Effects of Artificial Intelligence on the Future of Journalism

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Abstract

For several years, the media have successfully integrated AI tools into their activities. According to the Higher Institute of Journalism Training, artificial intelligence technologies take care of 8 to 12% of journalists' daily tasks. This time saving is reallocated and contributes to increasing the quality and added value of the content offered by reporters and media. The arrival of artificial intelligence in the media has therefore necessarily triggered changes, whether in practices, in the very structure of these media, or even in the legal and ethical framework of the profession. As a result, this article analyzes the effects of artificial intelligence on the future of journalism. The hypothesis of the research is adapting and knowing the limits of these programs will also be an important step to ensure the proper development of these new technologies. In addition to the obvious legal and practical changes, it is from the training of future journalists that it will be necessary to act with the learning of new knowledge. By knowing the tool, it is logically easier to master it and avoid the unexpected. The current research was carried out with a descriptive and analytical method, and information was collected in the form of library and document studies, including books, specialized articles, and the Internet.

Keywords: Artificial Intelligence, Journalism, Media

Introduction

Humans' first reaction to robots is undoubtedly the fear of being replaced by them. "Artificial intelligence is potentially more dangerous than nuclear weapons," tweeted the CEO of Tesla, Neuralink and Space X, Elon Musk several years ago (Wadhwa, 2022).

From the first developments of artificial intelligence until today, the debate continues to move forward, especially since they are integrated into all professions and are considered as threats by different professions. Elon Musk also mentioned a crazy project: merging the human brain and AI by creating chips called "neural lace" future implanted in the cortex of individuals. These will allow humans to develop their mental abilities but they

will also have a therapeutic purpose, since they will be able to cure neurological diseases. This project, almost straight out of a science fiction film script, is just one of the many ambitions of AI researchers. The media want to integrate technologies into their workspace with one objective: to respond to the competition that has developed in the media, which will be the fastest to deliver information. This is why today, AI has become one of the main issues in the evolution of journalistic practice.

Today, much progress has been made and the hypothetical threshold has largely been exceeded. Applications of AI include automating tedious tasks such as monitoring, transcribing interviews and videos, writing financial reports, large-scale content analysis, event or fake news detection, as well as automatic metadata extraction and archiving by subject. However, it is essential today for the world of journalism to take advantage of technological advances. According to Francesco Marconi, professor of journalism at Columbia University in New York, and author of the book "Newsmakers: Artificial Intelligence and the Future of Journalism", we must integrate these new technologies as quickly as possible in order to think of a new business model. Indeed, thanks to AI and its technological derivatives, machines are capable of carrying out between 8 to 12% of journalistic tasks, freeing up working time for editors and journalists to focus on the quality of content (Attard et al., 2023, pp. 15-24).

Literature Review

Georgiana Camelia Stănescu (2023), in a research article "The impact of artificial intelligence on journalism. Adverse effects vs benefits" mentioned that "avatars", which are a digital representation of a person, created by an AI tool, can be used as a news anchor in the physical absence of the person. Recently, national and regional news channels of India have created their AI news anchor.

Dr. Debsmita Sarkar wrote "A Study on Metamorphosis of Journalism in AI Age" in 2023. This article will explore whether AI is taking over the journalism industry and which areas it is positively affecting or negatively.

In the article "Artificial Intelligence and the future of News. Reflections on Journalism from the Perspective of the AI Immersion" (2021) by Ines Razec, aims to analyze the phenomenon of fake news as a direct consequence of the entry of AI in the world of journalism as well as the redefinition of journalism brought about by the implementation of AI in the work environment. Gradually, the development of new technologies has created the conditions for a new form of freedom, allowing individuals to express themselves on an ever-increasing number of platforms.

Amaya Noain-Sánchez in "Addressing the Impact of Artificial Intelligence on Journalism: the perception of experts, journalists and academics" (2022), adopted an exploratory approach, this study aims to analyze the application of AI in newsrooms

editorial, focusing on the impact on news creation processes, routines and media profiles, highlighting the advantages and disadvantages, and finally, analyzing the rise of ethical dilemmas. To this end, 15 in-depth interviews were conducted in two rounds, in 2019 and 2021, with a sample of journalists and other media professionals, academics, media industry experts and technology providers leading work on AI. Finally, the emergence of ethical questions highlights the need for continuous control and supervision of the processes engaged by AI.

