# Innovations using Generative AI for media literacy and fact-checking in the European Union

## *Innovaciones con IA generativa para alfabetización y verificación en la Unión Europea*

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**Abstract:**

This study analyses the use of generative artificial intelligence (GenAI) and other emerging innovations in European projects funded by the European Media and Information Fund (EMIF), focused on combatting disinformation. A questionnaire sent to the heads of those initiatives identified specific cases of integration of GenAI in fact-checking, automation, and media literacy tasks. The results shine a light on emerging trends, such as the application of AI to automated fact-checking processes, educational gamification, and the development of tailor-made tools. The study is important in that it represents an exercise in accountability by analysing publicly-funded projects and underscores the importance of driving forward policies for regulation, training, and the ethical use of AI. Although the number of responses was limited –due to the nascent nature of the technology during the period studied (2022-2023)– the study provides a pioneering snapshot of GenAI's role in the European counter-disinformation ecosystem.

**Keywords:**

Generative artificial intelligence; disinformation; media literacy; gamification; fact-checking.

***Resumen:***

*Este estudio analiza el uso de la inteligencia artificial generativa (IAGen) y otras innovaciones emergentes en proyectos europeos financiados por el European Media and Information Fund (EMIF), centrados en la lucha contra la desinformación. Mediante un cuestionario enviado a los responsables de estas iniciativas, se identificaron casos concretos de integración de IAGen en tareas de verificación, automatización y alfabetización mediática. Los resultados permiten detectar tendencias emergentes, como la aplicación de la IA a procesos de verificación automatizada, gamificación educativa y desarrollo de herramientas personalizadas. El trabajo es relevante en la medida en que supone un ejercicio de rendición de cuentas, al analizar proyectos financiados con fondos públicos, y subraya la importancia de avanzar en políticas de regulación, formación y uso ético de la IA. A pesar de que el número de respuestas fue limitado –debido al carácter incipiente de la tecnología en el periodo estudiado (2022-2023)–, el estudio ofrece una radiografía pionera del papel de la IAGen en el ecosistema europeo de lucha contra la desinformación.*

***Palabras clave:***

*Inteligencia artificial generativa; desinformación; alfabetización mediática; gamificación; verificación de información*

## 1. Introduction

The swift emergence of artificial intelligence, especially generative artificial intelligence (GenAI), has sparked debates in areas such as education, law, and ethics. A conceptual delimitation of the most relevant terms is called for to address the topic of this paper. Generative artificial intelligence, also known as generative AI or GenAI, is defined as a subset of machine learning that, beyond merely analysing data, also produces human-like results in response to user input (Woolley, 2024). It thus has the ability to create content while simultaneously imitating human emotional intelligence and creativity through Natural

Language Processing (NLP) so that computers can understand, manage, and generate human- like language (Bharti et al., 2024).

Its introduction into other everyday activities has prompted both enthusiasm and distrust that bring into question human ability to manage the risks associated with its use. Among those risks are deepfakes, which are synthetic creations of images, videos, or audio using advanced artificial intelligence (AI) techniques, particularly deep learning. Such contents are designed to imitate real-world data, making them highly plausible and often indistinguishable from authentic media. The term "deepfake" derives from "deep learning" and "fake," and reflects the technology's ability to manipulate digital content for various purposes, both benign and malicious (Herke, 2023) (Singh et al, 2023).

The techniques can be used maliciously. For example, a manipulated video of Nancy Pelosi, in which she appeared to be intoxicated, went viral when Donald Trump shared it on Facebook, and the platform refused to remove it (Waterson, 2019). The European Commission defines disinformation as "verifiably false or misleading information that is created, presented, and disseminated for economic gain or to intentionally deceive the public and which may cause public harm" (European Commission, 2018).

Measures to curb information disorders in Europe have largely been focused on user education and protection through the implementation of media literacy and fact-checking measures, among others (Garriga et al., 2024). Media literacy refers to the ability to engage with media through active inquiry, critical analysis of media texts, and understanding of the factors that shape them. It encompasses the skills of accessing, using, creating, analysing, and evaluating content (Scharrer et al., 2022). Fact-checking refers to data verification, especially in journalism, and is the process of confirming the accuracy of statements by retrieving relevant evidence from various sources (Miranda et al., 2019).

Recent advances in generative AI have enabled the development of tools capable of holding conversations with a high degree of realism and fluency, as well as generating content from instructions provided by a human. Platforms such as Chat GPT or Google Play employ Natural Language Processing to compose a variety of written content, including articles, social media posts, essays, code, and emails (Hetler, 2024).

However, this progress, coupled with inefficient regulation of the major social platforms, poses serious challenges to the control of disinformation. The use of EU laws to exercise such control raises some concerns as state intervention in content circulating online has been linked to non- democratic states (Haggart et al., 2021). To this end, a decentralised or networked regulatory model has been adopted (de Cock Buning, 2018) which implies a shift in the locus of state regulatory activity to other, multiple venues (Black, 2008). From this perspective, private actors play a key role (Mungiu-Pipidi 2015; Sedelmeier 2012). Some authors argue that self- regulatory mechanisms such as the Code of Practice on Disinformation are ineffective when faced with disinformation. They point out that the transparency reports provided by the Code's signatories have multiple limitations, such as repetition, vague descriptions, and a lack of quality data, and that they are also often unavailable to researchers (Park & Culloty, 2023).

