Revista Latina de Comunicación Social
ISSN 1138-5820 / No. 83, 01-27.
https://doi.org/10.4185/rlcs-2025-2348

AI as news content on Spanish television channels. Analysis of its presence and impact on La 1, Antena 3 and Tele 5

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Funding: *This study is part of the R&D&I Project PID 2019-104689RB100 "INTERNETICS: Truth and ethics in social networks. Perceptions and educational influences in young users of Twitter, Instagram and YouTube" and of the contract 'New forms of consumption, creation and production of information and other audiovisual content' (Cod.: OCENDI07/1618), of the OCENDI Observatory.*

How to cite this article / Standard reference:

Díaz Monsalvo, Miguel Ángel y López Vidales, Nereida (2025). AI as news content on Spanish television channels. Analysis of its presence and impact on La 1, Antena 3 and Tele 5. *Revista Latina de Comunicación Social*, 83, 01-27. https://www.doi.org/10.4185/RLCS-2025-2348

Receipt Date: 05/16/2024
Acceptance Date: 10/25/2024
Publication Date: 12/31/2024

ABSTRACT

Introduction: The research studies the news about Artificial Intelligence broadcast between 2023 and 2024 on the news programmes of the most watched Spanish TV channels, La 1, Antena 3 and Telecinco, and their web portals, in order to explore topics, framing, sources and uses of AI to generate content. **Methodology:** A structural, formal and narrative content analysis is carried out based on seven common categories and six specific categories for audiovisual and digital environments. **Results:** The sample totals 798 pieces drawn from 1.542 sources. A third of them have a positive framing and 25% is negative. Ten per cent of the footage is made with artificial techniques and one out of five shots is digital. The television channels under analysis have diverged in their web insertion strategies to favour migration. **Discussion:** There is an upward trend towards the use of anonymous sources, but also experts, who seek to delve deeper into the consequences of the news event. Professionals have used audio and image generation algorithms as part of their news and as a tool for raising public awareness to dismantle fake news or deepfakes. **Conclusions:** The study has detected a growing interest in the audiovisual media sector in this issue since autumn 2023. The media approach is equidistant and critical, although the use of digital images and positive or negative framing is correlated, creating a symbolic link between textual and visual meaning. The use of algorithms as a basis for content or as a verifying element makes explicit the paradigm shift in professional routines.

Keywords: Artificial Intelligence; journalism; audiovisual information; framing; algorithm; television.

1. INTRODUCTION

Artificial Intelligence (hereinafter AI) has been baptized as the next great revolution (Sheikh et al., 2023), putting it at the same level of impact with respect to other past scientific and technological advances such as electricity or the Internet. Its rise and consolidation can be explained by the evolutionary development of algorithms, the increase in processing capacity and access to an ever-increasing amount of data (Franganillo, 2023).

The first experiments with AI integration in journalism date back to the 2010s in the United States (Canavilhas, 2022). Automation has been progressively expanding (Lopezosa, 2023) by mimicking the human ability to create realistic or abstract images to illustrate content (Franganillo, 2023) through programs such as DALL-E or Midjourney; or words (Campesato, 2020). In the latter case, there has been a special boom since the end of 2022, when the company OpenAI launched ChatGPT. These artificial tools have made it possible to create content that is very similar at a structural and formal level to how a human being would do it, consolidating algorithmic (Dörr, 2016) or artificial journalism (Túñez et al., 2019). Currently, the sector "is going through a constructive model of content based on a latent and growing process of algorithmization" (Flores Vivar, 2019, p. 200). Nevertheless, in Spain, its incorporation is slower than in other countries (Reuters Institute for the Study of Journalism, 2023).

This paradigm has led to a debate about its advantages -better productivity, elimination of monotonous tasks to invest time in in-depth reporting or research-, and disadvantages and risks -knowing how algorithms work, possible biases, legitimization of authorship, possibility of manipulating or distorting content, or the challenge of including AI in university competencies- (Diakopoulos, 2020; Moran & Shaikh, 2022), being considered a double-edged sword (Peña-Fernández et al., 2023) that is causing loss of citizen confidence in journalism (López-García, 2024).

This delegitimization is impacted by the proliferation of digital portals full of sensationalist or fake news created with language models (Newsguard, 2023) and manipulated still images or videos (called deepfakes) of great realism generated through deep learning support from a large amount of data (Rana et al., 2022). Therefore, media verification initiatives emerge to provide the audience with guidelines to deal with disinformation (Corral, 2021).

AI has impacted all facets of journalistic work, from production and creation processes, through publication and even content verification (Beckett, 2019; Newman, 2022). It has driven new tasks, such as writing texts, composing images or suggesting content of interest to the user according to their preferences (JournalismAI, 2022). This has led to the expansion of new roles, such as the content verifier or fact-checker (Clayton et al., 2020) or the AI editor created last year by the British newspaper *The Financial Times*. Despite these strategies, the technology gap in newsrooms is widening (Mondría, 2023).

The update of the competency profile is influenced by the multimedia integration -development of corporate websites and official social network profiles- undertaken by the media, which impacts on the strategies of broadcasting and/or publishing content by taking into account the active role of the receiver (Saavedra-Llamas et al., 2020), which has changed its consumption habits, shifting its preferences towards digital as opposed to traditional media (Navarro & Vázquez-Barrio, 2020), with a special impact on young audiences.

In this media interest in AI, an evolution is perceived: from an initial stage, based on reporting novelties, launches and products (Brennen, 2018) with positivist approaches, to the present, with a more critical character where the media reflect the social debate on advantages, disadvantages, challenges and limits (Peña-Fernández et al., 2023). This results in a concern to explain to society the proliferation of the negative consequences of the use of AI (Lyu, 2022; Rana et al., 2022) because the first step to eradicate or, at least contain the rise of disinformation, is to understand how fake news is generated and spread (Flores Vivar, 2019) thus contributing to critical thinking and media literacy.

In the Spanish audiovisual sector, this trend can be seen in initiatives such as TVE's special documentary programs (*10,000 days*, February 2023), news (*Telediario nocturno* on May 10, 2023, entirely dedicated to this topic) and the use of AI to build news on the results of the General Elections of 23-J 2023 and the Catalan autonomous elections of 2024 (Prensa RTVE, 2024), as well as to dismantle deepfakes through a verification service, also offered by Antena 3. Telecinco, after signing presenter Carlos Franganillo from TVE, has upgraded its news set to include an AI that predicts the presenter's movements based on algorithms (ReasonWhy, 2024).