Artificial Intelligence: A Nuanced Tool
Analysis and Prediction Capabilities

Artificial intelligence is changing the legal structure but also the practical structure of journalism. More and more, it is finding its way into editorial offices and it is proving to be a real renewal in practice. It acts as an "aid for journalists", a tool freeing up time and allowing them to devote themselves to more complex tasks or requiring more research (Díaz-Noci, 2020, pp. 1-2). Machine learning, exploitation of algorithms, AI… all its technologies can today "imitate human intelligence" and be an ally for journalists, editorial staff and readers. First, they reveal a numerous range of capabilities, almost equaling humans at the very heart of their profession. For example, with technological progress, it is possible for visually impaired people to have better accessibility by analyzing an article or work in a few seconds, without the slightest physical effort on the part of the reader. In addition to her power to help people, she has developed skills in analysis and prediction, useful to the media (Esposito, 2022, pp. 2-3).

The analysis capacity is starting to be widely used in France. The AI will often be able to "read" a video, be able to dissect it and know if it is fabricated from scratch or if it is entirely original. It is capable of doing in a few seconds the work of a human journalist whose function is to ferret out fake news. Let's take the example of Valossa software. The latter can "interpret videos, detect people, transcribe their verbatim and know what the video is about". It claims to be an aid for the journalist since it allows you to quickly transpose the video format into text format without any effort. We can also read on the website of the developers of the tool: "Analyze your content at superhuman speed and detect the most inappropriate elements. » The term "superhuman speed" reflects that these start-ups rely on the effectiveness and speed of execution of AI (Deepgram, 2024).

But it can be a real analysis and detection tool to avoid fake news. She can predict how articles will perform on the Web, recommend them to boost views and be capable of analysis to find new and original ideas. Several projects are underway, notably with Agence France Presse and the In Vid software by 2020 (Razec, 2022, p.63). Eleven press companies are working in collaboration with researchers to develop AI, make it even more reliable and capable of uncovering any fake news in a short time. Like Valossa, this project

extends on a European scale and makes it possible to harmonize the integration of new technologies in editorial offices. Eric Scherer, founder of Meta-Media, explains the extent of this type of practice, gaining ground since it is tested at the regional level such as at Ouest France where "verification has gone from 30 minutes on average to 3 minutes" thanks to AI. We are witnessing an automation of work in all tasks of daily life in a press company. But the question of their effectiveness arises regarding their ability to detect fake news quickly and easily (Borchardt et al., 2021 pp. 35-72). Are their effectiveness and reliability proven?

Let us begin to illustrate our point with an example. The Quakebot software in the United States had been integrated into the editorial staff of the Washington Post. In 2015, it reported an earthquake because of the data it had received: magnitude 6.5 on the Richter scale. In the absence of verification by a journalist, the article was therefore published, causing the creation of false news and a mass of chain reactions on social networks. The fake news was announced a few minutes later, explaining that the reported earthquake had already occurred... in 1925. This example is proof that poorly used or poorly verified data can be the source of errors. Damien Desbordes, journalist, explained the phenomenon. It is basically a simulation test of the earthquake that occurred 90 years earlier in California. One of the scientists in charge made a mistake when writing the data in the AI file by marking "2025" instead of 1925 (Soyoung & Boyoung, 2020, p. 1). She therefore interpreted it as if this earthquake… was happening. So, isolated phenomenon or overestimation of AI?

Proven Competence in Content Creation

AI is capable of generating articles but also of creating new things with sometimes disconcerting ease, surpassing human capabilities since it only takes a few seconds to find thousands of original content. It has writing capacity since it is the "battery" of automatic text generators. In a popular way, some specialists call them "robo-journalists". The whole purpose of automated text generation (ATG) is to free up time for human journalists to conduct in-depth stories, with time-consuming research or investigations. Narrative Science, a Californian company placing GAT and AI at the heart of its activity, gives a clear definition: "this technology transforms data into a human language. In other words, this means that software can access the data and write an article based on it, like a human would do today. It allows you to understand several forms of journalism with ease (Esposito, 2022, p. 2). For example, automatic text generations are mainly used for sports journalism or information based on stock markets or business. They are perfect for these formats since it often involves transcribing actions from a match or explaining the course of actions in a few lines. Information is written in a few thousandths of a second thanks to a huge database generating several ready-to-use key phrases.

But the term "robot-journalist" can be criticized by some AI researchers. Claude de Loupy, founder of the Syllabs Company, emphasizes that this term is incorrect. At present, they do not fully do the journalist's job. The businessman rather recommends the term "data-writing" or "writing engine" because by this we mean the completion of a single task, often simple writing. In addition, the director makes a point of showing the AI that it is not independent because "behind the technology, there are linguistic engineers who transmit knowledge linked to a domain to the engine". In short, AI "assembles existing content into predefined content". This system will free editorial staff from redundant tasks that do not necessarily require the "human sensitivity" necessary in many journalistic subjects or formats (Dörr, 2017, p. 702). He can devote himself to formats such as analytical journalism, field investigations, long interviews or coverage of various events. Without these elements, journalism loses its essence. Eric Scherer explored another future perspective in the face of the freeing up of journalists' time due to AI. The latter will be able to focus on increasingly precise information, on a local or even hyperlocal scale, and cover more and more in depth. For example, journalists will focus on information by cities, villages, scores of small division matches which are not necessarily covered by the press. This can be done by AI, programmed from A to Z and 100% reliable.