Large technology companies such as X (formerly Twitter), Google or Facebook "due to their role as intermediary services and lack of editorial responsibility, (...) are not generally subject to the obligations arising from media legislation" (Gamito, 2023: 2) in Europe. In this context, the willingness of some of these platforms to cooperate in the regulation of such aspects as

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algorithmic transparency, echo chambers, or fake content seems to respond more to public relations strategies than to a real commitment or a substantial change in attitude (Scott, 2018; Allyn, 2024).

Funding initiatives such as the European Media and Information Fund (EMIF) are emerging as a key alternative to support researchers, fact-checkers, non-profits, and entities dedicated to investigating disinformation, strengthening media literacy, and fact-checking. The fund, established by the European University Institute and the Calouste Gulbenkian Foundation, also receives funding from multiple donors, including Google. Various calls for proposals with an independent selection process aim to address problems posed by the new digital ecosystem related to the lack of freedom, transparency, pluralism, non-discrimination, and diversity (EMIF, 2023).

The workload of these fact-checking platforms increased significantly during the COVID-19 pandemic, which fostered the development of technological tools for monitoring and verification (Sánchez et al, 2024) of political discourse in real time (Adair, 2020; Gonzalo, 2023). The application of AI tools such as Natural Language Processing (NLP) to fact-checking procedures has accelerated workflows (Gutiérrez Caneda & Vázquez-Herrero, 2024). NLP is a subset of artificial intelligence that allows computers to understand written and spoken human language and results in more intuitive interactions between humans and machines, improving communication and functionality in numerous applications (Machiraju & Modi, 2018).

According to the literature review that Montoro-Montarroso et al. conducted on artificial intelligence and machine learning (ML) techniques, a subfield of AI "that makes up a series of methods, techniques, and tools for building intelligent systems from large volumes of data" (2023: 4), there are three principal ways in which they assist in disinformation verification processes. (1) Automated classification, which trains machine learning models to distinguish between true and false information. (2) Feature extraction, which analyses textual and contextual elements associated with disinformation. (3) Hybrid verification, which combines technological tools with human intervention. However, the authors warn that such tools "are not yet widely available and/or lack the maturity necessary for their employment by non- technical users" (2023:10).

Santos (2023) concludes that technologies such as NLP and ML require human participation for their use, and have various ethical considerations, such as algorithmic opaqueness. Sánchez, Sánchez, and Alonso (2024) show that, despite the growing use of AI—particularly in image verification—in European newsrooms and fact-checking environments, there is still a certain deficit in the establishment of policies that guide its integration with traditional journalistic practices. Thus, the use of these technologies generally lacks regulations or operational frameworks that allow for efficient implementation or consider journalistic ethics.

Despite the aforementioned challenges, initiatives based on these innovations have demonstrated their capacity to educate the public about the creation, detection, and potential risks of disinformation. The European Union is striving to improve media literacy by focusing on the implementation of curricular proposals and projects adapted to local cultural contexts (Tiernan et al., 2023). Generative AI is being integrated into educational environments to increase students' digital literacy and AI tools such as chatbots can help improve research skills and promote critical reading and fact-checking (Wetzel & Kani, 2025).

Gamified learning environments that integrate immersive technologies have been shown to increase student engagement, motivation, and self-efficacy, fostering more collaborative and meaningful learning (Lampropoulos & Kinshuk, 2024). The use of existing innovative models—such as gamification or storytelling—in media literacy education increases their potential when

combined with disruptive technologies such as virtual reality, augmented reality, and GenAI. This synergy aids the creation of interactive and multimedia content, something particularly appealing to younger audiences. Rzabayeva, Kassymova, and Pratama (2024) maintain that gamification significantly enhances student engagement by incorporating dynamics such as scores, rewards, and different levels, turning learning into an interactive, motivating experience. Its combination with AI allows content to be personalised, adapted in real time, and to provide immediate feedback, improving the understanding of complex concepts and knowledge retention.

In this context, this paper addresses the role of GenAI and other emerging technologies in European projects funded by the EMIF, an initiative that supports proposals focused on combating disinformation beyond fact-checking, including research, media literacy, and technological development. Given the emerging nature of many of these projects and the limited resources they often have, their development relies on technological innovation.

This paper sets out three specific objectives: first, to identify how these initiatives use emerging technologies, including GenAI, in their fight against disinformation; second, to analyse project leaders' perceptions of the potential and risks specifically associated with GenAI; and finally, to explore any training or digital literacy initiatives they may be preparing concerning AI and disinformation.

Once the objectives were defined, research questions for the study were then posed:

> Q1. What emerging technologies, including generative artificial intelligence, are being incorporated into the initiatives analysed to combat disinformation, and for what specific purposes?
>
> Q2. How do those responsible for these initiatives perceive the role of generative artificial intelligence in combating disinformation, and what benefits and risks do they identify in its implementation?
>
> Q3. What training or digital literacy activities on artificial intelligence and disinformation are these initiatives carrying out, and what audiences are they targeting?

