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The Ethical Revolution: Challenges and Reflections in the Face of the Integration of Artificial Intelligence in Digital Journalism

Abstract

The artificial intelligence (AI) tools in editorial departments have become common practice within news organisations, which poses challenges for digital journalism. It treads new terrain for both media professionals and their audiences, and it is safe to assume there is no going back to the way things were. These advances in the field require new frameworks and codes of ethics that include ethical principles to mitigate the use of AI in journalism. The fast incorporation of AI into media production processes is marked by a tendency towards the loss of citizens' trust in the information that media offers, political polarization, and the increasing impact of misinformation. This article analyses the perception of communication professionals in this new scene through the analysis of 99 codes of ethics and 14 international press associations. In addition, audience perception is addressed through a survey taken by nearly 2,000 people. The results indicate that both the public and journalists are worried about misinformation that AI might cause and the potential erosion of trust between journalist and the public. Overwhelmingly, people are advocating for external regulation of its use to preserve the values, the ethical principles, and good practices of journalistic work.

Keywords

Digital journalism, artificial intelligence, misinformation, journalistic ethics, code of ethics.

1. Introduction

Journalistic standards of online media and professional ethics make up two concerns that have accompanied digital media since their initial appearance thirty years ago. As a consolidated professional and academic reality in digital journalism (Salaverría, 2019), these appear in the debates promoted by professional organisations, as well as being the focal point of many research projects. Throughout these three decades, major transformations have occurred in the communication industry, particularly in the journalistic industry. These range from resisting technology (Splendore, 2023), to making sense of the use of high technology in the field (Lindblom, Lindell & Gidlund, 2022), to undertaking innovation processes (García-Avilés, 2021), and to a commitment to take steps in the process of progressively incorporating

AI into the production of information (Ufarte-Ruiz, Murcia-Verdú & Túnñez-López, 2023), and to creating and managing automatic means (García-Orosa, Pérez-Seijo & Vizoso, 2023). AI has prominently entered the field of journalism, which has brought changes in professional routines, profiles, and products (Gutiérrez-Caneda, Vázquez-Herrero & López-García, 2023). As is often the case with these processes, as new tools are incorporated, challenges emerge that demand reflection about the consequences. It requires the creation of new guidelines that point out the best ways to overcome the renewed challenges effectively without sacrificing the ethical principles of journalism (Noáin-Sánchez, 2022).

In the present communicative context, characterised by low public trust in the media, by the perception of bias for political and economic reasons (Serrano-Puche, Rodríguez-Salcedo & Martínez-Costa, 2023), and by high levels of misinformation (Adams *et al.*, 2023), the changes in media and journalism by AI run the risk of increasing the general public's distrust of journalists if not addressed with the proper strategies. The use of computer tools to support the creativity of journalists has produced results (Franks *et al.*, 2021) and has been a first step, which can now enter a second phase. This can continue with the help of tools that apply AI and support journalism with the automation of collecting and documenting information (Sánchez-García *et al.*, 2023). After redefining journalistic logics –with consolidated professional rules, practices and values– from the perspective of technologists (Sirén-Heikel, Kjellman & Lindén, 2022), journalists have more time for the final elaboration of the pieces. This would also increase their overall quality.

Concern about the impact of AI in newsrooms is a contemporary issue and has increased exponentially since OpenAI launched ChatGPT on November 30th, 2022 (González-Arias & López-García, 2023). The problems of the ethics of AI were brought to light in reports by organisations such as the European Parliament, with its document “The ethics of AI: Issues and initiatives” (European Parliament, 2020). This concern launched a rapid response from academics and professional organisations. In fact, in the last few months, we have seen the diffusion of important documents on AI such as the Charter of Paris on AI and journalism, by Reporters Without Borders and sixteen professional organisations (VV.AA, 2023), highly educational guides, such as Prodigioso Volcán –Artificial Intelligence for journalists (VV.AA, 2023) and recommendations such as those of the The Cataluña College of Journalism (Ventura-Pocino, 2021). Steps have been taken to define ethical guidelines and to incorporate aspects into codes of ethics, but there is still a long way to go. There is a need for input from perspectives to reinforce updating and adapting the current codes of ethics (Ufarte-Ruiz, Calvo-Rubio & Murcia-Verdú, 2021). The variety of ethical problems that can arise from the strong automation of newsrooms is broad (Romeo & Griglié, 2022), so regulation and guidelines to ensure that journalistic ethics are met are urgently needed.

