

Redrawing the Lines Against Disinformation: How AI Is Shaping the Present and Future of Fact-checking

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Artificial intelligence is changing the way our world works, and the journalism and communication field is no exception. The development of high technologies such as NLP or machine learning has modified professional routines, work profiles, and business models. Fact-checking initiatives, which have long battled disinformation, now face a complex context where misleading content grows faster than ever. In this situation, artificial intelligence, or AI, can be a double-edged sword. On the one side, AI-generated content can be created faster than regular content; therefore, there is a huge volume of data to be analysed by fact-checkers. Furthermore, NLP software is not always as reliable as it might be expected. It tends to 'hallucinate', creating more misleading content and hoaxes. On

the other hand, AI can be a helpful tool in fighting disinformation. This paper analyses 10 independent international fact-checking initiatives through case analysis and questionnaires with fact-checkers. Results show that these sites use AI during different stages of their routines, accelerating processes, simplifying tasks and improving the accuracy of fact-checking results. AI integration shows some risks related to economic restrictions, platform limitations, media distrust, and inequity between countries. To conclude, this research also demonstrates that journalists are still in the loop about fact-checking sites, but more tech profiles and better skills are required.

Keywords: fact-checking, artificial intelligence, hi-tech journalism, disinformation.

Journalism is suffering a credibility crisis due to fake news growth, which increased during the pandemic (Román-San-Miguel *et al.*, 2022; Serrano-Puche *et al.*, 2023). This problem arose with the advent of the Internet, which completely revolutionized the communication paradigm, moving from a unidirectional to a bidirectional scheme in which feedback is as important, or more so, than the original message (Ramonet, 2011). The emergence of prosumers and social networks has created an unequal competition for the public's attention in an ocean of content. Sensationalism and techniques like clickbait, society polarization and disinformation growth, among other issues, have made society distrustful of the media (Ufarte-Ruiz *et al.*, 2018). In this context, fact-checking initiatives have emerged as a solution, verifying claims and giving context to misleading information with the aim of fighting disinformation. These can be independent initiatives or a specific department within a media outlet. They check and verify data and information published on social networks or statements by public figures that are relevant to society.

Technological innovations modify journalism dimensions and processes. This also applies to fact-checking initiatives. In this specific case, artificial intelligence (AI) integration stands out. This technology allows fact-checkers to analyse a much bigger volume of data, to automate mechanical tasks, or even to interact with users. These features make the fact-checkers' task easier and allow them to check more content. However, like other innovative and disruptive techniques, AI has developed faster than the law and the ethical and deontological codes that regulate it. This situation calls for a cautious approach to AI's use to avoid certain risks related to user privacy, copyright issues or algorithmic bias, for example.

The goal of this paper is to discover how fact-checkers are using AI in their daily routines, highlighting its advantages and disadvantages. Through this investigation we also want to shed some light on the future possible uses of AI in fact-checking sites and the risks that may result.

BACKGROUND

FACT-CHECKING VS DISINFORMATION

The fundamentals of journalism include verification (Kovach and Rosenstiel, 2001), a necessary step that involves checking sources, verifying their reliability and guaranteeing the veracity of what is reported. However, fact-checking has emerged as a trend that, in relation to journalism, complements the activity of media and journalists, considering that it is necessary to fact-check and prebunk in the face of increasing disinformation, mainly online, as well as to educate citizens and contribute to restoring the credibility of journalism (Moreno-Gil *et al.*, 2021). According to Mantzarlis (2018), this new form of fact-checking is about verifying already published information and statements of relevant actors in the public sphere. The need for fact-checking is sustained while the unambiguous practices of deception continue (Amazeen, 2015), since disinformation is a

phenomenon that directly affects the public sphere and threatens the democratic development of society (Allcott *et al.*, 2019).

In particular, the professional profile of fact-checkers is fundamentally journalistic (Herrero and Herrera Damas, 2021) and involves the domain of search and comparison techniques, database management and information visualization (Ufarte-Ruiz *et al.*, 2022). Among the skills of this new journalistic modality (Herrero-Diz *et al.*, 2022) are: knowing the concept of misinformation; recognizing and describing misleading content; discerning truthful content; investigating the origin of questionable content; arguing with data, facts, sources and evidence; as well as organizing information.