## 2. Method

As mentioned above, this study focused on projects supported by the European Media and Information Fund (EMIF). The analysis, carried out in several phases, made use of various research techniques. The first phase identified projects approved by the EMIF from the start of its activity in September 2022 to the most recent call available at the time of the analysis (June 2024), corresponding to its seventh edition.

The projects were found utilising public documentation of the resolutions for each call, ensuring the comprehensiveness of the census. Both ongoing (six approved in the last call) and completed projects (included in the 2022/23 EMIF progress report) were included. A total of 39 projects were identified (see table below), representing the entire corpus of initiatives supported by the fund to date. Basic information was included for each project, in addition to contact information, to allow for contextualisation and a comparison of results. Specifically, project name, country, date of implementation, type of organisation, and the activity it appears to be engaged in (this last point being compared with the information provided by the project leaders themselves in the next phase).

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**Table 1. Projects analysed**

| Project name | Country | Date |
|---|---|---|
| INDEX: Advancing Open Source Investigation for Fact- Checking in France and Europe | France | Jun. 2024 - ..... |
| A Fuoco. A multimedia project focused on climate change and disinformation narratives | Italy | Jun. 2024 - .... |
| The Open Source Munitions Portal | United Kingdom | Jun. 2024- ..... |
| CALYPSO.GR – Collaborative AnaLYsis, and exPosure of diSinfOrmation in Greece | Greece | Jun. 2024- .... |
| FEED \| Fact-Checking food, diets and eating behaviour | Portugal | Jun. 2024 - ..... |
| From Slovenia to Croatia: Implementing a successful fact-checking model | Slovenia | Jun. 2024 - ..... |
| True info | Belgium | 01/10/2022-31/03/2023 |
| Ukrainian news Agency to integrate fact-checked content with the help of AFP and APA | France | 01/09/2022-28/02/2023 |
| Fact-Checking to Improve Media Coverage of the Arctic in Europe | United Kingdom | 01/11/2022-30/04/2023 |
| Fact-checking the Ukrainian War in the Black Sea Region | Romania | 01/11/2022-30/04/2023 |
| Scale-up Science Fact-Checking in Spanish Podcasts and Youtube | Spain | 01/10/2022-30/06/2023 |
| Tackling false narratives in anti-corruption and the rule of law media reporting | Slovakia | November 20, 2022 – November 19, 2023 |
| SciNet – Network Analysis Tool to automatically rate web domains on their scientific credibility | France | 01/10/2022-30/09/2023 |
| FactBoost: Strengthening the fact-checking skills of journalists | Romania | 01/10/2022-30/09/2023 |

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| | | |
|---|---|---|
| Czech Elections in the Era of Disinformation: The 2023 Presidential Election | Czech Republic | 01/10/2022-28/02/2023 |
| Media Against Disinformation | Poland | 01/05/2023–31/10/2023 |
| "FAST: Fact-checkers acting to stop early-detected disinformation campaigns" | Spain | 01/23/2023-12/31/2023 |
| Lucid News & Investigations | Czech Republic | 01/05/2023-29/02/2024 |
| Exposing the Slovenian Disinformation Ecosystem | Slovenia | 01/04/2023-30/09/2023 |
| Fake News War. Fighting the Fake News regarding the war in Ukraine | Romania | 01/04/2023-30/09/2023 |
| "Desinformiert" season 1. An Information war | Germany | 01/03/2023-31/08/2023 |
| Made for social media: Fighting disinformation with fact check graphics | Germany | 01/05/2023-29/02/2024 |
| Made for social media: Fighting disinformation with fact check graphics | Spain | 01/02/2023-31/12/2023 |
| OMEDIALITERACY" will present an overview of the challenges and opportunities of media literacy policies in Europe | Spain | 01/02/2023-31/12/2023 |
| Decoding the Disinformation Playbook | Germany | 01/10/2022-30/09/2023 |
| "Vrbětice case study: Effective policies and international cooperation for countering disinformation." | Czech Republic | 01/10/2022-30/09/2023 |
| Uisce Faoi Thalamh, ISD's investigation into the online mis- and disinformation ecosystem in Ireland | United Kingdom | 01/11/2022-31/07/2023 |
| Stars | Austria | 01/12/2022-30/05/2024 |
| Disinformation & Trust DISINFTRUST | Spain | 01/01/2023-30/06/2024 |

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| | | |
|---|---|---|
| Stars4Media – Factchecking: Strategy for Eastern European Media Resilience | Belgium | 01/10/2022-31/03/2024 |
| LATIF Leveraging argument technology for impartial fact-checking | Italy | 01/02/2023-31/07/2024 |
| Teacher education in digital and media literacy: providing guidance, resources and support | Belgium | 01/01/2023-30/06/2024 |
| Media Literacy Leads: Digital wisdom in an age of online disinformation. | United Kingdom | 01/09/2022-29/02/2024 |
| 269268 - Empowering critical thinking education in local communities | Lithuania | 01/11/2022-30/04/2024 |
| The Empowering schools in self-regulation of Media and Information Literacy processes | Italy | 01/01/2023-30/06/2024 |
| ESCAPE FAKE 2.0 | Austria | 01/09/2022-29/02/2024 |
| Yo-Media – Youngster's Media Literacy in Times of Crisis | Portugal | 01/12/2022-31/05/2024 |
| Using micro-learning to train educators - a cascade approach to media and information literacy | Portugal | 01/10/2022-31/03/2024 |
| FAKE KNOW MORE | Poland | 01/01/2023-30/06/2024 |