The New York Times, after integrating AI into its editorial staff, raised several fundamental questions. The newspaper subsequently published a quiz on its website whose title was quite explicit: "did a human or a computer write this?" » Or "who, human or machine, wrote this?" ". Around ten sentences taken from around ten articles were transcribed and two choices were made: man or machine. For most of the extracts, it is impossible to clearly distinguish who wrote it (Esposito, 2022, pp. 28-107). A questionnaire with a disturbing result since we even wonder how AI has not yet surpassed the editorial capabilities of the human journalist. But one point makes all the difference. Claude de Loupy, founder of the company Syllabs, affirmed that these "editorial engines" do not equal humans: "Even if the editorial report is perfect, we do not have details or emotion on a purpose for example. » Here are affirmed the two central characteristics essential to the journalist and still missing in machines: feelings and emotion. Even if this is added by algorithmic formulas in the GAT programs, the result will not be the same. The machine does not have the capacity to feel but can only obey its computer codes.

A Strong Link with Social Networks

In addition to creating information or generating new content, analyzing it or predicting the success or otherwise of an article, AI integrated into newsrooms can distribute information while personalizing it according to users. It is mainly on social networks that it fully exercises this skill with the existence of chatbots. The latter can be defined by their etymology: they are the contraction of "cat" referring to an online

exchange server and "bot", the contracted word for robot. According to the Futura Tech website, it is a "conversational agent" or "a computer program capable of simulating a conversation with one or more humans by voice or text exchange. » This tool is used more and more in editorial offices, the arrival of social networks has brought an element of marketing and a new way of understanding journalistic practice. This type of AI-based messaging was born in the 1960s in the United States. Since then, large companies like GAFA or well-known international media have used it (Borchardt et al., 2021, pp. 23-32).

Let's take the example of the daily newspaper, Le Monde. The editorial team has entered into a partnership with a chatbot developed by a French start-up, Jam, since 2017. The aim was to bring a historic media up to date, following the evolution of new technologies and using the latter as an advantage. And an ally in their daily work. After Le Monde, there is TF1, France Televisions, Le Figaro, l'Obs... They all now have a chatbot on their social networks or on their website. At the national level, the effectiveness of this type of tool no longer needs to be proven given their massive expansion. The regional daily press in France is also starting to develop its own AI programs capable of conversation. Nice-Matin also tried to set up one nicknamed Tibot in 2017 (Fagot, 2023). Damien Allemand, digital manager of the daily, argues about the "failure" of his chatbot, one of the first tested at the regional level. He could respond to more than 2000 messages per day on the Messenger platform and had been educated by one of the AI created by Google (Google Api.Ai). The journalist affirms that in every way the robot had not acted badly but that the humans had not anticipated certain behaviors by programming it: "We had planned all the responses of our chatbot, but not the behavior of the humans, which often write... no matter how!

These new tools have enabled the creation of a new type of journalism established by the distribution of personalized information to different users. Several exchange platforms were born whose main activity is to intervene and interact on social networks to inform, exploiting AI to create their own chatbot. Benoit Raphael, former journalist, "robot breeder" and founder of Flint, provides a response to this massive expansion of new exchange tools: "The audience no longer expects a truth, but tools to better understand the world, to act on it, and to increase their knowledge" (Raphael, 2022). The evolution in the way users obtain information or consume information has led to the creation of hundreds of small start-ups, having made bot breeding their preferred field. Flint is a typical example. This is a web platform through which users can have their own robot trained by deep-learning. It will provide them with information based on their interests while combining it with in-depth fact-checking of recommended articles to prevent the spread of fake news. Benoit Raphael firmly affirms it today: the journalism of tomorrow is based on the exploitation of new technologies and the supervision of their uses. For him, chatbots will make it possible to forge a stronger link between the audience and the journalist, a link which was increasingly lost with web journalism or in-depth investigations losing speed.

The new way of consuming "hyper connected" information is the reason why many companies rely on chatbots or on the delivery of personalized information to the user, almost to counter the algorithms of social networks, real obstacles to visibility of certain articles for the media (Raphael, 2022).

Some programs can even detect and predict trends even before journalistic production by analyzing the internet. A second example can be used to enhance the point. News Tracer was developed by the Reuters news agency and has, in the past, made it possible to detect large-scale events such as natural disasters or attacks simply by combing through social networks. It is important to note the undeniable link between AI and social networks, both giving birth to a new way of looking at the news and even creating it (Bilton, 2016).

