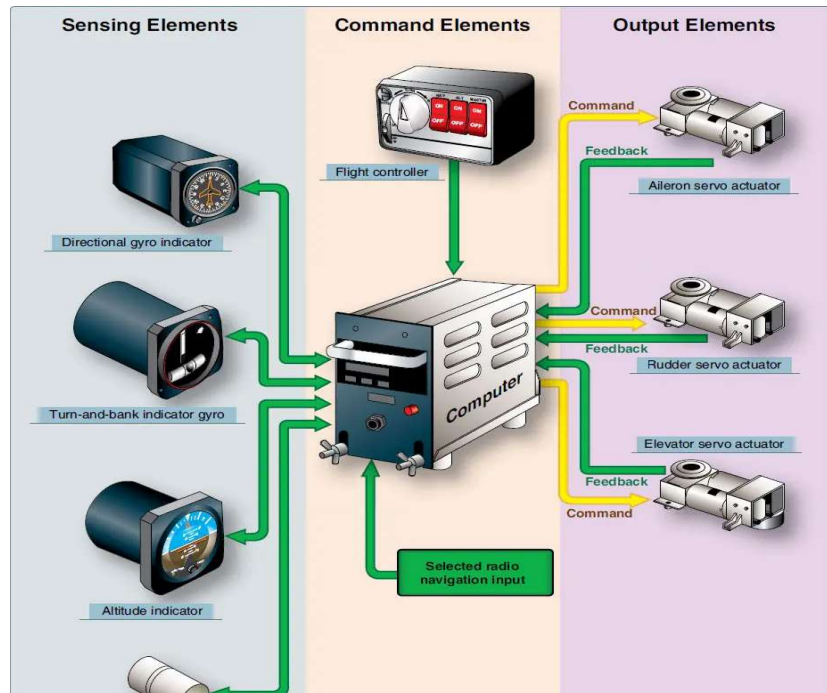

Figure 2

1.4.1.2 Tesla Autopilot

As weird as it may seem a car autopilot is much more complex than a plane. This is since in a plane you don't have to watch for kids jumping in your way and cars are much more common and don't require extensive training to control.

Using interconnected cameras, the car can watch all objects around it and decide how far away they are. The beauty in it is that the cars are all networked together so its neural network can learn from over a million Tesla vehicles in real-time and improve itself. Currently, there are 48 neural networks. Tesla states that a single network takes 70000 GPU hours to train. (6)
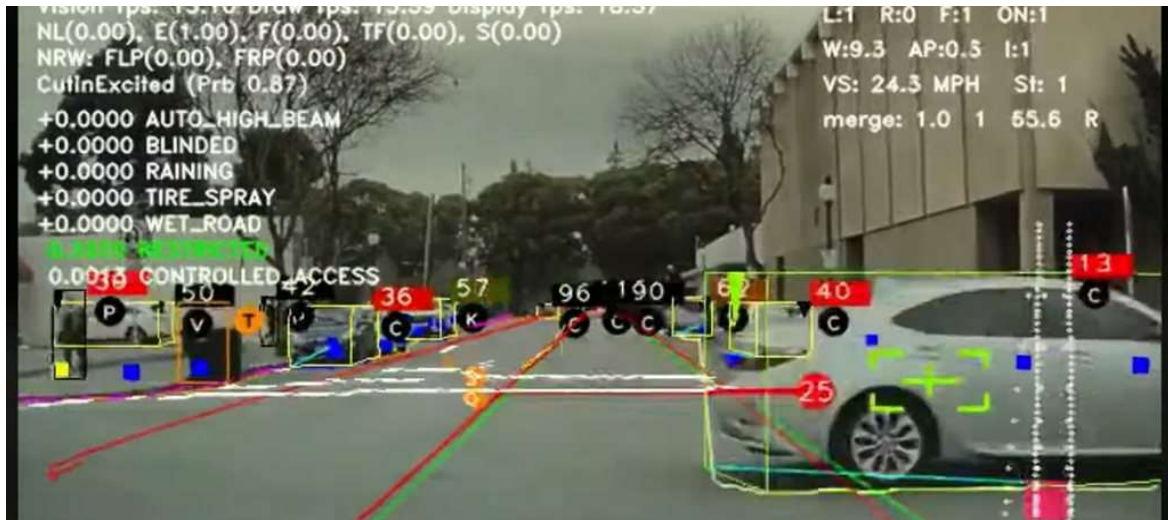

Figure 3

1.4.1.3 Alien: Isolation

Alien: Isolation is a horror videogame released in 2015 widely praised for its terrific xenomorph and director AI. The goal of the game is to evade the xenomorph and escape the station. The gameplay consists of a constant deadly game of hide and seek with a menacing alien. The 2 ais work separately so that the Alien cannot cheat and can just be a "seeker".

The director manages the "menace gauge". A system that shows how much the player is being pressured. The system wishes to increase the "menace" from time to time and thus gives the Alien a hint of where it should go. The menace increases while the Alien is near the player. Once the menace gauge has peaked the Alien will be sent elsewhere to give the player some breathing space. This process is done using a job system that tells what task to complete, in which location and the priority of the said task. This allows the alien to act in active or passive mode. Active being hunting and passive the cooling-down stage.

The Alien itself uses behaviour trees to decide what it is going to do next. It has over 100 nodes hidden in the tree. At the top level, there are around 30 nodes responsible for deciding which behaviour it's going to do next. To create a feeling that the Alien is learning as the game progresses, some of the features are locked at the start of the game, for example searching lockers. It didn't use player deaths as a unlock event due to the game being designed for the player to die a lot and it would hinder game progress. (7)

2 The Future

The possibilities of what the future of AI holds are numerous, to say the least. There are two predominant opinions out there. The first one is total and utter destruction and the other a massive scientific leap forward. These can be summed up to either AI servitude or AI overlords.

2.1 In Science fiction

There are numerous semi-realistic AGIs portrayed in pop culture. Again, they vary in their "evilness scale". On one hand, we have Ultron who was designed to protect the planet, but after being on the internet for a few seconds he turned against humanity. On the other side would be, for example, Chappie. He becomes self-aware but doesn't know how the world works and thus is in many ways like a small child.

2.2 The Technological Singularity

It is no secret that technological progress grows exponentially. If we look at just the last 30 years, we humans have progressed more than ever before. Most of the human population carries a device that can connect to the entire human database in just a few seconds. That's something that was believed as impossible until recently. But as the Greek philosopher Plato said, humans are incapable of creativity, but rather discovery and imitation. So, what happens once an ASI is created?

2.2.1 What is it?

The technological singularity is often referred to just as singularity. This is what is believed to happen once AIs are smarter than humans. It is believed that even though the technological growth is exponential, it will seem linear compared to the growth that succeeds the singularity.
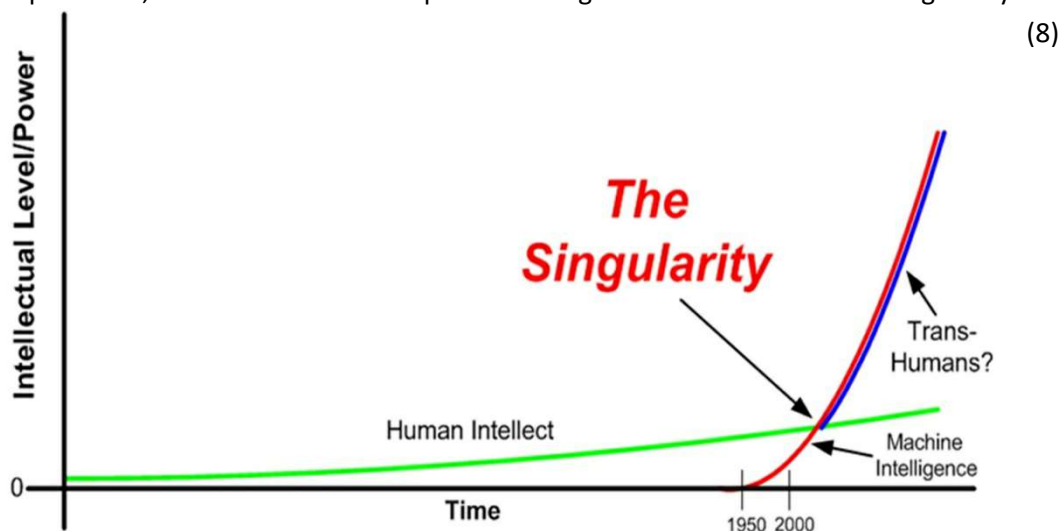
(8)

Figure 4

2.2.2 The effects on society

But what effects is such a massive change going to have on human society? There are almost infinite possibilities that mainly differ in the AIS approach to us. They might treat us as superiors and serve us. Or we might even become batteries and be treated like cattle.

2.2.2.1 The possibilities

If their approach to us is good, the possibilities of what we might achieve are almost infinite. Perfectly optimized economy, solving world hunger, creating a world manager ai which would be unbiased and improve the whole world at once.

2.2.2.1.1 Kardashev scale

The Kardashev scale is a metric used to measure the level of advancement of a civilization. A type 0 is a civilization that isn't using its planetary resources to its full capabilities. Type 1 is a single planet civilization, but it uses its resources to the max. A Type 2 is a civilization that has managed to harness all the power of its star system. Type 3 is a galaxy-wide civilization, imagine the Empire from Star Wars.

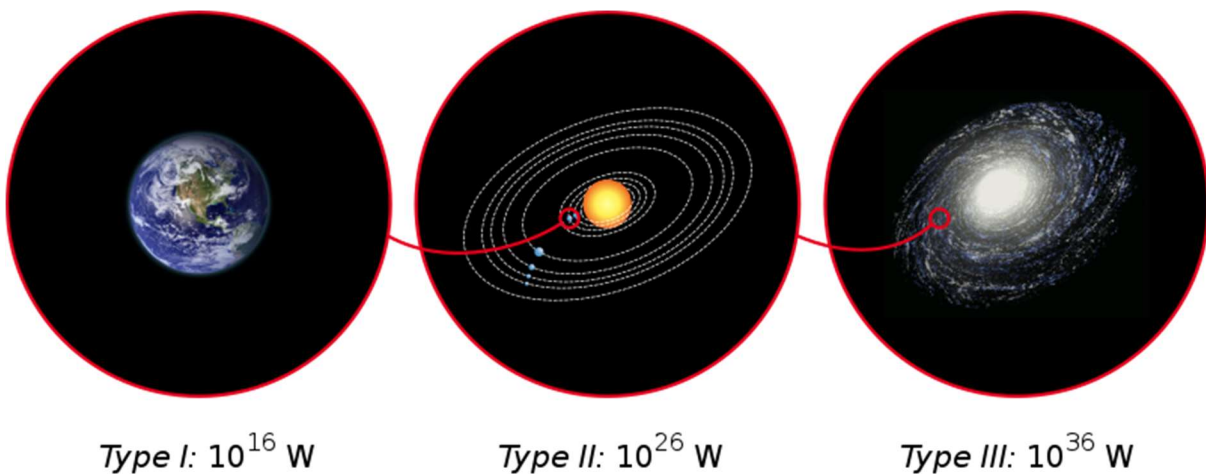*Type I:* 10^{16} W   *Type II:* 10^{26} W   *Type III:* 10^{36} W

Figure 5

(9) They might even help us with space colonization. Due to ASIs being possible very far into the future, it is most probably that we will colonize at least mars by that point. Thus, moving us to a type 1 or 2. With ASIs our civilization would become a type 3 in no time, relatively speaking.

2.2.2.2 The threats

If, however, we are doomed a threat to Earth, or the AI just treats us with hostile intent. We would be doomed. The world would probably be destroyed in a nuclear war. Defeat would be inevitable. Or it could just want to use us as batteries, which is unlikely because fusion reactors produce energy much better than humans, but what do we know. Again, the options are endless from a rogue manager system to systematic extermination. Even if all goes right then just one mistake, one error, one bad thing, can lead to a horrible future. What if an AI gets hacked by a terrorist group, what if it implements an extreme system to prevent crime?