**Source: created by the authors**

The second phase of the research (July-September 2024) saw the design of an online questionnaire, project leaders were contacted by email and invited to participate by filling it in. This analysis included, among other aspects, the following points:

– Project characterisation. In addition to its title, name, contact information for the leaders, and the relevant EMIF call for proposals, the type of initiating organisation was considered first (universities or research centres; NGOs or non-profit organisations; companies or startups; media outlets, news agencies or fact-checkers; government agencies; or others). Second, participants were asked to self-classify their project from the following list (with the option of selecting several): information, news, and content editing; fact-checking; literacy (training, resource development, etc.). They were also asked to indicate, from another list, the specific activity/activities they were involved in: use of Open Source Intelligence to do research using publicly accessible resources; analysis of audiovisual material (podcasts, YouTube, TikTok, etc.); following social media, blog posts, and other online posts; 3D digital reconstruction or creation of digital images for fact-checking; production of news, reports,

bulletins, or newsletters; production of videos or podcasts; creation of video games; drawing-up of technical/expert reports; media literacy in schools, for citizens, or for other social sectors; training for news professionals; development of solutions and tools based on AI, big data, or other disruptive technologies; software development/programming; or other. Finally, the profiles of the professionals who made up each of the groups were compiled (journalists; researchers; teachers; scientists with expertise in health or other subject areas; programmers/computer developers; statisticians/analysts/data scientists or other data-related profiles; linguists; others).

- General perceptions of artificial intelligence in the fight against disinformation (possibilities/potential and current challenges), in the form of open-ended questions. As well as, in the case of project managers using AI for related tasks, perceptions of a series of specific aspects, discussed below.
- Use of artificial intelligence in the project (yes/no). This is the last question for those who answered in the negative, while for those who answered yes, several non-exclusive options or types of use are considered: a) use of AI tools in some or all of the development phases of the projects or tasks related to their activity; b) use of AI tools for specific fact-checking tasks; c) development of a proprietary AI tool or participation with other entities in its development; d) organisation/presentation of training specific to GenAI or teaching how to use AI tools when carrying out literacy training to combat disinformation; e) other cases (open-ended response).
- Regarding the use of AI in any of the phases for tasks related to their projects, including fact- checking, those who reported using it were also asked about the specific type(s) of tasks they had used AI for: applied research / data collection and analysis; task automation (interview transcriptions, format conversions, etc.); content production (videos, photos, audios, graphics, presentations, etc.); fact-checking / source comparisons; distribution of personalised content to audiences; user/audience assistance (chatbots, virtual assistants, etc.); or other. When speaking specifically of fact-checking processes and based on a previous study published in Ámbitos (Sánchez, 2022) as well as others, they were also asked to indicate whether AI was used for source checking; verification in the processing and interpretation of texts; checking of previously published phrases; checking of audio in text; image checking; and/or video checking. The questionnaire also included a question asking participants to indicate their most common practices regarding the use of one or more tools for the same task, or their use of free tools or paid versions. It asked participants whether they had any type of funding or agreement concerning such use. The questionnaire asked participants whether the project had any type of AI-use policy or regulations. Participants were also asked to indicate their level of agreement (Likert scale from 0-3) with specific questions ("AI makes it easier for fact-checkers and news professionals to verify information"; "AI is a tool that allows citizens to check information for themselves"; "AI has an impact, more than on the fight against disinformation, on the manipulation of news and the spread of fake news"; and "AI does not yet have a real impact on journalism").
- Regarding AI-based projects/tools developed in-house and including both those created by the project team alone and those created together with other actors/entities, project managers were given an opportunity to provide information on up to three tools (requesting them to select the most relevant ones if they had developed more). Based on the questionnaire developed for previous analyses of AI use by Ibero-American and European fact-checkers (Sánchez, Sánchez, & Martínez, 2022; Sánchez, Sánchez, & Alonso, 2024), basic data was collected on the tools: name; year of creation and current availability

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(yes/no); openness/availability to audiences (differentiating between open and free, only available to the media, and other cases); and access URL. Their typology was also considered (microsite, browser extension, online application, bot, mobile application, service, and other); and the tool's orientation/usefulness with respect to journalistic/news-checking tasks, taking the classification proposed by Prodigioso Volcán (2023) as a basis for the latter: automatic content generation; fact-checking procedures; management and purging of massive databases; distribution of automated responses/content to audiences; and other. Moreover, it was considered whether or not the tools were framed within strategic initiatives/projects, whether there had been external collaboration in their development and, if so, involving what types of entities (foundations, public/private universities, other educational institutions, various public bodies/administrations, other types of organisations/companies, etc.). Questions were also asked about their funding; and their views of the external impact of each tool and its impact on the project itself in terms of innovation was compiled.