2. Ethical issue as theoretical framework

The digital transformation has driven journalism studies to theorise about journalism beyond its traditional institutions and limits of the journalistic field. This has involved a variety of approaches (Steensen & Ahva, 2015), characterized by the current hybrid media ecosystem (Chadwick, 2013) and journalists' fight to preserve their professional activity differentiated from other content producers (Eldridge II, 2019). Debates on the limits of journalism (Negreira-Rey *et al.*, 2023), intrusive media (Hujanen *et al.*, 2022), journalism vs. advertising/entertainment (Balint, 2021), or on the consequences of social media and digital society (van Dijck, Poell & de Waal, 2018) have fuelled debates on digital journalism, which has become one of the most influential knowledge-producing institutions in society (Ekström, Lewis & Westlund, 2020). Most of these debates have addressed ethical dimensions of digital journalism in today's online society, without much change in the ethics codes of professional associations and bodies, in spite of the growing pressure to adapt self-regulation mechanisms to better determine the ethical limits of online journalism (Mateus, 2019). Studies about the content of

today's codes have detected a gradual and growing implementation in both Spanish and Latin American cyberjournalism (Parra-Valcarce, Real-Rodríguez & López-Talavera, 2017). These studies highlighted the slow incorporation of references to the Internet and ICTs (Díaz-Campo & Segado-Boj, 2015). They noted that in recent years, there are important aspects of computational journalism, such as the control and verification of the software and the techniques used, which are not reflected (Díaz-Campo & Chaparro-Domínguez, 2020). This delay in the updating of the profession's codes of ethics, which implies a lack of unified guidelines for journalists to follow, is aggravated by the arrival of AI into newsrooms, because we cannot forget that journalism and ethics must go together (Rodrigo-Alsina & Cerqueira-da-Silva, 2018).

Ethical codes, which consolidate the constitutive rules, which tell us what is newsworthy according to the precepts, and the 'regulative' rules, which tell us how news should be produced in journalistic media (Ryfe, 2006) contribute to the improvement of the legitimacy and ethical conduct of journalists (Hujanen *et al.*, 2022). Innovative processes sometimes present ethical concerns for journalists, as innovation appears in newsrooms and journalists embrace it, thus, ethical standards must adapt to the new reality (García-Avilés, 2021). These trends suggest that the use of AI in all steps of the news production process, with the enthusiasm it has aroused in some sectors, the creation of precise frameworks, with corresponding proposals, as this technology is implemented because changes should be balanced by thoughtful and ethical decision-making (Kim, 2019). Perhaps, because of caution in the application of AI in newsrooms, some proposals for ethics for the algorithmic era advise a distributed responsibility model as a practical way to blame multiple actors, including humans and algorithms, of the state of ethical standards (Paik, 2023). There are necessary proposals at this stage of reflection and debate with the aim of redesigning the ethical standards of AI in journalism for the upcoming decades.

AI urgently needs ethics, with new approaches from the technological perspective (Tzachor *et al.*, 2020), and with renewed proposals and perspectives from the journalistic approach. Because of journalistic research, there is an increasing number of works gathering multiple expert voices demanding more attention to how AI will affect people and journalists, and how it can be used for the aim of the profession and the social benefit (Peña-Fernández *et al.*, 2023). Joining these academic voices are the voices of information professionals who require guidelines when they carry out tests or produce on a regular basis. Hence, there is the need to take measures as soon as possible because, without ethics, there is no quality journalism. Without updating the codes of ethics, doubts increase for many honest journalists who want to do their job well and offer information with added value through current techniques and cutting-edge tools, many of them using AI. Journalists have been convinced for years that automated journalism will become common and habitual in journalistic production (Thurman, Dorr & Junett, 2017). Journalistic organisations are beginning to worry about ethical issues posed by automation (Porlezza & Ferri, 2022) and regulatory frameworks on AI, including aspects that affect media and journalism (Porlezza, 2023), regulation, and updates to ethics codes. These issues have become a matter of urgency that cannot be postponed. Uncertainty about ethical guidelines can only increase distrust in journalism, and in the meantime, machines have no commitment to the veracity of information, but produce content, and citizens attend debates expectantly, while waiting for specific decisions and measures. Furthermore, these must contemplate the deep dynamics and complexities of journalistic AI in relation to its impact on people, newsrooms, and media markets (Helberg *et al.*, 2022). Ambitious regulation will be the necessary response to curb the challenges AI is presenting. The European Union has taken the first steps with agreement on basic issues, in December of 2023, and a crafted reliable ethical framework that drives the updating of ethical codes.

3. Methodology

As these tools enter newsrooms, they will raise new questions about journalistic ethics: Is it wrong to train a generative AI model with thousands of images of artists without their consent? Is it misleading to publish an image of something that does not really exist or of an event that never really happened? If a journalist uses an extensive language model to write an article, should it be considered plagiarism or even fabulism?

Many of the ethical issues of AI in journalism are issues that journalists already face, merely in a different context. One example is the importance of clean and reliable data, which is also imperative for data journalism. Another is the need for transparency and disclosure policies for pieces generated from automated content, which media organisations already need to do for projects such as investigative journalism.

In this context, this research analyses the perception of communication professionals in the face of these challenges and, above all, their conceptualisation of AI, the changes that are already taking place in newsrooms, and their possible regulation.

With this in mind, the following research questions have been posed:

RQ1. How do media professionals perceive the role of AI in journalism, and what are their concerns regarding its potential impact on information quality and trustworthiness?

RQ2. How do ethical codes deal with the inclusion of AI in journalism?

RQ3. Who do media professionals and citizens see as responsible for creating regulation of AI in journalism?

RQ4. What are the general public's perceptions of the role of AI in journalism, especially with regard to issues of misinformation, trust, information quality, and transparency?

