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Impact of Artificial Intelligence on RTVE: Verification of fake videos and Deep fakes, content generation, and new professional profiles

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Abstract

The emergence of technologies based on artificial intelligence is accelerating the digital transformation of media organizations, directly impacting work processes, the relationship with audiences, the generation of content, and the emergence of new professional profiles. It is also, and notably, transforming the processes of detecting and verifying false content. This descriptive-exploratory research analyzes the impact that the use of AI is having on the transformation of the public entity Radiotelevisión Española (RTVE). Through a literature review and interviews with RTVE executives and experts, it reveals the transformative impact of AI on the corporation, highlighting its use to generate new content and verify the authenticity of fake and deepfake videos. In this area, RTVE combines traditional methodologies with others based on AI and leads the development of several tools in collaboration with several universities. These tools have already yielded satisfactory results in detecting these misleading materials, reinforcing RTVE's role as a guarantor of the veracity of information and increasing citizens' trust in its content. Similarly, AI is reinforcing RTVE's identity as a public service by facilitating the generation of automated content, which guarantees access to information in depopulated territories, and others that connect new generations with cultural content. The arrival of artificial intelligence will also generate in a short time a transformation of profiles and professional roles that adapt to this new reality.

Keywords

Artificial intelligence, digital transformation, RTVE, fake videos, Deep fakes, new professional profiles.

1. Introduction

The advent of generative Artificial Intelligence tools has coincided with a proliferation of academic research on their application in various fields. Numerous publications have examined the impact of these technologies on public service, law, education, human resources, and institutional governance (Matas, 2018; Monteiro Pessoa, 2019; Xavier, 2022; Villón, 2022;

Gutiérrez, 2023). Some studies have also appeared on the use of artificial intelligence in communication companies for the automatic translation of texts and the generation of content (Canavilhas, 2022), the moderation of such content, audience analysis, or the verification of information (Fieiras *et al*., 2022).

However, these jobs tend to focus on specific tasks rather than looking at the broader implications for professional roles, routines, and dynamics within organizations. Consequently, there is a dearth of academic studies on the internal transformation of media, the redefinition of professional profiles, and the overall impact on content and narratives.

The integration of AI technology into media presents significant societal and epistemological challenges for journalists and media organizations. This challenge has sparked a debate in the European Union about the use of AI in the media. However, AI-related regulatory frameworks rarely address the media sector. When they do, they primarily focus on issues such as misinformation, data, AI literacy, diversity, plurality, and social responsibility (Porlezza, 2023). The redefinition of media companies in the wake of this technological revolution remains largely unexplored.

This article aims to understand the impact of technology based on artificial intelligence in a media outlet through a global vision that encompasses new work processes, roles, professional profiles, dynamics, and new content and narratives generated thanks to AI technologies. To achieve this perspective, we analyze a specific case of the implementation of AI in Radio Televisión Española (RTVE).

2. Objectives and methodology

2.1. *Objectives of the study*

The general objective of this study is to explain the digital transformation of RTVE based on the implementation of AI technologies, through the study of work processes and the emergence of new professional roles, the generation of content, and the new processes of verification of fake and deepfake videos.

To this end, it seeks to respond to the following specific objectives:

O1. Examine the use of AI tools in the creation of innovative content at RTVE.
O2. Describe the implementation of AI in the verification of fake and deepfake videos on RTVE.
O3. Identify the impact on the transformation of professional profiles and the anticipation of new roles in RTVE.

2.2. *Methodology*

The methodology is based on exploratory-descriptive field research, studying the case of Radio Televisión Española (RTVE) and the implementation of AI technologies, as well as the transformation of content, work processes, and professional identities generated.

The study was carried out in two phases: one, a review of the academic literature and internal and corporate documentation of RTVE, and the other, the conduct of the interviews.

In the literature review phase, various documentary sources from available scientific databases such as Web of Science, Scopus, and Google Scholar were explored. In addition, the SCISPACE platform that integrates artificial intelligence was used to improve the search for scientific publications using algorithms. This literature analysis was conducted between September and December 2023. Logical Boolean search engines were used and configured using the following equations as search descriptors: "use of artificial intelligence and fake videos" and "artificial intelligence and deepfake videos", "content generation and artificial intelligence" OR "Artificial Intelligence and digital transformation in the media" OR "Artificial intelligence and new professional profiles." The search was limited to studies published between January 2016 and December 2023.