Since the birth of Snopes, the first fact-checking initiative that appeared in 1995 in the United States, the number of such organizations has grown progressively and now has a global reach. Research in 2019 identified 135 active fact-checking sites (Vázquez-Herrero *et al.*, 2019), of which 70% were digital native media. In the last decade there has been growth, leading to a total of 417 active fact-checking sites in 2023 (Duke Reporters' Lab, 2023).

Among these fact-checking sites, we differentiate between those that are native platforms that were born to engage in this activity and sections or teams of media outlets that allocate specific resources for this purpose. In the first case, we refer to a model of independent organization and with a usually nonprofit character close to an NGO (Graves and Cherubini, 2016), although there are also companies defined as startups. On the contrary, teams within a news media outlet follow the newsroom model (Graves and Cherubini, 2016), as their work is integrated into a larger structure. In the aforementioned study by Vázquez-Herrero *et al.*, (2019), independent platforms and media sections were equally represented.

Fact-checking is now understood as a global movement and an example of transnational journalism born from the collaboration between practitioners, academia and the civil sphere (Graves, 2018). Beyond fact-checking, these organizations work on policymaking, media and information literacy, research and technology development, and constitute themselves as a movement through field-configuring events (Graves and Lauer, 2020). Academic research has studied cases in Ibero-America (Herrero and Herrera-Damas, 2021; Vizoso and Vázquez-Herrero, 2019), Latin America (Lelo, 2022; Palau-Sampio, 2018), Europe (Graves and Cherubini, 2016; Steensen *et al.*, 2023; Ufarte-Ruiz *et al.*, 2020) and the United States (Graves, 2016; Humprecht, 2020), among other regions and countries.

For project sustainability, alliances and collaborations are fundamental. On the one hand, partnerships with technology companies, such as Meta's Third-Party Fact-Checking Program, are common. On the other hand, fact-checkers are committed to collaboration and take part in organizations such as the International Fact-Checking Network, RedCheq or Comprobado (Moreno-Gil and Salgado-de-Dios, 2023; Noain-Sánchez, 2020; Rodríguez-Pérez *et al.*, 2021) and participate in joint projects such as #CoronaVirusFacts (IFCN, 2020) or #UkraineFacts (IFCN, 2022). The funding system also has an important weight, which in native organizations is supported by various sources —alliances with technology companies, grants, research projects, donations, etc.—

which requires special transparency due to the nature of these organizations (Brandtzaeg *et al.*, 2018).

Journalism has changed radically through the use of technology (Pavlik, 2000) and similarly, fact-checking sites are boosted by technological innovation (Vázquez-Herrero *et al.*, 2019). The accessibility of technology made possible the emergence of fact-checking with a utilitarian approach to assist professional practices rather than an objective in itself (Dierickx and Lindén, 2023), but at the same time technology allows new forms of use that are not always good for a democratic society (Amazeen, 2020). In fact, the perception of journalists towards AI has a double perception, for example, that it adds value to the journalist's work—as it also happened with the Internet and related tools (Spyridou *et al.*, 2013)—and to the profession. But at the same time it awakens the distrust of journalists (Noain-Sánchez, 2022) and they warn of its capacity to generate complex and sophisticated disinformation strategies (García-Avilés *et al.*, 2023).

A first step in the use of technology in fact-checking is monitoring social media and network analysis (Guarino *et al.*, 2020; Vázquez-Herrero *et al.*, 2023) and the identification of bots, given the volume of misinformation circulating on these platforms (Blanco-Alfonso *et al.*, 2021). The possibilities grow if the needs of each of the phases of the verification process are analysed: finding fact-checkable claims, finding facts, and correcting the record (Mantzaris, 2018).

Previous studies (García-Marín *et al.*, 2022) point out that the search for solutions and the detection of misinformation content receives special attention among researchers, with a focus on AI and automated fact-checking. The answers come from the automation of fact-checking, with techniques of natural language processing, machine learning, knowledge representation, databases and claim matching (Guo *et al.*, 2022). Studies have paid special attention to linguistic models in contrast to less frequent research on visual and sound analysis (García-Marín, 2022). The introduction of artificial intelligence in fact-checking sites has accelerated processes, thanks to automation, especially with “tools that help fact-checkers to respond more quickly and effectively to political lies, online rumours, and other forms of misinformation” (Graves, 2018, p. 7), although human intervention is still necessary in this field (Adair *et al.*, 2019).