– The project leaders were also asked, regarding the training/literacy initiatives on AI and disinformation promoted by the projects studied, based on our own previous work (Sánchez, Sánchez, & Martínez, 2022; Sánchez, Sánchez, & Alonso, 2024), whether, on the one hand, aside from providing AI-focused training or not, they taught use of AI tools when teaching disinformation literacy (in any of their activities or resources with a broader focus/content); and, on the other hand, whether the project provided training specifically focused on AI-related disinformation. Basic data was collected from the projects that responded affirmatively to this second question concerning the most important training experiences (up to 3 per project). First, the content of the experience, differentiating between an introduction to AI tools, an assessment on the detection of disinformation with AI, fundamental ethical aspects of AI, checking and investigating false or manipulated information with AI, or others. Second, the category (virtual; in-person; or hybrid). Third, type(s) of experience (courses/conferences; workshops; seminars/webinars; tutorials/guides; reports/manuals/books; blog posts; content/social media activities; other). Fourth, format (visual posters/infographics/images; videos; audios/podcasts; games; other). Fifth, target audience(s) (news professionals; professionals from other sectors; communication students; students from other sectors/educational levels; professors of journalism/communication; professors from other sectors/educational levels; groups vulnerable to disinformation such as the elderly, young people, etc.); society in general; and other. There was also a field open to comments.

A short questionnaire was chosen, mostly of closed questions and with some non-mandatory responses, as well as space for comments. It consisted of several sections, one generic and others specific to the aspects highlighted (use of AI, development of proprietary AI tools, and training/literacy initiatives on AI and disinformation), with a sequence of questions that allowed participants to submit the questionnaire without having to answer all the questions if they had not used AI in any way or had responded negatively to subsequent questions about specific uses. Instructions were added to the final online design via Google Forms, to thus facilitate responses in several languages, while an invitation letter was added in English and Spanish. That method of asynchronous, written response was considered more appropriate given the nature of the projects analysed, which spanned different countries and languages.

It is also worth noting that two reminders were sent, to ensure a high response rate, and direct contact was made, in some cases, through professional social media such as LinkedIN.

A total of 14 responses were obtained to the online questionnaire between September 3 and 24, 2024, representing just under half of the projects surveyed. The following table summarises the participants' data.

**Table 2. Projects analysed from which a response was obtained**

| Project name | Name of the person answering the questionnaire | Responsibility/position in the project |
|---|---|---|
| Escape Fake 2.0 | Irina Paraschivoiu | Project Lead |
| Made for social media: Fighting disinformation with fact check graphics | Dominika Chronowska | Journalist |
| Czech Elections in the Era of Disinformation: The 2023 Presidential Election | Kristína Šefčíková | Project Manager |
| Empowering Schools in self- regulation of Media and Information Literacy | Christian Tarchi | Coordinator |
| Disinformation Laundromat | Helena Schwertheim | Project Manager |
| Stars4Media-FACTCHECKING | Thierry Leroy | Project coordinator |
| Ukrainian news Agency to integrate fact-checked content with the help of AFP and APA | Florian Schmidt | Trainer |
| YO-MEDIA: Youngsters' Media Literacy in Times of Crisis | Nadine Santos | Operations Project Manager |
| Scale-up Science Fact-Checking in Spanish Podcasts and Youtube | Alba Tobella | Director |
| Open Source Munitions Portal | Giacomo Nanni | Project Lead |
| FactSphere: Exposing Disinformation for Public Awareness in the Black Sea Region | Voinea Madalina | Disinformation Specialist |
| Boosting Fact-checking Activities in Europe | Laura Burtan | Researcher |
| TeaMLit | Sally Reynolds | Coordinator |
| UDDOT: Understanding Disinformation Dynamics on Telegram | Pablo Hernández | Academic research coordinator at Maldita.es, project leader |

**Source: created by the authors**

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Given the study's exploratory nature, most of the questions were closed-ended, designed to identify general trends in the projects. An inductive thematic analysis was applied to the open- ended questions, a common technique in qualitative research that allows for the identification of patterns of meaning from textual content (Braun & Clarke, 2006). The responses were read by the research team and manually coded to identify recurring themes.

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## 3. Results

14 of the 39 projects funded by the EMIF have taken part in the questionnaire as of the date of this paper, representing a response rate of 35.9%. 10 of those projects—equivalent to 25.6% of the total number of funded projects—reported having incorporated some type of innovation, either through methodological approaches such as gamification or through the use of advanced technological resources. Furthermore, six of the responding projects mentioned having used GenAI at some stage in their development. However, only five of the cases (12.8% of the total of funded projects) were considered valid for the analysis, as one of them corresponded to a different call and did not meet the inclusion criteria defined in this study.

Although the primary objective of this study was to analyse the presence of GenAI in EMIF- funded projects, the results also allowed identification of other relevant emerging trends, particularly regarding the adoption of innovative technologies such as gamification in media literacy processes and automation applied to fact-checking.

### *3.1. Technological innovation and the use of AI in media literacy*

Media literacy is a way to combat disinformation. The discipline has integrated innovative new technologies oriented towards gamification and the fostering of more interactive teaching. The EMILE project, headed by the University of Florence, uses a video game called 'Elli's World' which employs data mining to adapt the game's content and difficulty to each student's ability. That allows identification of cognitive profiles and the tailoring of the learning experience to suit individual needs. 'Elli's World' recreates a simulated digital environment and encourages skills such as critical analysis and informed decision-making. Furthermore, an option for teachers allows the real time monitoring of the student's progress and to step in and adapt teaching as necessary.