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In addition, RTVE's internal and corporate documentation was analyzed, and, in particular, the report "New Profiles and Professional Competencies in Communication," prepared by the company's management, as well as that relating to the Haz Project and its training policy for the company's professionals.

In the interview phase, to support the field research, data were collected through structured in-depth interviews with the Director of Innovation and Digital of RTVE, Urbano García, the Director of Technological Strategy of RTVE, Pere Vila, and the Director of the Verifica Service of RTVE, Borja Díaz-Merry. These interviews were conducted between November 17 and 22, 2023. The interviewees contacted each other by telephone to arrange the date of the interview, which was conducted through the Microsoft TEAMS platform (Microsoft Teams is a unified communication and collaboration platform), which was recorded and later transcribed for use in this study.

The instrument used was a structured interview script that was developed with 11 questions related to the role played by the interviewees within RTVE. The validity of the instrument, the interview script, was verified through the judgment of three experts, one in the media and two in research methodology, who, once the table was sent with the list of indicators to be measured in each objective and their respective questions, made the suggestions of the case and verified that the questions did indeed respond to the objectives set (Palella & Martins, 2017, p. 106).

3. Literature Review

3.1. *Digital transformation of the media*

Digital transformation processes have had a significant impact on various areas of human activity, including the media. The progressive digitalization of the media plays a crucial role in interpreting its evolution and reshaping the processes of production, distribution, and consumption of information and entertainment.

Digital transformation processes can be defined as the result of the interaction between different forms of digital innovation, resulting in the emergence of new actors, structures, practices, and values. These new elements often replace and complement existing ones, and are accompanied by the emergence of new organizational forms, infrastructures, and institutional architectures (Hinings, Gegenhuber, & Greenwood, 2018).

Regardless of the sector, digital transformation involves changes in working methodologies and the establishment of new relationships between stakeholders. Consequently, it causes a transformation in the production model, which influences all the elements and activities involved in the value chain of a specific product or service (Mergel, Edelmann & Haug, 2019).

In the field of communication, digital transformation refers to the integration of digital technologies to improve operational efficiency, audience interaction, and adaptation to changes in consumer behavior.

Today, the digital transformation of media involves complex processes that require a strategic and comprehensive approach. These processes impact both the structure of the content produced and distributed and the relationship between the media and their audiences (Sánchez, 2022).

3.2. *Content transformation*

The increasing role of audiences in digital media has led to a shift away from traditional industrial production models, in which audiences were detached from content development and production to digital environments where the line between content producers and consumers is increasingly blurred (Fernández, 2017).

In this context, the emergence of generative artificial intelligence tools requires a redefinition of content production and distribution processes. AI-powered automation

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enables media organizations to streamline production processes, freeing journalists from mechanical tasks and allowing them to focus on the tasks that add the most value to their work (Papadimitriou, 2016). It also facilitates automated search and classification of information (Latar, 2018) and improves the proactive and effective fight against disinformation (Flew *et al*., 2012).

In addition, generative AI technologies make it possible to analyze audience behavior to deliver personalized content to different users (Newman *et al*., 2019).

However, these transformations present notable ethical challenges. The proliferation of false information spread by algorithms and the potential for bias in content generated by artificial intelligence systems represent a clear threat to the credibility of the media (Manfredi & Ufarte, 2020).

In addition, the use of systems based on artificial intelligence is causing a substantial metamorphosis in the professional profiles found in newsrooms. This transformation is evident through the introduction of novel features, the need for expertise, and the re-definition of traditional journalistic tasks. This shift has created opportunities for previously unrelated professional profiles to enter this realm, such as data engineers, human-machine interaction specialists, generative content writers, and editorial data analysts.

3.3. *New professional profiles in the media*

Changes in professional profiles or identities are constant in the age of artificial intelligence. The role of professionals is being transformed due to this technology, which will lead to new forms of collaboration and shifts towards higher-value activities. The digital transformation of the media ecosystem has led to a profound reconversion in journalism, requiring new journalistic profiles with new competencies and capabilities (García-Caballero, 2020).