But at the same time, a criticism can be made. This information is ever more customizable and defined by social media trends. They can lock the reader in an information bubble, the latter being able to ignore certain news which will not be submitted to him. Lambert Rosique, engineer, speaks of a "danger in the action of targeting content" that is to say the formation of a "recruitment in certain categories of information" (Know Map, 2019). Today, as we have seen, many AIs select articles and submit them to the reader based on their interests, all revolving around topics that will appeal to them. He will click more easily on the new ones submitted. But, as the engineer specializing in AI points out, "the person will reduce their ability to open their mind. » Our way of consuming information will increasingly define a person's open-mindedness. Let's talk about the news site Knowhere News has made it unique: the site sorts, verifies and classifies the information before offering three different readings depending on the theme covered in the article.

The program will modify the basic content to recreate the article by placing the point of view politically more left, more right or conversely making it more neutral and impartial. It is the perfect example of a search by editorial staff for a way of providing ultra-personalized information, to the point of offering several readings according to the political opinions of the public. Chatbots, personalized robots and GAT will then have to resolve the question linked to the dangers of these algorithmic choices according to the tastes of the audience, enclosing the reader in a dangerous bubble of information. AIs have many capabilities but are sometimes "overestimated" because they have not yet acquired certain characteristics specific to journalists, making the profession a profession deeply rooted in humans.

The Journalist, A Social Profession with Characteristics Specific to Humans
The Journalistic Future between Automation and the Need for Human Intervention

For years, technological progress has changed the profession both in its practice

and in the development of the legal rules that govern it. But the automation of several areas worries journalists, with some having fears about the future of the profession. Moreover, for the American research agency Gartner, "2020 is a pivotal year" (Gartner, 2017). Indeed, with the arrival of AI, several professions may be threatened. For example, historically, when the first automated machines appeared in factories during the industrial revolution, several jobs were lost overnight. Will the same be true of journalism? The American agency estimated that this year 1.8 million will be deleted by AI but that conversely... it will create 2.3 million new ones. Thus, through technological developments, new professions appear and needs change. They require engineering knowledge and therefore increasingly informed journalists to ensure good development, avoid breakdowns, and enable healthy use of technological tools in editorial offices. Expert opinions are divided between concerns and optimism.

A few years ago, the predictions were very different and they reflect technology becoming more and more efficient day after day. In 2016, the OECD estimated that 9% of professions could be replaced by AI. Then, in 2017, PWC, a company specializing in business audits and mergers and acquisitions, estimated that advances in AI will increase GDP by 14% in 20 years. Two factors will be at play: the increase in business productivity and the increase in supply and demand. Olivier Ezratty gives some significant figures: estimates place China at the head of this race, closely followed by the United States. Thus, some experts are concerned about its data like Amy Webb, expert from the Future Today Institute: "I am very worried. Even more on the future of journalism than on the North Korean nuclear arsenal! Because this year we have entered a new technological era, that of artificial intelligence, which will fundamentally transform journalism and give all control of the distribution of information to a handful of American and Chinese web giants" (Murray, 2017).

This justifies its thinking by comparing the speed of automation of newsrooms and the technical knowledge still lacking in many journalists. Therefore, if no change is made in a few years, there will be a "potential impact on information". As we have seen, AI has changed, is changing and will change our consumption of news and the public's view of its treatment. But as Albert Jacquard, a French geneticist, says so well, "you can teach a computer to say 'I love you' but you cannot teach it to love. » (Spitz, 2023) A large number of specialists agree to put humans first in the journalistic sector, putting AI second. It claims to be a tool and not a replacement solution.

The latter's predictions give several clues regarding its use. Lambert Rosique announces the evolution he expects, particularly in terms of language, where it will become impossible to distinguish whether human or machine is writing and where the margin for error will be reduced to zero. They will also be more efficient in translation and text synthesis. The development of chatbots is also one of the changes to be expected. The latter will be explained by the decrease in reading enthusiasts. Their mission will be to "interact

with the reader" by having a conversation about current events, for example. Thus, from this perspective, robots will not encroach on the work of journalists but will identify themselves as helpers since they will arouse digital exchange and curiosity. For others, the observation is more neutral, putting AI at the center of slower evolution. For example, it will gradually be able to generate more in-depth texts or articles on its own just by having some basic information. It will be able to do the same for the video format and will produce reports without human assistance.

For Olivier Ezratty, the evolution of the programs will not be the same and the impact on journalistic practice will be of capital importance: "The main fear is that the media and journalists market will not be attractive and solvent enough. This can then slow down the creation and diffusion of innovation of AI-based solutions concerning them." But for him, even if GAT is today commonplace, the concerns of journalists do not stop, and could sign the beginning of a profession in distress if they do not try to embrace technology and to understand it in their interest. Thus, "innovation develops more easily in large, solvent markets". New technologies evolve but only when they are of significant interest to the organizations in question. Do the media want to understand AI to the point that it will make it one of the most profitable markets before "transportation, banking and health"? The solution is therefore to "cope since change is accelerating" (Esposito, 2022, pp. 25-31).