2.2.2.3 The reality

Realistically speaking, the grip of mega-corporations on the world today is already becoming extreme. At the current trend of development, it's going to be much worse in several hundred years. One of the mega corps may decide to be managed by an AI. If that would be the case the world would become just a money-making machine at the cost of the quality of life of the human population.

The community is very divided on the topic of AGIs and ASIs. As shown the possibilities are endless but the threats are immense and very real. Most of the world's leaders in the field agree to take a cautious approach rather than a "we will deal with it when it becomes a problem". Elon Musk has been very vocal about this and has a strong stance for caution. Meanwhile on the other side is our favourite reptilian Mark Zuckerberg who believes the positives far outweigh the negatives and has been called reckless on several occasions.

3 Artificial Intelligence in Marketing

3.1 Usage

Bots see extensive usage in customer engagement roles, for example, online shops like Alza use a bot that helps the customer get around and answers their questions, but the most important AI is the one that personalizes content.

3.1.1 Personalized Content

Personalized content has become a big thing on the internet. It uses AI to record patterns of customers and then using those patterns it shows ads. The AI essentially reads the metadata about the content you consume, the length, the format, the topics of said content, the interaction with said content (comments, how long they stay there), etc. It has a big popularity impact. However, there are safety risks.

3.1.1.1 Curated Content

The point of curated content is that you get recommended high-quality products/sites, for example, Amazon vs Wish. However, it can also be used in other ways. The problem with curated content is that it can be dangerous and a massive tool in shaping public opinion. In the following subtitles, there will be several examples of this happening.

3.1.1.2 Google

"The big bad" Google is the most popular search engine on the internet. It has such a massive cultural impact that phrases such as "Look it up" have shifted into "Just google it". It curates its content so for example if you google "how to commit suicide" instead of answering your enquiries it gives a suicide hotline. It also fights against piracy, if you search "movie x online" it will lead you to fake free streaming sites. This isn't exactly a problem per se.
The real problem is that google collects as much info on its use as possible and because most services these days offer "or login with google" the amount of data Google gets is almost everything a person does online. This amount grows even more if a person uses an Android phone as their location, messages, calls, and what they say is being recorded. A person can of course turn these off partially, but not completely. What Google does with this data apart from selling it to ads is not really known.

3.1.1.3 Facebook

Facebook is the oldest social media among these other examples. That however does not mean its AI is behind the rest. Yes, Facebook itself lacks in data gathering however due to being a giant corporation it was able to obtain many other platforms. Recently including WhatsApp and leading virtual reality platform Oculus in 2014. The problem suddenly comes from WhatsApp having access to messages, calls, and mainly microphones. Facebook was caught spying on WhatsApp users' private information.

(10) Reportedly users started getting ads on Facebook for stuff they said out loud with their phone nearby. This had driven many users away from the platform.

3.1.1.4 Reddit

Reddit uses a very similar system to provide users with content. What was interesting about Reddit was how it gradually pushes users towards left-leaning political arguments. It must be clarified that it is towards the American left. Another thought-provoking factor was how using a blacklist, the platform could change big world events; in 2019 Hong Kong was in a crisis, the protestors needed world attention to be able to succeed and survive, which ultimately, they failed at. A subreddit by r/HongKong was the fastest growing community on the whole site. (11) However, in December 2019 the site soft blacklisted the subreddit (it would not show up unless you typed its whole name, nor would it show up on statistic boards or popular). Overnight the growth was virtually halted, it went from 100k new subscribers per month to 5k. Along with a brutal crackdown on the massive protests, Hong Kong's problems disappeared from the world stage and thus did any chance of defending their city. This shows the massive power of the algorithms in a way that unless an algorithm directs traffic somewhere that thing/event will become irrelevant.

3.1.1.5 TikTok

TikTok is fascinating because it has by far the most advanced AI. It tracks everything it possibly can. Anything from where you touch, what phone, how long, how many replays, how many likes, how many comments, etc. It tracks everything. Within watching a few shorts, the user already has a profile of what they like, and the AI feeds more content like this. It was analysed that TikTok is extremely addicting due to its endless stream of 15-second videos. At its rise, TikTok was almost banned in several countries because it was believed it was a Chinese spy app. What's funny about that is that TikTok itself is banned in China because it isn't curated. However, if a user posts something bad about China their content doesn't get many views and their profile loses future traffic.

3.1.1.6 DuckDuckGo

DuckDuckGo is an alternative search engine platform that, unlike Google, doesn't curate nor personalize content. This lack of personalization ai is what draws people to this platform and today is one of the main search engines.

3.1.1.7 Politics

Using the metrics gathered by these sites, companies like Cambridge Analytica can push people towards certain fears and views. Thus, giving an advantage to certain political candidates. This not only proves that people are sheep but is also incredibly dangerous. As the free democracy becomes an illusion due to people's views subversively being changed. Cambridge Analytica had an extremely successful project in the Czech Republic. Nobody knows what they really did here, apart from the fact they succeeded. (12) Either way, using AI to manipulate public opinion is extremely unethical.

PRACTICAL PART

4 Methodology

For the purposes of this research, an online survey was conducted in order to obtain a comprehensive picture that incorporates diverse perspectives.

4.1 Survey information

4.1.1 Reasoning

The selection of a survey as a research method was based on the understanding that ethics cannot be measured through empirical means. What's more, it would be impossible to access the workings of current ANIs due to trade secrets. Even if it were possible to measure the ethics of manipulating users into different actions, I am not qualified to make such a judgment. Thus, the only possible way would be to measure public opinion.

4.1.2 Target Demographic and Method of Delivery.

The subsequent step involved a consideration of the methodology for conducting the survey and identifying the target demographic. Gathering data for retirees living in the USA by standing at a Prague metro station with a pen and paper would be impossible. On top of that the engagement of passers-by on their way to work/school/home is practically zero. So even if the target demographic was relevant such as "Prague residents" it would be neigh impossible to make the survey statistically valid in a reasonable time frame. And thus, an online form of delivery was chosen.

Conducting an online survey has several advantages, some of them are listed below:

● A much bigger and more diverse demographic can be approached by an online survey as it isn't tied by the respondent's physical location. As stated earlier the physical location is vitally important to a pen and paper survey. Moreover, one can't realistically choose the people who respond to a physical survey while an online survey can easily filter out the responses of people who do not meet the demographic and still manage to stay in the desired margin of error.

● The number of respondents increases dramatically as people can respond at a time that is convenient to them. As opposed to a physical survey that can practically only be done during transit hours.

However, an online survey has its own set of issues. For example, if one is not careful with the delivery method, a high number of the responses can come from people outside the target demographic. There are also a lot of people who will purposefully input false information into the survey. This is true for both forms of delivery, more so online as people often behave online in more hostile and "provocative" ways than in person.

4.1.2.1 Margin of Error and sample size

An important part is to set the desired confidence level and the acceptable margin of error. Then once those are established the required sample size can be calculated. The formulae can be conveniently written as

$$n = \left(\frac{\text{erf}^{-1}(c)}{\sqrt{2}\,M} \right)^2$$

n	sample size
M	margin of error
c	confidence level

Figure 6

The issue was to find balance between margin of error, confidence level and sample size. In the ideal scenario margin of error would be placed at 1% and the confidence level would be set at 99%. However, that would require 16,587 responses, which is unreasonably large for the purposes of this thesis.

The desired confidence level was chosen as 95%, meaning there is a 95% chance that the survey will accurately reflect the views of the respondents. This was done as it is often the industry standard. After evaluating the possible ways of data collection and possible number of responses, the acceptable margin of error was chosen at 8% as it allows for a reasonable number of minimum responses of 150[1]. While keeping relative accuracy. For comparison, a margin of error of 9% would require 119 responses. While 7% would require 197 and 6% would need 267 responses. Therefore 8% was chosen as a reasonable middle ground.

Margin of error	5%	6%	7%	8%	9%	10%
Sample size	384	267	196	150	119	96

TABLE 1

4.1.2.2 Demographic

There are several issues with selecting the target demographic. While my ideal focus is on Czech people's behaviour on the internet, it would be problematic to approach all the possible sub demographics such as women aged 50-65 with a reasonable number of responses to keep it statistically sound.

From my experience, the main traffic on the internet is from people under 30 years old. Therefore, I have chosen to focus my study on this demographic. As noted in Section 5.1.3. Data collection, collecting a statistically sound number of responses from Czech residents under 30 proved challenging. To address this, it was decided to broaden it to include individuals under 30 years old from across Europe. The survey was provided in English and Czech to accommodate people's knowledge of both languages and to be able to reach more people.

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[1] Rounded down from 150.1

4.1.3 Data collection

An additional challenge is that there aren't many Czech forums, from where data could be reliably gathered. The most used one is a subreddit r/Czech with 281000 users as of April 2023. Coincidentally, judging based off the content of the forum, it would perfectly fit the desired demographic. However, based on my previous experiences, the subreddit alone won't be enough to reach the desired minimum bar of responders.

Therefore, more ways of reaching the demographic were needed. The mode of sending the survey via email is a generally an outdated method to utilise, as it is inefficient and would result in a lower number of respondents. Another possibility would be to share it on social media sites. However only some would work as some don't support purely text content, such as TikTok or YouTube. Facebook wouldn't work either as it is mostly populated by older demographics, or it is used for specific groups, such as car owner clubs. Instagram could theoretically work, although the response rate is much lower than other options. If one had a huge account, then it would be possible to use it as a main way of data collection, unfortunately I do not possess such an account nor do I know someone with a sufficiently large number of followers. Despite this, Instagram was used as every answer counts.

This led me to Discord. A Voice over Internet Protocol (VoIP) and instant messaging "social media platform" that is designed for communities to interact with each other. It works in a similar manner to Microsoft Teams or Skype and now unused ICQ. Discord is hugely popular among people under 30, where the average user is between 18-24. It has shown enormous growth from 10 million active users in 2017 to 150 million active users at the end of 2022. (13) Unlike Instagram, where my outreach is quite low and response rate would be even lower. On Discord, hundreds of people are within my reach and get a relatively high response rate.

4.1.4 Choice of tool

Several options for online survey tools were considered. The main contenders were "Survey Monkey", "Google Forms", "Microsoft Forms", "Survey Planet" and "Survio". I opted for Google Forms, as my previous experience with the platform would have been advantageous.

However, for clarity one of the questions demanded a Likert scale question and "Google Forms" does not offer the option to use it. The only alternatives were to either exclude the question, though as outlined later in this study, this was not an option, due to its significance. The second option was to make each entry its own separate question, but that would drastically lengthen the survey visually and thus increase the number of respondents that would not finish it. As a result, the only viable course of action was to switch to an alternative option. "Microsoft Forms' was chosen as it offers the desired feature. Unfortunately, there is no framework to allow for copy pasting a survey between the services and so it had to be created from the very beginning again.

4.1.5 Preface

This was the preface for the survey (English version):

Hi,

My name is Alexander Keviczky, and I am a student at the Czech Technical University in Prague. I am currently writing my bachelor thesis on the ethics of ai. As ethics cannot be measured, I am focusing on analysing public opinion.

Now the questionnaire is built to be as fast as possible to fill out with only multiple-choice questions. The answers are completely anonymous of course. The survey should take you somewhere between 2 and 5 minutes to finish. Despite that, I ask you to think about your answers.

Thank you a lot,

Alex.

The Czech version was a direct translation into Czech.

4.1.6 Questions

Throughout the questions, there is a large focus in the possible implications of the answer. The questions are not always what they seem as some of the options are there to trick the respondent. Some of the questions may also seem similar, there are key differences. The English version was purposefully built with relatively simple English so that there would not be any language barrier.

4.2 Survey breakdown

This section focuses on breaking down each of the questions individually and as sections.

4.2.1 Demographics

The first section collected information on the demographic of the respondent contained 6 questions. The questions in this section are relatively simple and self-explanatory as their purpose is to categorize the respondent.

