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DERLEME MAKALE / REVIEW ARTICLE

The Future of Public Relations, Advertising and Journalism: How Artificial Intelligence May Transform the Communication Profession and Why Society Should Care?

Halkla İlişkiler, Reklamcılık ve Gazeteciliğin Geleceği: Yapay Zeka Uygulamaları İletişim Mesleğini Nasıl Dönüştürecek ve Toplum Bunu Neden Önemsemeli?

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Abstract

This study aims to examine the latest academic research conducted in the last decade on the future benefits, challenges, and impact of Artificial Intelligence and its adoption in the communication profession. The study is grounded in the perceptions of reviews from relevant academic articles and emphasizes the technological innovations related to Artificial Intelligence applications within the public relations, advertising, and journalism professions. The followings are some of the key questions asked in the current study: 1) How is the implementation of Artificial Intelligence going to impact the jobs of the communication profession? 2) Can robots replace public relations, advertising, and journalism professionals? and 3) What kind of opportunities and challenges will AI-powered systems bring to these three professions? The findings suggest that Artificial Intelligence would benefit the communication profession and those who adopt Artificial Intelligence technologies would certainly gain a competitive advantage. It appears that the future of the communication profession would be a blend of both Artificial Intelligence technologies and human insight. Also, it is emphasized that it would be a rather narrow view to see that Artificial Intelligence would create robots to replace humans while performing various tasks or would outperform human intelligence in most of its dimensions.

Keywords: Algorithms, Artificial Intelligence, Communication Profession, Public Relations, Advertising, Journalism

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Öz

Bu çalışma, iletişim mesleğinde yapay zekânın benimsenmesinin gelecekteki faydaları, zorlukları ve etkisi hakkında son on yılda yapılan akademik araştırmaları incelemeyi amaçlamaktadır. Çalışma, ilgili akademik araştırma makalelerinin gözden geçirilmesinden elde edilen iç görülere dayanmaktadır ve halkla ilişkiler, reklamcılık ve gazetecilik mesleklerinde Yapay Zekâ uygulamalarıyla ilgili teknolojik yenilikleri vurgulamaktadır. Bu çalışmada sorulan bazı kilit sorular şu şekildedir: 1) Yapay Zekâ uygulamaları iletişim mesleğinin işleyişini nasıl etkileyecek? 2) Robotlar halkla ilişkiler, reklamcılık ve gazetecilik profesyonellerinin yerini alabilecek mi? ve 3) Yapay Zekâ destekli sistemler bu üç mesleğe ne gibi fırsatlar ve zorluklar getirecek? Bulgular, Yapay Zekâ uygulamalarının iletişim mesleğine fayda sağlayacağını ve Yapay Zekâ teknolojilerini benimseyenlerin kesinlikle rekabet avantajı kazanacağını gösteriyor. İletişim mesleğinin geleceği hem Yapay Zekâ teknolojilerinin hem de insan anlayışının bir karışımı olacağı görülmektedir. Ayrıca Yapay Zekanın çeşitli görevleri yerine getirirken insanların yerini alacak robotlar yaratacağını ya da birçok boyutunda insan zekasını geride bırakacağını görmenin oldukça dar bir bakış açısı olacağı vurgulanmaktadır.

Anahtar Sözcükler: Algoritmalar, Yapay Zekâ, İletişim Mesleği, Halkla İlişkiler, Reklamcılık, Gazetecilik

Introduction

When opening the pages of almost any book published after the 2000s, it is almost impossible not to come across arguments, critiques, and speculations discussing the benefits, risks, and influence of advanced, modern, and smart technologies upon our daily lives (see, for example, Papadimitriou, 2016; Laalaoui & Bouguila, 2015; Gunkel, 2012; Katz, 2005). From politics to education, from science to society, and from warfare to commerce, new complex computer-mediated communication (CMC) technologies are increasing our abilities, at the same time, actively shaping and directing them. Today, communication and media organizations of all kinds in the developed world use Artificial Intelligence (AI) and machine learning technology for different purposes, such as to enhance their capabilities, to increase their market share and revenues, to maintain records of sales, to gather customers or product information, to develop effective business strategies, or to create hundreds of news stories more cheaply, quickly, and most probably with fewer errors than a human journalist. Artificial Intelligence technologies are different than traditional software; they are increasingly intelligent machines, and they are *smart*. Not only do they analyse the data at scale, but they also make predictions about what that data means (Kaput, 2021; Hancock, Naaman, & Levy, 2020).