This is why today, many training courses for young journalists warn of these new technologies and integrate original and up-to-date practices to better prepare them for new forms of writing, "half human - half algorithmic". But then, what will be the added value of journalists when they have to deal with fast AI, at lower cost, and working without the need for breaks? These unique abilities of the journalist, his own trademark, will ensure his future. Good coexistence between him and AI, increasingly described as "help" and not a threat by specialists and the media, is necessary. Journalists can no longer really devote themselves to work requiring depth and long-term research since the pace of information has accelerated.

The Journalist, A Being Endowed with Unique Abilities

The challenges are great for journalists and the media. AI requires us to review all classic uses. Moreover, editorial staff will have to face several challenges. Eric Scherer formulates them in an article for the biannual web magazine Meta-Media: "Editors will have to assert an editorial identity, invent new business models and dare to innovate" (Borchardt, 2021, pp. 71-81). What will characterize a media and differentiate it from others despite technological advances lies first and foremost in what the journalist calls "editorial identity". It concerns the guideline of an editorial team, what it was created for. It is one of the primary elements in building a media group and has always been important.

Today, it is still gaining value since we are living in an era where information is standardized. Editorial identity asserts itself all the more with the arrival of technological innovations, the latter of which can threaten this very precious particularity that the numerous media existing today have developed. For example, if all editorial offices equip themselves with software, integrate AI... What will be the use of these when they are all the same? Eric Scherer firmly asserts the affirmation of his identity and his editorial line, particularly in times when it is threatened.

This evolution of the profession of journalist will accentuate the primary qualities of the human being, like these editorial offices in the process of renewing themselves. Several points show the primordiality, still today, of a human journalist or at least a human trace in addition to the use of AI. The conclusion is unanimous: the profession of journalist will not disappear. Laurence Dierrickx describes as impossible the creation of a technology that will have human qualities. "The relationship with sources, opinions, in-depth analysis or the definition of journalistic interest" form the singularity of the journalist, a person feeling complex feelings such as compassion, anger, sadness and who therefore, depending on the person interviewed, will react accordingly (Crespo, 2018). With artificial intelligence, it will be difficult to recreate this type of reaction via programs. It is for all these reasons that the journalist will continue to exist even if his missions will be different.

This development will not, however, eliminate the human element itself since by definition, this profession is social. Contact between beings is essential. It sometimes generates surprises, unexpected sentences, and surprising situations. It is through these exchanges that information takes shape and finds meaning and life. Several theories confront each other but all lead to one conclusion: humans are necessary. They will always have their place in editorial offices, particularly for proofreading, verification and information selection tasks. Their role will not only lie in the search for information but more in the confirmation of the news to be published.

The era of fake news is not over and it will be essential to avoid it. But their human qualities such as curiosity or writing style will place them at the forefront when it comes to writing articles requiring depth, investigation and perspective. Thus, the profession will strengthen and will in no case disappear since it has been able to renew itself since the arrival of social networks and even search engines. But, for Christophe Tricot, it is the community management side which risks disappearing and being eclipsed by AI. The latter are increasingly developing strong links with social networks, making them effective for promoting content, predicting whether they will reach a large audience and studying their impact with numerous statistics.

But ultimately, what does the journalist specify? What are these unique qualities that no technology can easily fill, especially in the era of artificial intelligence integrated into editorial offices? Volker Hirsch delineated its contours. Four main characteristics can be identified. First of all, humans are beings who feel, they are "made of love". These

feelings are today impossible to recreate by programs. AIs cannot feel, they react through the logical sequence of codes and respond to them with directives previously entered into their system by engineers or linguists. Humans also have something specific: empathy. He can feel this feeling in difficult situations and the journalist will sometimes demonstrate it when interviewing people with a difficult past, for example, or at the scene of a natural disaster or an attack. AI can be taught to recognize it or simulate it but it will never have the authenticity of human feeling.

However, the scientist also addresses creativity. As we have seen, today, this characteristic is questionable. In Japan, for example, AIs are capable of producing music, performing concerts, and recently even writing a novel and being selected to receive a literary prize. But even if this dazzling progress in AI creativity is growing day by day, humans have one last characteristic that is still difficult to program: critical thinking. What allows a person to have the ability to judge is their knowledge and logic. Even if an AI is taught how to develop critical thinking, it is not certain that it will respond easily, and that logical thinking will be created. As Aurelie Jean rightly concludes, "digital journalism is in no way dehumanized, but on the contrary, it will continue to highlight the human qualities of a good journalist" (Adejumo, 2023).