The professional profile of journalists is transformed by artificial intelligence as they move to a less operational role, avoiding routines that can be imitated by machines and increasing cognitive contributions to news production (Túñez-López *et al.*, 2021)

In this sense, professional identities in the media present significant changes in some specific areas where important transformations are observed, such as, for example, Digital and Multimedia Journalism (multimedia approach, integrating skills such as the production of videos, podcasts, infographics and interactive content); Community Managers and Social Media Managers; Media Technology Developers and Specialists (experts in media technology, development and maintenance of digital platforms, mobile applications and content management systems); Data Analysts and Audience Analysts (interpret metrics to understand user behavior, optimize content strategies, and improve user experience); User Experience (UX) Specialists (improving usability, accessibility, and user satisfaction on websites and apps); Emerging Platform Content Producers (production of platform-specific content); Specialists in Fact-Checking and Disinformation (in charge of verifying data and ensuring the veracity of the information).

The changing media landscape, influenced by hybridization and digital technologies, also impacts the professional identity of journalists. In general, professional identities in media are complex and multifaceted, influenced by both internal and external factors.

Some trends reflect the dynamic nature of the media industry and how professionals need to evolve to keep up in a changing environment.

Certain characteristics that could define the new identities are: a) multidisciplinarity: they are no longer limited to a single skill or area of expertise. They are expected to have multidisciplinary skills, such as the ability to write, produce audiovisual content, edit, and have basic knowledge of technology. b) Proficiency in emerging technologies: With the growing importance of virtual reality, artificial intelligence, and other emerging technologies, media professionals need to be up-to-date and able to adapt to new tools and platforms. c) Audience Scholars: Media professionals will need to understand their audience's preferences

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and behaviors to create relevant and engaging content. d) Data management skills: to collect, analyze, and use data effectively and optimize decision-making, and personalize the user experience. e) Collaboration and teamwork: Content creation in the media increasingly requires collaboration between different specialties, such as journalists, editors, graphic designers, developers, and marketing experts. f) Ethics and responsibility: with the proliferation of fake news and disinformation, they must be aware of ethics and social responsibility. In this sense, transparency and truthfulness in information will be fundamental aspects of the new professional identities. g) Adaptability: the most successful professionals will be those who can adapt to new trends, technologies, and public demands and h) Social media presence: this involves not only the promotion of content but also participation and interaction with the audience on various platforms (Sánchez-Esparza *et al*., 2024).

3.4. *Detecting fake videos and Deep fakes*

The advent of new AI tools has also impacted the work of journalists dedicated to detecting fake videos and deepfakes. The use of AI means that identifying anomalies or manipulations in videos requires novel methods. There are methods based on multimodal learning, which combine audio, video, and physiological information (Kalin *et al*., 2022).

Deepfakes allow you to superimpose one person's face on another's body, thus creating fake and believable content. Detecting these deepfakes represents a major challenge, especially due to the constant advancement of facial manipulation techniques (Al-Khazraji *et al*., 2023).

Deepfakes encompass photographs, videos, and audio digitally generated using artificial intelligence techniques (Bañuelos, 2022), realistically representing individuals performing actions or expressing words they have never performed or said (Cerdán & Padilla, 2019). This content is specifically designed to generate false and misleading information, mainly in the context of digital videos where faces and/or voices are superimposed on previously recorded content or images digitally generated using Machine Learning and Deep Learning techniques.

It should be noted that, although most deepfake videos involve the superimposition of faces, this category also includes completely new images and sounds, generated directly through the synthesis of large datasets using AI systems, without the need to start from a previous real image or sound (Karnouskos, 2020).

In the Table 1 (see Annex) we summarize the similarities and differences between fake videos and deepfakes (Sohrawardi *et al*., 2019; Shilma *et al*., 2023; Haseena *et al*., 2023; Matthews, 2023).

4. Results and discussion

AI is destined to impact all operations of the public company Radiotelevisión Española. This is stated by its main executives, such as the head of Technological Strategy at RTVE, Pere Vila. This covers not only areas such as documentation –with the processing of the metadata of all RTVE files– but also projects related to the analysis and automation of content, the verification of fake and deepfake videos, the processing and colorization of images, voice cloning, the generation of avatars, interactive audience participation or content recommendation, among others (P. Vila, personal communication, November 22, 2023).

In the same way, RTVE's Director of Innovation and Digital, Urbano García, points out that all the company's departments are already using AI technologies, from the content areas to administration or Human Resources, where tools such as Excel are already handled with Rowe (U. García, personal communication, November 17, 2023).