The communications industry is undergoing a shift in technology. Artificial Intelligence, for instance, is considered one of the most popular concepts in the communications profession (Peterson, 2019). The significant developments in Artificial Intelligence pave the way for a fundamental reassessment of how we conceptualize the communication profession. Communication specialists are under great pressure to unlearn their old manual and traditional skills; to survive in the digital work environment they are forced to learn new digital abilities (Panda, Upadhyay, & Khandelwal, 2019, p. 198). Named also as "the Fourth Industrial Revolution" (Lee & Cho, 2020, p. 332), Valin (2018, p. 5) says that Artificial Intelligence is "a sophisticated application of technology" that has the ability to learn, improve itself, identify images, read and understand texts or hear and understand

sounds. At its core, Artificial Intelligence is programmed to make intelligent machines capable of solving problems better than people could, by assessing large sets of data with detailed algorithms (Peterson, 2019). What we know as Artificial Intelligence is largely machine learning; it has the ability to mimic human intelligence and make use of big data shared by humans online (Bourne, 2019). To sum up, Artificial Intelligence could be defined as "computational systems that involve algorithms, machine learning methods, natural language processing, and other techniques that operate on behalf of an individual to improve a communication outcome" (Hancock, Naaman, & Levy, 2020, p. 90).

When we look at how the implementation of Artificial Intelligence is going to impact the jobs of the communication profession, we see that Artificial Intelligence is, still, in its nascent phase, and research on the impact of AI-powered algorithms that perform activities belonging to communications is rather slim. Given few academic studies debate the role of Artificial Intelligence in the communication profession, the study at hand is a modest attempt to add to this literature (cf., Lee & Cho, 2020; Panda, Upadhyay, & Khandelwal, 2019; Bourne, 2019; Galloway & Swiatek, 2018; Kietzmann, Paschen, & Treen, 2018; Valin, 2018; ARF, 2018; Waddell, 2018; Lindén, 2017; Dörr, 2016; Clerwall, 2014; Karlsen & Stavelin, 2014), by examining a relatively new topic: the benefits of Artificial Intelligence, its influence, opportunities, and future challenges in the communication profession.

A literature review is used to exemplify this research framework. Based on the recent communications, public relations, advertising, and journalism scholarship on Artificial Intelligence, automation, and machine learning, in this paper, several distinct but interrelated perspectives on how communications professionals might be affected by Artificial Intelligence practices in the future are identified. As the article reviews the existing literature on the impact of Artificial Intelligence on the communication profession, this study is prescriptive and synthetic, rather than empirical. By taking a balanced approach of recognizing that Artificial Intelligence could be an opportunity and a solution, at the same time, a danger, and a threat, it aims to outline the dark and bright sides, as well as the key roles that Artificial Intelligence may play for communication professionals.

Method

The current study applies a thematic analysis, as suggested by Braun and Clarke (2006). Thematic analysis is a theoretically flexible and useful research tool to identify, analyse and report qualitative data (Braun & Clarke, 2006). "A theme captures something important about the data in relation to the research question" (Braun & Clarke, 2006, p. 82). The researcher's judgment is necessary to determine what counts as a theme. The researcher, first, reads and re-reads the data; second, generates initial codes; finally, defines and names the themes and produces the review. To accomplish this task, the Google Scholar search engine was used, and a literature search was performed. Mainly three inclusion criteria are applied during the search to narrow down the results. First, the study was developed through a close reading of publications published in the last ten years, from 2010 onwards. This timeframe was selected for two reasons: 1) the number of academic studies and conferences focusing on the application of Artificial Intelligence in the communication profession show an

increase since 2010, and 2) the use of the Internet and mobile devices, has increased dramatically worldwide in the last ten years. The second criteria applied was to search for specific keywords: "public relations and AI", "advertising and AI", and lastly "journalism and AI". And the last criteria applied was to pick up only academic articles that use the above-selected keywords in their main headline. Thirty-three articles that have these keywords on their main title are randomly selected. The selected thirty-three English-language articles are fully accessible within the following databases – EBSCO's Academic Search Complete, SAGE Journals, and Taylor and Francis – were thoroughly reviewed and initial ideas were noted down.

The study tries to find an answer to the following key questions:

RQ1: How the implementation of Artificial Intelligence is going to impact the jobs of the communication profession?

RQ2: Can intelligent algorithms or robots replace public relations practitioners, advertisers, and journalists?

RQ3: What kind of opportunities and challenges AI-powered systems will bring to these three professions?

To answer these questions each profession will be covered comprehensively, with a particular focus on the academic literature on how Artificial Intelligence is likely to change them. The article begins by exploring the Artificial Intelligence practices used by public relations practitioners. Here previous research on the future of public relations is briefly reviewed. The second part of the article looks at the advertising industry and tries to answer how Artificial Intelligence and digitalization will change the future of advertising. In the third part, the impact of Artificial Intelligence on the journalism profession is considered and discussed. That same section additionally focuses on the current debates on fake news. The study ends with an emphasis on why society should care.