2. OBJECTIVES

The main objective (O1) of the research is to analyze the impact and evolution of the broadcasting of contents related to Artificial Intelligence in the news programs of the television channels with the highest audience in Spain, examining the subsequent publication strategy on their corporate websites with the aim of quantifying their relative share and looking for similarities and differences.

The specific objective (SO1) intends to detect the main thematic lines of each piece of information, the journalistic genres used, the authorship and the approach or framing of each news item, both in the audiovisual and digital aspects, by means of a structured content analysis.

Another specific objective (OE2) focuses on the study of the information sources used by each media to build a frame of reference that allows finding possible novelties with respect to previous investigations, as well as the use of AI systems for the generation of texts, audios and images to feed the news with content. As a last objective (OE3), it is intended to assess the usefulness of these tools as a support for journalistic work.

The starting hypotheses are:

- H1. The most watched TV news programs in Spain show a growing interest in AI as a newsworthy topic and their audiovisual pieces are reused as a graphic element to support the digital content produced by the web editorial staff of each media outlet to reach a wider audience.
- H2. Professionals raise critical approaches in their narratives to show positive and negative aspects of AI development, based on a wide range of expert sources.

- H3. The use of artificial content generation systems is low.

3. METHODOLOGY

In Spain, five television channels broadcast daily news programs following Cuatro's decision, in January 2024, to resume this activity after a five-year absence. According to audience data prepared by the company Kantar Media and offered in open by Barlovento (Zárate, 2024), Antena 3 closed March 2024 as leader, with 2,037,000 viewers on average (18.5% share) in its news programs, ahead of La 1 (1,183,000, 10.6%), Telecinco (1,151,000, 10.5%), laSexta (724,000) and Cuatro (446,000).

The research focuses on the three channels with the highest audience share -La 1, Antena 3 and Telecinco-, whose 4.37 million viewers represent 83.2% of the overall audience. Moreover, they are the visible head of the three major Spanish audiovisual media groups (RTVE, Atresmedia and Mediaset). The analysis period established is 14 months, between January 1, 2023 and February 29, 2024. The time frames are established on the basis of two important references:

1. The launch of the free version of ChatGPT (December 2022) and the choice of the expression 'Artificial intelligence' as Word of the Year 2022.

2. The beginning of a new stage in Informativos Telecinco, marked by the signing of Carlos Franganillo as presenter of the evening edition and the inclusion of AI on the news set (January 2024).

Based on this second indicator, it was decided to extend the time spectrum to detect possible new trends or strategies, both in this chain and in its competitors. The decision to close the analysis at the end of February 2024 is justified by the coincidence of the celebration of the Mobile World Congress in Barcelona on the same days, with AI playing a leading role.

The analysis material is compiled by means of a combined search in the different media of each medium. It is verified that all of them host the informative spaces on their websites or on their own platforms (Atresplayer and MiTele), and that they have a specific section on their pages dedicated to news distributed by subject. Through their search engines, contents containing the key words “artificial intelligence” are filtered, both in combination and individually. Taking into account the multimedia integration, the same method is applied to the profile of each TV on the social network X in search of new findings.

Each content is placed in its respective analysis table with the study variables, some coincident and others specific. They are coincident:

***Table 1**: Variables and common categories of content analysis in audiovisual and web media*

Variable of analysis	Coding elements/categories
Media and date of broadcast / insertion	La 1/Antena 3/Telecinco
Genre	News/report/interview
Subject area	1. National politics 2. Economy 3. World/International Politics 4. National Society 5. International Society 6. Culture 7. Health-science 8. Technology 9. Education
Topic description	Keywords

Sources	1. Entrepreneurs or chief executive officers of companies (CEOs) 2. Politicians 3. Professors 4. Engineers 5. Researchers 6. AI content generation systems 7. Economists and bankers 8. Media and journalists 9. Thinkers 10. Doctors 11. Artists 12. Content without expressly cited source 13. Anonymous persons 14. Religious 15. Judicial-security sector: police forces, judiciary (judges, prosecutors, lawyers) and security experts linked to privacy and data protection.
Tone	Positive/negative/both/neutral. Based on: nouns, adjectives, adverbs or verbs indicating a tendency to focus
Author	Two identical categories (male/female) and one specific category (for audiovisual, presenter; for web, corporate author)

Source: Elaborated by the authors.

In the web analysis, the visual material supporting the text of the news item is also studied, whether video (specific or broadcast in news programs) or photography, in which case it is labeled within the categories 'news agency', 'image bank', 'institutional repository', 'media's own' and 'social networks'. In the audiovisual area, the following are specifically analyzed:

- Audiovisual format:
  - VTR: Video with a duration longer than 1:00, with reporter's voice-over and statements -total- embedded throughout the content.
  - Queues: narration by the host of the space while resource images allusive to the topic are broadcasted.
  - Total: excerpt of statements.
  - Lead: live intervention from the set or outside.
  - Videowall. Narration by the presenter supported by the image displayed on the set's screens.
- Duration.
- Number of statements (total) that appear in the content.
- AI-related content count (statements, voice-over text and plans).
- Total duration of AI content planimetry.