Artificial Intelligence and the Future of Journalism
The Impact of Machine Learning

Machine learning is a concept that is increasingly used by businesses, artists and several media outlets around the world. This function of artificial intelligence analyzes data, learns from it, identifies recurring patterns and makes decisions in place of humans (Dhiman, 2023, pp. 2-3).

The cost of artificial intelligence projects has decreased in recent years, small and large media can access them more easily. Several models are easily accessible on the web. Watson offers a multitude of opportunities for businesses to manage unstructured data more efficiently, answer various questions, and create computer bots (virtual agents, robots or automated software that interact with users or perform various automated tasks) on applications. Machine learning exists through the creation of applications that are intended to learn from data and the information it has amassed. They thus continually improve without the need for human intervention.

Artificial intelligence machine learning simulates the same learning model as our brains. It allows cars to drive themselves, it can recognize faces and voices and even determine your discoveries of the week on Spotify. There are even algorithms to judge whether your playlists on Spotify are good or bad. Finally, machine learning can be very useful for journalism. On the one hand, content creation is simplified, which saves journalists time. On the other hand, computers report a phenomenal quantity of topics and

events occurring in and around the world. These events and subjects are covered by different people, which promotes the diversification of points of view, a principle very popular with audiences. Machine learning allows you to save time managing your social networks, find precise information and also identify people in photos and videos. In short, this possibility seems very promising for written media. Hypothetically, certain tools using artificial intelligence could remedy the issue of lack of time and human resources in the media field (Borchardt, 2021, pp. 144).

The world of journalism is evolving at a slower pace than technology. According to several experts, artificial intelligence is not sufficiently established in the journalism sector and several media outlets are missing out on this opportunity, which will be decisive for their future. Experts say it is not being developed with the aim of replacing journalists or eliminating jobs in the field, but rather to help them in their work. It will also allow journalists to concentrate on tasks that they could not previously do due to lack of time and resources (major files, investigations, interviews, participatory journalism, etc.).

Social networks, GAFAM, digital technology and crises like COVID-19 are relentlessly disrupting journalists and their practice. As we have already mentioned, artificial intelligence is contributing greatly to the upheavals that journalistic practice is experiencing internationally.

Experts are thinking about possible innovations that could emerge in the coming years. Here are some examples of what journalism practice could look like in the future according to Francesco Marconi, a data journalist who led the Wall Street Journal's Media Lab (Attard et al., 2023, pp. 15-22):

- Journalists and the media could have greater responsibilities with regard to databases as well as accessibility to information. They will also be "reconcilers" of the algorithms, that is to say, they will have to ensure that the algorithms provide fair and adapted information to all citizens.

- Thanks to AI, it would also be possible for journalists to precisely quantify different elements associated with their communities, such as the level of happiness and resilience of citizens.

- In such a context, robots would not replace journalists. The latter will remain necessary to validate and contextualize the information collected by AI.

Examples of uses of AI in journalism:

Machine Journalism: Telling stories from data. Initially this was used when reporting on sports and financial news. It can free journalists from routine tasks, improve efficiency and reduce costs. AP uses Wordsmith Software to turn financial data into a story. The Washington Post uses and implements Heliograf technology internally for reporting on sports events and the election race.

Organization of Workflow Monitoring: tracking breaking news, grouping and

organizing news using tags and links, comment moderation, automated voice transcription. The New York Times uses the Perspective API tool developed by Jigsaw (Alphabet/Google) to moderate reader comments. The Reuters Connect platform displays all Reuter's data for journalists, including archives and content from partner media outlets around the world in real time.

Monitor Social Media News: by analyzing data and histories in real time, identifying influencers and studying public mobilization. The AP uses Newswhip to monitor social media trends and engagement.

Audience Engagement: Quartz Bot studio is a virtual assistant app that allows users to send questions about news, people and places and the app responds with content it deems to be relevant to them. Others include bots for Facebook Messenger like The Guardian. The BBC used bots to cover the European Union referendum. The AfriBOT project, one of the main winners of the Innovate Africa grants from the European Journalism Center and The Source (Namibia and Zimbabwe) is implementing a newsbot "to help African media outlets deliver personalized news and mobilize more effectively reach the public through messaging platforms".

Automated Fact-checking: allows journalists to quickly verify public statements or allegations. Chequeabot from Chequeado in Argentina; Full Fact UK and its partners are developing an automatic fact-checking engine that will "identify claims that have already been fact-checked in newsrooms; and it will automatically detect and verify new claims using natural language processing and structured data. » The Duke Reporter's Lab in the United States developed the ClaimBuster tool to present meaningful political statements to the media and in 2017 launched a platform for automated fact-checking projects. Factmata in the United Kingdom is also in the process of implementing an automatic fact-checking tool. Find out more.