Artificial intelligence in public relations

Technological advancements such as Artificial Intelligence, machine learning, big data, virtual reality, and robotics play an increasingly great role in everyday life. We are living in a technology-driven environment, and we have seen that evolving technology became one of the most prominent drivers of change and innovation. For businesses, especially, there are a few advantages to being technology-driven: it offers companies flexibility, change, innovation, and creativity, and it helps to develop new solutions that perform well in the marketplace. Although "experts predict that 50% of occupations in corporations today will no longer exist by 2025" (Andrew, Ip, Worthington, & Brooke, 2014, p. 4), the literature provides enough evidence that public relations professionals won't be replaced by robots. But how much of what is done in PR will be replaced by AI-powered systems?

Galloway and Swiatek (2018) conceptualize Artificial Intelligence in public relations contexts and come up with the following definition: "technologies showing humanoid cognitive abilities and performing humanoid functions in undertaking public relations activities, independently or together with public relations practitioners" (p. 734). Both Galloway and Swiatek (2018), and the study of Marx

(2017) highlight that PR agencies benefit from AI-enabled systems, especially, for tasks that help them predict media trends and monitor social media. Scholars emphasize that Artificial Intelligence has a self-learning capability and offers a tool that could respond autonomously to posts, queries, tweets, and other messages texted on social media. The study of Panda, Upadhyay, and Khandelwal (2019), equally supports this idea and reveals that Artificial Intelligence has the power to automate some tedious, repetitive, and mundane PR jobs, such as writing data-driven stories, organizing, and updating media lists, assisting in crisis management, and converting audio into text. It is known that negative messages spread enormously in the digital environment. For Panda, Upadhyay, and Khandelwal (2019), Artificial Intelligence-powered machines may send instant alerts to managers about an online crisis, negative word of mouth, and inaccurate or fake stories. By so doing, Artificial Intelligence would allow public relations practitioners to respond quickly and effectively with relevant messages. Artificial Intelligence, then, could find, schedule, manage and report on social media content more feasibly (Panda, Upadhyay, & Khandelwal, 2019).

Applying Artificial Intelligence in the public relations industry would, also, mean faster results. This, in turn, would allow PR practitioners to meet their purposes faster too. Artificial Intelligence would allow them to process statistics and any kind of data much faster, says Rogers (2019). This perspective is slightly shared by Bourne (2019), who emphasizes that much of contemporary public relations is designed to privilege the voice of business interests, and PR robots could work 24/7. For Bourne (2019), they could provide a 'just-in-time' message response to the media and the public (p. 119). This means that Artificial Intelligence systems could keep messaging to the point, with ideas based on analysis of Big Data and other relevant trends (Panda, Upadhyay, & Khandelwal, 2019, p. 202).

To sum up, three key themes have been identified that capture an important element of how Artificial Intelligence applications may transform the public relations profession.

First, Artificial Intelligence will be able to make public relations more efficient and will help professionals to make creative decisions based on data, facts, and trends, rather than relying on gut feelings (Peterson, 2019). Like many jobs, in the relatively near future, Artificial Intelligence will increasingly assist public relations practitioners, especially on mundane and administration-based tasks. For example, practitioners will use Artificial Intelligence tools on the time-consuming tasks that have less value, such as scheduling meetings, scanning massive amounts of data, creating media lists, developing coverage reports, setting due dates, structuring meeting notes, sending out follow-ups, on dispatching press releases, or simply on repetitive day-to-day tasks (Panda, Upadhyay, & Khandelwal, 2019). Data-driven public relations campaigns, for instance, could make use of Artificial Intelligence to create new experiences that can increase brand affinity. In this way, more of the day could be spent on added-value activities or simply on doing the more strategic elements of the job: advising clients, relationship building, generating ideas, and storytelling or creative writing that would touch people on an emotional level and get the media's attention to tell that story for the targeted public.

Second, with Artificial Intelligence, it will be easier to know the preferences, buying patterns, and habits of the consumers. Artificial Intelligence will be much more frequently used to create appealing content for these buyers. "With AI-based personas, companies can create and deliver targeted messages" (Panda, Upadhyay, & Khandelwal, 2019, p. 202). As emphasized by Galloway and Siatek (2018), it appears that public relations practitioners must develop an adequate understanding of Artificial Intelligence to be able to offer informed, useful, and practical advice to customers.

Third, the public relations profession requires social relations, political contacts, and feelings. For example, activities such as providing expert advice, generating reports and presentations, event planning, project management, and creative work are essential to public relations, and they require judgement, human intuition, reasoning, emotional intelligence, and empathy. These types of crucial skills are still hard to automate with currently available Artificial Intelligence technologies. This does not mean that the public relations industry does not make use of Artificial Intelligence. Public relations agencies are becoming aware that Artificial Intelligence will bring a competitive advantage and will allow companies to produce services better or more cheaply. In the next section, the impact of Artificial Intelligence upon the advertising profession is discussed thoroughly.