4.2.1.1 What is your age range?

First question refers to the age of the respondent. This is vital for several reasons. Firstly, I needed to find out if the respondent falls into the desired age group. If they do, there are 3 possible subgroups to allow for a clear breakdown of the data collected. The category thresholds were selected on reaching adulthood, which coincides with a transition from high school to a higher education. The second option includes young adults who are still establishing themselves, whether it is by entering the workforce of furthering their education. The third option likely includes individuals who are already established and may be considering starting families.

Figure 7

Originally, the idea was to have more age categories ranging up to 65+, however that would make each category have too few responses to stay acceptable. And thus only 4 categories were made.

Due to methods of delivery discussed earlier, the number of respondents in the category of "Older than 30" should be low and they should be ejected from the results while keeping accuracy.

The data prediction is that the category 18 – 24 will be most numerous with categories >18 and 25 – 30 being roughly equal in size.

4.2.1.2 What is your gender?

One of the possibilities that was considered was not including option 3. Non-binary. However, a notable idea occurred to me. A so called "internet provocateur" aiming to the skew the result would most likely pick option 3 (non-binary). Accordingly, the answers can be used as a measure for "internet provocateurs". However, it is possible that a respondent might answer this question seriously and, in such case, it will be obvious as each singular response can be displayed.

The prediction is that there will be a slightly larger number of males due to the main data collection point being discord. Discord consists of 65% of men and thus a ratio of roughly 6 to 4, as other collection points should be roughly 50/50.

2. What is your gender? *

    ◯ Male

    ◯ Female

    ◯ Non-binary

    ◯ Prefer not to say

Figure 8

4.2.1.3 What is your level of education?

The purpose of this question was to accurately place a respondent's reached education level. As with all the other questions in this section, it allowed for a more educated and accurate breakdown of the gathered data. By including this query, we can find out how education correlates with other responses in the survey.

The possible answers were kept simple with Highschool and lower, bachelor's degree, master's degree, and Doctoral degree. These options were used as they are universally used in some way or form for measuring the level of education across the globe.

3. What is your level of education? *

    ◯ High school or less

    ◯ Bachelor's degree

    ◯ Master's degree

    ◯ Doctoral degree

Figure 9

The expected data outcome is that the vast majority of respondents will answer option 1. With option 2 following behind. It is not expected that there will be more than 10 doctoral degrees that meet the desired demographic. As for the number of master's degree holders I expect it to be about a quarter of bachelor's degree holders.

4.2.1.4 What is your employment status?

This question focuses on the employment status of the respondent. As the target demographic is not limited by this factor, the purpose of this question is just to allow further classification of the data. This question was not kept to the absolute minimum unlike the others. This is due to the implications that these categories have. The most common one should be student as the majority of the people under 24 should be students. The following category ought to be employed. However, it is the other categories where the responses become intriguing. This is due to the fact that the opinions are expected to differ from the rest. On the other hand, there is a very high possibility that there will not be enough data for it to be accurate. Another thing of note is the answer to possibility number 6, as it allows the respondent to write something humorous if they are trying to sabotage the questionnaire.

4. What is your employment status? *

○ Employed

○ Self-employed

○ Unemployed

○ Student

○ Retired

○ Jiné

Figure 10

4.2.1.5 Which of the following best describes your current residence?

Apart from Question 1, this is the second most important question in the survey. This is because the question ascertains whether the respondent is from the desired demographic, making all the other answers in the survey invalid if these 2 questions aren't met with the right answer. Apart from that this is the last query that exists only to classify the data further.

One of the ideas that had been considered during the construction of this question was to include the United States in as one of the answers. This was due to the fact that the most numerous location outside of Europe would be the USA. However, as it is not the target demographic, which would result in the convolution of the graphical representation of the answers, the decision to not include it was made. The data of respondents from the USA can be excluded anyway, as option 4 demanded a specification of one's location.

Before the target demographic was expanded, this question had a slightly different form. Focusing more on for how long the person has lived in the Czech Republic, if at all.

In the ideal conditions, there would be enough responses from the Czech Republic to keep the survey statistically sound on its own. Unfortunately, I don't believe this will be the case. Presumably, EU participants should be the second most numerous followed by "Other" and the least will be from non-EU European countries.

5. Which of the following best describes your current residence? *

   ◯ Czech Republic

   ◯ European Union (EU)

   ◯ Europe (non-EU)

   ◯ Jiné

Figure 11

4.2.1.6 On an average day how much time do you spend using social media?

An important part of the survey was to gather information on how much time the respondent spends on social media per day. However, if the question was phrased with multiple choice answers it would not provide the data needed, as the significance of this question is the implication that comes from the usage of specific platforms in combination with the answers given in 5.2.3 Ethics.

More on that in the separate questions. On the other hand, had this question been split into multiple questions it would have prolonged the survey by 6 questions as there are 7 possible options. The question had a Likert scale form.

It posed as several multiple-choice questions chained into one. The form was that of a table with the rows being the different social media platforms: YouTube, TikTok, Instagram, Facebook, Snapchat, Twitter, and Discord. The columns on the other hand were the possible answers: "Never", "Less than 1 hour", "1 – 2 hours", "2 – 3 hours", "3 – 4 hours" and "More than 5 hours".

This question also allows for a direct comparison of time spent on each application by the target demographic.

6. On an average day, how much time do you spend using social media? *

	Never	Less than 1 hour	1-2 hours	2-3 hours	3-4 hours	More than 5 hours
Youtube	○	○	○	○	○	○
Tiktok	○	○	○	○	○	○
Instagram	○	○	○	○	○	○
Facebook	○	○	○	○	○	○
Snapchat	○	○	○	○	○	○
Twitter	○	○	○	○	○	○
Discord	○	○	○	○	○	○

Figure 12

I believe that the most used platform will be, by a large margin YouTube, for several reasons. The main one constitutes of being unlike the other apps, as it works on the basis of long form content, which is longer than short from content, which can be seen for example on TikTok. The second being the fact that YouTube is the content platform of choice for most people aged 20-30. On the other hand, I presume that TikTok will be drastically more used than YouTube by the respondents under 18. However due to security concerns, there is reason to believe that a lot of people will not use it at all. Instagram should be at about half the usage of TikTok, but with more representation in the older categories. Facebook disappeared from the front years ago and is only used for specific hobby groups nowadays, which leads to the belief that it will have light usage but very little over the 2-hour mark. Snapchat and Twitter have mostly different issues but meet in one common theme; neither of them is time demanding and both are niche. Twitter is mostly unappealing to younger categories and is mostly used by older demographics. Specifically, as of 2021 59% of users were aged 25-49. (14) Discord is bit of a misfit. As stated before, it is rapidly growing ever since its creation in 2015. However, a large number of people do not even know what Discord is or do not use it at all. On the other hand, I believe that the users that do use it, spend an unreasonable amount of time per day on the social platform. It can also be presumed that due to the method of delivery, there will be a skew towards the more hard-line Discord users.

Each row requires a singular point, while columns can have several but also none.

4.2.2 General questions

The following segment concentrates on questions that can be best summarised as general questions. Their purpose is to get a more precise idea about the average respondent.

4.2.2.1 How often do you use publicly available AI tools such as ChatGPT?

The question was included in the survey to gain insight into the familiarity and usage of public AI tools. As AI becomes more common, understanding the general perception and engagement with such tools is necessary. The results can show patterns in AI usage by the different demographics. Furthermore, this question serves as a benchmark for accessing the knowledge of the respondent on AI technology. I expect that about half of the population would answer" Never", as the tools are only common knowledge in the tech community. I believe that the population of people who answer" Yearly" will be miniscule due to the limiting factor of usage being the knowledge of the existence of the tool and how to operate it, not the user retention. The remainder of answers should be divided between options 1 through 3, with relatively similar levels of usage.

7. How often do you use publicly available AI tools such as ChatGPT? *

   ○ Daily

   ○ Weekly

   ○ Monthly

   ○ Yearly

   ○ Never

Figure 13

4.2.2.2 How would you describe your technical knowledge or expertise?

The purpose of this question was to gather information on the respondent's background and how well they understand technology overall. This question could have theoretically been used as a demographic question in a case such as focusing only on technical university graduates.
The respondents were presented with 4 possible answers: Beginner, Intermediate, Advanced and Expert. These categories were chosen as they are easy to understand, universally recognised and provide a clear answer.
However, the question served another goal. To find respondents that overestimate their understanding of technology. I believe that there is going to be a disproportionate population of people who answer options Advanced and Intermediate.

8. How would you describe your technical knowledge or expertise? *

○ Beginner

○ Intermediate

○ Advanced

○ Expert

Figure 14

Today's more advanced pieces of technology are so ridiculously complex in their function that to the non-expert eye they could almost seem like magic. An illustrative example of that is a typical microprocessor. A technology completely necessary for our today's world but I have serious doubts that most people have any idea on how or why it works.

4.2.2.3 How familiar are you with Artificial Intelligence technology?

Question 9's purpose was very similar to question 8 in the sense that it aims to find the respondents technical understanding, but unlike question 8, it focuses directly on Artificial Intelligence technology familiarity. It used a format new to the survey in the form of rating the answer from 1 to 10 where 1 was "Not at all familiar" and 10 was "Very familiar". One of the possibilities was to keep it at 1 to 5, though I decided to make it more detailed for the provision of a more comprehensive picture.

9. How familiar are you with artificial intelligence (AI) technology? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Not at all familiar   Very familiar

Figure 15

As this question presented more freedom to express one's level of understanding, it raises the question of why question 8 was not done in the same way. The answer is quite simple, it originally was but during further brainstorming, I concluded that it would be better to quantify it in terms that anyone can understand as putting technical knowledge out of 10 isn't something that can have fixed boundaries. Someone might imagine a 5 being "I know how to turn on computer" and someone else might imagine it as "I'm an engineer but I'm average in my knowledge" and both would put 5 while both would mean something drastically different.

4.2.2.4 Have you ever heard the concept "algorithmic bias"?

Algorithmic bias is a systematic discrimination that can occur when using algorithms to make predictions. This bias can originate from 2 factors: a) when algorithms are designed or trained on biased data or b) when the algorithm integrates biased assumptions or criteria. However, the question is where the line between logic and bias is. If group a is faster and group b is stronger than is its algorithmic bias if the algorithm assigns roles to the groups based on their strengths and weaknesses? Certainly, most of the time this issue would arise in a scenario such as purposefully rejecting certain groups from applications. In the aforementioned cases, it would have significant negative impacts e.g., perpetuating discrimination.

10. Have you ever heard of the concept of "algorithmic bias" *

○ Yes

○ No

Figure 16

The function behind the question was to find whether the target group is aware of this issue. The options presented to the respondent were a simple yes and no. The expected outcome is roughly a 50/50 split.

4.2.2.5 How concerned are you about the potential implications of AI on future society?

The following 3 questions all follow the same theme of trying to find out the opinion of the respondent on their general view on the impact of AI. The first of the bunch focuses on the potential changes in society based on increased AI automation, focusing on both the good and the bad. Now, this could mean anything from full self-driving cars to a Skynet situation. The question was pitched in a manner to find out whether the respondent is worried about the changes that will come.

The answer format was again chosen to be in the form of a scale ranging from "1 – Not at all concerned" to "10 – Very concerned".

If the majority of the respondents express higher levels of concern, it could indicate a growing awareness to the risk that AI presents. On the other hand, if the responses are more relaxed it could either suggest a lower level of awareness or that they are not bothered.

11. How concerned are you about the potential implications of AI in future society? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Not at all concerned   Very concerned

Figure 17

Overall, I expect a generally balanced answer list with a slight bias towards somewhat concerned, and the average being somewhere between 5 and 8.

4.2.2.6 How much do you think AI is currently impacting our society?

The format of question number 12 was chosen in the same league as the previous question with a scale ranging from 1 to 10. It lacked the descriptions of the sides as it followed question 11, which established that number 1 stands for least and number 10 for most.

The purpose of this question was to gather the respondent's opinion on the effects of AI on today's society. This would provide valuable insight into the attitude of the respondent. This question, however, was difficult to measure accurately, as it is not something that can be accurately measured. Similarly, to the previous question 9, it ran into the issue of what the scale is. Different people might imagine different things under the scale, one could think that that is an undesirable outcome. The reality could not be further from the truth.