Analyze Large Databases: Software sifts through data and looks for patterns, changes, or anything unusual. Lynx Insight Reuters digs through massive data sets and provides journalists with findings and contextual information. OCCRP's Crime Pattern Recognition tool uses technology that analyzes large databases of records for similar corruption-related crimes and investigates the connections between the parties involved.

Image Recognition: Technology that recognizes objects, places, human faces and even feelings in images. The New York Times uses Amazon's Rekognition API to identify members of Congress in photos. Any user can test the Google Vision technological image recognition API for free.

Video Production: Automatically creates scripts from news articles and produces rough cuts with narration of short video clips from video footage. Wibbitz software is used by USA Today, Bloomberg and NBC. Researchers at Stanford University are developing an automated video editing tool.

Ethical Challenges

Guardian journalist Paul Chadwick has written about the relationship between journalism and artificial intelligence to propose a new clause for the newspaper's ethics code. "Software that 'thinks' is increasingly useful, but it does not collect or process information ethically," he warns. "In using artificial intelligence to improve your journalism, you will need to consider its compatibility with the values of this code" (Chadwick, 2018).

Journalists must be aware that algorithms can lie or mislead. They have been programmed by humans, who have biases and logical patterns that can lead to erroneous conclusions. This means that journalists will always need to verify their results with age-old verification techniques: cross-checking sources, comparing documents, doubting their conclusions.

Artificial intelligence (AI) has deeply penetrated the field of journalism, and with it, have arisen social and ethical repercussions that deserve in-depth reflection. While AI offers efficiency and productivity benefits, it also raises critical questions related to transparency, accountability, job displacement, and media diversity.

First of all, transparency in the use of AI in journalism is essential. Readers should be informed when articles are generated by algorithms and not by human journalists. The credibility of journalism relies on public trust, and this trust can be eroded if the use of AI is not clearly disclosed. Transparency is also crucial to ensure that AI algorithms do not implicitly favor certain biases or viewpoints (Soyoung & Boyoung, 2020, pp. 2-5).

When it comes to liability, it is essential to define who is responsible in the event of an error or misinformation generated by AI. Human journalists are responsible for their reporting, but when AI is involved, accountability can become unclear. It is imperative to establish clear accountability protocols to ensure errors are corrected quickly and efficiently.

Job displacement is also a major concern. While AI can automate some journalistic tasks, it can also lead to the elimination of jobs in the journalism industry, which has social and economic repercussions. It is essential to put transition strategies in place for journalists who may be affected by these changes.

The impact on media diversity also sparks debate. On the one hand, AI can contribute to diversity by allowing smaller media outlets to access advanced content creation tools, thereby reducing the imbalance between large and smaller media players. However, there are also concerns that automation could reduce the diversity of voices and perspectives, as algorithms may favor popular content over more niche content.

In conclusion, the introduction of AI into journalism is an unavoidable development, but it requires continued reflection on its social and ethical implications. Transparency, accountability, managing job displacement and preserving media diversity

are essential elements to ensure that AI strengthens journalism while respecting democratic values and human rights.

The Potential Benefits of AI for Journalists

Artificial intelligence (AI) offers a range of significant benefits for modern journalism, revolutionizing the way news is collected, processed and disseminated. Here are some of the most significant potential benefits of AI in journalism:

Automation of Repetitive Tasks: AI can be used to automate tedious and repetitive tasks, such as initial data collection and basic reporting. This allows journalists to save time and focus on more creative and analytical aspects of their work.

Big Data Sorting: In a digital world where huge amounts of data are produced every day, AI can efficiently sort and filter this information to identify what is relevant. This helps journalists quickly access the data needed for their reporting.

Content Generation: AI systems, such as natural language processing (NLP) models, are capable of automatically generating quality written content. For example, they can create basic reports on financial data or summaries of government filings. This can be particularly useful for journalists who need to cover raw information quickly.

Fact Checking: AI can be used to facilitate fact checking by cross-referencing information with reliable sources and detecting inconsistencies or incorrect information. This enhances the accuracy of journalistic reporting.

Personalization of Information: AI algorithms can analyze reader preferences and provide them with personalized content. This improves user experience by providing them with relevant information.

Search Assistance: Journalists can use AI systems to quickly search for relevant articles and documents, speeding up the process of gathering information for their stories. A notable example of the use of AI in journalism is the creation of automated financial reports from real-time stock market data. Additionally, AI tools can be used to analyze political speeches and identify false or misleading statements.

However, it is essential to note that the integration of AI in journalism must be managed carefully to ensure accuracy, ethics and journalistic accountability. Journalists should always exercise judgment and discernment in using these tools to maintain the integrity of quality journalism.