The use of AI in fact-checking requires recognizing its limitations and explaining how arguments are selected to reach a conclusion, rather than just focusing on the end result (Brandtzaeg *et al.*, 2018). Moreover, automated fact-checking tools need efficient technology and complementary techniques (Dierickx *et al.*, 2023), as a single tool that autonomously solves the whole process is not enough. The challenges are substantial, as artificial intelligence is also considered a threat reflected in deepfakes (Vaccari and Chadwick, 2020), but also because ambiguity makes verification difficult (Lim, 2018) in this post-truth scenario.

HI-TECH, ARTIFICIAL INTELLIGENCE AND JOURNALISM

In the third decade of the third millennium hi-tech journalism (Pérez-Seijo *et al.*, 2020; Salaverría, 2015) appears as a trend that is here to stay in newsrooms.

The use of advanced and disruptive technologies such as virtual reality, drones, or blockchain technology radically transform informative routines, offering new opportunities but also bringing some challenges. Within this trend, artificial intelligence seems to consolidate as one of the strongest options, especially for journalistic verification.

Artificial intelligence is changing our society and journalism is no exception (Sanahuja-Sanahuja and López-Rabadán, 2022b). This technology modifies profiles, routines, products and business models (Gutiérrez-Caneda *et al.*, 2023; Túnñez López *et al.*, 2021). It can be used in each phase of the news production process. The use of artificial intelligence in newsrooms is called by different names depending on the authors. Some of the most common terms are “algorithmic journalism” (Anderson, 2012; Ogbemor and Carter, 2021), “robot journalism” (Bhattacharya, 2021; Kim and Kim, 2018), “computational journalism” (Cohen *et al.*, 2011; Karlsen and Stavelin, 2014), “artificial journalism” (Túnñez-López *et al.*, 2019) and “automated journalism” (Ali and Hassoun, 2019; Caswell and Dörr, 2018; García-Orosa *et al.*, 2022; Porlezza and Ferri, 2022).

AI integration in the newsroom started after 2010. One of the first cases of using this technology in the journalism field was Quakebot (Salazar García, 2018). This tool belongs to *Los Angeles Times*, and it produces news related to earthquakes in the area. The bot gets information from official sources and automatically writes and publishes content on the newspaper’s website. Since then, AI has been used by different media in different parts of the informative process, in both production and dissemination, content personalization and even journalistic verification (Túnñez-López *et al.*, 2021; Barbera *et al.*, 2022; Sánchez-García *et al.*, 2023). It tends to be used for mechanical and repetitive tasks and for structured information, for example, sports and stock market reports (García Avilés, 2019). However, it is also used for more complex tasks such as those related to data analysis, complex text automated writing, content personalization and even user interaction (Sanahuja-Sanahuja and López-Rabadán, 2022a; Gutiérrez-Caneda *et al.*, 2023; Ufarte-Ruiz *et al.*, 2023).

AI integration offers numerous advantages, mainly related to time saving, allowing journalists to spend more time on deeper and more complex stories. However, this innovation also brings some disadvantages and risks: some are related to copyright issues, the responsibility behind AI created content, the vulnerability of user privacy, possible drops in the quality of journalism products and even the disappearance of job positions and the restructuring of media staff (Murcia-Verdú and Ufarte-Ruiz, 2019; Gutiérrez-Caneda *et al.*, 2023).

The transformation in newsrooms caused by AI is significant. Some media even already works without humans in the loop, also known as “synthetic media” (Ufarte-Ruiz *et al.*, 2023). In November 2022, ChatGPT, an OpenAI NPL software, changed the way society saw AI. This tool has a free version that can be used without any specific skills. ChatGPT has internationally democratized and popularized AI, situating this technology at the heart of public debate for months. This tool and others such as Bard, from Google, or Perplexity.ai have been incorporated into different work routines in all kinds of fields. They promise that they can write any kind of text and provide any kind of information,

simplifying tasks and reducing time commitments. However, there are some important risks related to their use and creating disinformation is one of them (Gutiérrez-Caneda *et al.*, 2023). These tools do not always provide accurate data: sometimes their data is outdated or incorrect, there is a big risk of algorithm bias, and they can even *hallucinate* sometimes (Weise and Metz, 2023) —providing misleading and fake information. AI-generated content is created much faster than human-generated content. Therefore, when this content is dangerous for the population, the risk is much higher and the volume of data that needs to be checked is bigger.