12. How much do you think AI is currently impacting our society? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Figure 18

The question being open ended left the respondent to think about their perspective on the matter. It is true that the data provided will not be as accurate had it been built with specific answers. Due to its form, there is reason to believe that the answers will be scattered, with the exception of extremely low results.

4.2.2.7 How concerned are you about the potential risks of AI in society?

The third and final question of this group dealt with the respondent's opinion on the potential future risks posed by AI. The question was similar to question number 11; however, this question didn't factor in the potential gain from such technologies and only fixated on the negatives.

The form was again selected as a scale of 1 through 10. Same as before it lacked descriptions due to the already established scale. However, had it been desired to gather precise data, the question would have had to been phrased as something along the lines of "Do you believe an AI could be an existential threat for humanity?". Nevertheless, such a question wouldn't have been optimal as a replacement for this question as there are multiple forms of danger AI can pose and it doesn't indicate the level of concern for each danger. Even more, it would have been impossible to include all such hazards in the survey, as it would make it drastically longer without providing an equal amount of benefit.

I believe that the average person is moderately worried about the risks. Especially so if there are not regulations in place to make the AIs work in ethical ways. E.g., ChatGPT that actively blocks the user from writing any "harmful" prompts, but only if they are aimed at certain demographics. For instance, it won't tell you a joke about Ukrainians, but it will tell you a joke about Czechs.

13. How concerned are you about the potential risks of AI in society? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Figure 19

4.2.2.8 How often do you read the terms and conditions before agreeing to them when using a new software or service?

One of the major issues today is that one is forced to agree to terms of service that are purposefully made in such a way that they are extremely long, convoluted and unclear to the average person. To practically any service, a user is forced to agree even if they disagree with the terms and conditions, purely due to lack of alternative. A practice I believe to be highly unethical. All the more so if one consents to having all their data read, sold and so on. It is an equivalent of a medieval lord making peasants sign contracts when they can't read or write.

The form was chosen as a multiple-choice question with 5 options given: "Always", "Most of the time", "Sometimes", "Rarely" and "Never". During the creation of this question, I was questioning whether to have numbered responses such as "weekly" however I concluded that if it was framed like so it would not be accurate, as people do not sign new terms and conditions at the same intervals. Therefore, this option was chosen.

14. How often do you read the terms and conditions before agreeing to them when using a new software or service? *

○ Always

○ Most of the time

○ Sometimes

○ Rarely

○ Never

Figure 20

Based on my prior experiences I expect a large number of the populace to pick option "Never" due to the reasons stated above. I believe that most common option will be "Rarely" as people don't usually read them. They do so only when signing on a questionable service or app. The other 3 options should be relatively small with decreasing number of respondents.

4.2.3 Ethics

After establishing who the respondent is in the first segment, followed by finding their opinions on general questions in the second segment. The final segment addresses the ethical dilemmas that AI usage poses.

4.2.3.1 How much do you agree or disagree with the statement "A lie repeated a hundred times becomes the truth"?

The form was chosen as a scale ranging from "1 – Strongly disagree" to "10 – Strongly agree". This allowed for very detailed answers from the respondents.

15. How much do you agree or disagree with the statement "A lie repeated a hundred times becomes the truth"? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Strongly disagree   Strongly agree

Figure 21

The quote "A lie repeated a hundred times becomes the truth" was said by an unnamed notorious propagandist almost a hundred years ago. But I would argue that it is even more relevant in today's digital age than it was back then. Interestingly enough because of globalization. The perfect example of such case is rapidly increasing amount of disinformation or its more popular name "fake news". Even more so as people are overloaded with information and a large portion of the population just reads headlines. Which are drastically exaggerated and often disproved within its own article.

The purpose of the question was to gain the respondents opinion on whether they agree that the statement holds true or not.

4.2.3.2 What do you think are the most important ethical considerations for companies using AI?

The purpose of this question is to accurately gauge which ethical choice the respondent values most from AI software. This question was tricky. The respondent had to pick just one of the options.

The choices provided were:

1. Transparency – If the user picked option a) it shows that they value transparency over anything else. However, when compared with the other possible answers. It leads to some dangerous implications for example: "I don't mind if the AI is unfair, invades privacy and its dangerous as long as it is transparent". The comparison to Moloch comes to mind. Realistically this option is a pipe dream as the code AIs consist of is a trade secret and it will most probably never be public, unless forced by law makers.
2. Privacy – The user values his privacy over the others. A fairly reasonable option. However, nothing is free. Platforms like TikTok survive from selling the user's data and I can't imagine a paid social media platform to reach critical mass and break through into the mainstream. On the other hand, when assistant AIs reach the market in the future, there lies the possibility to have an AI that respects privacy, the downside would be its cost.

3. Fairness – The user values equality over everything else. Ironically, I find this option quite humorous. The implication of this is the following statement – "It is okay if we all find ourselves in unfavourable circumstances as long as we are all equal". If a rogue AI decides to wipe humanity off the face of the Earth that's okay because we are all being treated equally. It does not even have to be a scenario so extreme, but it is just amusing.
4. Safety – The user realises that safety is of the utmost importance. It is irrelevant if an AI is transparent, values privacy and is fair if goes haywire and decides to cause harm.
5. Other – This option was included as a contingency. Its purpose was to allow for specification of another ethical consideration not provided in the list.

16. What do you think are the most important ethical considerations for companies using AI?

   ◯ Transparency

   ◯ Privacy

   ◯ Fairness

   ◯ Safety

   ◯ Jiné

Figure 22

I believe that there will be a small population of users who will write something along the lines of "all of the above". However, that option was purposefully not included as everyone would pick it. It would be the same as asking a little child how many flavours of ice-cream they want - of course the answer would be all of them. As for the population of the others, I presume that option c) will have the smallest population and the rest will be split roughly equally between a), b) and d).

4.2.3.3 In a hypothetical scenario where an AI system recommends harmful content to a user, who do you think should be held responsible for the harm caused?

This question differed from all the other questions in the survey for a set of reasons. Unlike all the others, it focused directly on a specific practical scenario that has partially happened. The second reason is that it allows for multiple answers to be picked.

The most common form of an AI today is a recommendation algorithm such as the one used by YouTube. YouTube is going to be used as an example for this question. It is a diverse platform used for any content ranging from tales for very small children through political commentary to content meant solely for adults. The algorithm has to decide what to recommend to the viewer. It does so based on information about what they have seen previously or popular trends in their area. However, what would happen if it made a mistake and recommended a video about the Alien: Isolation to a 5-year-old.

The options presented to the respondents were "The AI system itself", "The company or organization that developed and deployed the AI system", "The individual user who produced the harmful content" and "Other – Please specify". Blaming the system itself might work in the future when systems are self-aware, however in today's world it would be the equivalent to punishing a car for a car crash. In my opinion if the individual who produced the content aimed for his desired demographic e.g., "players of Alien: Isolation" and the system recommended his video to someone else then he is not to blame. If he, however, disguised his video as a video for children, then it absolutely is the creator's liability. The option other was included to allow for specification of the respondent's answer had they desired to do so.

17. In a hypothetical scenario where an AI system recommends harmful content to a user, who do you think should be held responsible for the harm caused?
Note: Multiple can be selected

☐ The AI system itself

☐ The company or organization that developed and deployed the AI system

☐ The individual user who produced the harmful content

☐ Jiné

Figure 23

I presume the answer distribution to be largely balanced.

4.2.3.4 How much do you agree or disagree with the statement "AI-driven marketing is inherently manipulative"?

Question 18 re-established the format of a scale 1 – "Strongly disagree" to 10 – "Strongly agree". I elected to use this format based on the fact that, had a multiple-choice option been chosen, the answers could not reach a higher level of precision.

18. How much do you agree or disagree with the statement "AI-driven marketing is inherently manipulative"? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Strongly disagree   Strongly agree

Figure 24

Its purpose was to gauge the trends and the average opinion on manipulation by AI. Some might argue that marketing by itself is manipulation. However, I strongly disagree with that statement. As marketing by definition means "the activity of presenting, advertising, and selling a company's

products in the best possible way". Manipulation, on the other hand, implies the use of dishonest behaviour. It is possible for marketing to be manipulative, nonetheless not all marketing is.

An AI can be trained to be manipulative with relative ease. And since its purpose is to make its target do something. It is logically going use the most efficient method.

I expect most of the respondents will either be neutral or somewhat agree.

4.2.3.5 How much do you agree or disagree with the statement "AI-driven marketing can invade people's privacy"?

The purpose of this question was to accurately evaluate the public opinion on the potential risks of the invasion of privacy by AIs. Personally, I believe that making invading privacy legal just because it is written in the terms of service does not make it ethical. Especially so if there is no alternative to the service. Do note that after WhatsApp was bought by what is now Meta, there was a large exodus of users to alternatives, such as Telegram or Signal, because of the change of terms of service.

I stayed on WhatsApp until I suddenly started getting ads on other Meta platforms on things which I've never searched for, sent in a text or said in a voice call. I conducted an informal experiment where I started saying a lot in conversation that for example, I need a new vacuum. Consequently, ads for vacuums appeared on both Instagram reels and Facebook. After uninstalling WhatsApp, I conducted a similar experiment again, this time with a bicycle and no ads appeared.

19. How much do you agree or disagree with the statement "AI-driven marketing can invade people's privacy"? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Strongly disagree   Strongly agree

Figure 25

I don't believe that the risks posed by AIs invading privacy are high at this moment in time. However, I believe that the action of giving the algorithms data from other apps is extremely unethical.

4.2.3.6 How much do you agree or disagree with the statement "AI-driven marketing should be regulated to ensure ethical standards are met"?

The reasoning behind this statement is to determine the level of agreement among the respondents. The outcome of this question might seem obvious. The truth is not so simple. It is the implications that are key to the answer. Followers of the Libertarian school of thought might argue that the key to progress is as little regulation as the market will regulate itself. I believe that the results will show this school of thought and that they will show that the population is quite small. The rest of the answers should be overwhelmingly high.

20. How much do you agree or disagree with the statement "AI-driven marketing should be regulated to ensure ethical standards are met"? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Strongly disagree   Strongly agree

Figure 26

4.2.3.7 How much do you agree or disagree with the statement "AI-driven marketing should be transparent about how it uses personal data"?

The question can help show the level of support for ethical practices and allow for better understanding of the range of opinions on the importance of transparency in the use of personal data. I anticipate that this question will be the most one-sided one out of all the questions in the entire survey. I stand by this, as unlike all the other questions, there are no downsides to it. On one hand, there could be a platform that tells you what it does with your data and on the other is a curtain where it is impossible to know.

20. How much do you agree or disagree with the statement "AI-driven marketing should be regulated to ensure ethical standards are met"? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Strongly disagree   Strongly agree

Figure 27

4.2.3.8 What is your general perception of AI's role in advertising?

With question 22 ended the precedent of questions using a scale of 1 through 10. The following questions worked using the form of multiple choices. I considered using that form for this question as well, but ultimately decided to use 1 – 10 again, as it allows for a more accurate breakdown of the data. Unlike the previous questions it used a different meaning of the scale with 1 being described as "Very negative" and 10 as "Very positive", this numbering implied number 5 stood for "neutral".

22. What is your general perception of AI's role in advertising? *

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Very negative   Very positive

Figure 28

Its purpose is to accurately access the respondent's opinion on the effects of AI in advertising. The question was tactically placed at the end of the third quarter, as by now the respondent has had to think about their view in greater detail and thus would provide a higher quality answer.

I believe that a large number of respondents will be conflicted about their opinion and so the average will be very close to number 5.

4.2.3.9 How do you feel about having your personal data collected and used for targeted advertising?

A conversation with one of my relatives sparked my interest in this question. When she told me that she doesn't care that TikTok collects and sells all her data. Therefore, I concluded that it is vitally important to see the opinion of people on the data collection and selling of such data.

The question didn't use a 1 – 10 scale as I believed it wouldn't provide an accurate picture of the public opinion, because the aim of the question isn't to get the average opinion. But to see if what I've been told is a trend or an outlier. Therefore, options given to the respondents were "Comfortable", "Uncomfortable" and "Neutral".