The Limits of AI in Journalism

Although artificial intelligence (AI) has brought tremendous benefits to journalism, it is also important to recognize its inherent limitations. Here are some of the

main limitations of AI in journalism:

Potential Biases in Algorithms: AI systems are trained on existing data, which means they can reflect biases present in that data. This can result in biases in the selection of information or in the way articles are generated. For example, if the training data is biased towards a particular group, the AI can reproduce this bias in its results.

Inability to Replicate Human Creativity: AI is very effective at repetitive and pattern-based tasks, but it struggles to replicate human creativity. Journalists often bring a unique perspective to their reporting, adding elements of creativity, critical analysis and reflection that go beyond simply presenting the facts. AI struggles to compete with this human dimension of journalism.

Lack of Empathy: Human journalists are able to feel empathy towards the people and situations they cover, which allows them to tell stories in a more authentic and human way. AI lacks the ability to feel empathy, which limits its ability to create stories rich in emotion and human understanding.

Difficulty with Unstructured Information: AI is more comfortable with structured data and predictable patterns. She may struggle to effectively process unstructured information, such as interviews or testimonials, which require contextual analysis and in-depth understanding.

Reliability of Sources: AI can extract information from online sources, but it cannot assess the credibility of sources in the same way as a human journalist. This raises concerns about the spread of unverified misinformation.

Ethical Responsibility: The use of AI in journalism raises ethical questions regarding transparency, accountability and data privacy. It is essential to establish rigorous ethical standards to guide the use of AI in journalism.

In summary, although AI can bring significant benefits to journalism, it is essential to recognize its limitations and find a balance between automating tasks and preserving the human qualities essential to the journalism profession. Responsible use of AI in journalism requires careful monitoring and continued reflection on its ethical and practical implications.

Conclusion

If for several years, artificial intelligence has been increasingly integrated into editorial offices, concerns have not diminished. Fear of losing their place, their job, their specificities which make them journalists today. They make themselves felt from year to year, making us wonder if these "robot-editors" will one day replace humans. From the arrival of the internet to the integration of AI and the more recent implementation of automatic text generators, the profession has been able to renew itself and adapt to technological advances without ever losing its main characteristic: its proximity with

people, his free will, his ability to go further and investigate and the feelings he can provoke with his feathers.

The arrival of artificial intelligence in the media has therefore necessarily triggered changes, whether in practice, in the very structure of these media, or even in the legal and ethical framework of the profession. These transformations are, however, not complete since they need to be updated and evolve at the same time as scientific progress in the matter. Because AI is not progressing as quickly as we might think, we still need to prepare for the possibility that one day, a technology may surpass us or at least match the capabilities or techniques established by humans. It is therefore at the legal level that we must intervene but also at the very essence of the use of media technologies: within the editorial offices. At the basis of these changes, it is necessary to define the legal personality of this entity to know what its responsibility and impact will be in journalistic practice. Increasingly used by the media, AI takes on different roles since they become chatbots, editors, editorial secretaries, etc. They can do everything, even find article topics and manage social networks. The issue raised therefore arose from a paradox which was: artificial intelligence, journalistic tool or threat? How can we understand it precisely to respond to the concerns of editorial staff (at the basis of ethics and the liability regime)?

These questions can now be answered. At the legal level, the ethics of the robot and AI will rest on its owner since for the moment it is only a question of consecrating an object's personality. In the event of an error, it will therefore be impossible to designate it as responsible but it will be necessary to refer it to its owner, its designer or its user depending on the origin of the fault. But here again, be careful, since country law will certainly evolve as technological advances occur. In newsrooms, tools look more like complements than replacements. But the practice remains the same, faithful to its principles. It only takes into account technological advances and this is why temporality today becomes one of the keys to journalistic practice: the speed of the information path is resolved by the immediate execution of AI.

Adapting and knowing the limits of these programs will also be an important step to ensure the proper development of these new technologies. In addition to the obvious legal and practical changes, it is from the training of future journalists that it will be necessary to act with the learning of new knowledge. By knowing the tool, it is logically easier to master it and avoid the unexpected. But what will happen to the status of journalist? Its role will continue and will even take on greater substance. It is therefore not a replacement by AI that we will have to see in the years to come but a change in its role and its skills. However, if collaboration between AI and humans is to take this direction, awareness is necessary. It must be seen as a tool and not as a threat, even if it takes up more and more space in editorial offices. Advancing journalism at the same time as technological developments and current practices is therefore the main key to the sustainability of this ancient, unique and necessary profession. And AI has allowed us to understand this.

Artificial intelligence and new technologies that we believe are capable of surpassing human capabilities are not a threat if we know how to control them and we realize that several hundred new inventions have threatened, threaten or will threaten the profession. You have to know how to evolve with the times, as journalists did at the birth of the internet, search engines, social networks and today, in the era of AI. The journalism of tomorrow is made up of man and machine and their developments, together.

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