4. RESULTS

4.1. Contents and topics

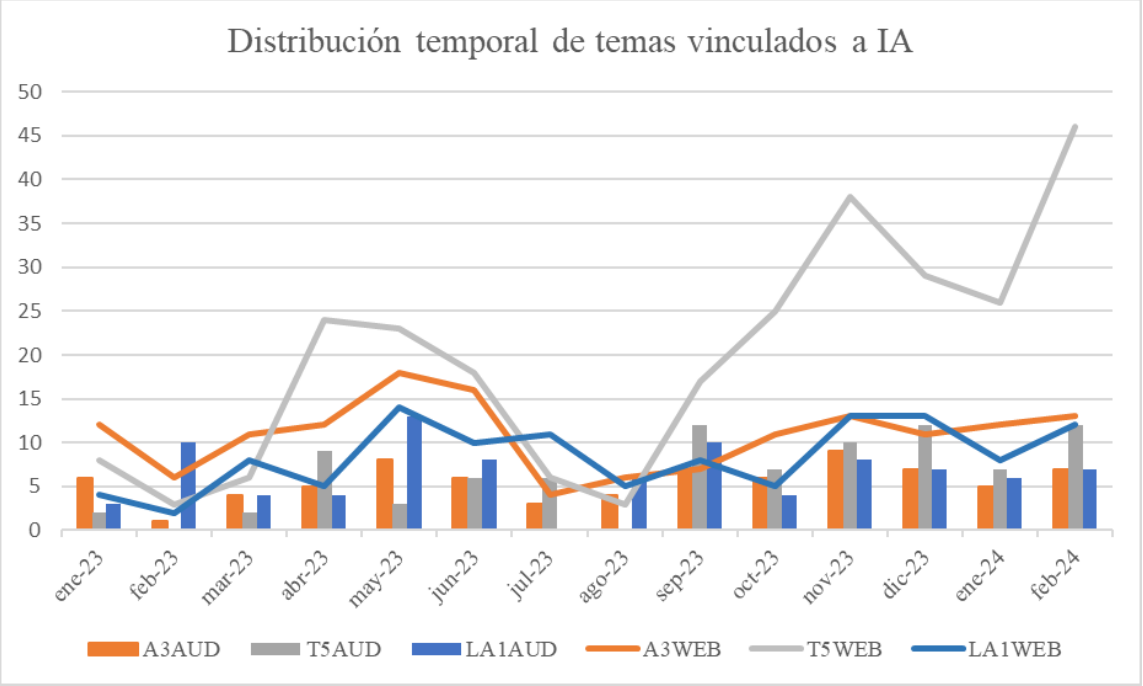
During the analysis period, 798 pieces of content were found. Of these, 256 are audiovisual and are broadcast in the daily news programs of the three television channels under study: 90 on La 1, 88 on Telecinco and 78 on Antena 3. The total duration is not directly correlated between the two private channels. La 1 totals 135 minutes (2 hours and 15 minutes) in its 90 audiovisual pieces, followed by Antena 3, with 125 minutes (2 hours and 5 minutes), a figure slightly higher than that of Telecinco (124 minutes) despite having 10 fewer broadcasts.

In the 425 days under analysis, Artificial Intelligence is in the news on 20% of the occasions. In the search for audiovisual pieces, another ten have been found in the RTVE Group, but since they have been broadcasted in the news programs of Canal 24 Horas, they have been excluded from the analysis sample. These pieces of content -six news items, one report and three interviews on set- amount to 34 minutes and 58 seconds.

The corporate web sites registered 542 news items, but not in the same proportion as in the audiovisual area. Telecinco was the most active channel, with 272 contents, followed by Antena 3 (152), and La 1, with 118. Part of these textual publications correspond to the contents of the rundown in the news programs, with greater intensity in La 1 (76.27%) compared to Antena 3 (51.32%) and Telecinco (32.35%), so once again there is no linear correlation: more activity on the web does not imply more insertions in the television medium.

The temporal distribution has not been homogeneous. Two peaks of activity were detected in the 14 months under study (graph 1), combining audiovisual content (bars) with web-hosted content (lines):

Figure 1. *Time distribution of web and audiovisual content by the three TV channels*



Source: Elaborated by the authors.

The first upturn in activity can be seen in the spring of 2023. After the usual drop in the news load during the summer, there was another upturn from September onwards, which was evident in all the networks, especially in the case of Telecinco, and even more marked in its web division. The production of content in February is significant, following the signing of Carlos Franganillo as presenter of the evening edition of 2024. In terms of the thematic areas of each piece of content, the following are worth mentioning:

Table 2: *Thematic distribution of the pieces of content under analysis by media and support*

	Politics	Economy	International	Society	Culture	Soc.-intern.	Health-Science	Technology	Education	Total Medium
A3-Web	9	26	13	17	12	19	20	31	5	152
T5-Web	12	41	4	56	27	22	35	63	12	272
LA 1-Web	10	18	20	19	7	9	11	19	5	118

Total Web	31	85	37	92	46	50	66	113	22	542
A3-Audiov.	6	14	9	11	7	7	7	12	5	78
T5- Audiov.	8	14	1	27	8	8	6	14	2	88
LA 1-Audiov.	5	20	7	11	14	5	7	19	2	90
Total Audiov	19	48	17	49	29	20	20	45	9	256
General	**50**	**133**	**54**	**141**	**75**	**70**	**86**	**158**	**31**	**798**

Source: Elaborated by the authors.

At the web level, technology is the predominant topic (20.84% of the 798 pieces of content), with a special impact on Telecinco (63), followed by society (16.9%) and economy (15.6%), also with a significant impact on the Mediaset channel. The distribution in Antena 3 and the public broadcaster is more homogeneous, although contextualizing that the total number of digital publications of both (270) is lower than the total of Telecinco (272). The areas with the lowest figures were education and national politics.

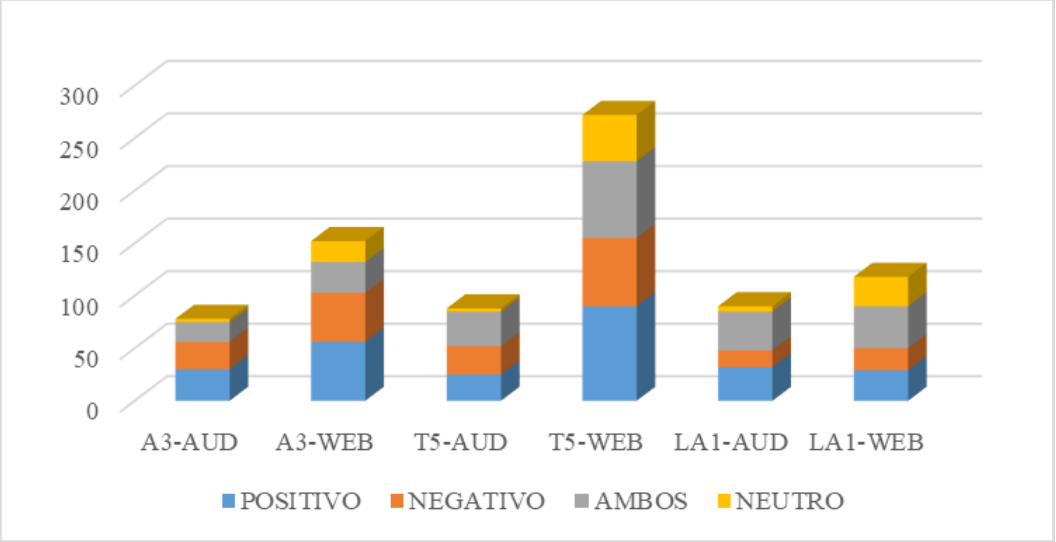
A different pattern is detected in audiovisual content, as the areas of society (19.1%) and economy (18.75%) are the ones that host more content, slightly above technology.