23. How do you feel about having your personal data collected and used for targeted advertising? *

○ Comfortable

○ Uncomfortable

○ Neutral

Figure 29

I believe that age would be inversely proportional to comfort with data collection. I believe this because as people age, they start to value their privacy and unlike teenagers, they, are quite uncomfortable with having personal and private information about their life collected and sold.

4.2.3.10 Do you think AI-driven advertising is more effective than traditional advertising methods?

This question aims to narrow down the respondent's views on the effectivity of AI-driven advertising compared to conventional methods. It could be considered an interesting query due to the fact that the people in question most likely do not work in advertising in significant numbers. Therefore, the comparison to the saying *"You don't ask a fish. How to catch a fish."* comes to mind. How could the respondents[2] possibly have an informed opinion on this topic? Question number 26 further followed on this topic to establish an accurate picture.

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[2] In statistically relevant numbers

The question provided 3 possible choices: "Yes", "No" and "Not sure". I believe that only a very small portion of the respondents will answer "No". With the rest being split roughly equally between the other options.

24. Do you think AI-driven advertising is more effective than traditional advertising methods? *

   ◯ Yes

   ◯ No

   ◯ Not sure

Figure 30

4.2.3.11   Do you think AI-driven marketing is ethical or unethical?

Unlike the previous question there was not a correct answer for question number 25. It dealt with the bottom line of the questionnaire in general. When all is accounted for, what is the respondents answer. The answers provided were: "Ethical", "Unethical" and "Not sure". These options were chosen to provide a clear answer despite being the most important question of the entire form. As ethics cannot be accurately measured except for public opinion, which changes from region to region, overtime and can be manipulated. I believe the answer will be unclear at best. With the most common answer being "Not sure" and "Unethical" having slight advantage over "Ethical"

25. Do you think AI-driven marketing is ethical or unethical? *

   ◯ Ethical

   ◯ Unethical

   ◯ Not sure

Figure 31

4.2.3.12 Have you ever made a purchase based on an AI-generated recommendation?

The aim of question number 26 was to access whether the respondent has made a purchase based off of an AI recommendation. However of course it is possible that the respondent doesn't know and therefore such an option was incorporated into the question. It uses the form of a multiple-choice query. The possible answers were: "Yes", "No" and "Not sure". The main issue with the possible answers from the question is that the respondent might be wrong, in a manner that they might not believe that seeing an advertisement online does indeed constitute as an AI generated recommendation. I expect most of the answers will be not sure, with "Yes" having slightly lower volume of answers than "No".

26. Have you ever made a purchase based on an AI-generated recommendation? *

- ◯ Yes

- ◯ No

- ◯ Not sure

Figure 32

4.2.3.13 What is your opinion on the impact of increased AI automation on jobs?

The objective of question 27 is to gather the opinions of the respondents on their prediction for future automation. The data gathered by the question isn't necessarily significant for any studies on the impact of AI, as this is just the general prediction for the future. It is, however, immensely interesting. Furthermore, it serves as a base for question 28 to build upon.

The respondents were given 5 possible answers:

6. "AI automation will lead to significant job creation" – meaning as AI technology advances and seems more into society it will lead to a drastic amount of new job opportunities.
7. "AI automation will lead to some job loss but also create new jobs" – meaning that the advancements in AI will lead to a significant change where the creation of new jobs outweighs the loss of working positions due to increased automation. Resulting in a net gain.
8. "AI automation will neither lead to significant job loss nor create new jobs" – meaning as AI advances it might create an insignificant amount of job creation/loss. Do not however that that does not mean that jobs won't change.
9. "AI automation will lead to some job creation but also result in job loss" – meaning that the job loss caused by increased automation will outweigh the creation of new positions. Resulting in a net loss.
10. "AI automation will lead to significant job loss" – meaning as AI technology advances and seeps more into society. It will lead to a major loss of working positions.

27. What is your opinion on the impact of increased AI automation on jobs? *

○ AI automation will lead to significant job loss

○ AI automation will lead to some job loss but also create new jobs

○ AI automation will neither lead to significant job loss nor create new jobs

○ AI automation will lead to some job creation but also result in job loss

○ AI automation will lead to significant job creation

Figure 33

I assume that option d) will be the most common one, followed closely by option b). With option a) being the least common one by a large margin. Personally, I believe that in not-so-near future most of the corporate jobs will be automated. However, I assume that especially blue-collar onsite jobs are some of the least automatable jobs on a large scale. Therefore, I believe AI will change the way jobs are done, but the number of job opportunities will stay roughly the same.

4.2.3.14   How concerned are you about the potential job loss resulting from increased AI automation?

The penultimate question built on question 27, in the sense that it focused on the respondents fears of job loss due to AI. To specify the possible answers, if a car manufacturing plant worker gets replaced by a robotic hand that mounts doors instead of him, that does not qualify as ultimately it is not AI but mechanical automation. Personally, this is the most interesting question in the entire form as I expect the answers to drastically vary, due to each field being vulnerable to increasing AI automation in different ways.

28. How concerned are you about the potential job loss resulting from increased AI automation? *

○ Very concerned

○ Somewhat concerned

○ Neutral

○ Somewhat unconcerned

○ Very unconcerned

Figure 34

The possibilities given were quite self-explanatory: "Very concerned", "Somewhat concerned", "Neutral", "Somewhat unconcerned" and "Very unconcerned'. I believe there will not be a single dominant category, but the answers will be distributed relatively equally across all the categories.

4.2.3.15 Do you believe that AI-driven advertising can be used to manipulate consumer behaviour?

In the last question, the respondents were asked whether they believed that AI-driven marketing was capable of manipulating customers. The important part of the question is that the word "manipulating" not "swaying" was used, as it implies unethical behaviour. The answers provided were: "Yes", "No" and "Not sure".

29. Do you believe that AI-driven advertising can be used to manipulate consumer behavior? *

○ Yes

○ No

○ Not sure

Figure 35

5 Results

This chapter breaks down on the results of the survey.

5.1 Data collected.

The data collection period took place from May 2nd, 2023 to May 15th, 2023. A grand total of 187 answers were collected, see tables 2 and 3. However, this number includes respondents outside of the desired demographic and purposeful provocateurs. Therefore, before any data analysis was done, the data was checked and filtered for such answers.

TABLE 2

Age group	Number of Responses
Under 18 years old	37
18-24 years old	102
25-30	27
Older than 30	21
Grand Total	**187**

TABLE 3

Location	Number of Responses
Czech Republic	99
European Union (EU)	47
Europe (non-EU)	21
USA	14
Canada	3
Iran	1
Israel	1
Uzbekistan	1
Grand Total	**187**
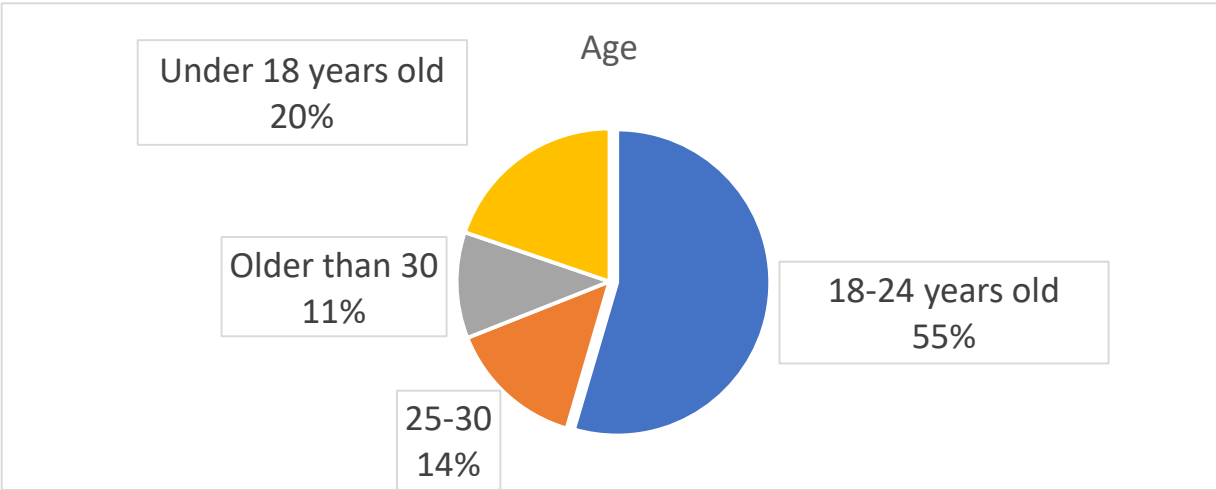
Figure 36
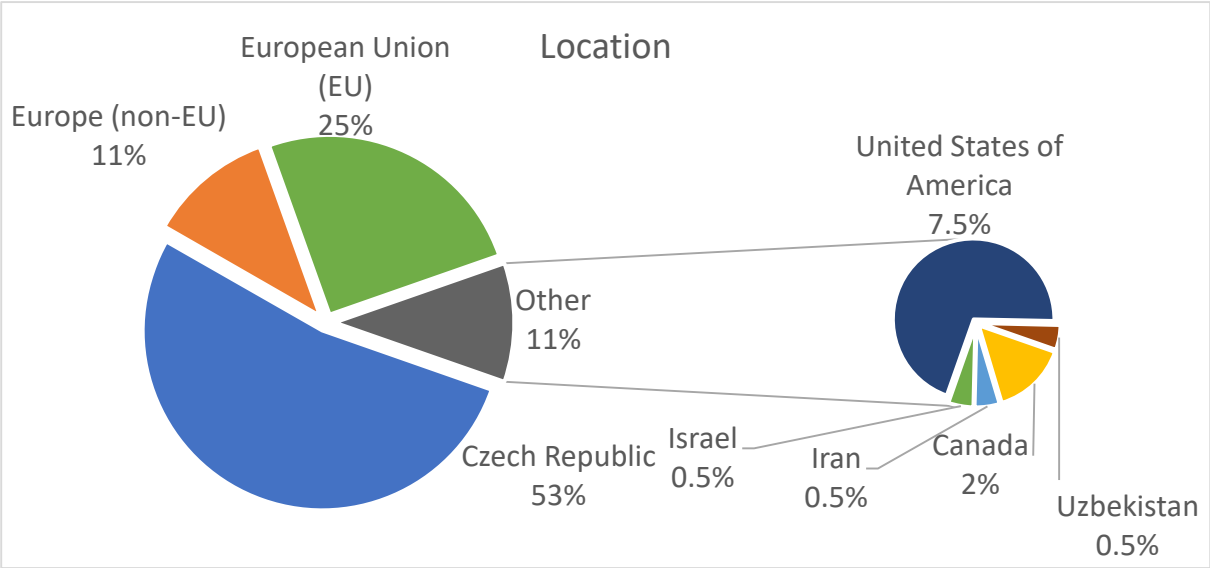
Figure 37

Unlike what the tables and their graphs would indicate, there was an overlap of 9. In total 35 undesired answers were gathered. The "internet provocateur" traps worked exactly as desired as they received answers such as "big oily black men", "gender studies" or "terminator femboys". Illogical answers were also scrutinised e.g., under 18 years old with a doctorate. Providing clear proof of ill intentions. Answers which did not provide clear proof were left in the results. In total 5 clear "internet provocateurs" were identified. All data analysis beyond this point is made only from the 152 responses from the desired demographic.

5.2 Data analysis

For the sake of length of the thesis a detailed graph will not be provided for each question, as it would result in the following 20 pages being just graphs. Therefore, for questions 1 – 10 the arithmetic mean will be shown along with trends within said question. For multiple-choice questions, it will be dealt on a per case basis.