Artificial intelligence in advertising

Technological advancements have always brought radical changes in the advertising agency business. In 2017, Artificial Intelligence was named the Marketing Word of the Year by the Association of National Advertisers (Kirkpatrick & Adams, 2017). In the past ten years, advertising campaigns are enriched by artificial intelligence-driven platforms which make advertising design more efficient for advertisers. For Kluge (2018), Artificial Intelligence is a game-changer for the advertising industry. Advertising that uses intelligent algorithms is defined as "consumer-centered, data-driven, and algorithm-mediated brand communication" that knows consumers' interests, preferences, needs, wants, and tastes (Li, 2019, p. 333). It is suggested that with the help of Artificial Intelligence practices, advertisers begin to target the right customers at the right time.

Literature on Artificial Intelligence within advertising shows that contemporary digital technologies have enormously transformed how companies reach and interact with consumers. Four key themes have been identified that highlight how Artificial Intelligence applications may transform the advertising profession. These are: (1) discovering consumer insight, (2) evaluating the impact of ads, (3) media planning and buying, and finally (4) advertising creation.

It is acknowledged that the algorithms knew the demographics, psychographics, motivations, and past purchase behaviours of customers, and even their vulnerabilities that may help them to practice the art of persuasion (cf., Maslowska, Smit, & Putte, 2016). In other words, in contrast to traditional mass media advertising, Artificial Intelligence would help advertisers to become experts on consumer behaviour. For instance, in a study evaluating the bright side of Artificial Intelligence, Kietzmann, Paschen, and Treen (2018) illustrate how Artificial Intelligence may help consumers and advertisers alike. Authors question how marketers can leverage Artificial Intelligence along the consumer journey and uncover that image recognition would allow Artificial Intelligence to

recognize both the product and potential social-media influencers; speech recognition would allow Artificial Intelligence to analyse the meaning of spoken words, and provide meaningful voiceovers for advertisements, and natural language processing would allow Artificial Intelligence algorithms to evaluate the nuances of human language. Kietzmann, Paschen, and Treen (2018) argue that Saatchi LA company "trained IMB Watson to write thousands of advertisement copies for Toyota; the copy was tailored to more than 100 different customer segments" (p. 264).

From a slightly different perspective, Taylor and Carlson (2021) studied the future of advertising research and revealed that by 2019 digital ads had become the number one advertising medium in the U.S. and digital ad expenditures are expected to increase 85% between 2018 and 2023. In another study that also looks at the impact of digital advertising and questions what the future of advertising will look like, Lee and Cho (2020) say that, by the end of 2019, the global digital advertising market will account for approximately half of the global advertising market. The evolution of digital ads as a major advertising platform, however, did not come without its challenges, since it has made it much more difficult to get a message noticed (Taylor & Carlson, 2021). As a result, ad agencies start to focus on Artificial Intelligence technologies that could transfer big data into valuable information about consumers. The study of Lee and Cho (2020) highlights that advertising production would no longer rely on personal intuition and experience, instead, their production would be based on algorithmic data. The study of Lee and Cho (2020) concludes that nowadays, the advertisement industry start to use big data to expose "the right message to the right people at the right time in the most cost-effective manner through data-based real-time bidding" (p. 336). Their example from the New York Times economy section is exemplary. Authors emphasize that in traditional advertising, companies buy media; however, "millions of people from all over the world visiting the same Web page of the New York Times are not exposed to the same advertisement but are exposed to different banner advertisements depending on the visitor's age, gender, purchase history, and interests" (Lee & Cho, 2020, p. 337). The study of Malthouse, Maslowska, and Franks (2018), analysing programmatic ad buying, and the use of software (e.g., machines and algorithms) to buy digital advertising, similarly reveals that big data will allow buyers and sellers to decide on the best suitable target audience for an ad message.

As Schroer (2018) has stated, *Amplero*, *Gumgum*, *Sizmek*, *Albert*, *Amplify.ai*, *Invoca*, *Amazon*, *Influential*, and *Quantcast* are all considered great digital advertising optimization companies that use Artificial Intelligence to create the best possible advertising campaigns. These companies are seen as the advertiser's secret weapon that could make advertising profitable and smarter. Take New York-based *Albert* as an example: it is an Artificial Intelligence tool for advertising that uses sophisticated Artificial Intelligence to analyse ad campaigns, then manage targeting and budgets. It is a self-learning solution that improves the effectiveness of online advertising with more persistence and efficiency. According to Kaput (2021), in one day alone, *Albert* could test 6,500 variations of a Google text ad and learn from this experiment. As *Albert* states on its website (https://albert.ai), it makes Artificial Intelligence solutions for brands and agencies, building powerful brand and audience connections. California-based *Gumgum* (https://gumgum.com/) is another contextual intelligence company that could develop applied computer vision technology that ad agencies could use to place ads strategically.