The Escape Fake 2.0 project is a digital escape room-style game which is aimed at instilling fake news detection skills. It allows students to confront situations of disinformation in an environment that simulates social media. Participants have to decipher codes, verify the authenticity of content, and collect evidence. They thus hone their ability to distinguish between true and false information. Furthermore, the game incorporates a pedagogical agent that provides clues and suggestions. That can guide players and prevent frustration while they perform tasks such as reverse image searches and identifying reliable sources. According to information provided by the project's representative, Escape Fake 2.0 has used AI tools to generate text, image, and video content for integration with educational play. The organisation has internal guidelines regulating the use of AI and uses paid-for versions of Midjourney and Chat GPT, which gives them the assurance that companies cannot train their models based on data from Escape Fake 2.0.

Although gamification through the use of technologies such as VR or AR is the most widespread innovative approach in the projects studied, YO-MEDIA has chosen to include physical experiences in addition to digital ones. The objective is the same

as that of the games mentioned above: to improve young students' ability to identify fake news and their critical analysis in crisis contexts (health emergencies, armed conflicts, natural disasters, etc.). YO- MEDIA recreates high-pressure scenarios where participants need to discern between trustworthy information and disinformation. The project also offers Massive Open Online Courses (MOOCs), which reinforce the practical skills acquired through theorizing concepts.

Finally, TeaMLit focuses on preparing teachers in media and information literacy (MIL) skills. The goal is to integrate these skills into the school curriculum. The project provides teachers with online resources and databases that make it easier to teach MIL at various educational levels.

### *3.2. Technological innovation and use of AI in fact-checking*

Among the projects that carry out fact-checking activities, technological innovations have been discovered aimed at making it faster and easier to detect disinformation, including the use of predictive or generative artificial intelligence. An example is SCENT, led by Science Feedback, which uses a network of backlinks or hyperlinks to assess the credibility of websites by analysing link patterns between web domains. The project employs a Relational Graph Convolutional Network (RGCN) model, a deep learning technique that allows for the processing of large volumes of structural data. After analysing more than 700,000 domains, SCENT has processed a considerable number of networks of both information and disinformation. Just as high standard domains tend to link to each other, low-credibility sites also tend to link to similar websites of questionable data quality. SCENT automates the evaluation of the credibility of scientific websites, providing both fact-checkers and the general public with access to a public database where they can query the credibility of a domain in real time by means of an Application Programming Interface (API).

The FAST system, also aimed at improving fact-checking processing times, has been developed by Maldita.es and Servimedia. It is based on the early detection of emerging disinformation campaigns using an algorithm capable of recognising them. Thus, FAST focuses not only on debunking (refuting existing disinformation) but also on prebunking (pre- emptive refutation), a dual strategy that allows the system to operate proactively, mitigating the impact of disinformation before it reaches a mass audience.

Another tool designed to facilitate fact-checking procedures is Scale-up Science Fact Checking, developed by the Spanish fact-checking platform Verificat. Scale-up performs real-time analysis to verify audiovisual content. The system uses AI and voice recognition technologies to examine large volumes of content on platforms such as YouTube as well as in podcasts. Fact-checkers can utilise the tool to automatically transcribe up to 5,000 hours of video and 2,500 hours of audio, enabling the study of disinformation patterns on topics such as health and science. A dashboard that organises the transcribed content allows for the efficient identification of misleading narratives. Scale-up's representative, in response to the questionnaire, specified that they are working jointly with Chequeado, an Argentine fact- checking company, to jointly use Chequeabot, the microsite-type tool developed by the Argentine firm. The tool is used solely within the framework of the project to detect verifiable statements in podcasts and YouTube by use of keywords. However, future funding for the use of Chequeabot is not guaranteed, according to Scale-up's representative. She also mentions the difficulty of finding AI tools that work in less widely-spoken languages such as Catalan.

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The Disinformation Laundromat, a project led by the Institute for Strategic Dialogue (ISD) and the University of Amsterdam, has developed a tool that enables the automated detection of disinformation amplifiers by identifying their funding sources. This is an Open-Source Intelligence (OSINT) technology. The Disinformation Laundromat uses algorithms to automate the detection of malicious websites, drawing up a map of distribution networks and their associated channels of monetisation. By bringing together several OSINT sources into a single platform, the project enables researchers to carry out an integrated analysis of the links between malicious actors and their content networks.