4.2. Framing

The pieces of content have been classified into four framing categories (positive, negative, both or neutral) based on the evidence detected in the use of nouns, adjectives and verbs in each piece. In those that are limited to advantages and/or benefits, the concepts revolution, advance, able, capable, save, great, future, talent, service, important, more or investment stand out. In other cases, the positive aspect comes from the specific context: there are more than 20 coincidences of the word loneliness, but it is linked to news that talk about AI systems to alleviate the loneliness of the elderly.

On the negative side, the evidence that was collected presents these common denominators: denunciation, pornography, nudity, manipulation, danger, minors, victim, fake, deepfake or the expression "consequences + legal." The following distribution (Figure 2) shows the relative importance of each approach on each television channel, both on the web and on the audiovisual news.

Figure 2. *Content approach by media and format*



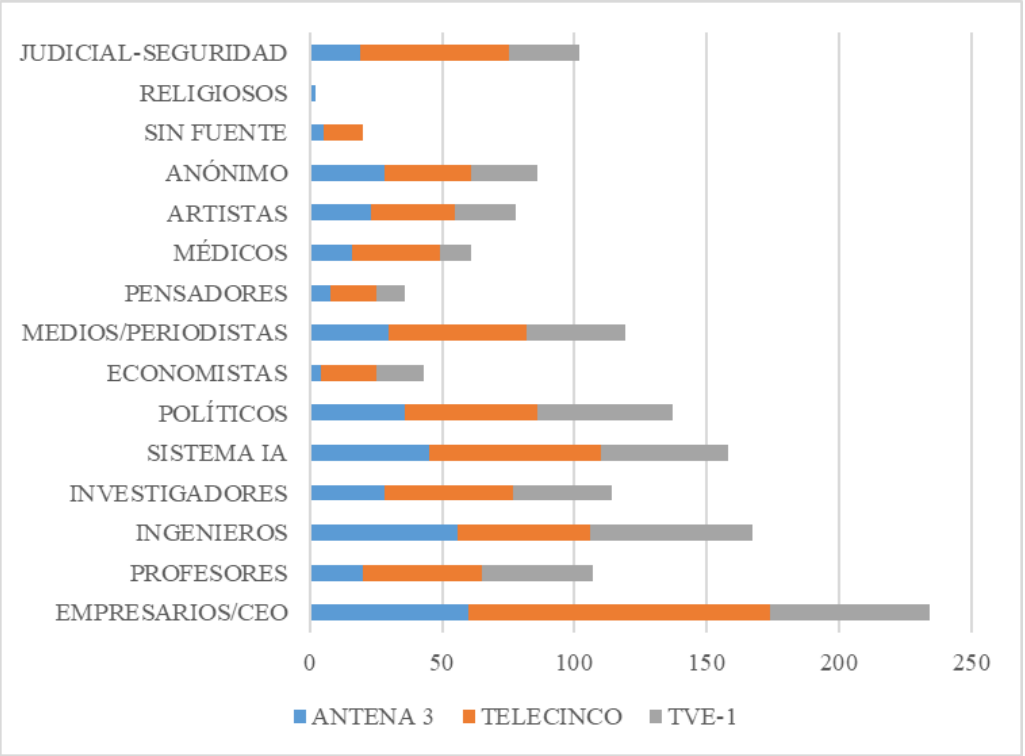
Source: Elaborated by the authors.

Positive content (32.83%) outnumbers specifically negative content (25.31%) in all channels, and there is no different pattern in the individual analysis, both in news programs and on the corporate website. The contents that narrate a reality including advantages and risks have a higher share (28.94%) compared to those with a clearly negative approach. There are 103 topics (12.9%) narrated in an aseptic way, with more importance in the digital platform (92) than in television (11).

4.3. Sources

The 798 pieces of content include 1,524 sources, with the following breakdown (Figure 3).

Figure 3. *Breakdown of information sources used by chain*

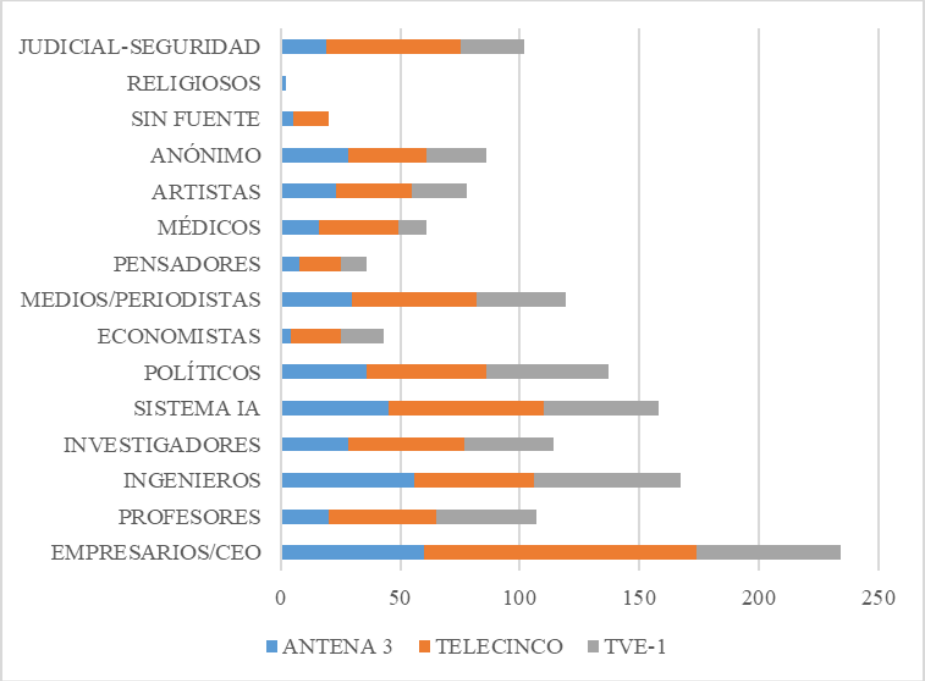


Source: Elaborated by the authors.

Among the 15 typologies, entrepreneurs/CEOs in the sector stand out (234 of the 1524), followed at a second level by sources that could be labeled as technological. This includes engineers (167) and the use as a source precisely of these AI systems for generating texts, audios or images (10.36%). At a third level and with a relative share of around 8% of the total are political leaders.

No significant differences were observed in the distribution by each medium; it is only worth noting that La 1 bets more than its competitors on engineers -to the point of being the most used source- and Telecinco uses doctors twice as often (33) compared to Atresmedia television (16) and the public broadcaster (12). In the specific study of the two areas, the distribution is reflected in Figure 4:

Figure 4. *Distribution of sources being used*



Source: Elaborated by the authors.