For this purpose, international professional codes of ethics and documents produced by international journalists' associations were used, along with bibliographical review and content analysis, which is explained below. An initial survey of the recipients was also conducted in order to find out their interpretation of the subject.

3.1. *International code of ethics*

Current journalistic codes of ethics and deontology were identified. To do this, the codes in four databases were compared: Accountable Journalism of the Donald W. Reynolds Journalism Institute at the University of Missouri, EthicNet of the University of Tampere in Finland, MediaWise Trust (PressWise) and the Ethical Codes Database of PressCouncils.eu.

The sample included the generic ethical and deontological codes of each country, eliminating the regional ones. For the selection of the countries that were studied, the methodology of Díaz-Campo and Segado-Boj (2015) was followed, in which they chose based on whether the ethical code was still in force. Subsequently, the most current versions of each of them were searched for, as not all the databases consulted were updated.

Subsequently, a word search was carried out in each of the codes for the words 'artificial intelligence', 'intelligence', and 'artificial', as well as their lexemes. This search was completed with the different languages in which the codes were written.

Finally, the *Global Charter of Ethics for Journalists* of the International Federation of Journalists was included in the analysis as a supranational code.

Once the codes had been located and a word search was carried out, an analysis sheet was created. It analyses the following points: who promotes the code, the year it was created and last updated, verification that it is still in force, participants involved, its ethical implications, and analysis of the use of AI in journalistic work.

3.2. *Professional associations*

The contents on AI and ethics of the International Federation of Journalists were also analysed, including news, campaigns, actions, or seminars, among others. The contents of the general page were analysed as well as the satellite pages of the different regions or continents,

these being: IFJ Africa, the Federation of African Journalist (FAJ); IFJ Asia & Pacific, the Formation of the Federation of Asia Pacific Journalists (FAPaJ); IFJ China Portal, the South Asia Media Hub (SAMSN); the European Federation of Journalist (EFJ); IFJ Latin America, the Federation of Journalist of Latin America and the Caribbean (FEPALC); IFJ Middle East & Arab world, the IFJ Farsi and IFJ Arabic.

In each of the pages, a search by word was carried out in each of the codes for the words 'artificial intelligence,' 'intelligence,' and 'artificial,' as well as their lexemes. In the same way as for the ethical codes, the search was carried out in the original languages of the websites.

Once all the content had been downloaded, an analysis sheet divided into four sections was created: basic data (association, title, authorship, date, country or region and URL), type of content (news, blog, congresses, project or campaign, seminar or training, and report), description of the content and subject of the content (proposals, positive use of AI, negative use of AI and whether the ethics of AI use are analysed).

3.3. Self-administered online survey

Thirdly, a self-administered online survey using the CAWI system was made among Spanish residents aged 18 and over. The sample selected is representative of the Spanish population with a proportionate distribution of men and women living in different population centres of different sizes and types and with different levels of education and occupations. Data collection took place between December 15th, 2023, and February 1st, 2024. A multistage sampling was established with proportional distribution of 1,800 interviews by territorial quotas of gender and age, and random selection of households. The survey questionnaire has been designed to be answered on Likert scales with responses from 1 to 7, 1 being the lowest and 7 the highest.

4. Results

4.1. Code of ethics

The codes of ethics lay the foundations for journalistic work, to learn about the work of different countries and journalistic associations in the field of AI and ethics. Only four of the 99 codes (Appendix I) analysed updated their approach to AI from an ethical journalism perspective: Belgium, Costa Rica, Germany, and Lithuania.

4.1.1. Belgium

The Belgian press is divided between the one written in French and the one written in Flemish, and each has its own code of ethics. It is in the Flemish case that we see a concern about the introduction of AI in journalistic work.

The *Code van de Raad voor de Journalistiek* was drawn up by VZW Vereniging and is reviewed and approved on a regular basis, the first version on the 20th of September of 2010 and the latest on the 6th of March of 2023, with six revisions in between.

The Belgian code is updated through directives that modify or expand the text according to the needs of journalism. With the appearance and development of new technologies, they have introduced a directive that addresses the use of AI in newsrooms.

The directive first warns of the potential dangers of AI, as "it may play a role in the veiling, editing, production and distribution of news, such as articles, reports, illustrations, infographics, etc." It urges compliance with the principles of the code of ethics.

Secondly, the directive makes the editorial team ultimately responsible, stressing that it must be the editors-in-chief who ensure that the principles of the code of ethics are complied with when applying partially or totally automated processes through AI. The code makes it clear that the editorial team must be transparent "about automated news production and personalisation of the news offer, so that it is clear to the user when news is created or selected based on AI."

Finally, they state that the editorial board must indicate when a news item is produced on the basis of automated processes and what the sources are. For their part, editors must indicate that part of the information offer “is selected or diversified according to profile or media use.”

4.1.2. Costa Rica

The Code of Ethics and Deontology was created by the Association of Journalists and Professionals in Collective Communication Sciences of Costa Rica and was published in November of 2023. This code, first of all, addresses the technological context in which it is published. ‘The fourth industrial revolution is driving profound changes in technological advances such as robotics, AI, nanotechnology and biotechnology, whose effects will be experienced in social, economic and environmental fields, as well as in social groups, industries, companies, institutions and society in general’. In this technological reality, information workers must respond by providing guidance and laying the ethical foundations for journalistic work.