Ad tech company *Sizmek* is another AI-power platform that provides insights that help advertisers better understand customer data, thus producing more relevant campaign content, personalized messages, and impactful ads (Schroer, 2018). *WordStream*, an online advertising company, also uses machine learning to quickly analyse an ad campaign. *WordStream* takes better decisions than human beings about the target market; these decisions translate into better performance, reduced costs, and increased revenue (Kaput, 2021).

Liao (2017), who performed research on the development of China's smart advertising industry, suggests that employing Artificial Intelligence technologies in advertising would reshape the steps in the advertising process. This includes conducting research, ad design, media planning and buying, and evaluation. In 2016, for example, "the Luban System designed and posted 170 million posters for Alibaba's November 11 discount campaign" and "it designed 400 million posters for the same annual campaign in 2017, roughly 8,000 posters per second" (Qin & Jiang, 2019, p. 340). This means that ad creation could be completed in seconds. Like Liao (2017), Qin and Jiang (2019), also studied the application of Artificial Intelligence technologies and the impact of Artificial Intelligence on the advertising process in China. Authors suggest that Artificial Intelligence technologies may help the advertising process to become more tool-based and efficient, with better quality, service, and speed.

"[T]hings that used to exist only in analog form have now been converted to digital form (e.g., music, video, and photos)" says Lee and Cho (2020, p. 332). New digital technologies created new opportunities for advertisers; they became able to build better consumer relationships and be more interactive on online platforms. Time and space are not important anymore, and consumers could be reached anywhere at any time via their smart devices (Taylor, 2009). We communicate with intelligent apps; our smartphones provide us with virtual assistance (e.g., Amazon's voice assistant Alexa, and Apple's intelligent assistant Siri). Google Assistant, for instance, may pull data from all of the Google apps a user uses with a single login (Li, 2019), and Artificial Intelligence technologies may be used to gather real-time feedback data from various sources (Qin & Jiang, 2019). The digital footprints consumers leave with each click feed a huge database for future automated selling efforts. The clicks are tracked, monitored, and used for digital advertising purposes. On the dark side, Artificial Intelligence may analyse consumers' data via large-scale deep learning algorithms and may convert it into companies' benefit or profit.

The effectiveness of brand communication on digital media platforms, such as Twitter and Facebook, relies on algorithmic quantification of metrics including shares, likes, and retweets. Social media companies are based on an economic model of engagement. Engagements are a key fact for the economic success of the social media industry. The more people are engaged, the more companies learn about who these people are. AI-powered tools will provide advertisers with the data about who sees the ads and how effective their ad campaigns are. With the help of Artificial Intelligence "online retailers may be able to predict what customers will want" (Davenport, Guha, Grewal, & Bressgott, 2020, p. 25). Kumar et. al, for instance, highlight that online retailers could send suggestions to customers based on their browsing activities, and product suggestions could be designed with Artificial Intelligence tools to fit consumers' past purchases (Kumar, Rajan, Venkatesan, & Lecinski,

2019). This suggests that algorithmic machine tools may play with and may feed off our enjoyments, desires, fantasies, and drives. The secret lies in the evaluation of big data.

Amazon, perhaps, provides the quintessential example of Artificial Intelligence. It is one of the largest online marketplaces in the world; it is gigantic, with millions of different products, controlling almost half of the online trade, especially in the U.S. Bearing a smiling logo, this company is a highly powerful data engine; compiling a huge amount of data about its customers. With its extraordinary economic muscle, it is capable to collect and save data on what we are looking at, what we are searching for, what prices we are comparing, what qualities we want, and what preferences we made. It uses this data to know what preferences influence our surfing behaviour. Kluge (2018) highlights that the more data Artificial Intelligence learns, the better it would optimize ad campaigns. In today's online world, newsrooms are also undergoing a profound digital transformation to the digital. The next section outlines how new digital technologies may transform the presentation of news online.

Artificial intelligence in journalism

Especially with the spread of the Covid-19 pandemic in 2020, daily internet usage has increased dramatically worldwide. Roughly 4.66 billion people around the world started using the internet at the beginning of 2021, which is close to 60 percent of the world's total population (DataReportal, 2021). The increase in internet usage, increased online news consumption, as well. Five key themes have been identified that highlight how Artificial Intelligence applications may transform journalism: (1) reaching facts quickly, (2) writing news quickly, (3) providing trustworthy, accurate, and objective information, (4) writing news with fewer errors, and (5) spreading online fake news.