The revolution and democratization of AI since the end of 2022 has also been a problem for fact-checkers because it has contributed to disinformation growth. However, AI can be both a problem and a solution in this situation. Recent studies have addressed the use of semantic similarity models for claim matching (Larraz *et al.*, 2023), the impact of ChatGPT in fact-checking (Cuartielles *et al.*, 2023), as well as the application of machine learning techniques for combat disinformation (Montoro-Montarroso *et al.*, 2023), with information verification being one of the fields where AI is expected to have the greatest influence (Beckett and Yaseen, 2023), even with all the challenges it poses.

Traditionally, fact-checkers verify information manually. Due to the increasing volume of shared content on social media, nowadays it is impossible to check all data 'by hand'. Therefore, algorithms and AI tools are being developed with the aim of analysing huge amounts of information in the least time possible. Some of this research is being conducted by fact-checking sites and, in some cases, they are being supported and/or funded by big tech companies like Meta or Google (Meta, 2021; Ma and Feldman, 2022).

On the other hand, authors like Lampou and Antonopoulos (2023) point out international competitions such as CheckThat! or Constraint as a factor that intensifies research in this field. Nowadays, there are some fact-checking sites already using AI in their routines, such as Newtral in Spain, Full Fact in the UK, Chequeado in Argentina or Aos Fatos in Brazil (Ortega, 2023). There are also some AI tools available for the public, that allow users to check the reliability of content and, in doing so, verify the information they receive via social media. TinEye, for example, allows a reverse search of any image to detect any similar picture online. In this way, the original image can be tracked, and it can be verified that it corresponds to the information or to determine whether it has been manipulated.

METHODS

The aim of this research is to analyse the impact of AI integration on fact-checking initiatives: how AI is used in these projects, how this technology impacts on their routines and results, and how this tool is changing professional profiles and necessary skills. In this paper, we focus on independent fact-checking sites to evaluate their AI integration. Although fact-checking initiatives within news media outlets are also interesting from this perspective, we understand that if a

media outlet has already integrated AI into their newsrooms it is easier for their fact-checking department to adopt it too.

The selected method was a case study (Yin, 1993), including online questionnaires and analysis sheets. This technique allows to study in depth specific cases selected for their particular characteristics that make them different from others of their kind. We have chosen to conduct structured interviews through online questionnaires (Given, 2008, p. 291) because they have proven to be a useful tool in cases where synchronous and face-to-face contact with interviewees is difficult and the information requested is particularly concrete and objective (Gutiérrez-Caneda *et al.*, 2023).

Ten international and independent fact-checking sites were selected: Aos Fatos (Brazil), Chequeado (Argentina), ColombiaCheck (Colombia), Full Fact (United Kingdom), Agência Lupa (Brazil), Maldita (Spain), Newtral (Spain), Pagella Politica (Italy), Polígrafo (Portugal), and Verificat (Catalonia, Spain). These fact-checking sites were chosen to represent different models of initiatives according to their funding and methodologies. Furthermore, a necessary condition to being chosen was their belonging to the International Fact-Checking Network (IFCN), as a guarantee of quality and rigor.

The case study method was applied, starting with a literature, web and social media analysis following a specific sheet (Annex I¹) focused on organizational, technological, communicative and strategic aspects. After this first approach, structured interviews (Annex II²) with fact-checkers from the sample were conducted to understand their experiences. The questionnaires were structured around four axes: the profile of the professional, the use of AI on the site, the impact on professional profiles and routines, and international funding and cooperation strategies. Data has been anonymized to preserve interviewees' privacy. These interviews were conducted online, using structured questionnaires with multiple choice questions, one choice questions and open answering questions.