The changes brought about by the introduction of new technologies in the information sector have had a number of positive and negative effects on professional practice, according to the code itself. On the positive side, it stresses that this inclusion has broadened communication rights, making them more participatory and transparent. On the negative side, it has led to “high levels of information pollution, deliberate misinformation, deterioration of public debate and, consequently, of democratic institutions and processes.”

To address this reality, the code proposes a series of measures and practices to be introduced into journalistic practice. In terms of transparency, there is an urge to warn about the manipulation of images through AI, as well as to indicate whenever content has been produced in whole or in part with a tool that uses AI. These tools, which can be very useful in newsrooms, should “promote truth, ethics, healthy coexistence, and inclusiveness.”

In terms of content creation in the animation industry, the code encourages to stimulate and promote new narratives, using animation and generative AI for social purposes and for the well-being of citizens, but always ensuring their ethical and responsible use.

4.1.3. Germany

Guidelines for journalistic work as recommended by the German Press Council is the German code of ethics. It was drawn up on the 22nd of March of 2017 by the German Press Council.

The code specifies that illustrations or symbolic images that may have been ‘artificially created to accompany text’ should be appropriately signposted. Although it does not address the inclusion of AI as such, it mentions ways of creating artificially produced graphical or informational content.

4.1.4. Lithuania

The *Code of ethics in providing information to the public of Lithuania* was developed by the Public Information Ethics Association and published on the 26th of February of 2016. It states that:

Journalists, producers and the communicators of public information must not publish artificially deformed audio and video montages, photographs, or signatures on photographs which may distort the public impression or facts. This provision is not applicable when publishing caricatures, cartoons or comic stories.

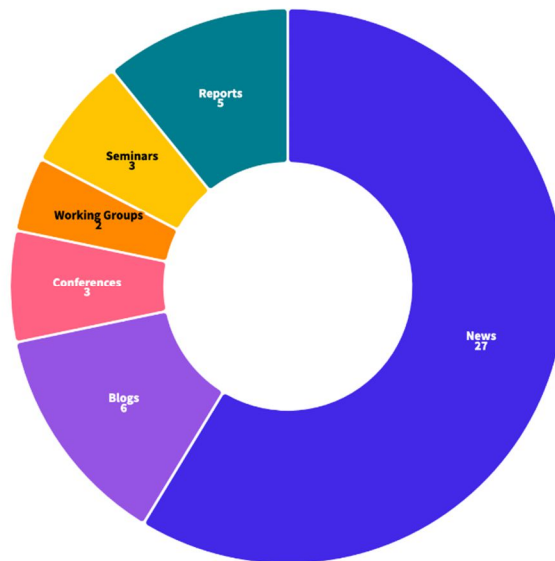
Here, information workers are warned that they must not publish distorted images or images created with AI that could influence the target audience’s perception of a fact. This applies to all cases and any circumstances.

Overall, the presence of ethical regulation of AI is still scarce in ethical codes.

4.2. Professional associations

The discourse and regulation of AI in professional organisations was also analysed in this research. Once the sample of content was extracted from the selected websites, it was observed that only a small group of them contained information on AI: the International Federation of Journalists, the European Federation of Journalists, the IFJ Latin America and the IFJ Farsi. A total of 49 contents related to AI were extracted from these websites: twenty-seven pieces of news, six blogs, three conferences, two working groups, three seminars or training sessions, and five reports.

Figure 1. Presence of each type of content.



Source: Own elaboration.

Of the total content analysed, 44.9% was aimed at European audiences, 18.37% at the global audience as a whole, and 36.73% at other more specific locations such as Afghanistan, Palestine, the United Kingdom, Tunisia, the United States, and Portugal, among others.

4.2.1. Perception of the use of AI

In the analysis on the use of AI presented in the studied content, 40.82% of the results show that the uses that can be obtained from AI or that it can be applied are seen as positive values. It goes up to 61.22% of the contents where some application of this type of technology is rated as negative, and in 36.73% of the results, AI is rated neutrally. It is worth noting that 30.61% of the results showed a contrast between positive and negative applications of AI.

Of all the content analysed, 46.94% of the content assessed technologies related to AI as a challenge, a defiance, or an opportunity. In almost half of the results analysed, these ratings are used to define AI and to speculate on its present, but above all, future uses.

In 30.61% of the contents, implementation proposals related to AI and journalism were presented.

4.2.2. Actors involved

If we look at the actors involved, we can distinguish a very marked approach. In 97.96% of the results, journalists and information workers appear as fundamentals of the information presented. This can be understood by observing that most of the news items deal with the reality of journalistic work, as well as the employment situation, safety, and rights of professionals in this field. Secondly, the institutions appear as protagonists or actors in the

information analysed. These institutions, present in 42.86% of the content analysed, are usually questioned to intercede in journalistic work, mostly asking for regulation in terms of labour rights, as well as to look after the interests of the collective. In last place, with a much lower prominence, civil society only seems to be mentioned in 18.37% of the contents, rarely being the focus of the information or campaigns issued by journalists' associations.