AI tools, judicial-security sector, teachers and anonymous show a higher frequency in the audiovisual field. Entrepreneurs/CEO, politicians, doctors, economists, researchers and journalists are more recurrent in digital news, standing out the 89 occasions (32.7% of the 272 records) in which the Telecinco website refers to the business sector. There is balance in the case of engineers, artists and thinkers. Twenty digital news items lack attribution of sources, 3.7% of the 542 pieces of content being identified.

A possible direct link between the relative importance of the appearance of each type of source in relation to the meaning or focus of the content was also explored, filtering the sources used in news items with either only positive or only negative approaches in search of recurrences (Table 3). The quantification derives in a percentage rate to measure the relative weight of their presence.

Table 3. *Screening of the use of sources by positive or negative aspects of the content in the news spaces*

Type of source	Total appearances	Filter: negative approaches					Filter: positive approaches				
		A3	T5	LA 1	Total filter	Rate	A3	T5	LA 1	Total filter	Rate
CEO/Entrepreneur	65	6	5	2	13	20.00%	6	9	10	25	38.46%
Teachers	54	7	7	3	17	31.48%	1	2	6	9	16.67%
Engineers	91	7	7	5	19	20.88%	9	12	16	37	40.66%
Researchers	32	0	1	3	4	12.50%	7	2	7	16	50.00%
AI System	92	10	10	6	26	28.26%	10	6	8	24	26.09%
Politicians	49	3	6	3	12	24.49%	2	2	4	8	16.33%
Economists	13	0	0	2	2	15.38%	0	1	2	3	23.08%
Media / journalists	20	3	1	0	4	20.00%	2	2	1	5	25.00%
Thinkers	12	0	1	2	3	25.00%	2	0	1	3	25.00%
Physicians	17	0	0	1	1	5.88%	4	4	4	12	70.59%

Artist	32	5	5	3	13	40.63%	1	1	5	7	21.88%
No source	0	0	0	0	0	0.00%	0	0	0	0	0.00%
Anonymous	56	8	9	4	21	37.50%	6	8	8	22	39.29%
Religious	1	1	0	0	1	100.00%	0	0	0	0	0.00%
Judicial-security	44	9	13	6	28	63.64%	1	3	1	5	11.36%

Source: Elaborated by the authors.

The areas with different relative shares in both approaches are:

- Predominance in negative approaches with respect to positive: Justice, which multiplies the proportion by six; and teachers and artists, twice as often.
- Predominance in positive approaches: Four sources of information appear with special incidence in this comparison. These are doctors (14 times more: 70% of their appearances have been in positive frames, and 5% in negative ones), researchers (four times more) and engineers and businessmen (twice as many in both cases).

The same parameters are applied to content hosted on corporate digital pages. There are two coincidences with the audiovisual section: the judicial sector again shows a high appearance in negative news items (almost five times the proportion with respect to positive frames), and artists, almost twice as much. Teachers change their tendency, they are more frequently mentioned in positive frames. The other novelty lies in economists, with a comparatively greater share in the negative range.

The same four sources with positive relevance in the news also show the same behavior on the web, with slight modifications in the proportionality. Here, researchers stand out, with a sevenfold increase in their insertion in friendly approaches compared to unfavorable ones, doctors -proportion of 5 to 1- and CEOs/engineers, who repeat double weighting.

4.4. Specific analysis of the audiovisual field

The three television channels are similar in three ways. Firstly, most of the contents are hosted in the midday edition (15 hours), ahead of the evening edition (21 hours); secondly, the predominant format is ready-to-air video or VTR; and finally, the consistency in the number of statements (total) per content, which ranges between 2.5 and 3. Table 4 shows all the figures resulting from the analysis of these categories:

Table 4. *Data regarding the insertion of pieces of content linked to Artificial Intelligence in news programs*

	Contents and statements (totals)		Broadcast edition						Genre: news *Audiovisual format (the same content can be structured in various formats)*					Genre: interview	Genre: report
	Nº	Totals (average)	Morning	15H	21 H	Doble	Weekend	Web video	VTR	Queues	Total	Video wall	Lead-in		
A3	78	191 (2.44)	12	37	14	0	4	11	36	50	16	5	18	7	0
T5	88	267 (3.03)	15	30	24	0	16	3	62	21	2	2	26	0	2
LA 1	90	281 (3.12)	4	41	27	5	12	0	72	5	6	0	4	1	5

Source: Elaborated by the authors.

The differences in the comparative analysis show the strategies of each medium. TVE occasionally broadcasts the same content in its two editions and IA topics do not usually appear in its morning news programs, something similar to Antena 3; in this case, in its weekend programs. On the contrary, this channel has created 11 audiovisual pieces of content specifically for its digital corporate page, a technique that Telecinco also uses, although to a lesser extent. The Atresmedia channel is the one that works the interview format the most. This genre appears on seven occasions, two of them in the morning edition. They take place on September 19 and 20, 2023, with a duration of 5:13 and 5:17 minutes, respectively, after a case of fake nudes created by AI uncovered in the autonomous community of Extremadura, with more than 20 victims, all of them minors.

The other five interviews broadcast by this media, also longer than 4 minutes, were conducted for the web. On La 1, it was broadcast on February 13, 2023 as part of a documentary news special program entitled 10,000 days, which addresses the future technological challenges of the next three decades. This channel has also opted for another extensive format such as the report, with five broadcasts: two in 10,000 days, and three on May 10, 2023 in a special 15-minute news special program with AI as the only focus. They were based on economic issues (destruction of 14 million jobs in five years, with a duration of 2:42), AI challenges in health and education (3:30) and impact on music (2:30). Telecinco broadcasts two reports, both on weekends, on September 30 and November 5, 2023, based, respectively, on corporate AI (1:51 duration) and how to act in case of deepfakes (2:05).

