

Does Artificial Intelligence Raise Any Ethical Issues When Used for Advertising Personalization by E-commerce Stores

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ABSTRACT

This article focuses on the potential ethical issues that could arise from implementing artificial intelligence tools into advertising personalization for E-commerce stores. As almost every company advertises their product on the Internet users are exposed to thousands of ads each day. In order for firms to stand out, advertisers personalize their ads to individual level with the goal that the customer will find the content relevant and will convert. As the technology is evolving, new software and algorithms are implemented by companies, in order to optimize the process of personalization and provide more relevant content. The next step is implementation of Artificial Intelligence in the personalization process and ethical dilemmas are arising. Advertisers and algorithm developers are trying to implement more efficient techniques, but at the same time an extensive overview should be made over the potential harms Artificial Intelligence could make. This article aims at identifying the future application of Artificial Intelligence, in order to recognize the potential arising ethical issues and recommend how E-commerce stores should proceed with respect to the users of the Internet.

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Keywords

Personalized Advertising, Artificial Intelligence, Ethics, Data Privacy, Filter Bubbles, Framework.

1. INTRODUCTION

Almost every single company is using the Internet for advertisement of their products which has led to decrease in effectiveness of generic online advertisements. In response, firms are tailoring their advertisements towards customers based on their previous online behavior (Bleier & Eisenbeiss, 2015). Users on the Internet leave their digital footprint through their online activity, interests and preferences, which can be stored and analyzed by companies for user profiling (Trusov, Ma, & Jamal, 2016). The information about different profiles could be optimized to better understand user's preferences and enhance their satisfaction (Kanoje, Girase, & Mukhopadhyay, 2015). Not only do companies aim at providing personalized content to potential clients, but most Internet users prefer receiving content relevant to them, which requires continuous customer profiling through observing actions performed by individuals, also known as behavioral user profiling (Kanoje et al., 2015).

As the competition between companies is high, marketers try to implement innovative techniques, in order to improve the performance of their campaigns. Artificial Intelligence (AI) is a novel intelligent system, which advertisers have found to be useful in personalizing content. AI allows higher than human efficiency in collecting and analyzing data from many interconnected devices, web pages, smart electronics (phone, watch, car, house, etc.) in real time which can be applied for specific advertisement personalization (Kapoor, 2019). AI algorithms make predictions based on historical data and are providing the product which a customer will most likely purchase based on their previous online behavior and patterns. On the other hand, the use of AI raises some ethical issues such as user privacy, filter bubbles, workforce risk, etc., which will extensively be analyzed further in this paper. It is important that companies implement AI tools which do not cross ethical boundaries and harm the society in the process. In order to be able to analyze whether a firm is using ethical tools or not, ethical boundaries need to be established. This paper will analyze the potential ethical issues which will help both companies and policy makers to have an overview of the aspects they need to consider when dealing with AI, which leads to the main research question:

What ethical issues might arise from implementing AI tools into advertisement personalization for E-commerce stores and could they be prevented?

1.1 Thesis structure

This section aims at explaining the structure of the paper. The goal of this report is to introduce the reader to the future application of AI in personalized advertising and the potential ethical issues arising from it. Furthermore, a framework which tries to solve the identified ethical issues is presented. The framework's application and use is analyzed in terms of including all involved parties. In order to do so, the following sections identify the methodology used to answer the research question and conceptualizing the key variables used throughout the report.

2. METHODOLOGY

In order to answer the research question, a descriptive research is conducted with the goal of identifying how personalized advertising is evolving through the aid of AI and the potential ethical issues arising from it. Understanding the arising ethical issues require good comprehension of the topic, concepts, current techniques applied in the industry and the forecast for the future development. Therefore, the collection of relevant data about the implication of AI for personalized advertisement and ethical aspects is supplemented through a critical literature review of

secondary data. Research through literature review has the ability to lay the basis for knowledge advancement, encourage the development of new and existing theories, as well as find the gaps where further research is needed (Webster & Watson, 2002). Literature review is a research technique which "derives its results from data already described in the published literature" (Jesson & Lacey, 2006). Besides analyzing scientific papers, online articles on the topic are also reviewed due to the fact that application of AI into personalization advertising is a topic which does not have many publications in the academic literature. On the other hand, some companies have already started to implement AI tools for personalization but due to the high competition, there is lack of publications in the field. Online articles have covered briefly the topic, therefore predictions about the future implementation of AI into advertisement personalization are cited from these sources. In terms of collecting academic literature and online articles, keywords like 'artificial intelligence & personalization', 'artificial intelligence & ethics', 'E-commerce & content personalization' are being used on web search engines Scopus, Web of Science, Google Scholar and Association for Advancement of Artificial Intelligence (AAAI). Furthermore, once the main applications of advertisement personalization, development of personalization through AI, arising ethical issues of AI for personalization are being identified through the literature, more specific topics like 'recommender systems', 'user profiling', 'filter bubble' are being searched to find more detailed literature. Another data collection technique that is used is snowball sampling. Through this approach new relevant articles are extracted from the citations of the already found papers.