4.2.3. Ethics

Journalistic ethics and the use that society and the media make of AI appear in 44.90% of the results. The contents approach ethics from different points of view, establishing several lines.

Firstly, the use of AI in conflicts and situations in which human rights are not guaranteed is highlighted. In this way, some of the contents address the concern for security in line with the impact of AI on sensitive groups, while in others the concern is about the physical integrity of journalists who are in the field in armed conflicts where AI is used as part of weapons designed to attack civil society.

On the other hand, the use of AI as a new tool at the disposal of information workers is proposed. This tool, like any other, must be used in accordance with journalistic ethical values. This is indicated in several of the reports analysed, which delve into the use of AI as a double-edged sword, which is understood as a new ethical challenge for journalism. In one of the contents analysed, Allan Boye Thulstrup of the Danish Journalists' Union (DJ) discusses the use of AI in journalism in the following way:

If we look at things in a positive light, we could think that AI could lead to the resurgence of journalism and media as gatekeepers against fakes, but that requires being able to identify them (European Federation of Journalists, 2023).

The journalist stresses an idea that is repeated in other contents of the analysis, which is the need to specify when AI has been used and for what purpose. In this way, the actors involved request transparency when it comes to attributing when a decision or a piece of content has been made by technology and to know why it acted in that specific way.

This transparency safeguards two values that are very important in several of the results obtained. On the one hand, the veracity of information and the fight against false information; on the other hand, is journalists' copyright.

Misinformation and the fight against it are the greatest concern detected. For this reason, some of the information stresses the importance of determining a set of fundamental ethical principles to protect the integrity of the news, and in the same piece they point out that ethics should govern the technological options within the media. Another of the contents analysed stresses the importance of training journalists to acquire skills for the digital future, which is why it is crucial that the media, both public and private, invest in training.

Journalists' copyright is another major concern identified in the content generated by press associations. Several pieces stress the need to protect and guarantee copyright at a time when it could be jeopardised by the use of content-generating AI. In order to protect these rights, a human-centred approach to the use of AI is emphasised so that this tool does not damage intellectual property rights and job security. To this end, information workers are calling for legislation and ethical guidelines for journalistic work.

Finally, several contents address ethics in the use of AI as a concept under construction in this field. Technology, and therefore AI, is under development and this construction must go hand in hand with ethics, in such a way that it can be guaranteed while creating quality automated content. Several of the contents encourage dialogue between the different actors involved, from institutions to journalists and without leaving civil society out, in order to provide tools and guidelines when dealing with the use of AI while safeguarding the ethical values of journalistic work.

4.2.4. Regulation

Regulation is a critical point in the analysis of the implications of AI. It is important to study when it is used, by whom, and how. In global figures, it is observed that it appears in 44.90% of the contents.

The issue of regulation of AI in journalism is approached from five different angles. The first, which is not framed as “regulation,” is the guidelines and directives. These provide an ethical basis for the use of AI but have no legal effect. An example of this is the Paris Charter on AI and Journalism developed by Reporters Without Borders and 16 other journalistic organisations to define ethical principles for journalists, newsrooms and media when applying AI in the workplace.

The following angle that addresses regulation in the field of AI does so in general terms. Journalists, journalists’ unions, organisations, and institutions call for regulation and legislation on the use of AI in the news sector. This action is seen in several of the pieces analysed as a task that will be carried out in the future as the technology develops and is implemented in newsrooms.

Thirdly, several contents state that the use of these technologies should be self-regulated within the media sector itself. In the information in which this idea is put forward, no guidelines are given as to how this self-regulation should be carried out, only that journalists should be in charge of it.

The idea of regulating on the basis of defending the copyright and intellectual property rights of journalists who may be harmed by the use of AI is laid out more concisely. In one of the contents analysed, information workers expose the holes in current regulations regarding the lack of such copyright, moral, and intellectual property rights. In another, they call for greater protection of these and an update of the regulation based on these detected flaws.

Finally, the Artificial Intelligence Law being drafted by the European Commission is one of the issues addressed within the framework of regulation in this area. The contents analysed address the milestone of this being the first ever regulation on AI and the drafting of the law itself, in which a dialogue has been established between the actors involved. Moreover, in some of the pieces, the institution in charge is urged to focus on the human being in order to regulate generative AI, an idea that has also been approached from an ethical point of view.

4.3. Survey on AI perception

AI has been part of the public debate for some time now. It is therefore of interest to know how citizens view the inclusion of these technologies in the journalism sector. Survey respondents answered on a Likert scale showing their level of agreement with the ideas presented, with values between one and seven.

There is a high consensus that information created with the help of AI should be properly signposted in the media, and on the other hand, respondents also stress the need for legislation and ethical codes to regulate the use of AI in journalism.

However, recipients disagree that the influence that AI will have on the quality of journalistic content will be positive, or that the use of bots does not affect journalism.