RESULTS

In this case study, ten independent fact-checking sites from seven countries were analysed (from Argentina, Brazil, Colombia, Italy, Portugal, Spain and UK) that were created between 2009 and 2019. Nine organizations debunk all topics, and one specializes in politics. This research also detected two different models of fact-checking initiatives: an NGO model and a newsroom model. NGO model fact-checking initiatives are constituted as charities and are consistent with funding and methodology transparency. Newsroom model fact-checking initiatives, on the other hand, are enterprises, therefore they are not always 100% transparent

1 <https://doi.org/10.6084/m9.figshare.24681603>

2 <https://doi.org/10.6084/m9.figshare.24685839>

about their funding. However, due to the kind of business they conduct, they try to share their main funding and methodologies. Related to this, fact-checking sites are particularly committed to offering full transparency. They share information about who is financing them and how they work to verify information. Usually, they also share information related to AI development and its uses.

Collaboration is noted as a key element for fact-checking initiatives. All the selected cases belong to the International Fact-Checking Network (IFCN) but some are also members of other organizations such as LatamChequea or the European Fact-Checking Standards Network (EFCSN). Beyond fact-checking alliances, there is a remarkable interest in cooperation through international research projects and actions against misinformation from the regulatory and educational perspective.

Related to AI integration, nine of the cases use AI in their routines and only one previously used this technology, but it does not anymore. Based on the results obtained from both the case analyses and the questionnaires and answering the proposed research questions, AI integration on fact-checking initiatives has been established and analysed. Results are structured around two main topics: AI use and the development and consequences of AI integration into fact-checking initiatives.

AI USE AND DEVELOPMENT

Artificial intelligence is integrated into every part of the fact-checking process. For this study, six main tasks were established based on the preliminary literature review, and interviewees were asked to select those that apply to their site.

As shown in Table 1, all these main tasks were chosen at least once by the interviewees. However, only one of the studied initiatives uses AI for all the described tasks. The most popular way to integrate AI is through tasks related to 'Analysing images, texts or video' (Task 2), chosen by 8 interviewees. The least popular task for integrating AI, on the other hand, is 'Sharing the results of a verification' (Task 3).

Table 1. Tasks where AI is integrated into the studied fact-checking sites

	Task	Fact-checking sites using AI
1	Looking for and detecting fake news	5
2	Analysing images, texts or video	8
3	Sharing the results of a verification	1
4	Identifying potential risks of disinformation	3
5	Keeping in contact with the audience or managing the community	4

Source: Own elaboration.

Considering these results and the literature, web and social media analyses, three categories of AI-based tools and tasks used in fact-checking initiatives were

established (Table 2): (1) AI-based solutions for pre-fact-checking tasks; (2) AI-based solutions for fact-checking; and (3) after fact-checking AI-based solutions.

Table 2. AI-based solutions categories

	Phases	Tools and tasks
1	AI-based solutions for pre-fact-checking tasks	<ul style="list-style-type: none"> • Database analysis • Collecting and monitoring claims • Early warning • Claim identification
2	AI-based solutions for fact-checking	<ul style="list-style-type: none"> • Real time fact-checking • Support tools for fact-checkers • Data cross-checking
3	After fact-checking AI-based solutions	<ul style="list-style-type: none"> • Alert systems (plugins, apps etc.)³ • Communication and interaction with user (chatbots)⁴

Source: Own elaboration.

Fact-checking sites integrate AI-based solutions for pre-fact-checking tasks in different ways. They usually use this technology to identify viral topics and possible claims. Through AI-based solutions, they can also collect these claims and keep them monitored. This also helps them to detect the claims earlier and, in doing so, verify them and warn about them earlier.

During the fact-checking process, fact-checkers use AI to cross-check data and verify information. For example, one of the professionals talked about developing a semantic search to find already verified information. Another task of AI tools is to transform audio or video to text to proceed with the debunking. In this part of the process, they also use AI to analyse databases and cross-check data.

After the fact-checking process, AI-based solutions are still used by fact-checkers, mainly to stay in contact with users to help them fight against misinformation. They offer different tools to alert people about misleading content, like plugins, for example. This software warns the users about the reliability of the website they are using. Another example is chatbots, which are a popular solution among fact-checking sites. These tools constitute an easy way for users to verify information almost instantly: they can ask the chatbot about any claim and, if it has already been debunked, the chatbot will inform them about it. For example, the fact-checking initiative that does not use AI anymore formerly used AI in this way: during the Covid-19 pandemic, they developed a chatbot that answered readers' questions regarding the coronavirus.