The integration of Artificial Intelligence (AI) technologies in various processes and departments has been a reality in the public corporation Radiotelevisión Española (RTVE) for years. A research program was launched in 2015 to explore the potential of intelligent information processing systems (Aramburu *et al*., 2023), which is supported by initiatives such as the RTVE-UAB Chair (in collaboration with the Autonomous University of Barcelona) and the Observatory for Information Innovation in the Digital Society (OI2).

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In 2021, the Directorate of Innovation and Digital was also created, led by journalist Urbano García, and dedicated to implementing a strategic plan to transform RTVE from a television channel that partially adopted digital content to a company with a fully digital heart (U. García, personal communication, November 17, 2023). This division is responsible for designing the strategy for new media and overseeing the company-wide transition to the new model.

RTVE is currently working with AI technologies in the areas shown in the following table:

Table 2. Areas of use of AI technologies in RTVE.

Content Analysis	Content Generation	Other Applications
- Generation of automatic subtitles in real time during the broadcast of programs. - Automatic indexing of the document archive, which allows information to be organized and labeled more efficiently and accurately. - Analysis and counting of topics covered or video content, to prepare Corporate Social Responsibility reports or quantify the time in which sign language is used. - Recommendation systems based on users' interests, offering content related to their preferences.	- Pre-processed data and information are used to automatically generate texts, graphics and audios. - Creation of voices capable of speaking in the same way as a human being.	- Increased quality of stock images, removing noise, colorizing them and improving their sharpness. - Technology applied to projects against disinformation and new forms of verification. - Creation of personalized avatars, created entirely with artificial intelligence.

Source: Own elaboration.

As for the main tools based on AI technologies that are being used at RTVE, they are reflected in the following table:

Table 3. AI tools used in RTVE.

AI Tools	Use
Lexicon	AI-generated image creation and image detection
Stable Difussion	Creating high-quality images from text
ChatGPT	Generation of texts and other content.
Dall-E	Image Creation
HeyGen	Avatar Generation
Studio D-ID	Avatar Generation
Eleven Labs	Voice cloning
Runway y Stable Diffusion	Transformation of images and video clips
Adobe (features)	Generative Fill
Open Access Toolbox	Information Verification and Deepfakes
IVERES Project Tools	Transcription and translation, detection of fake audio and video

Source: Own elaboration.

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Next, the use cases of these tools in the creation of innovative content, as well as in the verification of fake and ultra-fake videos, and finally the impact foreseen by those responsible for RTVE in the transformation of professional profiles and the emergence of new roles in the coming years within the corporation are presented.

4.1. *Use of AI in content creation*

Among the products that have been brought to light on RTVE thanks to the use of AI is the RTVEIA project (www.rtveia.es), a website from which 70,000 informative pieces with text, images, and synthetic voices were launched on the afternoon of the last general elections in 2023, reporting in real time the results in almost 5,000 Spanish municipalities with less than 1,000 inhabitants (Figure 1).

Figure 1. RTVEIA website, where automatic news is generated with the election results in municipalities with less than 1,000 inhabitants.

Source: www.rtveia.es.

In the opinion of Urbano García (personal communication, 17 November 2023), this type of content reinforces RTVE's role as a public service through territorial structuring actions in places where there are no media outlets. There, AI is making it possible to provide a better news service, without replacing journalists. The project, which has the participation of the company Narrativa, Monoceros Labs, University of Castilla-La Mancha, University of Granada, ONCE, AWS, and RTVE's Castilla-La Mancha Territorial Center, received the IBC 2023 award for Innovation and Social Impact in September 2023.

Another of the products developed by RTVE using AI is RTVE2030 (www.rtve2030.rtve.es), a website where the content of current affairs programs is analyzed every day, and the time spent on each of the Sustainable Development Goals (SDGs) is measured. With these analyses (see Annex, Figure 2), the reports on the corporation's CSR policies are later prepared.

A third project, launched in February 2023, is Hiperia, an avatar generated with artificial intelligence that presents a weekly space on music and youth culture for Radio 3. The character has been designed thanks to the collaboration between Radio 3 and the areas of Technological Strategy, Innovation and Digital and Graphics. Both the character (see Annex, Figure 3) and his voice, the script, and the contents of the program are made using artificial intelligence (P. Vila, personal conversation, November 22, 2023).