Some digital journalism studies have been undertaken on the terms such as computational journalism, robot journalism, algorithmic journalism, data-driven journalism, or automated journalism which dominates the media discourse (Anderson, 2012). These technological developments, also, lead the news industry to consider the role of robots in journalism. There are discussions on who the new leader of the 21st-century newsrooms will be: the experienced journalist or the robot journalist. Today, part of the journalistic content in newspapers are not written by humans anymore but by machines. Some AI-powered programs could get the facts and write a news story within a fraction of a second. The experimental study of Waddell (2018), for instance, explores to what extent automation impacts the way news is read and evaluated by readers. Wadell (2018) reveal that "news attributed to a machine is perceived as less credible than news attributed to a human journalist" (p. 236). From a slightly different perspective, the study of Van Dalen (2012) evaluates reactions to machine-written sports news websites and uncovers how new technologies push human journalists to re-consider their skills. Van Dalen (2012) argues that robot journalists "can produce thousands of articles with virtually no variable costs" (p. 649). These new programs could create content, write computer-generated stories quickly, cheaply, and reliably, especially, on sports, finance, real estate, weather, traffic, or obituaries. These types of subjects involve the fluctuation of numbers that helps Artificial Intelligence to enrich a story.

News corporations such as Associated Press, Bloomberg, Dow Jones, the Guardian, and the New York Times are using Artificial Intelligence to write earning stories. There are news stories written in Forbes magazine that are untouched by human journalists. News provider Reuters (2016) uses an Artificial Intelligence service called *Graphiq*, to build data visualization. *Graphiq* is a technology company that uses Artificial Intelligence to rapidly create interactive data-driven infographics. *Narrative Science* is another technology company based in Chicago, Illinois that invests in sophisticated machine-learning technologies. It trains computers to write news stories and transforms data into insights (Levy, 2012).

Clerwall (2014), who undertook a study comparing how readers perceive software-generated content versus content written by human journalists, found out that "text written by a journalist is assessed as being more coherent, well written, clear, less boring, and more pleasant to read" (p. 525). In the same study, Clerwall (2014) also uncovered that text generated by the software has been perceived as more informative, descriptive, and boring, but also more trustworthy, accurate, and objective. Clerwall (2014) concludes that "Some aspects of quality, such as being clear and being pleasant to read, received a slightly higher score for human-written content, but others, such as trustworthiness, informative, and objective, were higher for the automated content" (p. 527). In similar research Van Dalen (2012) analyses machine-written sports websites and tries to uncover the impact of new technology on human journalism. Van Dalen (2012) reveals that computer-generated news texts are found "somewhat boring" and "full of cliches" (p. 653), in stark contrast human journalists have analytical, original, and inspired skills that allow them to write investigative news stories with interesting interpretations. Even though these skills may not easily be replicated by algorithms, it appears that automated journalism would force human journalists to re-examine their skills, says Van Dalen (2012). The author also argues that to survive, professional journalists have to become more creative in their writing, provide in-depth coverage, and go beyond monotonous and routine coverage (Van Dalen, 2012). The author concludes that automation may be an opportunity for human journalists, rather than a threat; it could free human journalists from error-prone routine tasks and give them more time to spend on investigative and quality reporting (Van Dalen, 2012).

From a slightly different perspective, the study of Wölker and Powell (2018) investigating how European news readers perceive automated, combined, and human journalism, also suggests that algorithms may compete with human journalists, especially, on producing routine reporting quicker, in several languages and with fewer errors.

Undoubtedly, robot journalists would change the way human journalists work. Contrary to experienced journalists, robot journalists could do research quickly, and write stories within seconds. They never forget facts, never get ill, and ask for a day off. They could do many things cheaper and better than human journalists. Robot journalists could work 24/7 without complaining, missing the deadlines, going on a strike, or sking for a pay raise. Given the economic concerns of the newsrooms and the cost advantages of automated journalism, it appears that news media organizations would prefer more robot journalists in the future. But pessimists foresee that if an Artificial Intelligence algorithm functions as a journalist, this might bring new concerns, as part of journalism is about public interest defense and public opinion formation. If human journalists are replaced by nonhuman

counterparts, algorithms would be inadequate to fulfill the watchdog function. Because algorithms could never become guardians of the democratic system and human rights (Latar, 2015), whereas the news media should be the mirror of society.