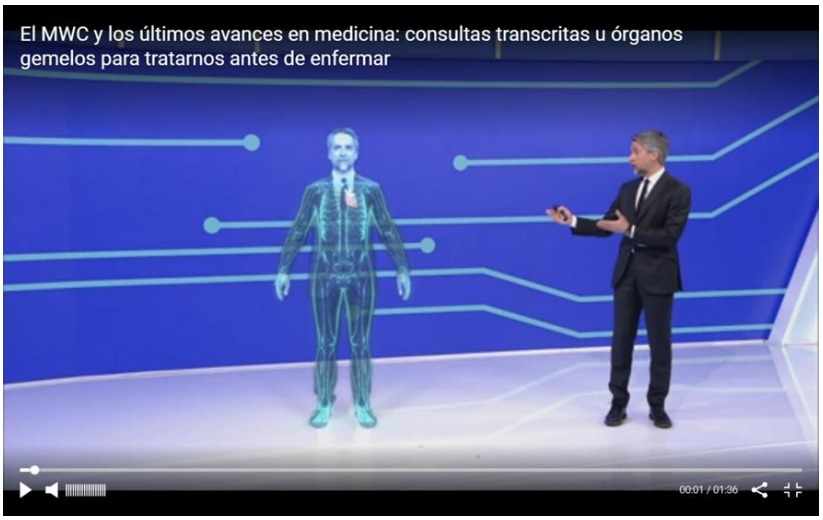
In the classic news formats, there are different strategic choices that meet the general structuring of the news space. TVE has not been allowed by law to broadcast advertising for 15 years, which has led to an extension of its news programs to 50-55 minutes, compared to 35 minutes for its competitors. As a result, VTR predominates (72 uses) as opposed to the queue format, with or without the total. The opposite situation in Antena 3, which has used closed video as the only form of narration on 13 occasions, while in Telecinco it has been used on 45 occasions. In both private television channels, it is common to start the story with queues or a short total (approximately 10 seconds), followed by an on-camera introduction by the presenter of the program to give way to the main content.

In 50 of its 78 pieces of content, Antena 3 uses the queue format, a higher figure than VTR. It also relies in a similar proportion to Telecinco on the lead, either by a journalist on set (stand up) or via live connection with a reporter, correspondent or special envoy.

The authorship of each piece of content was also analyzed, with similar trends. Overall, female authorship is predominant (49.6%) compared to male authorship (32.81%), the remaining percentage being left to the presenters. In the two private television channels, the percentage is more even, especially in the case of Telecinco, while in La 1 the female ratio is double the male one.

Although it has not been frequent, the two private channels have started to broadcast on their on-set videowall images created with AI to reinforce the textual content voiced by the presenter. In the case of Antena 3, three instances of use have been found, all in 2023; in Telecinco on two occasions, both in February 2024 (on the 16th and 28th). Here, presenter Carlos Franganillo explains how AI impacts on medicine using an avatar of his own.

Figure 5. *Introduction of Informativos Telecinco: news about medical advances based on AI*



Source: Informativos Telecinco.

4.4.1. Audiovisual representation of AI

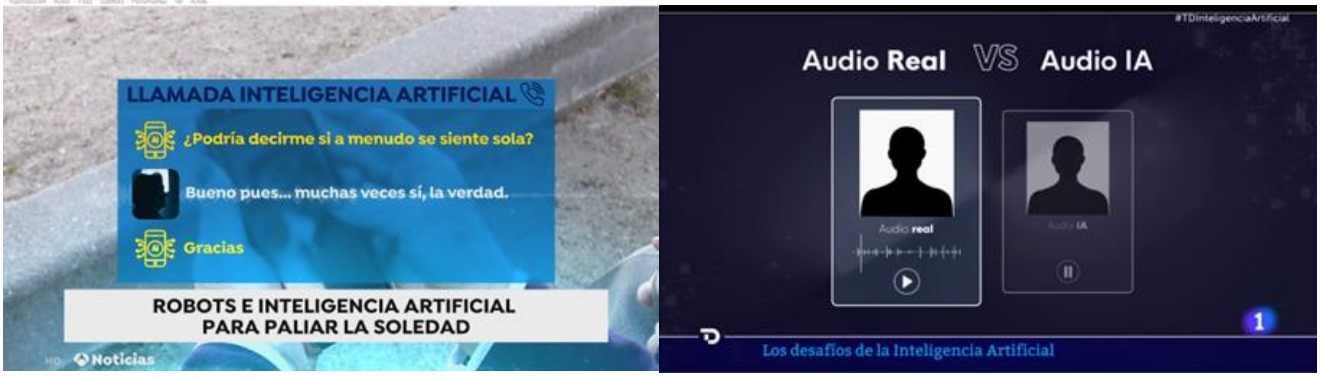
The above specific examples provide the basis for analyzing the use of AI as a source and as an audiovisual resource in the news programs under study. This dimension is structured in two variables:

- Content: use of artificial systems for the specific generation of informative content. The number of shots, audios or narrated text that have been generated by an AI device, source or tool has been quantified, indicating their origin.

- Resource or illustration: based on the previous one, this variable quantifies all the shots used to illustrate the general content of the news item whose origin is digital and allusive to the AI phenomenon, i.e., they are not shots taken directly by a camera.

The first variable encompasses three modes of news content creation (audio, text and video/image), which are illustrated in the following graphic mosaic (Figure 6a). First, two examples of the use of voice generation (left) and voice dubbing (right) tools.

Figure 6a. *Informative content generated with voice AI systems*



Source: Informativos Telecinco and Telediario TVE.

ChatGPT has also been used to ask for content related to the news (left) or to check its possible failures (right).

Figure 6b. *Adding content to news items directly generated using textual AI systems*

Source: Informativos Telecinco and Antena 3 Noticias.

The third modality is the creation of images, either for the viewer to identify which is real between the two options shown in the videowall (left) or to warn that it is a manipulated image (right).

Figure 6c. *Informative content with artificial image creation systems*

Source: Informativos Telecinco.

In total, one third of the audiovisual content (81 out of 256, 31.64%) have used and labeled AI tools during their broadcast, with the following distribution:

Table 5. *Quantification of the use of textual, audio and image AI tools per channel*

Type of IA tool	Pieces of content where it appears	Number of shots in which the AI content is included	Duration of the piece of content (seconds)
AUDIO	**20**	**130**	**453**
A3	6	50	149
LA 1	8	47	176
T5	6	33	128
IMAGE	**44**	**418**	**1303**
A3	12	128	443
LA 1	13	82	230
T5	19	208	630
TEXT	**17**	**83**	**255**
A3	4	36	96
LA 1	6	18	61
T5	7	29	98
Overall total	**81**	**631**	**2011**

Source: Elaborated by the authors.