Those responsible for the project launched a new version of Hiperia, this time in 3D, in February 2024, with the start of a new season of the radio program. This new version also incorporates a chatbot with which listeners can interact and ask questions about each of the programs, questions about music, urban culture, etc. The new version of Hiperia, which can be seen in the figure below (4), involves the animation of the entire character, while the first avatar of 2023 only included facial movements.

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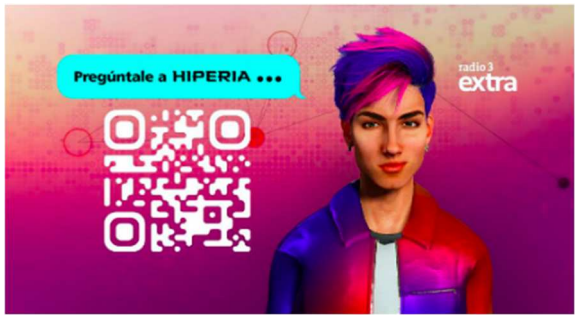
Figure 4. Image of the new Hiperia avatar in 3D launched in 2024, with access to the chatbot using a QR code.



Source: www.rtve.es/radio.

Hiperia's first avatar was generated by a description in a prompt, and was used for its elaboration Lexica.art, an AI engine designed to create images based on text requests. Now, in addition, the team responsible for this product has incorporated a designer to give it a third dimension. At the head of this team is the director Iván López, who works closely with the director of the Radio 3 station, Tomás Fernando Flores, and the heads of RTVE's Strategy and Digital Innovation areas.

Everything that Hiperia tells in each program is scripted using ChatGPT, and reviewed by a Radio 3 journalist specializing in music, Alejandra García Ramos. For the time being, according to its managers, Hiperia is an open project that will continue to evolve, and concentrate RTVE's efforts in terms of generating avatars with artificial intelligence.

4.2. *The use of AI in verifying fake content*

In 2020, RTVE's management formally created the Verifica RTVE service, made up of a team of four journalists. Previously, the corporation had been working to combat misinformation, but it was during the pandemic that they decided to create a specialized service in response to the abundance of deception and misinformation (B. Díaz-Merry, personal conversation, November 22, 2023).

Currently, the Verifica RTVE team is made up of six journalists, all of them graduates in Information Sciences and who have received specific training given at RTVE to carry out tasks of verification and investigation of information. These professionals are engaged in examining political discourse related to important events, such as parliamentary debates or election campaigns, in collaboration with journalists from the news services.

Verifica RTVE journalists proactively monitor social media platforms, actively looking for suspicious, fraudulent, false, or misleading messages. In addition, they work internally, at the request of RTVE's information services, to verify the accuracy of videos, photos, reports, and documents before incorporating them into the daily news.

According to the director of Verifica RTVE, Borja Díaz-Merry, it is this internal aspect of his work that has experienced the fastest growth and the one that demands the greatest efforts from the team, especially since the outbreak of the war in Ukraine in February 2022. Before the conflict, the demand for verification materials from news services was around 2-3 requests per month. However, after the Russian invasion, the number of requests skyrocketed to 2 or 3 per day, affecting both the two editions of Telediario and RTVE's 24-hour channel.

Since then, the internal verification dimension has played a predominant role in the work of Verifica RTVE, focusing on examining videos at the request of RTVE's news department and regional services, where videos of various types are received, such as floods, police operations, and events. The team continues to analyze fake content that goes viral on social media platforms for verification purposes, but most of their work now revolves around ensuring the trustworthiness of the public broadcaster's news.

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Within this framework, the service typically identifies and examines three to four stories that have gone viral on social media each day. Some of these stories are analyzed with journalistic criteria and allotted more time, as they do not need to be published on the same day. On the other hand, requests from inquiry points need to be dealt with more quickly. According to Díaz-Merry, approximately twenty checks are carried out each month in response to internal requests from the intelligence services.

In line with the above, in these processes, it is essential to differentiate between fake videos and deepfake videos. While the former tend to rely on decontextualization and manipulation using relatively simple editing techniques, deepfakes involve much more complex and sophisticated forms of manipulation.

According to Díaz-Merry (personal conversation, November 22, 2023), this sophistication in the elaboration means that deepfakes are not as frequent as simply fake and manipulated videos. While Verifica RTVE usually detects two or three fake videos a month, deepfakes do not appear as often. Not all of these videos are verified, as RTVE practices 'responsible verification,' that is, the danger posed by this content and its degree of viralization is studied, and it is decided whether it is better to publish its verification or simply warn the news services, to avoid giving greater publicity to the subject.