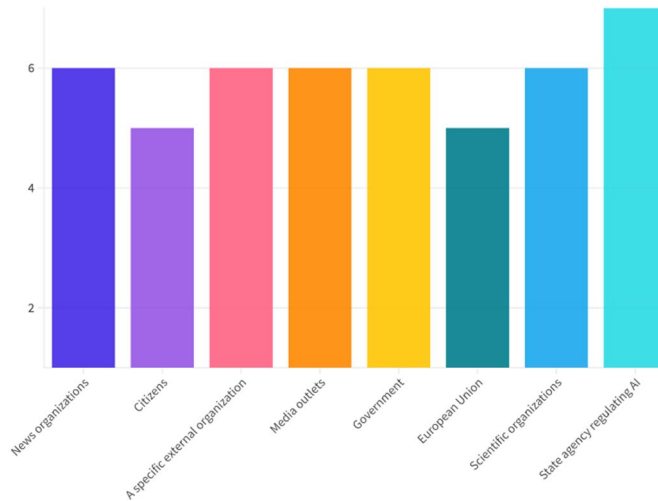
Other ideas fall into a greyer area. There is no clear consensus around the claims that news pieces created by AI are as valid as the ones created by humans and that AI is a risk to quality journalism. These undecided concepts for the respondents stand at an average response rate of 4.5 out of seven, falling somewhere between ‘undecided’ and ‘somewhat agree.’

There is also no consensus among the population on the ideas that AI contributes to misinformation, that contents created by AI are less trustworthy than content created by a journalist, and that AI is a great help to journalism, with an average response of five out of seven.

4.3.1. Responsibility of the actors involved

AI should be subject to regulation and the actors to carry out this task should be, according to citizens, a national body which regulates the use of AI across the nation, followed by media companies and the government, a new external body dedicated to journalistic ethics, the media, and scientific bodies. The European Union (5.5 out of 7) and citizens (5) were least in agreement.

Figure 2. Who is responsible for legislating on AI in journalism, according to the public?



Source: Own elaboration.

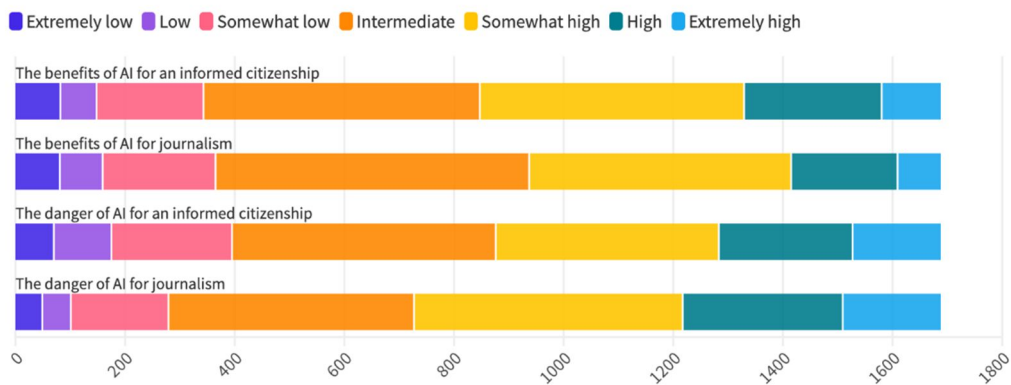
It is noteworthy that although some actors are marked as responsible for this task with a lower level of agreement than others, none are categorised in the range of disagreement and all actors share the level of ‘somewhat agree.’

4.3.2. AI benefits and risks

Survey respondents gave a score of 5.5 out of seven for the dangers posed by the inclusion of AI in journalism and 4.5 on the same scale for the potential benefits of AI in journalism.

Similarly, the population highly rates the risk of AI for achieving a well-informed citizenry, while the benefits for this same objective are rated at 4.5.

Figure 3. Distribution of opinion on the benefits and dangers of AI in journalism



Source: Own elaboration.

5. Discussion and conclusions

AI affects all phases of production and circulation of information (García-Orosa & Pérez-Seijo, 2023; Gutiérrez-Caneda *et al.*, 2023) and its link with journalistic ethics constitutes a fundamental axis for the preservation of the fundamental values of journalism, alongside innovation. Professionals, through their ethical codes and communication in their international organisations, are reflecting on this situation, although the debate is informal to the public eye.

Quantitatively, the number of national and international organisations with previous work in this area is still scarce.

Most people approach AI as an unavoidable risk to live with, although a significant percentage of associations also recognise the positive aspects of AI for journalism. AI is presented as a challenge, a defiance, or an opportunity. These views highlight the unknown elements of the technology, as well as the mistrust that its introduction into journalistic work generates. Faced with the situation of distrust among citizens (Serrano-Puche *et al.*, 2023), transparency is a fundamental element.

Most hold the editorial team primarily responsible for its use, although external regulation is advocated for the entire media sector. It is determined that media managers themselves should be responsible for determining how and when AI is used as they have a duty to ensure that its use preserves and safeguards the ethical values of journalism.