Once having the main concepts, fundamentals and forecasts for development of AI-powered personalized advertisement identified, the core research question is observed through the theoretical framework of rule utilitarian vs deontological ethics. The viewpoints of the two schools of ethics are applied to justify the current ethical or unethical behavior and providing a perspective for eliminating the unethical aspects for the future development of AI.

3. CONCEPUALIZATION

3.1 AI Ethics

Computer ethics is a field preceding AI ethics and one which has evolved ever since the implementation of personal computers and digitalization of information. Mason (1986) identifies Privacy, Accuracy, Property, and Accessibility (PAPA) as the four major issues in the information age and states that information systems must be responsible towards the four acronyms in order to achieve ethical behavior. Conger, Loch & Helft (1995) attempted to measure through a survey the validity of the PAPA framework. They found alignment of their result with Mason's framework and expanded it with the concept of *motivation*. Furthermore, Peslak (2006) and Woodward, Martin & Imboden (2011) also verified that the PAPA framework is still applicable.

Throughout years of technology development, computer ethics has evolved to relate to different innovative technologies. AI ethics focuses on arising issues from the development and implementation of AI. Its central focus is towards the possible scenarios, in which the evolution of the technology could harm people. In order to prevent negative influence from AI towards humanity, fundamental human rights need to be respected: freedom, dignity, equality and solidarity, citizens' rights and justice ("European Commission", 2019).

3.1.1 What is considered ethical?

Justifying whether a certain AI system is ethical or not is subjective to the perspective it is viewed from. The three general subject areas are: metaethics, normative ethics, and applied ethics (Fieser, n.d.). Metaethics investigates the source of humanity's ethical principles and answers questions related to universal truths (e.g. the will of God). Normative ethics explores practical questions on whether an act is good or bad (Norman, 1998; Ekvall et al., 2005). Applied ethics, on the other hand, is concerned with controversial topics as abortion, animal rights, homosexuality, etc. This report adopts normative ethics perspective because it fits with the research question's goal of identifying which actions are good or bad. The ethical theories taken into consideration for this paper are summarized in Figure 1. Murphy & Lacznia (1981) identify that almost all normative ethical theories can be classified as either deontological or teleological, but a third theory exists – virtue ethics. Deontological and teleological ethics fall under 'ethics of conduct' while virtue ethics belongs to 'ethics of character', where the prior examines how individuals should act, while the latter deals with the virtues and characters. This report takes into perspective 'ethics of conduct' theories, due to the fact the goal is to observe the ethical issues arising from the act of personalizing advertisement and not whether the implementers of AI possess virtues as compassion, honesty, fidelity, etc. The two 'ethics of conduct' perspectives differ fundamentally, as deontological theories focus on an individual's specific actions and behavior, while teleological theories are focused on the consequences from actions and behaviors (Hunt & Vitell, 1986).

Deontological ethics considers the morality of an outcome from an action based on whether the action itself is right or wrong (Alexander & Moore, 2007). This theory holds the value that "the principle of maximizing the balance of good over evil, no matter for whom, is either not a moral criterion or standard at all, or, at least, it is not the basic or ultimate one" (Frankena, 1963, p. 14). Deontological views, which date back to Socrates, try to identify the "best" set of rules to live by (Hunt & Vitell, 1986). Sidgwick (1907, p.380) identifies a principle of justice, which states "it cannot be right for A to treat B in a manner in which it would be wrong for B to treat A, merely on the ground that they are two different individuals, and without there being any difference between the natures or circumstances of the two which can be stated as a reasonable ground for difference of treatment".