³ An example is the Maldito Bulo extension, an extension offered by Maldita for Google Chrome and Firefox that alerts the user when they enter an unreliable or satirical website. It also provides information about how many news from that page have already been denied by Maldita.

⁴ Bot Fátima (Aos Fatos), Chequeabot (Chequeado) or Claimhunter (Newtral), for example.

Not every fact-checking site that uses AI in their routines has developed its own tools. In this study, six of the analysed sites have developed AI tools and four use the technology but without being involved in the development process. Regarding AI development, it is important to note that only one of the six sites that are involved in the process is not involved in collaborations related to this technology with other sites. One of them shares its results with other projects but not the technology itself. The other five sites collaborate with other fact-checking initiatives through different projects or alliances. For example, Aos Fatos has developed software called “Escriba” that offers automated transcriptions and that can be used by anyone paying a fee. Others, like Full Fact, offer their AI solutions to other fact-checkers, newsrooms or the public.

CONSEQUENCES OF AI INTEGRATION IN FACT-CHECKING INITIATIVES

Based on the results of the analysis of the impact of artificial intelligence on fact-checking initiatives, three categories have been established: (1) Impact on professional profiles; (2) Impact on working routines; and (3) Impact on funding and collaboration strategies.

Impact on Professional Profiles

Fact-checking sites have begun demanding more technical profiles such as engineers and software developers due to AI integration. To address this issue, respondents were asked to choose between several fixed options to describe the profiles that are being demanded or hired now by their fact-checking site and the profiles that were demanded or hired before AI integration (Table 3). Most interviewees said their organization hires or needs mostly journalism and communications related profiles but also software engineers and more AI-related profiles. Only three respondents said that the site they work for only hires/needs journalism and communication related profiles. It is important to note that of these three respondents one is not currently using AI in their routines and another, even though it integrates AI, is not involved in the development process. Four respondents also affirmed that the sites they work for used to hire more journalism and communication related profiles before AI integration. However, it is important to note that journalism and communication profiles have not exited the loop and that three respondents affirmed that they only hire or demand journalism and communications related profiles.

Furthermore, respondents were asked which skills journalists would need in an emergent AI environment. They suggested that journalists need to have “a very in-depth understanding of how AI works” and how these technologies “interfere with the global information flow”. Interviewees also addressed the issue of ethics, stressing the need for journalists not to lose sight of the fact that their job is to inform and that it entails certain ethical and deontological standards.

Table 3. Hired profiles now and before AI integration

Hired profiles now		Hired profiles before AI integration	
Chosen answer	Respondents	Chosen answer	Respondents
1. Only journalism and communication related profiles	3	1. The same as now	4
2. Mostly journalism and communications related profiles but also software engineers and more AI-related profiles	5	2. More journalism and communications related profiles than now	4
3. Journalism and communications related profiles but also software engineers and more AI-related profiles	2	3. My organization has always had AI-based technologies integrated	1
4. Mostly software engineers and AI-related profiles and some journalism and communications related profiles	0	4. Other	0
5. Only software engineers and AI-related profiles	0	No answer	1*
6. Other	0		
No answer	0		

Source: Own elaboration.

Working Routines

AI integration is seen by interviewees as something that has positively (six persons) or slightly positively (three persons) affected their working routines. The tenth respondent did not answer this question. To address AI impact on fact-checking routines, some fixed options (and the chance to add others) were given to the interviewees. Respondents were asked to choose as many options as applied to their fact-checking site (Table 4). The most chosen option was ‘Reduced time spent on manual fact-checking tasks’; this question was answered by eight respondents and seven chose this option. These answers are also consistent with the answers to other open questions. For example, when asked why AI integration has impacted positively or slightly positively on their routines, respondents said, “it makes their work faster” or “because it allows us to do things a fact-checker cannot (or it is more difficult for them)”. This technology also provides fact-checking sites with early disinformation point detection and, therefore, an earlier response. Time is key when fighting disinformation because hoaxes and fake news usually spread quickly through social media. If the fake or misleading information is debunked quickly, users can check it and stop the dissemination. AI tools also help reduce time spent on manual fact-checking tasks and enhance efficiency in information analysis. Due to the huge volume of disinformation, saving time is key when fighting against it.