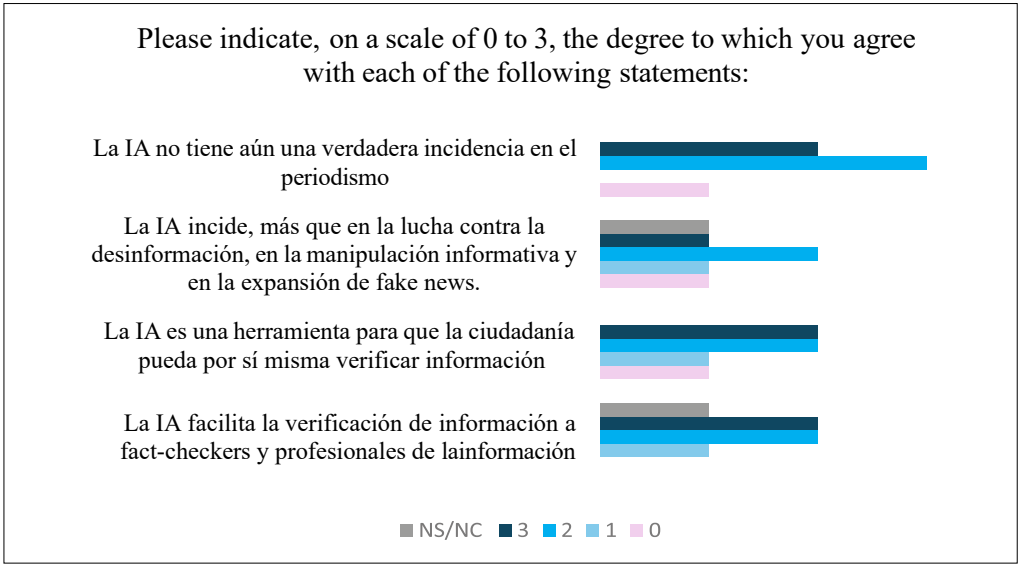
Although they have not developed their own tool, the *Ukrainian News Agency to Integrate Fact-Checked Content with the Help of AFP and APA* project have integrated AI into their fact- checking routines as a resource for comparing multiple types of content, including images, videos, and previously published quotes, taking advantage of various freely-available fact- checking tools. Similarly, the members of Made for Social Media, whose goal is to combat disinformation through fact-checked graphics on social media, use free AI tools to verify images and validate sources.

### *3.3. Perceptions of GenAI and future trends in its use in combating disinformation*

The questionnaire focused on the projects included in the 2022/2023 report and those funded as of June 2024. It allows for the identification of general trends, but its scope is limited regarding the use of GenAI, as the technology was not yet widely implanted during that period. Some predominant trends or areas of use have been observed among those that do use it. Those include streamlining tasks related to project activity. Other respondents report using AI to fact check and compare sources. Finally, the development of proprietary AI tools or collaboration on their development with other organizations is relatively rare.

There is consensus in the responses studied regarding the statements "AI makes it easier for fact-checkers and news professionals to verify information" and "AI is a tool that allows citizens to check facts for themselves." However, there are ambivalent positions regarding the idea that AI does not yet have an impact on journalism. That is, on the Likert scale of 1 to 3, with 3 showing the highest degree of agreement, the majority responded with a 2, with 3 being the next most voted response. Nor are clear positions or trends apparent regarding whether AI has an impact, beyond the fight against disinformation, on information manipulation and the spread of fake news.

**Graph 1. Representation of absolute frequencies of responses on a Likert scale by statement**




**Source: created by the authors**

The questionnaire also posed the question: "In general terms, what possibilities or potential do you see, based on your knowledge and experience, for Generative Artificial Intelligence to serve in the fight against disinformation?" The aim thereby was to identify the main trends in the application of this tool to mitigate information disorders. Practically all the responses mentioned the possibility of analysing social media and large volumes of data. Among these was Scape Fake, which points out that detecting disinformation spread patterns on social media using GenAI can support the work of journalists and fact-checkers. Projects such as The Disinformation Laundromat, Fact Sphere, and Made for Social Media also recognise that the potential of GenAI lies in its ability to be trained on large datasets. Once the technology is trained "with disinformation patterns," it can be utilised to automatically detect false narratives.

Reference is also made to the integration of this learning into newer formats such as memes and short videos. The Disinformation Laundromat mentions that the analysis of non-textual formats such as images and videos is a major advantage, as is the speed with which it can be performed. According to the project's representative, systems that integrate GenAI "could monitor and flag misleading information more quickly and effectively than human moderators." Open Source Munitions Portal states that algorithms for cross-referencing material and analysing images also allow for systematic content verification. That is, the cross- checking of sources or images from different platforms to determine their authenticity.

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Scale-up Science Fact-Checking is an example of how to apply GenAI to analyse audio and text to identify misinformative content. The project maintains that beyond this functionality, AI-powered content generation can be employed to moderate comments and messages in virtual communities. They point out that it may be possible to create a chatbot on social media which can be employed for clarification by users who encounter content of questionable veracity. Similarly, other projects highlight GenAI which can design proactive responses to counter disinformation.

This is the case of the *Ukrainian News Agency to integrate fact-checked content with the help of AFP and APA*, which argues that such a tool would be useful in distributing trustworthy

content. Thinking especially of young people, they argue that AI tools –whether generative or not– have great potential in disseminating fact-checks. The project's representative suggests that fact-checks are more engaging in audiovisual formats, but in his opinion, that is not a simple task. He asserts that the use of AI facilitates the distribution of verified narratives that do not consist solely of vast texts that are of little interest to most audiences.

In the educational field, Empowering Schools in Self-Regulation of Media and Information Literacy views GenAI as an innovation that can help students understand complex texts by simplifying them. Furthermore, it can provide feedback on the critical analysis that young people make of the information available to them. The general trend is that if GenAI continues to evolve in terms of advanced analysis, fact-checking, and data generation processes, "it will allow texts to be analysed and readers to be informed in real time when they encounter false information," as proposed by Made for Social Media.