Teleology considers a certain behavior as ethical, when there is a greater balance of good over evil in the consequences (Hunt & Vitell, 1986). Teleological theories differ on the base of whose good is tried to be achieved. Ethical egoism states that individuals should be concerned with encouraging their own greatest outcome. Philosophers as Nietzsche and Hobbes supported ethical egoism and claimed that people should act with the goal of achieving the best personal outcome. On the other hand, philosophers as Bentham, Mill, and Moore, supported utilitarianism – theory which states that an act is right only if it provides greater balance of good consequences over bad consequences for all people involved (Mill, 2016; Hunt & Vitell, 1986; Bentham, 1879). Utilitarianism, itself is divided into two main theories – act utilitarianism and rule utilitarianism. Act utilitarianism states that the actions which here and now seem to yield the highest social utility will always be morally right (Harsanyi, 1977). Rule utilitarianism on the other hand, as suggested by Harrod (1936), focuses on the fact that utilitarian criterion should not be applied to every single action but applied in the first instance through a moral rule, which governs acts. Therefore, "the correct moral rule should be defined as that particular rule of behavior that would yield the highest possible

social utility in the long run if it were followed by everybody in this type of situation" (Harsanyi, 1977).

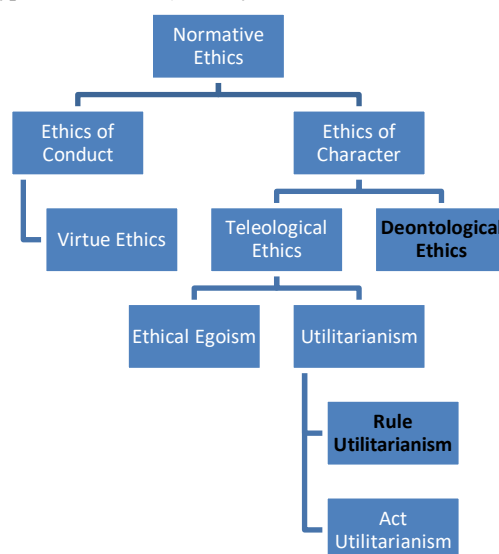


Figure 1. Normative ethics main theories.

Both deontological and teleological theories have been critiqued. In terms of deontological perspective, it is impossible to create an entire system of rules without holding a high amount of exceptions and conflicts. An example of this paradox is: "telling a lie to a person is wrong, but in case the truth will harm the person, it is more ethical to tell the lie" (Hunt & Vitell, 1986). In teleological ethics, on the other hand, it is not certain whose good needs to be maximized (e.g. individual's, society's, subsets of a society) (Hunt & Vitell, 1986). Another critique is that it is almost impossible to measure the amount of good and amount of evil in order to weight them. Therefore, both theories have drawbacks that need to be considered when the theories are used to assess an act or behavior.

3.1.2 The applied theories in this report

In order to judge the arising issues from AI-powered personalized advertisement, an ethical standpoint needs to be taken. As deontology focuses on whether a certain action is ethical or not, while the opposite to that view is consequentialism, where the ends would justify the means if they bring more good than evil, the two opposing theories will be compared when examining whether an action is ethical or not. Hunt & Vitell (1986) state that marketers needs to engage both deontological and utilitarian perspectives when determining whether their behavior is ethical. This report incorporates rule utilitarianism from all consequentialism theories because its core values are to drive the prevail of good over evil in the *long term* through preset rules. Rule utilitarianism mostly fits with regulating the future development and application of a new technology because it lays down rules which have already been identified as bringing more good than evil and all parties implementing AI must consider those rules, in order to be ethical.

In conclusion of this section, deontological and rule utilitarianism perspectives will be taken into account when analyzing whether an action is ethical or not.

3.2 Advertisement Personalization through AI

Personalization is a firm-initiated adjustment of advertising content towards the preferences of consumers with the goal of attracting and making them purchase a product (Frick & Li, 2016; Ansari & Mela 2003). Personalized content increases the

customers' attention and their loyalty towards a brand (Ansari & Mela 2003; Thirumalai & Sinha 2013), as well as click-through rates (Johar et al., 2014). A personalization process usually requires two steps: building customer profiles and delivering personalized offers to the right user (Adomavicius & Tuzhilin, 2005). As almost every user on the Internet is leaving their digital footprint, companies have started to value data about their current and potential customers (Gandomi, & Haider, 2015). Although the data is available it needs to be analyzed and structured in order to extract any benefit. Recently companies have started to implement different software solutions to match certain types of users with specific products which they would most likely be interested in to purchase (Johar et al., 2014; Van Doorn, & Hoekstra, 2013). AI could be applied in order to improve the current techniques of personalization with the goal of implementing an intelligent system which is able to profile users through their overall digital footprint, segment audiences and provide specific product advertisements, which has proven to be more effective than broad category recommendations (Bleier & Eisenbeiss 2015; Tam & Ho, 2005).