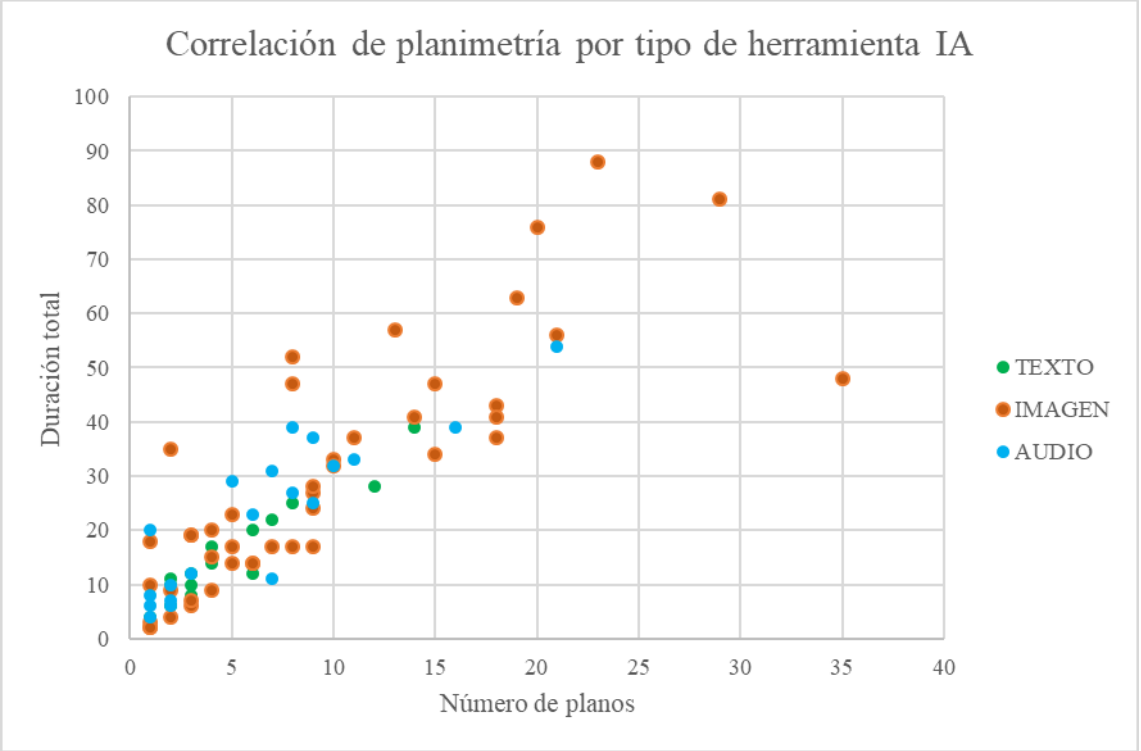
The use of image generation tools predominates (more than half of the total filtered content) with respect to those used to create or dub voices (24.6%) and ChatGPT (20.9%). Within each of them, there is no medium with prevailing values with respect to its competitors. The interaction of the journalist with the artificial source has been occasionally perceived (Figure 7), chatting with an avatar (left) or testing virtual reality glasses of the Police to detect criminal risks (right).

Figure 7. *Presence of the journalist as an active agent in the news he prepares based on the use of AI systems*

Source: Telediario TVE and Informativos Telecinco.

The 81 contents were viewed to establish the number of shots in which the use of each tool appears and their total duration, in order to find a general pattern of correlation both at a general level and specifically for each source device, generating the following scatter plot:

Figure 8. *Presence of journalists as active agents in the news they produce based on the use of AI systems*



Source: Elaborated by the authors.

The general trend can be seen in the lower left quadrant: ranging from 1 to 10 shots and a standardized duration of 20 seconds maximum. The greatest dispersion corresponds to the use of tools to generate images, counted between 20 and 35 shots in four contents; and durations of more than 80 seconds, covering practically all the audiovisual narration. The highest level of activity is found in ChatGPT, used as an occasional resource in a section of the information.

Regarding the thematic areas and regardless of the medium of insertion, AI tools have nurtured a considerable portion of news of social and cultural significance. Among the 20 audiovisual news items with the use of audio tools, 8 (40%) appear in culture, 4 in the international social chronicle, 3 in national society and in technology. The latter is the sector with the greatest presence in news items where images created with AI have been used (11 records out of 44, 25%), ahead of national society (10) and culture (9); and ChatGPT has appeared in 4 news items on education (23.5%), and 3 in both society and culture.

The second variable -digital resource shots illustrative of AI- is exemplified by constructing a mosaic (Figure 9) with plans extracted from the three television channels analyzed.

Figure 9. *Screenshots of informative spaces with computer-generated images to illustrate concepts related to Artificial Intelligence*

Source: Telediario de TVE, Informativos Telecinco and Antena 3 Noticias.

Taking as a reference the total minutes referred to at the beginning of this results section (6 hours 24 minutes and 33 seconds in the three TV channels), the following records have been obtained:

Table 6. *Specific weight of the audiovisual narrative linked to AI with respect to the general planimetry of the news content*

	Total duration of audiovisual information	Digital shots linked to the AI	Duration of IA shots (average duration)	Total duration of AI plans as a % of total duration	Textual and audiovisual content created by AI (duration)	AI planimetry % share of total duration
Antena 3	7500'' (2h5'00'')	424	1226'' (2,89'')	16.35%	22 (688'')	9.17%
Telecinco	7471'' (2h4'31'')	356	1062'' (2,98'')	14.21%	32 (856'')	11.45%
La 1	8102'' (2h15'02'')	577	1843'' (3,19'')	22.74%	27 (467'')	5.76%
TOTAL	23073'' (6h24'33'')	1357	4131'' (3,04'')	17.90%	81 (2011'')	8.71%

Source: Elaborated by the authors.

Almost 18% of the total duration of content are digital shots representative of AI, with greater prominence in the case of Spanish public television, ahead of Antena 3 and Telecinco. The average duration of each shot is homogeneous, standardized around 3 seconds.

Taking into account the specific use of AI tools as content generation, a moderate overall percentage in relation to the total duration (less than 10%) can be observed, although with opposite trends. Telecinco is the channel with less audiovisual shots on AI (1062''), but 80% of this duration is allocated to content generation through artificial engines (856''). This situation is the opposite in TVE, the one that uses less AI tools (467''), but at the same time the one that uses more digital images (1376''). Antena 3 balances both aspects: 688 seconds of AI content and 538 of symbolic shots.