For the time being, the sector has provided itself with general guidelines and directives that mainly concern the responsible use of AI. “Responsible use” is understood as a transparent use in which the recipient knows exactly how the information has been used, whether in the search for information, in the preparation of information, or in its circulation through the use of Big Data. However, standard indicators to ensure this transparency do not exist yet. It is up to the media to voluntarily report and indicate this through their own methods.

Other particular references, in addition to transparency, address the use of AI in conflicts and situations where human rights are not guaranteed and as a tool for misinformation, but also are valid for combating it.

Therefore, these are generic references that do not yet allow us to answer the questions raised at the beginning of this article regarding the use of images with copyright or images created by AI, beyond the need to indicate their origin.

Finally, everyone agrees on the need to regulate copyright. In this aspect, the human being is placed at the centre of the action, being the one who handles technology and not the other way around, using it as a tool to facilitate their work, but not as a substitute for a human professional. Journalism associations and workers in the sector are in favour of legislating AI to ensure that copyright and journalistic work are preserved, as well as overseeing the responsible use of technology.

As for citizens, these new technologies still raise doubts about their benefits whether they outweigh the risks. Respondents do not believe that AI will improve the quality of journalism and they stress, as information professionals do, the need to regulate AI. According to them, all actors involved should have a role in this regulation, but with a special consensus that it should be done by a national body that regulates the use of AI throughout the nation followed by journalistic companies.

Based on these results, we created a list of ten challenges for the inclusion of AI in newsrooms in the near future, presented here:

1. Ethics: Ethics should be the basis for any application of AI in journalistic work. Even if regulatory measures are implemented through various bodies, journalists should always apply the ethical values of their profession.
2. Transparency in newsrooms: Information that includes AI in one way or another must always be properly signposted, so that the reader always knows if and how AI was utilized in a piece of journalism.

3. Algorithmic transparency: Algorithmic transparency should be ensured by providing information on how algorithms work, how they are trained, and how they influence decisions that affect people.
4. Algorithmic bias: AI learns through the inclusion of data. This data can be biased so readers should always check and verify the information or data analysis being completed by AI.
5. Data privacy and surveillance: The use of AI often involves the analysis of large amounts of personal data. Ensuring the privacy and security of this data is essential to protect individual rights.
6. Editorial responsibility: Beyond possible regulations, the responsibility for the proper/improper use of AI will always lie with the editorial team of the media.
7. Copyright: The use of AI in journalism should not be at odds with ensuring that journalists' copyrights are preserved.
8. Misinformation: AI should help combat misinformation, not create it, so it should be used responsibly and following ethical values.
9. Equitable access to information: A comprehensive approach that addresses both the technical and social aspects of technology is required. It is crucial to work collaboratively with various interested parties to identify and address challenges related to equity and inclusion in the use of AI.
10. Supervision and human intervention: The use of AI in journalism should always be subject to the supervision and human intervention of the journalist, ensuring that the standards of the profession are met.

6. Limitations of the article

The research is part of the first wave of analysing trends and absences in the regulation and use of AI in newsrooms. Although a relevant number of ethical codes and international associations are analysed, the references are still scarce, leaving plenty of research for the future. A specific study of the Spanish population was carried out but an international survey could reveal more information. Future research could also focus on examples of good media practices from the ten challenges mentioned in the Discussion and Conclusions section.

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Appendix I

Code list

Country	Code*	Adopted/ Last revised in
Albania	Code of Ethics of Albanian Media	2006
Algeria	Algerian Journalists' Charter of Personal and Professional Ethics	2000
Armenia	Code of Yerevan Press Club Member	2002
Australia	Australian Journalists' Association Code of Ethics	1994
Austria	Code of Conduct for the Austrian Ethics Council for Public Relations "Ethics in Digital Communication"	2016
Azerbaijan	Code of Professional Ethics for Journalists	2002
Bangladesh	Code of Conduct 1993 (2002 as amended) for the Newspapers, News Agencies and Journalists of Bangladesh	2002
Belarus	No code of ethics	-
Belgium (French)	Code de déontologie journalistique	2013
Belgium (Dutch)	Code van de Raad voor de Journalistiek	2023
Benin	Press Code of the Beninese Press	1999
Bosnia and Herzegovina	Press Code of Bosnia and Herzegovina	2006
Brazil	Código de Ética e Autorregulamentação, Code of Ethics for the Association of National Journalists	2016
Bulgaria	Bulgarian Media Sign First-Ever Code of Ethics in Bulgarian Journalism	2004
Canada	Canadian Association of Journalists Statement of Principles	2002
Colombia	Código de Ético del Círculo de periodistas de Bogotá	2020
Democratic Republic of the Congo	Code of Ethics of the Congolese Journalist	2004
Costa Rica	Código de Ética y Deontología del Colegio de Periodistas y Profesionales en Ciencias de la Comunicación Colectiva de Costa Rica	2023
Croatia	Croatian journalists' code of honor	2006
Cuba	Código de Ética de la Unión de Periodistas de Cuba	2013
Cyprus	Journalists' Code of Practice of Cyprus	2018
Czech	Union of Publishers: Czech Republic Press Code of Practice	2000
Chad	The Charter of the Tchadian Journalists	1994
Chile	Código de Ético Colegio de Periodistas de Chile	2015
Denmark	The National Code of Conduct of Denmark	1992
Ecuador	Federacion Nacional de Periodistas de Ecuador: Code of Ethics	1978
Egypt	Supreme Council of the Press: Supreme Council of the Press Code of Ethics	1983
El Salvador	Código de Ética para Periodistas y Profesionales de la Comunicación en El Salvador	2020
Estonia	The code of ethics for the Estonian press	1997
Ethiopia	Ethiopian Media Council Code of ethics of journalism	2023
Fiji	The Media Council's General Media Code Of Ethics And Practice	1999
Finland	Guidelines for Journalists	2011