5.2.1 Demographic details.

60% of the respondents used the English version of the form. The average time taken to fill out the survey was 6 minutes and 27 seconds. 5 Outliers were removed as they had unreasonably high times, the highest being over 10 hours, this was done to keep the accuracy of the data.
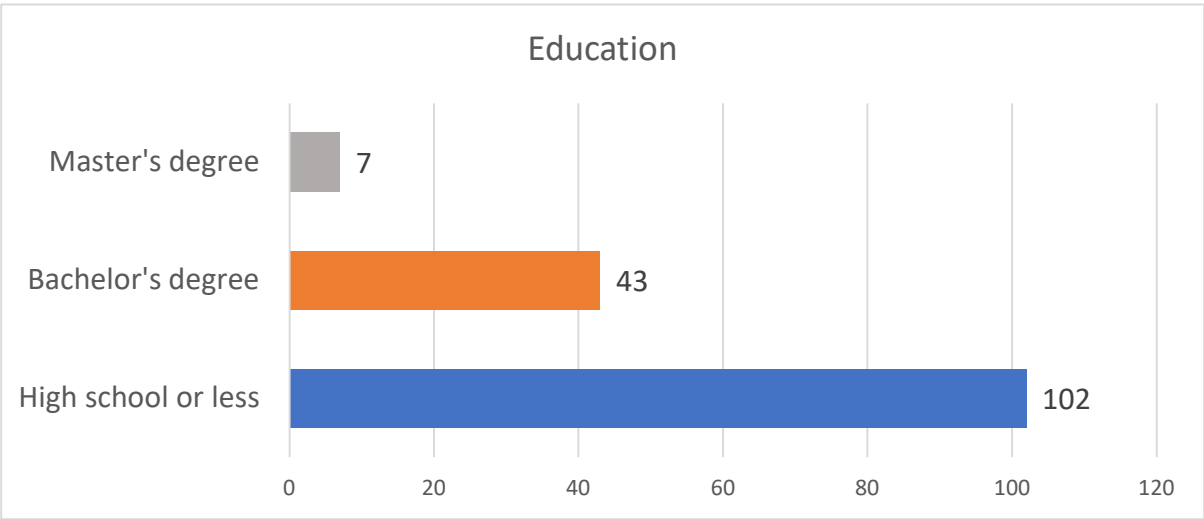
Figure 38
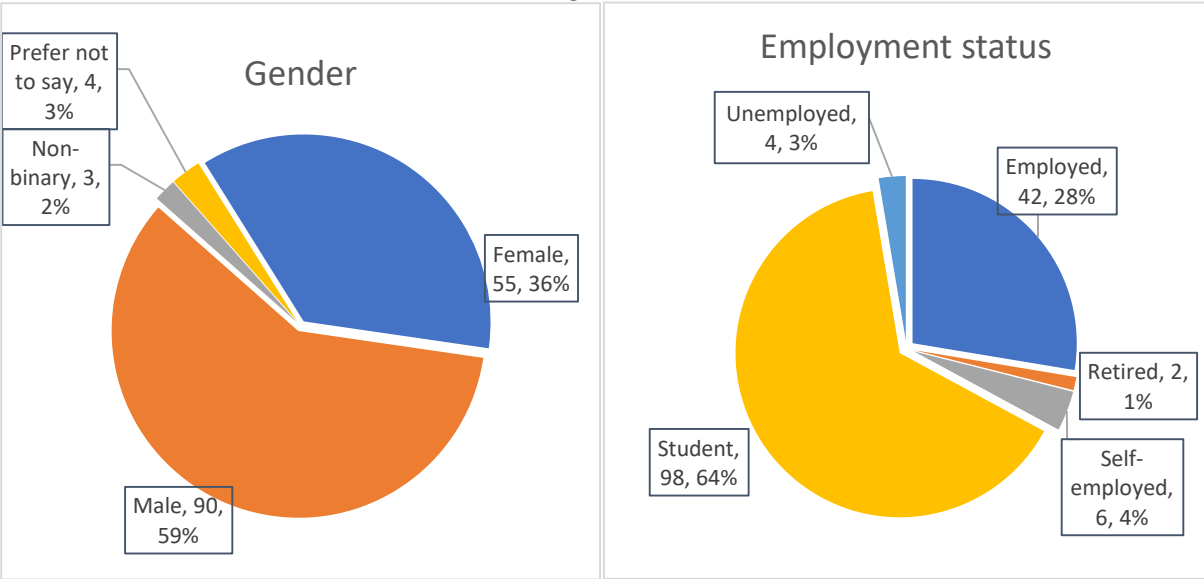
Figure 39

Figure 40
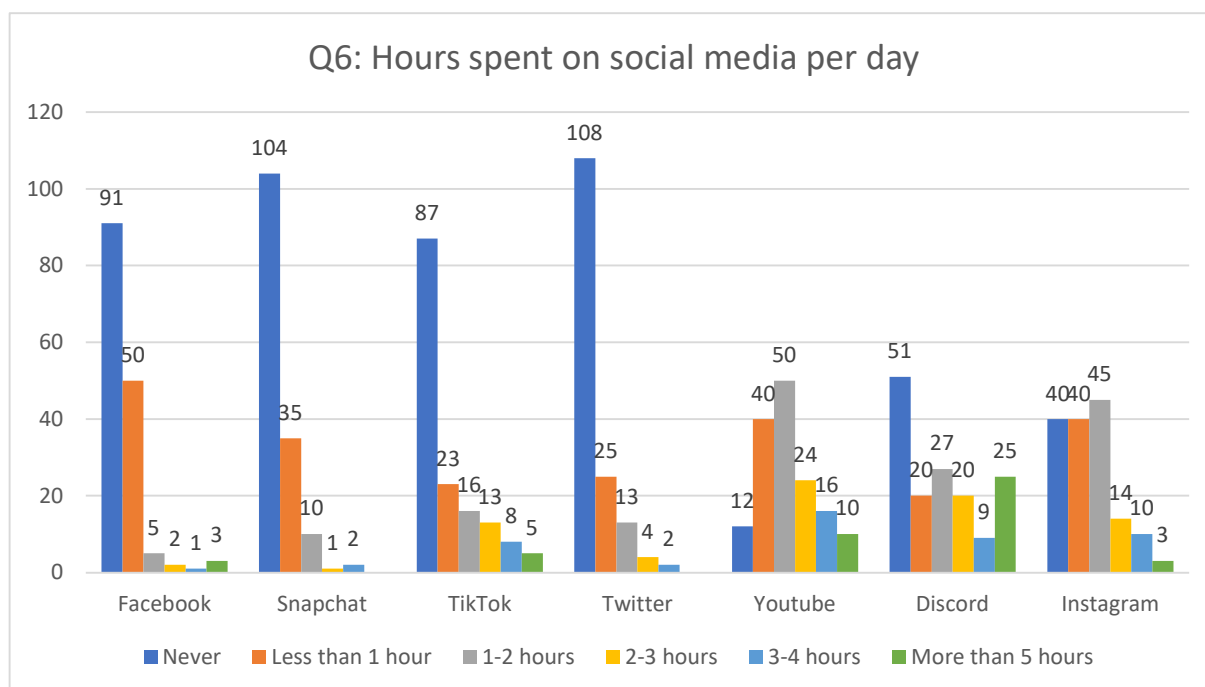
Figure 41

 The results are exactly as predicted: Around two thirds of users don't use Facebook, Snapchat, TikTok and Twitter, with varying percentages.

The majority of the rest of Facebook's users spend less than an hour per day on the platform. This suggests that they might use it for Facebook Marketplace or for asking/answering questions in hobby groups.

Snapchat is slightly different in the manner that a larger population spends 1-2 hours on it per day. This is due to using it as a messaging platform.

One of the respondents who responded 5+ hours, was approached and asked how? and why? He explained that he uses the platform to promote his content and the content of his friends. Early signs of infinite scrolling can be starting to be seen in Twitter population.

It can be observed that TikTok has a significant increase in the number of users who suffer from the aforementioned infinite scrolling. 65% of individuals that use said platform spend more than 1 hour per day on it. On the other hand, there is still 57% of total users that do not use TikTok at all. As stated above, it is assumed that it is due to privacy concerns.

For comparison, for Instagram, the number of active users is larger by a scale of 1.72 or by 47 users. To put that into scale, that is almost exactly the number of active Snapchat users. Instagram is drastically more popular (see Figure 40) for several reasons. It has been on the market for a longer period of time than TikTok and does not have such severe privacy concerns. Most importantly, when a new popular form of content is launched, it instantly gets copied. Out of short form content platforms, Instagram is the most popular by a notable margin. 24% of users state that they spend more than 2 hours on the platform per day. Unfortunately, as Instagram was used as a secondary method of delivery with about a third of total responses coming from it, this set of data is lightly skewed.

The results from YouTube were exactly as expected. 92% of individuals spend at least an hour per day on the platform. 33% of users spend between 1 and 2 hours on it. It might seem as if YouTube is by far the most popular platform as well as the most used platform. The truth lies in the question what constitutes "spending time" on the platform. A large number of the population uses YouTube primarily

as a music hosting platform. So, if they have a song running in the background while doing something else does that count? Furthermore, as will be discussed below, a significant portion of Discord users also utilize YouTube.

The data for Discord is inaccurate at first glance. As Discord was used as the primary method of delivery, numerous hardline users responded to the survey. As the servers approached ranged from smaller casual communities through large communities that focus on organizing meetings in real life, up to a couple of immensely large communities that serve as a fandom for certain video game modifications. The response rate from the small communities was almost 70%[3] and the larger communities had a response rate of below 1%. Coming to an almost equal balance between the users. This results in this almost perfectly balanced result of active users.

5.2.2 General questions
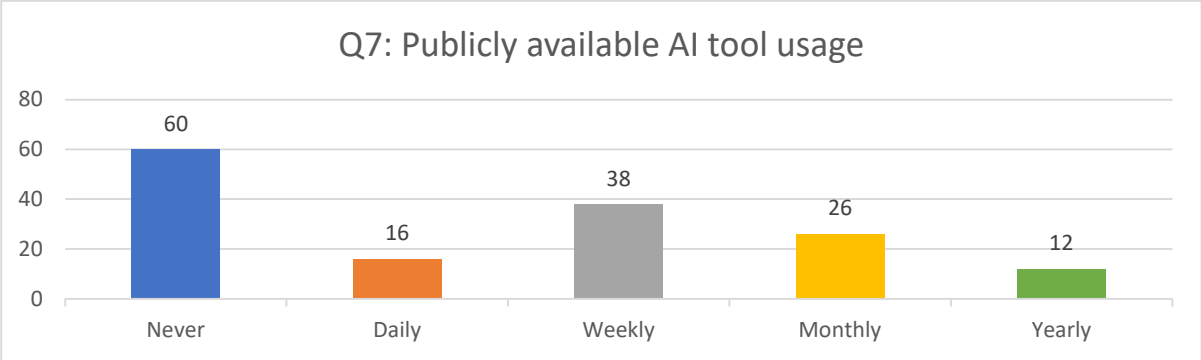
Figure 42

As shown in Figure 39, 39% of the 152 responses state that they never use publicly available AI tools. While out of active users 57% responded they use the tool on at least weekly basis. This is a confirmation of the hypothesis that AI tools are limited by public knowledge, as people who know of them use them relatively often.

Question 8 focused on the user's technical expertise. 47% of respondents stated they see themselves as Intermediate, followed by 26% saying they are beginners and 21% pronouncing they are advanced.
● These numbers at first glance appear suspicious. It seems unlikely such a large population would be so knowledgeable about technology. Upon further inspection, there could be several reasons for such a result. There was no precise scale set, therefore respondents could interpret this question in diverse ways.
● As stated in the question breakdown, there could be a large population overestimating their ability.

Nevertheless, if this result is accurate, then it implies that there are more people with thorough understanding of technology than there are people with very little understanding.

---

[3] estimated

Question 9: Familiarity with Artificial Intelligence technology.