3.3 E-commerce

Electronic Commerce (E-commerce) relates to different activities related to selling products online. The ameris glossary (2005) defines E-Commerce as: "The conducting of business communication and transactions over networks and through computers. As most restrictively defined, electronic commerce is the buying and selling of goods and services, and the transfer of funds, through digital communications. However, E-commerce also includes all inter-company and intra-company functions (such as marketing, finance, manufacturing, selling, and negotiation) that enable commerce and use electronic mail, EDI, file transfer, fax, video conferencing, workflow, or interaction with a remote computer. Electronic commerce also includes buying and selling over the Web, electronic funds transfer, smart cards, digital cash (e.g., Mondex1), and all other ways of doing business over digital networks." E-commerce does not only relate to selling products but also relates to all relevant business aspects (Goy et al., 2007), but in this article the focus will be around personalizing advertisement, in order to increase conversion rates, which tend to be around 4% for E-commerce stores (Moe & Fader, 2004).

4. BENEFITS FROM ARTIFICIAL INTELLIGENCE IN ADVERTISING PERSONALIZATION

A research by management consultancy firm Accenture Strategy confirms that customers crave highly personalized data, as 48% of consumers expect personalization and 33% leave companies which provide poor quality or do not implement it at all (Wollan et al., 2018). The desire from consumers results in more companies implementing personalization and the research firm Gartner, identifies that until 2020 more than 90% of advertisers will use some form of personalization, but mostly unsuccessfully, the solution of which is the application of AI (Pemberton, 2018). Wollen et al. (2018) identify that the key for successful and relevant personalization is in providing consumers with the exact data they need, exactly when they need it. AI is a suitable application for advertising personalization due to its real-time decision making based on real-time data. The effectiveness and correct prediction rate of AI increases with providing more data for the algorithms to analyze. The digitalization and implementation of inter-connected devices increases the sources of user data for AI. As people switch from their traditional products to digitalized watches, home utilities, services, etc. not only is the amount of usable data for personalization for advertisers increasing, but a more extensive

user profile is able to be created. AI's advantage over people comes from being able to analyze customers' previous behavior and buying patterns in almost real-time.

5. ARISING ETHICAL ISSUES FROM IMPLEMENTING AI

As the environment adapts to the model of online shopping through faster shipping times, customers bank details being protected, more choice and availability, higher amount of online based businesses are being created, which raises the competition. Therefore, there is continuous innovation from marketers for better performing campaigns and new advertising techniques are evolving quickly, while regulations and laws are regularly not up to date with the state of art methods (Nill & Aalberts, 2014). Nill & Aalberts (2014) identify that without the explicit regulations involving all stakeholders and the market being left evolving on its own, unethical outcomes could occur. As most customers prefer relevant to them content and advertisers receive better click-through rates from personalized content, marketers could implement unethical methods in order to receive better conversion rates. The following subsections identify the arising ethical issues from the perspective of whether achieving personalized advertisements actually harms users in the process of creating them and the solutions to these problems are identified later in the report.

5.1 Privacy

The more input data for Artificial Intelligence networks to analyze, the better the system will operate. Therefore, advertisers and data collection firms try to receive every possible information about users for the sake of profiling and providing personalization which generates better click-through rates. Although personalization provides great value to customers (Franke et al., 2009), Zhu & Chang (2016) identify that users which support receiving personalized are also concerned about giving away personal information. Wollan et al. (2018) identify based on a global research that 87% of consumers believe it's important for companies to safeguard the privacy of their customers' information, while 73% of users are mostly concerned about their private data due to lack of trust in the company that is acquiring it. Since people are constantly carrying their smart phones, sharing their lives on social media platforms and steadily switching to performing more tasks online (e.g. shopping, paying bills, communicating, etc.), they reveal their digital footprint to website and data collectors. By agreeing to the 'terms of services' of a website, users agree that profiling information could be stored and shared with other partners, which often are data collection companies. Although most people are aware of the fact that their behavior is being tracked, with the alternative of not using the Internet, users prefer to stay connected with their friends on social media and use online-based website and services. Some users frequently delete their 'cookies', in order to limit the availability of their private information being used by websites, but data collectors implement techniques as 'stealth browser-based tracking', which effectively exposes personal information to advertisers even when cookies are deleted (Nill & Aalberts, 2014). Therefore, data collectors continuously find new ways to acquire user data, nevertheless regulations and laws.