Professionals use AI tools coupled with journalistic analysis to analyze these fake videos. Most of these tools are publicly accessible and free and are offered to users in the so-called 'toolboxes' of Verifica RTVE, included on its website (see Annex, Figure 5). There are two toolboxes, one basic and one advanced, available so that anyone can check false information.

On the other hand, RTVE leads, together with the Autonomous University of Barcelona, the IVERES (Research, Verification and Response) project, endowed with European Next Generation funds, in which the University of Granada, the Polytechnic University of Barcelona and the Carlos III University also participate, and where specific toolboxes are being developed for Verifica RTVE that use artificial intelligence. There are three types of tools: transcription and archiving tools, fake audio detection tools, and fake and deepfake video detection tools. Each of them is developed from one of the three participating universities.

Within the IVERES project, the tool developed and monitored by the Carlos III University for the archiving of material and transcription in several languages is being used by Verifica RTVE journalists with very satisfactory results (B. Díaz-Merry, personal conversation, November 22, 2023). It has already been used to verify dialogues that appeared in full-length videos of the war in Ukraine and the Taliban's assault on power in Afghanistan, with transcriptions and translations from Persian or Pashto into Spanish and English.

The second of the tools developed within the IVERES project is aimed at detecting fake audio through an artificial intelligence model based on the training of neural networks with a database of voices. The tool is being developed by the University of Granada and detects voices generated with artificial intelligence through artificial intelligence technologies. Although it is not yet available for the daily use of journalists, they can make occasional inquiries to the team of developers of the tool.

The same is true of the tool for detecting fake and deepfake videos, which is being developed by the Polytechnic University of Barcelona. Journalists present use cases and the team of developers is testing the reliability of the tool, although it is not yet available. It is precisely when verifying videos with falsified voices and images that professionals currently encounter the greatest difficulties, which is why there are great expectations in these two tools (B. Díaz-Merry, personal conversation, November 22, 2023).

While these last two tools arrive, Verifica RTVE uses frame-by-frame video analysis, and freely accessible tools for professional fact-checkers such as INVID We Verify, developed by the Agence France Press (AFP) news agency. In addition, in video analysis, there are freely accessible tools powered by artificial intelligence that facilitate reverse searches from search engines such as Google Images, Yandex, or Bing, among others. Traditional search engines

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search queries between texts or between texts and images. Reverse image search is a technique that goes further, and is used to find identical or similar images based on a given query image. This technique is commonly used in image search engines that have extensive databases of images uploaded to the web (Nandini *et al*., 2022).

Microsoft Azure has also been used in Verifica RTVE in terms of video analysis tools, although it is obtaining a worse performance and is beginning to be replaced by other tools.

Finally, along with the support of all these tools, Díaz-Merry stresses that in the verification of deepfakes, professionals are mainly committed to frame-by-frame human analysis, which cannot yet be replaced by AI tools.

The greatest proliferation of fake videos and deepfakes occurs in emergency contexts such as health crises, wars, or catastrophes, although fact-checkers denounce that the main trend at the international level is that these videos are fabricated to destroy the reputation of women through sexual content. Propaganda narratives are also being developed from countries in conflict, as has happened in the war in Ukraine and in the war between Israel and Palestine, where fake images made with artificial intelligence are sometimes used. The professionals of Verifica RTVE have found examples of disinformative audiovisual content in all these scenarios. These professionals are aware of the need for permanent training in the use of new tools and artificial intelligence, to be able to face the challenges that AI itself is raising in the form of disinformation content.

4.3. *Impact of AI on RTVE staff*

In response to the challenges posed by this change for the entire corporation, RTVE's management has deliberated carefully on the limitations, risks, and opportunities it presents, in collaboration with other public entities, such as the Sociedad Estatal de Participaciones Industriales (SEPI).

The result of this reflection is the identification of the weaknesses and threats that they will encounter in the process of implementing AI, among which the resistance to change of a workforce of 6,500 employees with an average age of 59 years stands out. "Most of them were trained for a reality that does not exist today or has changed substantially," according to the head of RTVE's Innovation and Digital Directorate. This workforce needs new training for the correct performance of their work in the current scenario, transformed by technology.