The impact of machine-written news is followed by another worldwide concern: the spread of online fake news. Fake news has changed the political climate worldwide and one of the main reasons is the social networking sites and their intelligent algorithms, which facilitate to divide the society. Online fake news could influence the economic, political, and social well-being of society. But what role might intelligent algorithms play in the spread of online fake news? Recently, during the ongoing COVID-19 pandemic, social media usage grew enormously, with global users reaching 4.20 billion in January 2021 (DataReportal, 2021). In social networks, intelligent algorithms would filter and control what we see, and thus influence what we read, what we learn, and what we do not. Some elements determine the news feeds that favour engagement. For instance, things that are exciting, surprising, and potentially shocking are more likely to be engaging, clicked on, read, viewed, shared, and liked. Capturing and re-selling users' attention, users' digital data has become the biggest business of the 21st century.

Social networking sites vie for users' attention, feeding them exactly with the information they like. Social networking algorithms knew that people choose to read media messages that fit or reinforce their pre-existing views and opinions, rather than graze on a wider range of critical or alternative perspectives that might challenge their opinions. As the study of Knobloch-Westerwick and Meng (2009) suggests, people like to consume messages in line with their views and avoid opinion-challenging content, and the intelligent algorithms knew what social media users want. Social networks have signed each user a profile depending on what s/he clicks on, reads, or watches. Filter bubbles are gradually formed to feed a particular type of user. Every user lives within their network; their opinion is echoed by like-minded people. Contradictory information and opinions hardly enter their bubbles. This is, also, observed by a team of MIT scientists in 2018. Vosoughi, Roy, and Aral (2018) who analysed the spread of fake news on social networking sites uncover that they have way more information than we could process; these platforms help us to prioritize what comes first in our news feeds; they have an algorithm based on machine learning that is deciding what gets shown first, while some of the things are left out and never shown at all. This means that not every piece of information is displayed to everyone. Vosoughi, Roy, and Aral's (2018) study investigating 126,000 true and false news stories distributed on Twitter between 2006 and 2017 and tweeted by 3 million people revealed that fake political news travels further, faster, and broader than reality. They say that lies spread faster, and falsehood reaches far more people than the truth. The authors find out that fake political rumours, for instance, during the 2012 and 2016 U.S. Presidential elections were the largest viral category than any other category of false information. "[F]alsehoods were 70% more likely to be retweeted than the truth" (Vosoughi, Roy, & Aral, 2018, p. 1149).

Some Artificial Intelligence tools have been created to assist journalists in fighting online fake news on social media platforms. The Chinese chatbot Xiaoice, for example, is an Artificial Intelligence system developed by the Microsoft (Asia) Software Technology Center in 2014. According to Peters (2017), Xiaoice is one of the newest innovations in journalism. It helps to tackle fake news posted

on online platforms. Approximately 350,000 tweets flow through Twitter per minute, 500 million tweets per day, and 200 billion tweets per year (Sayce, 2020). Mainstream media and print journalists are not able to compete with fake news since it is put out almost instantly on social media platforms and the web. With the assistance of Xiaocie, reporters were able to diminish fake news, or any false information posted online. Although Xiaocie is imperfect, still it is a great Artificial Intelligence tool that could assist journalists in the newsroom.

What's the impact upon society?

While a full analysis of the merits of AI's bright and dark sides, or positive and negative effects on society is beyond the scope of this study, it is important to recognise the influence of machine intelligence and the way it would shape, on the one hand, the communications profession, on the other hand, the media institutions that are considered as information providers of democratic systems. Literature proves that it is the market that famously speaks, but the market's decisions might conflict with our notions of ethics, justice, happiness, value, or ecological sustainability. Instead of letting democracy be controlled by the global market, we must find ways that the market would be democratically controlled.

Artificial Intelligence perfectly supports the capitalist market, including tremendous profits for the owners of capital, and could have undesirable consequences for humanity. Only by observing our social media consumption, Artificial Intelligence algorithms are distorting the opinions we form. Just a few companies in the future could determine a very big population's destiny. At no time in history, have markets become so concentrated in the hands of a few digital companies, and Artificial Intelligence is consolidating its power. "Today, Google together with Apple, Microsoft, Amazon, and Facebook are the top five biggest corporations in the world" (Stjernfelt & Lauritzen, 2020, p. 62). These tech giants are at the forefront of the radical change that we are experiencing as users. They rely on their economic strength and powerful position in society. They have a common growing effect on people's daily life and growing political influence as well. According to Cavallone (2020), in 2019, Google spent 8 million euros on lobbying in Brussels. Amazon, Facebook, and Apple's lobbying budgets have increased by 510% since 2014 (Cavallone, 2020). Will the influence of technology giants over society's daily life continue to grow, and what could be done to decrease their monopoly, are some urgent issues that need to be considered? Public relations practitioners, advertisers, and journalists not only have the freedom but also the responsibility to shape the future of the digitalized communication profession.