While most advertisers and data collectors wish to build extensive user profiles with the goal of selling more, there is a threat of unwanted third parties getting access to personal information of people. Not only are there threats of users' physical location, bank details, sensitive information being used against them negatively, systems could reveal embarrassing information to family, friends and colleagues (Toch et al., 2012).

The privacy issue and debate whether companies should collect and store user data has been active for decades and the creation of the Internet only exposes more information. People are continuously concerned about their personal information because most companies fail to explicitly notify their users about what information is stored and how it would be used, which leads to users having different expectations than what the reality is (Martin, 2015). The approach of hiding collection of profiling customer data has been found to negatively influence user satisfaction and click-through rates (Aguirre et al., 2015).

As with the transition from traditional paper work towards digitalization and storing personal information in databases and on the Internet, AI does not create a new privacy issue, but can expand the current one. With the expectations of people substituting traditional products to digital ones and AI networks being able to intelligently collect, analyze and use that data for advertising purposes, arises the question whether people would like to share even more about their life.

5.2 Filter Bubbles

The Internet provides each individual with huge amount of information about almost anything in the world. People are able to educate themselves and digitally explore places they could hardly visit otherwise (space, ocean, wild life, etc.), but most importantly, opens up an unlimited world of knowledge. The Internet's ideology is to provide users with autonomy. Brey (2000) defines an individual's autonomy as: *'self-governance, that is, the ability to construct one's own goals and values, and to have the freedom to make choices and plans and act in ways that are believed by one to help achieve these goals and promote these values'*. As people can get better informed through the Internet, it should be regarded as a tool which increases autonomy in people. However, with the goal of being easy to use and receiving relevant to each user information, filtering needs to be applied due to the quantity of information available. For example, a person searching through Google restaurants would be more satisfied with receiving information about restaurants in his area, rather than in another city or country. On the other hand, people's reliance on receiving relevant content by search engines and web services, while not receiving insight on the filtering process, could lead to lowering user autonomy (Bozdog & Timmermans, 2011).

The process of continuously narrowing user's content through over personalization to the extent of receiving the same content is referred as 'filter bubble'. As algorithms have progressed, providing relevant content to each individual through recommendations has become very advanced based on their previous behavior. This process could lead to users continuously receiving the same type of recommendations and a 'filter bubble' could occur. With the expectation of involvement of AI for more effective and accurate advertisement personalization, over personalization is a potential issue. The prospects of AI intelligently providing even more advertisements for similar to previously bought products at a similar time, could force an individual into a pattern. Nguyen et al. (2014) found that although each user's content narrows down with time through recommendations, people following top-n recommendations start receiving more diverse content while following the algorithms. It occurs because the algorithm guides the user through similar content, but starts diversifying it with time. On the other hand, Nguyen et al. (2014) identify that most people ignore recommendations and very few users actually follow their top-n recommendations, which results in them receiving narrower content.

The biggest threat of personalization in terms of 'filter bubbles' is to force users into patterns without them realizing so. Over

personalization could take away user's greatest benefit from the Internet – autonomy.

5.3 Workforce obsolescence

Most company's primary goal is profit. Managers continuously seek new ways to increase revenue and lower costs. As labor in the western part of the World is expensive, many firms try to substitute human tasks with artificial solutions.

AI systems are created to assist marketers through performing specific jobs, in order for employees to spend more time on creative tasks and strategic campaigns. Despite the difficulty of predicting the future, it is most likely that technical positions which could be performed by AI will be substituted, as human labor is more expensive and often less effective than algorithms.

The development of AI could lead towards the termination of skilled marketers, which should be treated as an important issue. If educated people are left without a job, they will not be able to support themselves nor their family and as most countries assist unemployed individuals, these marketers will become a burden to society.

This ethical issue has occurred in the past, when new technologies have been applied and usually employees with lower level of skills and responsibilities are being substituted. Therefore, with the introduction of AI many marketers will be left without a job if not adapted to the new era of technology.

Privacy	Filter Bubbles	Workforce Obsolescence
<ul style="list-style-type: none"> • Sensitive data being revealed to unwanted third-parties • Unsatisfactory personal data protection techniques by companies 	<ul style="list-style-type: none"> • Forcing users into patterns and loops of repeating content • Decrease in user's autonomy 	<ul style="list-style-type: none"> • Skilled marketers losing their jobs

Figure 2. Summary of the identified ethical issues.