In this sense, the internal document 'New Profiles and Professional Competencies in Communication of RTVE' (2023) stresses that the set of competencies required for each type of position "changes rapidly, just as the devices we use at work, the applications we use or the platforms change." According to Urbano García (personal communication, November 17, 2023), professionals must possess, in addition to the hard skills of their profession, adequate digital skills and continuous learning of soft skills that allow them to work in a team or lead new projects.

In the current scenario, people are required "with a true culture of learning/knowledge and high-resolution capacity to provide a quick response to day-to-day problems, who know how to identify their knowledge gaps, easily adapt to changes and develop new tasks" (RTVE, 2023). For this reason, the company is working on a 'reskilling' strategy, to prepare current employees who must acquire new skills to remain in their positions, along with another 'upskilling' strategy, so that these workers improve their current skills and optimize the company's talent.

4.3.1. The training strategy: The HAZ project

These two strategies are channeled through the HAZ Project (see Annex, Figure 6), developed through the RTVE Institute, which until now taught traditional courses such as image editor, presentation, voice-over, production, etc., but which, thanks to European Next Generation funds, has become the vehicle for the professional retraining of the staff of the public entity.

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Thus, since August 2023, eleven new online courses designed to develop technical skills directly applicable to the labor sector and thus improve employability have been incorporated into the RTVE Institute's training catalog.

The courses are taught by experts in different subjects and are 100% funded for European citizens by the Next Generation Funds of the European Union, within the framework of the Recovery, Transformation, and Resilience Plan of the Government of Spain.

These courses can be taken at affordable prices or completely free, and range from courses in Artificial Intelligence and media to specialization in podcast creation, master's degrees in Content Production and Exploitation Engineering, courses in Fundamentals of Aerial Filming, Marketing, Marketing and Production of Audiovisual Content, Transmedia Narratives, Social Media Interaction Analysis or 360 Communication. "We have changed the objective of the RTVE Institute, and we are changing things," says Urbano García (personal communication, November 22, 2023).

As for the list of courses launched since the summer of 2023 within this program, in the last four months of that year alone, four different calls for the following courses were launched (see Annex, Table 4).

4.3.2. New professional profiles resulting from the use of AI

RTVE's management has also identified 45 new professional profiles that could appear in the coming years due to the implementation of digital technologies and Artificial Intelligence, especially in the areas of data and information collection, information processing and processing, and distribution and relationship with audiences.

Among these new professional profiles, some stand out, such as automation editor, manager of editorial tools, editor of ethical AI, or computational journalist. The following table provides a list of 25 of these new professional profiles that could appear due to the use of AI technologies and that have been identified by the heads of the RTVE corporation:

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Table 5. Forecasting of new professional profiles at RTVE.

Professional Profile	Function
Data Analyst	Processing large volumes of data and drawing patterns to set strategies.
Digital Analyst	Obtain data from online media and study user behavior.
Content Management System	Prioritize stories: announcements, schedules, and updates. Set formats: audio, video, or infographics. Follow Up.
Social Media Producer	Create specific content for social media. Work with Copywriting to translate topics to each platform in the proper format.
Audience & User Experience Specialist	Offer the audience optimal navigation and an intuitive product according to their needs.
Application Developer	Launch and manage mobile applications, such as commerce and distribution channels.
Sound and Visual Narrative Designer	Create effective audio/podcast content and visual success stories.
Digital Manager	Oversee that every element of the company's digital strategy is met.
Editor Off-Platform	Manage content that goes beyond the platform itself (on-platform) and includes a wider network of channels and social networks.
Mobile Journalist	Digital Native Video Journalist.
Competitor Analyst	Monitor competitor sites and use tools to understand where to place the journalistic focus in real time.
Quality Editor	Work with section editors and social media managers to ensure that the stories of the day meet the required conditions.
SEM Specialist	Promote a website through positioning with paid advertising as the main tool.
Expert in Marketing and Digital Communication	Directing the communication strategy, using online channels such as networks, corporate websites, and dialogue with the media and agencies.
SEO Expert	Paid search engine campaigns based on keywords, aimed at conversion and achieving website objectives.
Media Producer	Journalism in new media, using technological resources and tools.
Head of Digital Strategy	Improve the company's competitive position by anticipating customer needs, creating value and providing a good experience
Fact-checker	Journalist dedicated to using new tools to detect false information.
Conversion Rate Optimizer (CRO)	Retain audiences and convert users into subscribers through a design aimed at achieving the company's objectives.
Digital Infographic Designer	Expert in creating effective visualizations from complex information.
Product Manager	Lead the strategic vision around a product of the media and guide a work plan through analytics and digital tools.
Content management system for subscribers	Manage gated stories, keep publishers informed about what are the best pieces for subscribers.
Content Curator	Search, collect and select information of interest to the company, its brand image and customer acquisition and retention.
360 Communicator	Combine the fields of content and image, eliminating borders through technical mastery in all platforms: web (CMS), television (iNews, Avid), radio and new media.
Publisher of social media and other publishing platforms	Generate and position different content on social media, manage publications and post programs to make them more effective.