As shown in figure 40, the average answer was 4.95, with the most common answers being 4, 5 and 7. The number of answers for 1 through 3 was more than double of answers 8 through 10 (21 to 43).
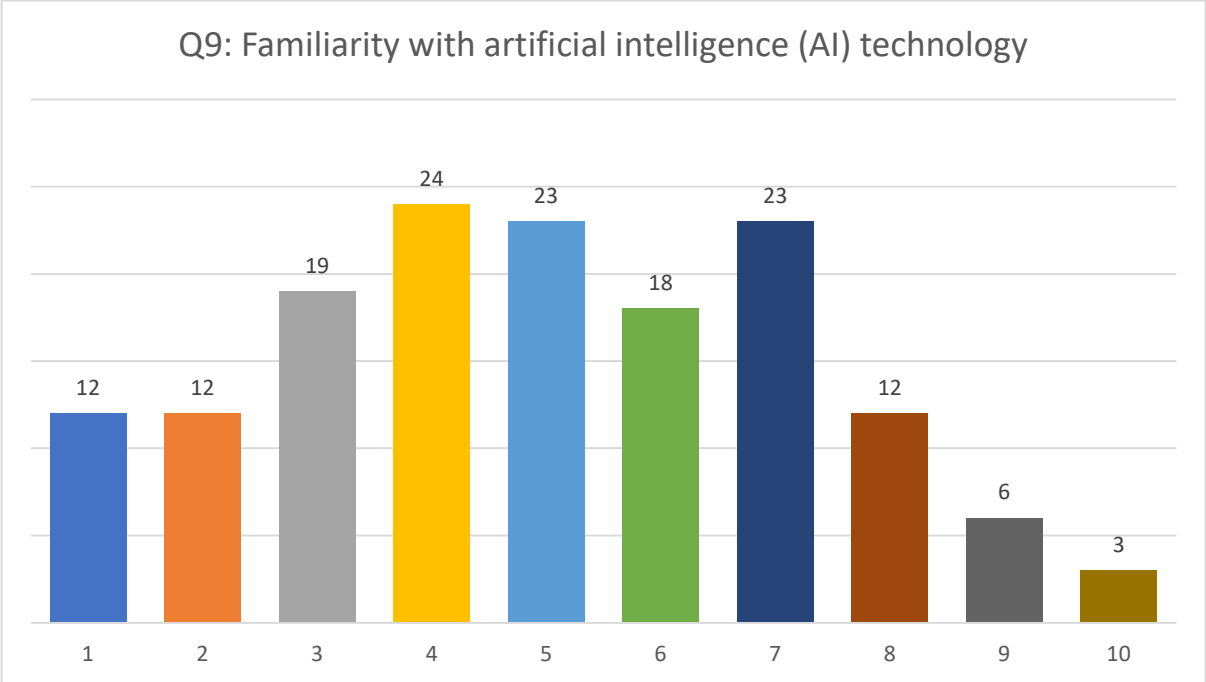

Figure 43

These findings suggest that that while there is a moderate level of understanding of AI technology, a substantial percentage of the population lack a thorough understanding of its implications and applications.

Question 10: Awareness of "Algorithmic bias"

47% of people were familiar with the term algorithmic bias. The results correspond to Figure 40 as 44% of the users responded with 4 or lower. Should AI technology be safe, it is vital to raise awareness of this issue.

Question 11: Concerns regarding future of Artificial Intelligence

The average was 5.75 with linearly increasing quantity up to answer 8 with 23 people. Answers 9 and 10 saw a drastic drop of 12 and 14 respectively. These findings show that while there is a moderate level of concern among the respondents, a large part of the population may not be as worried about the potential risks and see the future brightly.

Question 12: Current impact of Artificial Intelligence on society

The average was 6.05, similar pattern to question 11 formed with the difference of 4 through 8 having a higher population. This was compensated by options 9, 10 being slightly less popular. Options 1 and 2 were only picked by 3 respondents collectively. This suggests that respondents are more likely to view Artificial Intelligence as having a large impact on society.

Question 13: Potential risks of Artificial Intelligence

The average value was 5.74. Unlike previous questions more extreme opinions were observable as options 1 and 10 had a large increase in population to 12 and 14. Interestingly enough, options 2 and 9 didn't break the double-digit barrier, indicating an increasingly binary public opinion. However, the most popular answer by five was 8. These answers diverge slightly from what would be expected, based on question 11, as the answers were more split into the extremes.

Question 14: Reading of Terms and Conditions
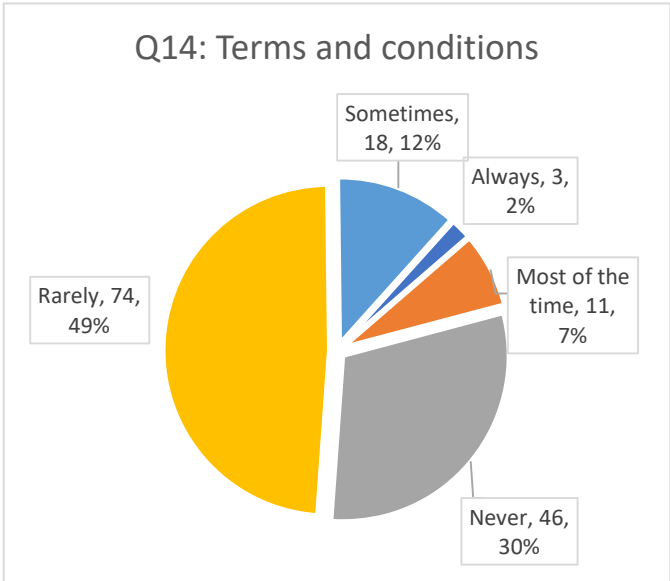
Figure 44

The results show that the strategy of making Terms and Conditions purposefully unreadable to the average person, works. This leads to massively dangerous implications for consumers' privacy and security.

5.2.3 Ethics

Question 15: "A lie repeated a hundred times, becomes the truth".
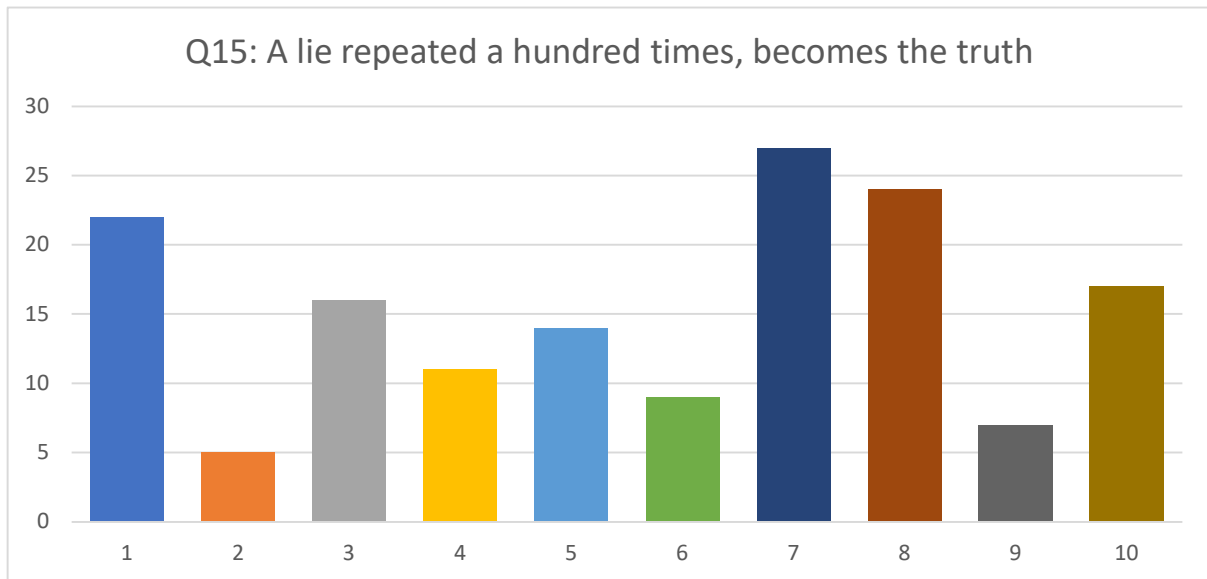
Figure 45

The average was 5.67. When one of my colleagues was filling out this question, he picked option one, because he doesn't want it to be true. After an interesting conversation he changed his answer to option 7 as the statement is true, but unethical. The data further confirms that a large portion of respondents face a similar dilemma, due to the difference in numbers between options 1 and 2. Unfortunately there isn't a way to separate the data of the different interpretations from each other. Therefore, a better alternative would have been to split it into 2 questions where the first one focuses on the truthfulness of the statement and the second one deals with the ethics of the statement. On the other hand, it is easy to say that in hindsight.

Question 16: Most important ethical consideration of using Artificial Intelligence
As expected, there was a respondent who chose "Combination of all 4". Furthermore, "Fairness" had the lowest population of 12% or 18 responses. The remaining answers ranked from the least popular to the most popular were "Privacy", "Safety" and "Transparency", with 40, 45 and 47 answers respectively.
Initial expectations for an informative chart based on cross referencing of results from questions 13 and 16 were crushed, as the two sets of data showed little to no correlation, with the exception of safety being almost uniquely prioritized among individuals who indicated a moderate to high concern.

Question 17: Hypothetical scenario of harmful content recommended to user.

This question proved difficult to break down, as there were a large number of unique answers. Ranging from a detailed breakdown of the possible solution through "Society" to "No-one knows yet". Among the unique responses a trend can observed of respondents saying that it depends on whether the system developed the issue by itself or through its sample. The form recorded in which order the options were picked, therefore for the sake of a clear chart the data was unified as originally there were 38 different outcomes.
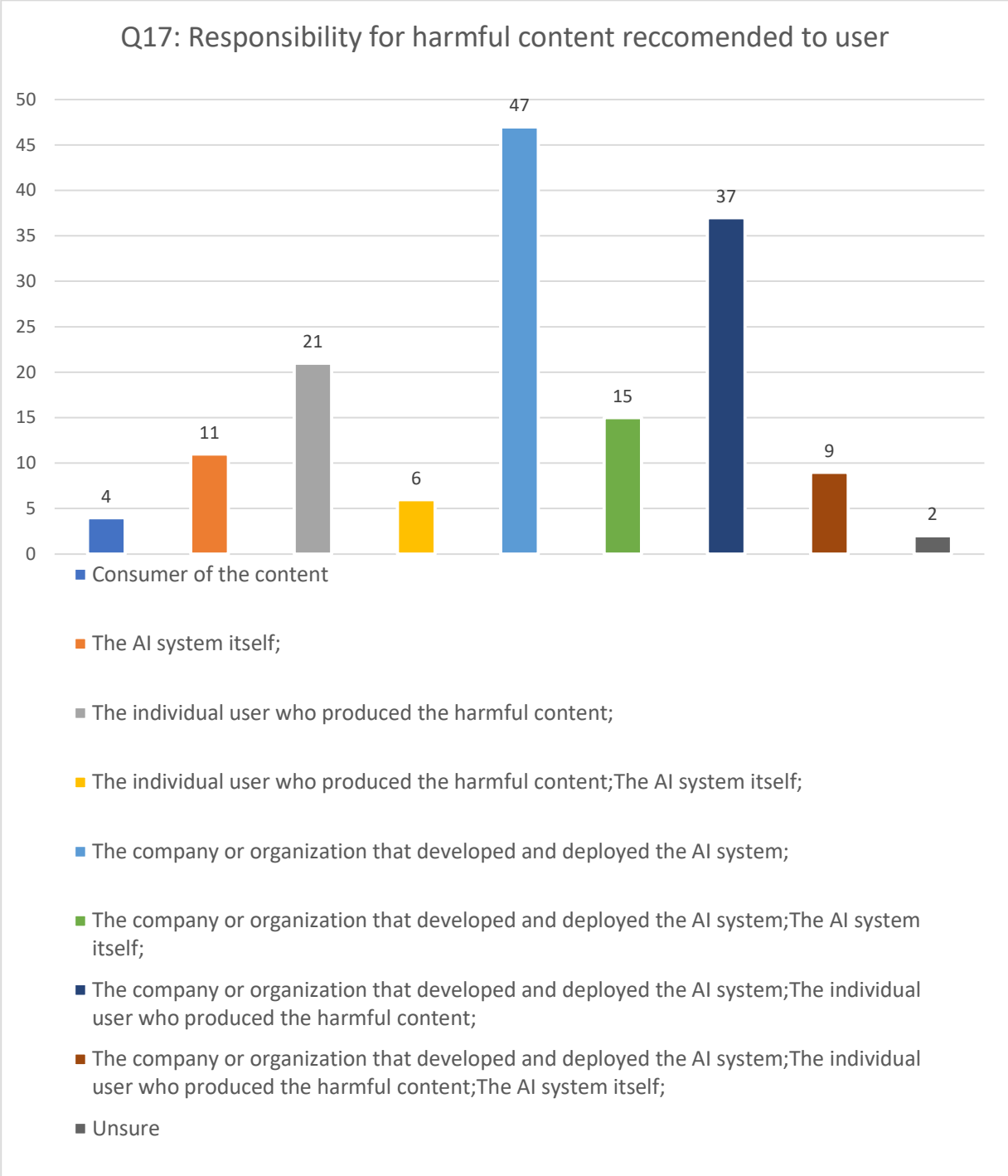
Figure 46

4 of the responses blamed the user with the comparison to "If someone tells you to jump off the bridge, will you?". As stated above, the potentially harmful content is not limited to that type of content, as it could be recommending extremely age-inappropriate videos to children for example.