Table 4. AI impact on working routines

Chosen answer	Respondents
1. Enhanced efficiency in information analysis	4
2. Increased workload due to data volume	3
3. Improved accuracy of fact-checking results	3
4. Reduced time spent on manual fact-checking tasks	7
5. Altered focus or emphasis on specific types of disinformation	2
Other	0

Source: Own elaboration.

In brief, AI integration impacted working routines by reducing time spent on manual fact-checking tasks and enhancing efficiency in information analysis. This technology also allows earlier disinformation detection due to the automated systems. One of the most important discoveries is that fact-checkers affirm that AI-based solutions have improved the accuracy of fact-checking results.

Funding and Collaboration Strategies

Funding and collaboration strategies are a key element for the sustainability of fact-checking initiatives and AI development is another area where they tend to work together, sharing technologies or participating in projects with other organizations. As already seen, fact-checking sites tend to share their AI developments in different ways. For example, one of the interviewees affirmed that their initiative collaborates with another five fact-checking initiatives so they can use AI-based tools. But big tech companies are also an important element, funding fact-checking initiatives in general or specifically tech developments in these sites through different initiatives. Meta is present on almost every site through its Third-Party Fact-checking Program. Google has also funded some projects through the Google News Initiative related to AI development. Telegram, Kwai and TikTok were also mentioned by some respondents among the tech companies that have funded them.

AI is seen as a technology that also simplifies the creation of fake content. This technological development is advancing faster than ever before and is also being democratized. Fact-checkers are worried about disinformation growth and viralization but also about the growth of population distrust in the content they consume, including accuracy of content, due to the doubts generated by AI. However, AI is also seen as an important ally in the fight against disinformation. For example, one of the respondents mentioned the importance of using AI to debunk AI-generated fake content due to the impossibility of the human eye detecting. Another mentioned that they have found AI “invaluable in making tools to help fact checkers deal with the enormous volumes of information they are presented with in today’s world”.

CONCLUSIONS

Nowadays, fact-checking sites are an important element to fight against disinformation, and artificial intelligence has emerged as an important asset. AI integration is already a reality for fact-checking sites. Fact-checkers are using artificial intelligence-based tools on their sites and applying them to each part of their working routines, but humans are still in the loop (Barbera *et al.*, 2022). However, this does not always imply that these organizations develop the technology: sometimes they are involved in the process, and sometimes they are not. Related to this, big tech companies are a key element since the development of this technology can be expensive. These companies, especially Google and Meta, collaborate with fact-checking initiatives and provide funding through different programs. Therefore, collaboration continues to be important for fact-checking sites when it comes to AI.

This technology is now being used for different tasks. The most popular are those related to content analysis and to implementing earlier claim detection. This implies some advantages for fact-checking sites, most related to saving time and improving efficiency (Manfredi Sánchez and Ufarte-Ruiz, 2020). Working routines are changing and so are professional profiles. The demanded professional profiles are changing, creating multidisciplinary teams in newsrooms (López-García *et al.*, 2017), and this is also happening in fact-checking initiatives. In this case study, changes in the demanded skills have been detected too. Journalists need to have a deep understanding of AI, OSINT tools and data to be able to verify information and debunk hoaxes in this new context. These skills are needed not just to apply them directly but also to better understand the communicational situation they are facing.

AI integration also brings certain risks and disadvantages. The development and popularization of this technology has increased public distrust in mass media. There are also some disadvantages of AI integration related to economic restrictions and platform limitations. These two aspects, along with reduced access to technologies for non-English speaking countries, can create inequity between different fact-checking sites.

While this study contributes valuable insights to the field, it is essential to acknowledge its inherent limitations. Since the chosen method is a case study, the results are bonded to the analysed initiatives and cannot be extrapolated to the wider universe of fact-checking sites. Furthermore, although the sites have been chosen to offer certain representativity related to methodologies and funding, they all belong to occidental culture. Future research endeavours may address these constraints, analysing initiatives from other continents and adding a quantitative study to offer a more comprehensive and universal understanding of the changes artificial intelligence are causing on fact-checking initiatives. Another limitation is that technology is so new that it can be difficult for users to identify when a tool makes use of it.

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