## 4. Discussion

This analysis of projects supported by the European Media and Information Fund (EMIF) provides a snapshot of innovations, involving the use of generative AI, to combat disinformation and to educate and prepare society against hoaxes. The projects studied stand out for their ability to automatically detect false information, sift through large volumes of information on social media, and generate responses. The incorporation of AI into formats such as memes and short videos is also pointed to as a significant advantage. Such is the case with The Disinformation Laundromat and Made for Social Media who highlight the efficiency and agility with which AI can detect misleading information and perform in-depth cross-checking of different platforms.

Literacy and training are essential in the fight against disinformation, as other studies have already propounded in the Ibero-American context (Sánchez & Sánchez, 2022) and in Europe (Sádaba & Salaverría, 2023; Sánchez et al, 2024). This study has revealed initiatives that foster interactive teaching to effectively address the challenges of disinformation through gamification in AI-generated virtual environments as well as the physical world. Thus, they not only improve learners' skills but also help educators effectively address the challenges of disinformation.

While AI certainly does offer several benefits, it also entails challenges and risks of information manipulation and false content. Therefore, the introduction of effective regulatory measures and guidelines is essential, as highlighted in other studies (Bontridder & Poullet, 2021; Sánchez, 2022). That is the task of SOLARIS, a European project that analyses the dangers and establishes regulations to mitigate the risks of disinformation (UC3M, 2023). Reliance on GenAI may lead to a lack of thinking

and skills in fact-checking. Therefore, AI literacy and training are essential in preparing students and society in general for the challenges of the digital environment.

The perception among fact-checkers is that the potential of AI is a positive and its future significant, but it requires proper management and policies to address the challenges of manipulation. The connection between organisations, as previously highlighted by other authors (Sánchez, Sánchez & Martos, 2024), the regulation of tools, and the advancement of studies in this field will be essential to address the challenges of disinformation related to the use of GenAI due to its constant evolution in data analysis and creation, as well as in comment moderation.

## 5. Conclusions

Over two years have now passed since Open AI's launch of Chat GPT, and the landscape of perception and use of generative artificial intelligence by media companies is advancing by leaps and bounds. While much remains to be done, one could say that we have moved on from initial fears or scepticism to beginning to employ this technology for certain issues and even launching training initiatives for newsroom staff or starting to launch some regulations or white papers to ensure proper standards in the use of GenAI.

Regarding the fight against disinformation, some fact-checking platforms in both Latin America and Europe have been leading, due to their nature as startups and their orientation towards technological innovation, certain projects to develop applications and AI tools for the fight against disinformation and have been pioneers in training on this subject (Sánchez, Sánchez & Martínez, 2022 and Sánchez, Sánchez & Alonso, 2024).

The projects analysed share with those fact-checking platforms the use of AI in visual content to quickly and effectively recognise patterns of disinformation, detect false content, and analyse and monitor information from social media, as previously indicated (Sánchez, Sánchez, & Martos, 2024). However, this study reveals the application of technological innovations for literacy and training in the use of GenAI focused on gamification and automation so that students can effectively identify false information and personalise their learning. That is the case of the projects EMILE, Escape Fake 2.0, and YO-MEDIA.

Another highlight is the use of deep learning techniques through Relational Graph Convolutional Networks (RGCN). They have been utilised by projects such as SCENT, FAST, and Scale-up Science Fact Checking to detect disinformation campaigns and assess website credibility, as well as for automated, real-time detection of fake content (The Disinformation Laundromat and Made for Social Media).

Thus, there is a consensus among project leaders on the importance and potential of GenAI to facilitate fact-checking and help mitigate disinformation. They believe it is essential to integrate literacy skills into the school curriculum, as the TeaMLit project leader emphasized.

As AI evolves and significant advances are made, there will also be a need to move forward with policies regulating the use of these tools, as well as with education, fact-checking, and research into the topic that sheds light on how to better combat disinformation.

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This study offers two important contributions. Firstly, its pioneering nature, as it addresses a still-nascent field, the integration of GenAI into media literacy projects. Secondly, it focuses on initiatives using European public funds, which represents an exercise in social responsibility and accountability by analysing how public resources are invested in the fight against disinformation.

However, precisely because of the period in which it was conducted –focusing primarily on projects included in the 2022/2023 European Media and Information Fund (EMIF) report– its results are necessarily limited in terms of detecting the use of GenAI, a technology that had not yet achieved widespread implementation at that time. Although several important projects and trends were identified, both the adoption of the technology and mentions of its use in the questionnaire responses were few, which reduced the sample ultimately analysable in this specific dimension.

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| Methodology | María Sánchez González |
| Data collection and analysis | Ana Zafra Arroyo and María Sánchez González |
| Discussion and conclusions | Hada M. Sánchez Gonzales |
| Drafting, formatting, version review and approval | Ana Zafra Arroyo, María Sánchez González and Hada M. Sánchez Gonzales |

## 8. Conflicts of interest

The authors declare that there is no conflict of interest contained in this article.

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