In 2013, the Edward Snowden leaks about the PRISM program, for instance, provided enough evidence for what we already believed that our online interactions and communications are constantly being monitored and collected by mega-corporations and the government. This raises concerns about how companies like Amazon, Google, Apple, Twitter, BlackBerry, Facebook, and Microsoft shape the world, and also the concerns about free speech on the internet. The study of Stjernfelt and Lauritzen (2020), *Your Post Has Been Removed: Tech Giants and Freedom of Speech* is alarming. The authors reveal how moderating policies of tech companies such as Facebook, Twitter, and Google

enable them to censure our society. In 2018, the Cambridge Analytica data scandal, where millions of Facebook accounts were used for political purposes, also revealed by a whistleblower and data consultant, Christopher Wylie, show us how news may affect the market's complex structure. The study of Peruzzi, Zollo, Quattrociocchi, and Scala (2018), for instance, exemplifies the way platforms may manipulate users' views of the world and the way this impacts our actions and behaviours, our ethics, and our politics and voting behaviour.

We hear a lot of things about big data, data capitalism, surveillance capitalism, and control society. Data capitalism becomes dangerous when the power is controlled by a few companies. Digital data is commodified in the global media industry. The knowledge obtained from digital data maintains the flow of knowledge on the users' choices and consumption processes. Digital media firms have transformed into economically dominant global companies and have changed the news media worldwide. As justified by Bourne (2019): "AI will inevitably produce its global winners and losers. The largest AI campaigns are being waged on behalf of the most developed economies. Ultimately, AI's biggest losers will be small and developing nations, which lack the resources and infrastructure to participate equally in, and benefit from, a new AI-led economy" (p. 118).

Conclusion

This paper outlines a framework to understand how Artificial Intelligence and machine learning may impact the future of the communication industry and considers the implications for communications practitioners. By building on prior work, the AI's impact on public relations, advertising, and journalism professions is thoroughly explained.

Yuval Noah Harari's (2016) book, *Homo Deus: A Brief History of Tomorrow*, talked a lot about the ethical and social considerations of Artificial Intelligence, and the social, cultural, economic, and behavioural change it might bring to people's daily life in the near future. Harari (2016) warns society that Artificial Intelligence has the potential to produce a useless class of humans that has no value to offer society. Elon Musk warned of the potential dangers of Artificial Intelligence, as well. The late Stephen Hawking, similarly, worries that eventually, the machines would outsmart humanity. He claims: "Whereas the short-term impact of AI depends on who controls it, the long-term impact depends on whether it can be controlled at all" (in Kolodny, 2014). But would this be valid for communication professionals, and can robots replace them?

Robots often come to mind when we talk about Artificial Intelligence. However, as stated by Galloway and Swiatek (2018), it is crucial to separate Artificial Intelligence from robotization, because Artificial Intelligence is simply the umbrella term that describes machines mimicking human intelligence. An Oxford University study implemented by Frey and Osborne (2013) has analysed what jobs are likely to be lost to robots in the near future. The authors make it clear that millions of workers are in danger of being replaced by robots. The study reveals that out of 702 occupations public relations specialists, advertising and promotions managers, and reporters and correspondents are some of the least likely professions to be replaced and automated (Frey & Osborne, 2013).

Undoubtedly, Artificial Intelligence would affect production technologies and economic decisions. But the academic literature suggests that it is a rather narrow view that AI would create robots to replace humans in performing various tasks or would outperform human intelligence in most of its dimensions. As stated by Andrew, Ip, Worthington, and Brooke (2014), "A growing proportion of jobs in the future will require creative intelligence, social intelligence and the ability to leverage artificial intelligence" (p. 4). This means that computers and machines would not yet, at least, fully replace communication professionals, as they hardly possess the fundamental human traits (e.g., empathy, relationship building, trust, humour, and creative ability) to supersede humans. Creativity is a unique humanly endeavour; it could hardly be replicated by machines. According to Valin (2018): "Regardless of the tasks and skills that can be automated or benefit from AI, human intervention in editing, sensitivity, emotional intelligence, applying good judgment and ethics will always be needed" (p. 11). Besides, robots work with algorithms and have rigid rules, whereas humanly critical thinking skills would be least impacted by Artificial Intelligence (Valin, 2018).

As presented in this study, the benefits Artificial Intelligence would bring to the communication profession itself remains valuable and those who adopt Artificial Intelligence technologies would certainly gain a competitive advantage. Artificial Intelligence would be a tool for communication professionals, not a threat. The future of the communication profession would be a blend of both Artificial Intelligence technologies and human insight. But whether communication professionals are ready and qualified enough to survive in this atmosphere and prosper in the AI-powered environment is something that we still need to research further.

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