France	Charte d'éthique professionnelle des journalistes	2011
Georgia	The Charter of Journalistic Ethics	2001
Germany	German Press Code	2017
Ghana	The GJA Code of Ethics	1994
Greece	Code of Ethics for Professional Journalists	1998
Guatemala	Code of Ethics of the Association of Journalists of Guatemala	2000
Hong Kong	Code of Ethics of HKJA	1998
Hungary	Code of Ethics	2011
Iceland	Ethics Code of the Union of Icelandic Journalists	2023
India	Norms of Journalistic Conduct	2022
Iraq	Rules of Professional Ethics	1968
Ireland	Code of Practice for Newspapers and Magazines	2008
Italy	Testo unico dei doveri del giornalista	2021
Ivory	Rights and Duties of the Ivoirian Journalist	1992
Japan	Japan Newspaper Publishers and Editors Canon of Journalism 1995	1995
Kazakhstan	Code of Ethics for Journalists in the Republic of Kazakhstan	1997
Kenya	Code of Conduct for the Practice of Journalism in Kenya	2013
Kosovo	Press Code of Kosovo	2022
Kyrgyzstan	Code of the Association of Journalists of Kyrgyzstan	1999
Latvia	Latvijas žurnālistu ētikas kodekss	1992
Liberia	Code of Ethics of the Press Union of Liberia	1997
Lithuania	Code of Ethics in Providing Information to the Public of Lithuania	2016
Luxembourg	Code of déontologie	2004
Macedonia	Code of the ethics of journalists of Macedonia	2014
Malaysia	Canons of Journalism	1989
Mali	Code of Ethics of the Malian Journalist	1991
Malta	Code of Journalistic Ethics	2018
Mexico	Mexico: Code of Practice for All Social Organizations	1995
Moldova	Codul Deontologic al Jurnalistului din Republica Moldova	2011
Montenegro	Codex of Montenegrin Journalists	2002
Nepal	Journalist Code of Conduct	2016
Netherlands	Guidelines of the Netherlands Press Council	2015
New Zealand	Press Council's Statement of Principles	2000
Nigeria	Code of Ethics for Nigerian Journalist	1999
Norway	Code of Ethics of the Norwegian Press	2020
Pakistan	Ethical Code of Practice	2002
Panama	Código ético Forum de Periodistas	2007
Papua	Papua New Guinea Media Council Code of Ethics	1988
Paraguay	Código de Ético del Sindicato de Periodistas del Paraguay	1999
Peru	Código de Ética del Colegio de Periodistas del Perú	2015
Philippines	Journalist's Code of Ethics	1988
Poland	Code of Ethics of the Association of Polish Journalists	2001
Portugal	Código Deontológico	2017
Romania	Cod Deontologic Unic	2009

Russia	Russian Union of Journalists: The Code of Professional Conduct of the Russian Journalist	2016
Rwanda	Rwandan High Media Council: Code of Ethics	2016
Saudi Arabia	Council of Ministers Media Charter	1982
Senegal	Ethical Charter of Sud Quotidien	1993
Serbia	Serbian Journalists' Code of Ethics	2015
Singapore	Journalists' Code of Professional Conduct	1970
Slovakia	The Code of Journalistic	2011
Slovenia	Kodeks novinarjev Slovenije	2002
South Korea	Press Ethics Code	1989
Spain	Código Deontológico	2017
Sri Lanka	Code of Professional Practice (Code of Ethics) of The Editors' Guild of Sri Lanka	2016
Sweden	Code of Ethics for Press, Radio and Television in Sweden	2006
Switzerland	Code of Conduct	2017
Thailand	สมาคมข่าวหนังสือพิมพ์แห่งประเทศไทย	2000
Togo	Code of Ethics of the Journalists of Togo	1999
Tonga	General Code of Ethics for the News Media, published by the Tonga Media Council	-
Tunisia	Association of Tunisian Journalists Code of Ethics	1975
Turkey	Professional Principles Of The Press	1989
Uganda	National Institute of Journalists of Uganda Code of Ethics	1995
Ukraine	The Code of Professional Ethics of Ukrainian Journalist	2002
United Kingdom	Code of conduct	1936
United States	SPJ Code of Ethics	2014
Venezuela	Código de Ética del Periodista Venezolano	2013
Zambia	Code of Ethics of the Media Council	-
International	Global Charter of Ethics for Journalists	2019

* The name of the code has been preserved as it appears in the documents consulted for the analysis, regardless of whether translators have subsequently been used to study it.

Source: Own elaboration.