6. TRUSTWORTHY ARTIFICIAL INTELLIGENCE FRAMEWORK

This section proposes a framework implemented by the European Commission, in order to solve the identified ethical issues. When new technologies and products are being created they need to pass regulation tests and sometimes new laws are being implemented. Collingridge (1982) identifies that although regulators try to predict the possible misuse and harm that could be done to society, impacts from the new products cannot be forecasted until the technology is widely used. On the other hand, the more time that passes, the less control and opportunity for change is available for regulators. As the development of AI algorithms is a competitive race between marketers, some companies do not consider the ethical aspects of their software, being motivated to be ahead of the competition. Therefore, the marketing industry needs to be regulated in order to eliminate the ethical issues that might arise in the future.

The roots of privacy and filter bubble ethical issues are mostly in the lack of transparency and keeping users of the Internet unaware of the process leading towards personalized content. When the process of personalization, in terms of data collection for user profiling, is well communicated, users trust the company and are aware of the benefits they receive, users react positively (Bleier & Eisenbeiss, 2015; Nill & Aalberts, 2014). Following, an implemented from the European Commission framework for

trustworthy AI is introduced (Figure 3), which aims at taking into account the possible ethical issues and avoiding them while still providing the societal benefits from AI systems.

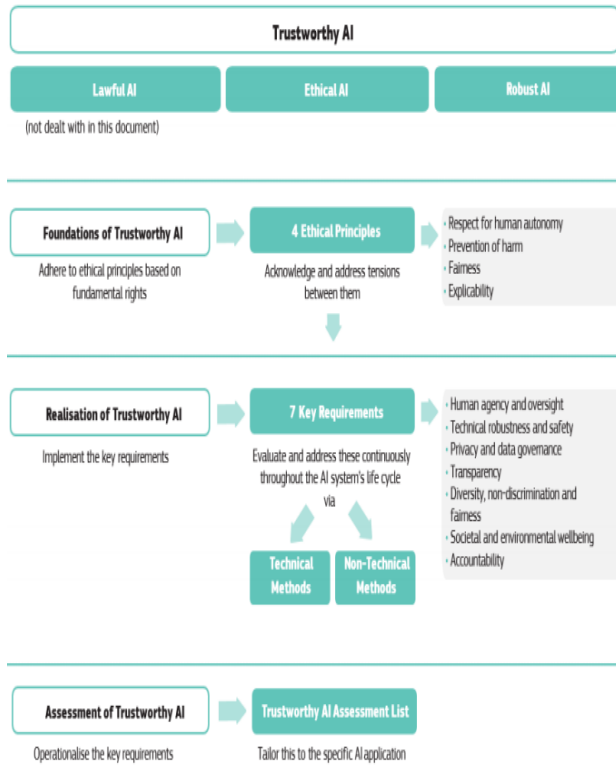


Figure 3. Framework for trustworthy AI (implemented from the ethics guidelines for trustworthy AI by the European Commission, 2019).

6.1 Summary of the framework

The framework contains three steps: respecting fundamental rights, present seven requirements that AI systems should respect, and an assessment list to operationalize the requirements. The following parts will introduce and analyze the three parts of the framework.

The European Commission bases the framework on four ethical principles, which address moral behavior towards end users. ‘*Respect for human autonomy*’ ensures to provide respect for freedom and autonomy of human beings and eliminate manipulative and coercive actions towards users based on biases. The second principle is concerned with ‘*prevention of harm*’. AI systems should not cause nor inflame any harm to human beings and should operate in a safe and secure manner. The ‘*principle of fairness*’ is concerned with eliminating individuals and groups are free from unfair bias, discrimination and stigmatization. Respecting fairness also implies that AI systems should not lead to people being diminished in their freedom of choice. In order to build user trust into AI systems, the algorithms need to provide ‘*explicability*’. People need to be informed about the capabilities and purpose of AI systems and processes must be transparent. These four ethical principles are the foundation of the second step, which will be presented next and contains seven requirements that AI systems should be implemented with.