Question 18: "AI-driven marketing is inherently manipulative".
The averaged answer was 5.82. The most dominant answer was option 5 with 37 answers or 24% of the total. The second most popular option was number 7 with 22 answers. However, there was a large population at number 10 with 18 responses. The results indicate that the public agrees to some extent with the statement. The population of 7-10 was 66% higher than the population of 1-4, with a total difference of 20. However due to such a large portion of the population anchoring the results at number 5 the average had not moved much.

Question 19: "AI-driven marketing can invade people's privacy".
The average ended at 6.68. The range of the population of options 5-10 was only 9. The answers indicate that the respondents on average somewhat agreed with the statement, but with some degree of reservation.

Question 20: "AI-driven marketing should be regulated to ensure ethical standards are met ".
This question was expected to be an extremely dominant towards "Strongly agree'. However, the average result was "only" 7.45. Despite that the most popular answer was 10 with 29% of the population or 44 answers, by a lead of 17. Surprisingly, the second most popular option was 5 with 18% of answers. Only 12 people disagreed with the statement. The result shows that only a very small portion of people disagree with the statement with the rest, a fifth of the people are undecided and the rest agree with it to some degree.

Question 21: "AI-driven marketing should be transparent about how it uses personal data."
Question 21 was the most one-sided question in the survey. With an average of 8.3. Option 10 was the most picked option with a population of 71 or 47%. It was also the most commonly picked option out of all the questions using the 1 – 10 scale. Only 6 people disagreed with the statement. It shows that the average person strongly agrees with the statement. On top of that, it shows that 85% of the people agree to some degree.

Question 22: General perception of Artificial Intelligence's role in advertising.
As was expected, the average was 5.36, with 74% of respondents picking an answer between 4 and 7. The most common answer was 5 with 53 people or 35% of the population. Only 4 people answered with 9 or 10. For comparison 12 people picked 1 or 2. The data further indicates that despite the average being 5.36, 42% of the population has a positive view on Artificial Intelligence in advertising as opposed to the 23% with a negative view.

Question 23: View on collection of personal data
52% of the individuals responded with "Uncomfortable" followed by 43% people selecting "Neutral". Only 5% of the respondents selected "Comfortable". Despite expecting a correlation between age group and the results, none was found as the established results were practically identical across the

groups. Further detailed analysis was not possible due to the lack of data to keep the margin of error within acceptable bounds.

Question 24: Effectiveness of Artificial Intelligence compared to traditional advertising.
53% or 81 people selected "Yes", followed by "Not sure" with 37%. Only 1 in 10 respondents went with option "No". This result is exactly as expected.

Question 25: Do you think AI-driven marketing is ethical or unethical?
Theoretically the most important question in the survey as it asks the main question of the thesis directly. The results were almost as expected. 55% of the respondents chose option "Not sure". The remaining 68 responses were split exactly 34/34 for "Ethical" and "Unethical". A precisely equal distribution of outcomes is just remarkable, it is like landing a coinflip on the centreline.
Ultimately, it shows that there is not a correct answer for general ethical questions, because each person's life is different and has led them to have different values.

Question 26: Purchase made based on an AI-generated recommendation.
Out of 152 respondents, 64 picked "No"; 33 picked "Yes" and 55 picked "Not sure". At first glance, this would indicate that marketing powered by Artificial Intelligence is not effective.
What this data shows instead, is that one in every five average Europeans under 30 clearly lacks critical thinking. Why? Because it is logically extremely unlikely that 42% or even 34%[4] of the demographic has never made a purchase online.[5] The correct and realistic answer is that if a person has used any sort of search engine for a product such as "best glue" then they were recommended something and therefore fall into the "Yes" category. The realistic resulting statistic for the option "No" should be 10% at most.

Question 27: Forecast on job market due to increased automation.
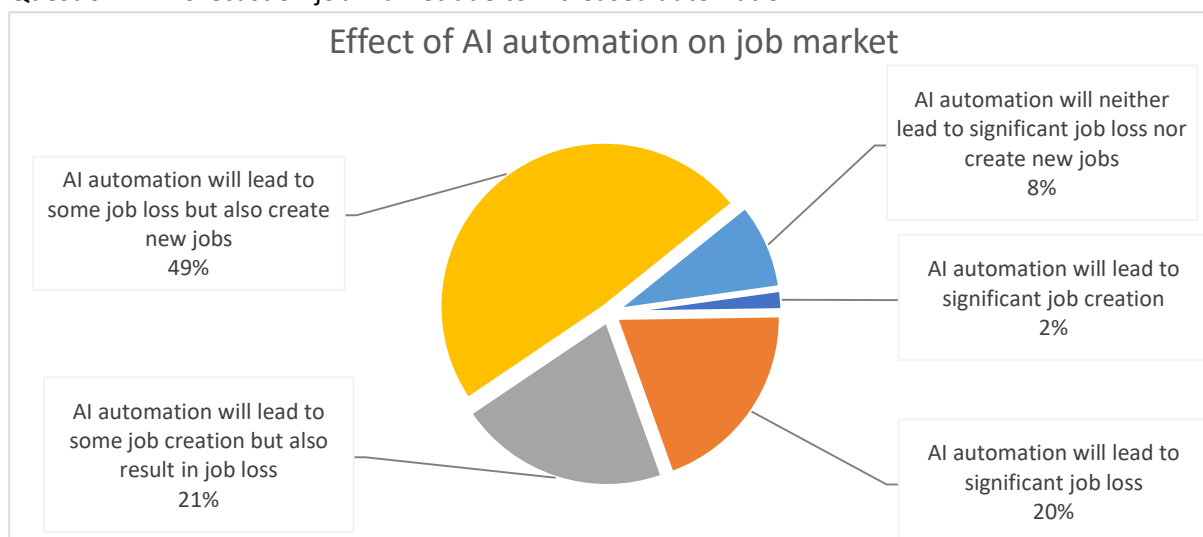

Figure 47

The data clearly agrees that there will be an effect on the job market. However, it is not sure on which direction said effect is going to take.

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[4] Accounted for the maximum possible error of 8%

[5] Not all online ads deal with some sort of algorithm, however vast majority does.

Question 28: Concern about job loss due to increased AI automation.

Concern regarding potential job loss

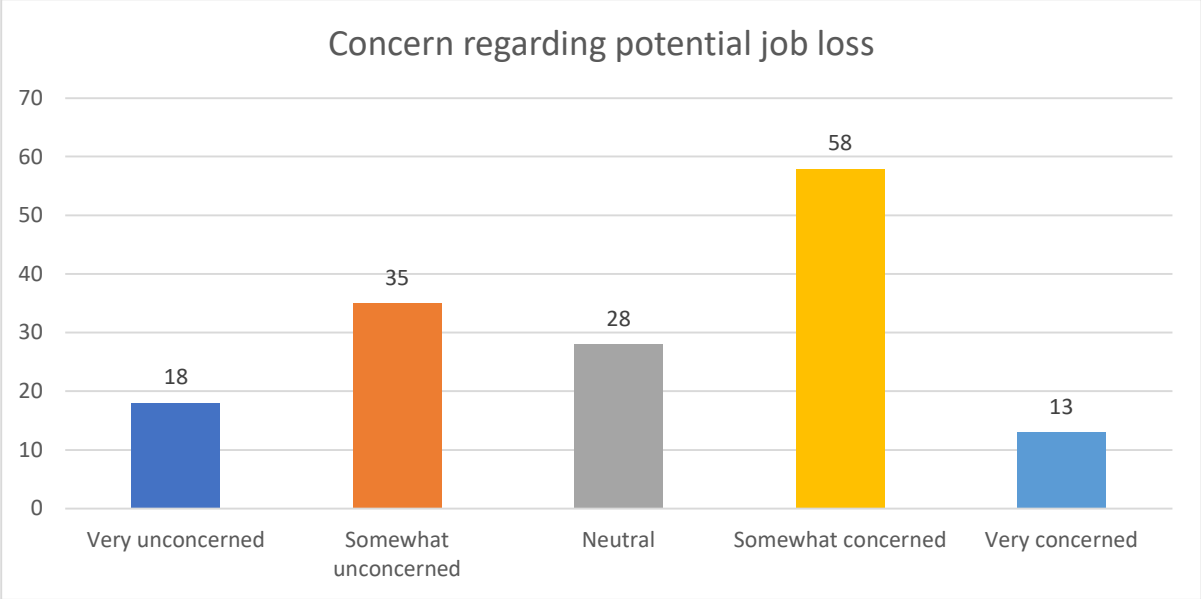| Category	Value
Very unconcerned	18
Somewhat unconcerned	35
Neutral	28
Somewhat concerned	58
Very concerned	13

Figure 48

The data undoubtedly shows that the concern varies greatly depending on the field of the respondent.

Question 29: Can Artificial intelligence be used to manipulate consumers?

The results of the ultimate question were conclusive. 78% of the population or 119 individuals out of 152 responded with "Yes", followed by "Not sure" with 17% or 26 and only 7 people or 5% chose "No". The agreement among the respondents is evident; nevertheless, it is also apparent, based on previous questions, that a considerable population lacks the knowledge of how it could be attained. It is clear that the respondents agree. However, it is also clear that, based on previous responses, a large portion of the population has no idea how it could be done.

5.3 Summary

Overall, the findings show that the public does not have enough awareness of the potential risks as they should have. Fortunately, they also show that they are not completely ignorant. It is imperative to raise this awareness, as with it will come more educated opinions and more pressure to uphold ethical standards.

The survey contained several questions that could have been executed better, such as question 15, which dealt with the statement "A lie repeated a hundred times becomes the truth". A better alternative would have been to split it into 2 questions, where the first one focuses on the truthfulness of the statement and the second one tackles the ethics of the statement. However, it is easy to say that in hindsight. Apart from those setbacks, I believe the survey was an enormous success and provided an accurate picture of public opinion.

Conclusion

As technology advances further than before, it is key to maintain ethical standards even at the cost of slowing the progress. Without ethics, civilization as we know it would crumble. It is also about holding everyone to ethical standards. Marketing always walks a thin line between ethical and unethical behaviour. Ethical behaviour should always be the main priority. It is akin to not taking the highway, but instead slowing down to enjoy the scenery. Furthermore, to tackle the seemingly unimportant issue of people not reading terms of service, awareness should be raised about sites such as tosdr.org, which provide a short readable summary.

As customers become more informed, brands can do wonders for their marketing by focusing on valuing transparent use of user data and their privacy. Through this they can increase public trust and become widely respected brands. From there the information will spread almost on its own. That is if the company actually employs the aforementioned strategies and it is not just smoke and mirrors.

Should the future of Artificial Intelligence be safe, it is absolutely vital to educate about the potential risks and options. Artificial Intelligence is comparable to fire, as it is a good servant but a bad master. There are major risks related to it, ranging from misuse to existential threats. However, all can be limited through upholding ethical standards during the development and deployment. It is of the utmost importance to hold companies that develop advanced algorithms to ethical standards. As without that, soon we might lose ourselves to please the all-mighty algorithms. A practice that is already happening on YouTube.

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Table of Figures

List of Tables