Source: Report *New Professional Profiles and Competencies in Communication* (RTVE, 2023).

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Companies such as RTVE are applying a global and strategic vision to implement AI technologies, which will soon infiltrate all areas of the company (P. Vila, personal conversation, 22 November 2023). These technologies will impact a wide range of tasks, such as optimizing operations, analyzing data, verifying information, and generating new content, as authors such as Sančanin and Penjišević (2022) advanced.

This work confirms that these transformations affect the production of content, central processes of the media's activity, such as content verification, and also the profiles of the professionals of these companies, as García-Caballero (2020) points out. These professionals will see their role within the organization transformed, evolving towards a less operational role, and avoiding routines and mechanical tasks, which will generate new forms of collaboration and changes toward higher-value activities, as highlighted by Marieke and Hendriksen (2023) and Túñez-López *et al*. (2021). This is demonstrated by the forecast of new professional profiles prepared by the RTVE entity that will see the light of day in the coming years through their incorporation into the corporation's Job List (Sánchez-Esparza *et al*., 2024).

5. Conclusions

The rapid development of generative AI-based technologies presents unprecedented opportunities for the media. As evidenced in this work, the implementation of AI-based tools in journalistic newsrooms makes it possible to redefine the processes of content production and distribution, facilitating the automation of the most mechanical tasks, optimizing audience analysis, and favoring faster and more efficient verification of information.

In the case of RTVE, the strategic use of these technologies is having a direct impact on the generation of public service content, such as the RTVEIA website, which meets the information needs of the small municipalities of empty Spain, or the Hiperia avatar, which tries to connect young people with the musical content of the Radio3 station.

However, along with these aspects, the emergence of artificial intelligence in newsrooms also poses significant challenges for the media. These challenges include the detection of content also made with artificial intelligence technologies, such as fake and deepfake videos. In the case analyzed, AI serves precisely to proactively monitor social media platforms, actively looking for this type of fraudulent, misleading, and suspicious content. In addition, these new tools are being used to verify the accuracy of materials that will be broadcast in the daily news, such as videos, photos, and documents. In particular, RTVE has taken on the challenge of working against ultra-fake videos, which cause pernicious damage to groups, individuals, and institutions.

On the other hand, another challenge is the identification of specialized profiles in these technologies and the training of practicing professionals to face these emerging changes.

In the case of RTVE, its ambitious digital transformation process has made it possible to anticipate some of these issues, identifying new professional profiles and favoring the progressive training of its staff about these technologies. Currently, profiles such as automation editors or data analysts are beginning to be integrated into RTVE's teams, participating in the processes of documentation, design, content production, and especially in the verification of information. These aspects are even reflected in the planning of jobs by the RTVE corporation for future calls for public employment.

The ability to extract value from generative artificial intelligence systems is an increasingly decisive element in the evaluation of the productivity and competence of professionals working in the media. For entities such as RTVE, with a large staff made up mostly of professionals trained before the digital transformation of the media, these processes imply a profound cultural change that can cause concern and resistance among workers.

In this context, it is crucial to face the arrival of these technologies with a clear and transparent strategy, which involves offering employees the necessary resources to

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encourage their adaptation. In the case of RTVE, the professional training of workers through training projects that improve their current skills (upskilling) and provide them with new skills (reskilling), is proving successful. These new training programs focus on the comprehensive preparation of journalists and multidisciplinary professionals, capable of developing narratives in a wide range of formats and languages. These initiatives seek to enhance technical skills and specific competencies in areas of specialization related to the use of artificial intelligence, capitalizing on the experience and previous knowledge of employees to transform them into communicators adapted to the current changing media landscape.

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Annex

Tables 1 & 4 and figures 2, 3, 5 & 6 are available in
https://www.doi.org/10.6084/m9.figshare.25383787.v2

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