Through the provided in the framework seven conditions that AI should comply, the European Commission aims at respecting the previously presented four fundamental rights. The first requirement, ‘*human agency and oversight*’, corresponded with educating users about AI systems and being in control over algorithms rather than the opposite. In order for users to trustfully

interact and with AI systems, there also needs to be implemented ‘*technical robustness and safety*’. As privacy is one of the greatest concerns from the beginning of the information age and most users of the Internet are concerned about their personal data being collected, ‘*privacy and data governance*’ is associated with AI systems protecting user data and providing access to people handling their personal information. ‘*Transparency*’ relates to AI systems’ decisions being understood by human beings, as well as people being in control of designing the choices the algorithms make. The requirement for ‘*diversity, non-discrimination and fairness*’ states that continuous bias based on historical user behavior, topic censorship, etc. should not be tolerated and AI systems must provide diversity in content. The European Commission’s framework also proposes ‘*societal and environmental well-being*’, in order for sustainability and ecological responsibility of AI systems to be encouraged. As AI algorithms can learn and improve from data and previous behavior, ‘*accountability*’ needs to be implied, in order to ensure responsibility for the outcomes of the systems. The effectiveness of the identified seven requirements for trustworthy AI need to be continuously observed, in order to keep an ethically performing system, which is the goal of the third step of the framework.

6.2 Critical analysis of the framework

In this section, the framework will be analyzed from the perspectives laid down in the report. Furthermore, potential additions to the framework are proposed, as well as identifying the future implementation and use.

6.2.1 Does the framework solve the identified ethical issues?

This subsection examines whether the proposed framework solves the previously identified arising ethical issues. In terms of privacy, the framework suggests that companies implementing AI need to be transparent of the actions they undertake in order to achieve personalized advertisement. Once the users are informed about the processes, the acquired data needs to be protected from unwanted third parties which might use it against the owners of the information. Furthermore, the framework proposes that the collected information needs to be accurate and continuously updated, as well as access should be put in place for users. Companies applying these requirements in terms of privacy should be considered to act ethically towards their customers. From a deontological perspective, individuals and societies are not harmed in the process of achieving personalization. Companies which respect the requirements will not cross moral boundaries with their actions of applying AI, which satisfies the deontological standpoint. From a rule utilitarian viewpoint, the framework sets the seven rules, which companies should apply and are created as such to aim for the good to prevail over evil, as both advertisers achieve better results and users receive relevant content.

Regarding filter bubbles, the framework identifies ‘*diversity, non-discrimination and fairness*’, which necessitates firms to create AI systems that provide variety in content and do not discriminate individuals or groups. This process needs to be transparent and well communicated with users, in order for them to be well informed on how to interact with the algorithms. Following the framework’s requirements and examining from deontological perspective, AI algorithms will not harm individuals in the process of achieving advertising personalization. Rule utilitarianism’s viewpoint of following predefined rules which aim at maximizing the good over evil, users will be knowledgeable on being in control of algorithms, which receiving content close to their interests and needs, while firms will experience better marketing campaigns.

6.2.2 *Potential additions to the framework*

A problem which was previously identified in this report, but is not present in the framework is workforce obsolescence. As AI systems can intelligently make decisions on their own, there is a concern that job change, job loss, and worker displacement will occur. On the other hand, creativity, originality and innovativeness in marketing campaigns can hardly be replaced from AI in the near future. A potential solution, towards avoiding a job collapse, could be an adjustment in the education of marketers, in order to navigate current and future workforce towards interaction with AI systems and bringing value to the company which algorithms cannot provide. Governments need to subsidize educational centers, as universities, to implement marketing programs related to AI. Another great implementation would be lifelong career development programs to keep employees competitive and able to bring value to the market. If approached properly, this ethical issue could also be solved in a moral manner without harming the society in the process of implementing AI and satisfying both deontological and utilitarian perspectives.

6.3 Implementation and use of the framework

This section identifies the process needed to be undertaken, in order for the framework to be implemented by companies and be sustainably used in the future.

6.3.1 *Implementing the framework*

The motivation for using the framework developed by the European Commission comes from the fact that it is an unbiased organization having no interest from profiting and competing in the industry of AI for personalized advertisement. It was developed with the aim of promoting trustworthy AI, therefore has no status of a law or regulation. Since the framework is proposed to be used as a certification by the European Commission it could be used as such to validate companies which use ethical solution to personalize advertisement. Yu et al. (2018) identify that the AI research community agrees that generalized frameworks are preferred over ad-hoc rules when it comes to ethical decision-making in AI systems.

In order to succeed, ethical AI should be promoted mostly to users, so that they could start demanding ethical behavior from firms and recognize those which are certified. Customers are attracted and more loyal towards brands which incorporate corporate social responsibility (McDonald & Rundle-Thiele, 2008), hence many users will be tempted by firms acting in a moral manner. Therefore, the certification could provide competitive advantage to companies, from the fact that people desire to use ethical firms, which would result in organization voluntarily receiving certification. On the other hand, governments and regulators need to recognize the framework's proposition as relevant, in order for it fit with laws and regulation.

6.3.2 *Sustainable use of the framework*

With the dynamic innovation and improvements on AI systems, the current predictions of potential ethical issues might turn out to be obsolete in the next few years. Therefore, an advice towards the European Commission is to continuously follow the advances of AI technology, in order to update the framework based on the innovations and applications.

6.3.3 *How should a companies be prepared for certification?*

As more companies are being established on the Internet and AI technology will be more frequently adapted in the future, companies need to comply with the ethical aspects in the

beginning process of developing AI systems. Hence, firms should take an approach of creating algorithms which are ethical in the first place, rather than having to change the already developed once in order to comply with the certification. Therefore, the framework needs to be adapted in such a way that is easily understandable for business owners and AI algorithm creators having no terminology background in the field of ethics. As previously identified, the framework also needs to be greatly advertised to the public, in order for firms to recognize the society's desire for ethical companies. The European Commission also needs to employ advisers which could guide companies in their implementation of ethical AI systems. In conclusion, there needs to be a demand, in order for firms to lean towards ethical AI.

7. DISCUSSION, RECOMMENDATIONS AND LIMITATIONS

Throughout this report the main findings are that E-commerce stores and other online based websites and platforms need to reconstruct the approach of advertisement personalization in order to eliminate the possible ethical issues that could arise from implementing AI. The proposed framework, which is developed by the European Commission could be used to label firms treating their customers ethically. The framework's requirements for trustworthy AI should be continuously updated based on innovations and developments of algorithms. The goal is to achieve positive outcomes for both companies and users of the Internet, where individuals are aware and in control of the processes and techniques used to receive relevant content, while companies reach good and competitive results from personalization, which does not cross any ethical boundaries.

7.1 Contribution to practice and recommendations

As more people are becoming interested about protecting the environment, corporate social responsibility, ethical behavior, firms wanting to be associated with ethical conduct of personalized advertisement through AI could gain a great customer base. The proposed framework could be implemented by firms, but it also needs to be introduced to the public, in order for people to recognize verified firms and use their services. This report could contribute towards the actions of the European Commission starting to market their framework to users and consequentially certify companies. The report suggests an additional ethical issue, in terms of workforce obsolescence, that needs to be taken into account and the continuous updating of the framework, in order to keep up with the innovations of AI systems. The paper also advises companies to start considering the certification in the beginning process of developing AI systems.

7.2 Contribution to theory and recommendations

This report summarizes the arising ethical issues from applying AI in advertisement personalization. In order for companies to be an easier decision to implement ethical processes, more research is needed on the topic of whether users will be attracted by certified firms. Another topic that needs to be further researched is the current extent of not transparent data collection and profiling, in order people to become more familiar with the actions taken by companies. The overall goal of future researches needs to be in convincing firms that being ethical will have positive result.

7.3 Limitations

Several limitations are present in this report. First and foremost, it is hard to identify the state of art AI systems for advertising personalization and their abilities since companies are trying to keep their developments a secret due to the competitive nature of the field. A limitation in the proposed framework for ethical certification is that it is developed by the European Commission and would most likely not be accepted by firms outside the EU. Furthermore, the identified ethical issues and the requirements to solve them are currently applicable but as companies are continuously innovating their systems, new problems might arise in the near future and the presented solutions could be obsolete.

8. CONCLUSION

This report focused on evaluating and proposing solutions towards the potential ethical issues that could arise from implementing advertisement personalization through AI mostly for E-commerce stores. Considering whether actions are ethical or not were evaluated based on the theoretical framework of rule utilitarian and deontological ethical perspectives. The arising ethical issues are mostly expanded current problems which have resulted from the lack of transparency from data collectors, advertisers, websites and Internet platforms. With the goal of avoiding the identified ethical issues, an adopted from the European Commission framework was proposed to serve as certification for companies which desire to conduct ethical processes when personalizing advertisement through AI. E-commerce stores and online based platforms need to reconsider the approaches they are doing business, in order not to further expand the problems and create a more secure and transparent Internet space for people.

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