Finally, the link between the appearance of AI tools and digital planimetry in a recurrent manner in any of the four types of approach was determined, applying Pearson's Linear Correlation Coefficient, which assesses the increase in value of one variable depending on the other:

Table 7. *Estimate of correlation between news content framing in relation to the use of AI-based audiovisual resources*

Focus	Content duration (seconds)		Duration of AI shots	Number of AI shots
Both	**9509''**		**1983''**	**671**
A3	2709''		416''	147
LA 1	3630''		506''	177
T5	3170''		1061''	347
CORRELATION	Duration	0,129443052	Planimetry	0,139692585
Negative	**6664''**		**1080''**	**377**
A3	3078''		453''	169
LA 1	1321''		184''	64
T5	2265''		443''	144
CORRELATION	Duration	0,901407694	Planimetry	0,968749696
Neutro	**684''**		**61''**	**8**
A3	92''		38''	6
LA 1	461''		3''	1
T5	131''		20''	1
CORRELATION	Duration	-0,90314625	Planimetry	-0,58098441
Positivo	**6216''**		**1007''**	**301**
A3	1621''		319''	102
LA 1	2690''		369''	114
T5	1905''		319''	85
CORRELATION	Duration	0,966558343	Planimetry	0,635485356

Source: Elaborated by the authors.

Two measurements of Pearson's Coefficient are made on the total duration of the audiovisual content, first in relation to the time of use of artificial systems of text-audio-image generation; and then on the number of shots in which the use of these tools can be appreciated. The negative framing shows the highest correlation rate, significantly close to 1 in both measurements; in the positive contents, the correlation is strong in the durations, but not in the planimetric scope. Meanwhile, in neutral news, negative values are registered, although it is necessary to relativize this result due to the low presence of IA planes. The correlation is weak (values of 0.12 and 0.13) in the mixed approach.

4.5. Specific analysis of web platforms

The 542 digital news articles create a structured panorama based on the high activity detected in Telecinco, 272 pieces of content compared to 270 for its two direct competitors. In general, there is a prevalence of positive approaches (175, 32.29%) ahead of mixed (142, 26.19%), negative (133, 24.54%) and neutral (92, 16.97%).

There is parity between content produced by women (32.29%) and men (30.62%), the rest of the texts have a corporate signature (37.08%) of the media outlet itself. The individual analysis shows two clear guidelines: in La 1 and Antena 3, female editors double the production of male editors, while in Telecinco this is the opposite. And in the corporate variable, Antena 3's web newsroom barely appears (8.5% of the cases), while its competitors present higher values, more than 45% in Telecinco and 54% in Televisión Española.

Although news continues to be the main genre (87.5% of the total, with no significant individual differences), news reports have more space, with 32 in Telecinco and 25 in the public broadcaster. Antena 3 has only one. Therefore, the trend in the audiovisual area is reproduced, although here the public broadcaster is the leader. The interview as a genre is residual, with only seven entries (1.2%), four in Telecinco.

Still photographs are the basic visual support accompanying the news text (349 cases, 64.39%), with image banks as the predominant source, ahead of snapshots from news agencies hired by the broadcaster. Image banks have provided new options for content illustration, allowing the digital recreation of iconic elements linked to AI.

Figure 10. *Examples of photographs from the image bank with AI-related iconography on the three corporate websites: La 1 (left), Antena 3 (center) and Telecinco (right)*

Source: www.rtve.es, www.antena3.com, and www.telecinco.es.

The image provided by the institutions or entities involved in the information has also had a certain impact, with 55 times its use, especially in Telecinco. Images of publications on social networks are less frequent, although sometimes they are included as a justification for a paragraph.

Both private channels use the strategy of extracting audiovisual content broadcast or about to be broadcast and include it as a complement to the web text (74 times in Antena 3, i.e. 94.8%; 100% in the case of Telecinco), while in La 1 it is less frequent (22 times, 24.4%).

Although its use is reduced (9 times, between 2 and 4 times for each media), all media have included a web video, defined as audiovisual material constructed from images and ambient sound, without the presence of voice-over. This last element excludes it from an audiovisual analysis, but introduces a new variant in the way of enriching the textual corpus.

4.6. Synergy of web-audiovisual environments

Digital content (542) is twice that of audiovisual broadcasts (256), which is logical considering that a web page is not subject to a duration restriction, as is the case of a news program, which is limited to a time slot. Therefore, there are some contents that do not pass the filter of the audiovisual rundown, but the medium considers that they deserve to be covered. The opposite is also true: there is a clear interconnection because out of the 256 audiovisual news items, 184 (71.8%) are graphic elements supporting the web text, with

identical use of the same sources; the only difference lies in the way of writing, which is more synthetic in the television environment.

However, each medium has applied its potential. Whenever the current issue was about the use of AI tools and evidence -graphic or audio- was needed, video has been used as a resource material; and on the other hand, if the media wanted to show the audience in an informative way why an image, a voice or a text is artificial -usually for fraudulent purposes-, it explains it on its website. For this reason, Antena 3 and RTVE have created fact-checking services - VerificaRTVE and Verifica A3N - in which specialized editors are responsible for dismantling hoaxes, detailing step by step why a viralized content is fake, as shown in Figure 11, in which French President Emmanuel Macron has a hand with six fingers.

Figure 11. *Screenshot of audiovisual content produced by Verifica A3N showing the fake element*

Source: Antena 3 Noticias.

During the analysis period, 15 pieces of content of this type were found. TVE uses the same structure, taking advantage (Figure 12) of the audiovisual broadcast to include a QR code that, when scanned, leads directly to the URL where all the verifications are hosted.

Figure 12. *TVE news screenshot showing the three fake elements of a photograph and including QR to promote access to its website*

Source: Telediario TVE.

In fact, the QR code and the label with the URL of the website are presented as elements to favor migration between platforms.

5. DISCUSSION AND CONCLUSIONS

Recent studies (Gómez-Calderón & Ceballos, 2024; Parratt-Fernández et al., 2024) have indicated a growing interest in AI as a news topic in print media, although with less impact of coverage in their online headlines. This research confirms that Spanish audiovisual companies are also informing the audience about news on AI, but not only in their news spaces (presence in 20% of the analysis), but also in their web portals (542 records in 425 days).

In contrast to this research and other previous studies (Ouchchy et al., 2020), Spanish television stations are beginning to take on the challenge of explaining to their audience the consequences of AI in contemporary society, a growing trend in the United States (Owsley & Greenwood, 2022). This assertion is supported by two premises: approaches and sources.

In terms of thematic approaches, the 798 audiovisual and digital pieces of content show a slight tendency towards positive approaches, as also found in the study by Garvey and Maskal (2020), although the distribution tends to be proportional compared to the negative and mixed ones. Taking as a reference the classification of the three types of frames by Chuan et al. (2019), there is a distributive balance of frames that speak of benefits and risks, also in the episode-based ones -specific or particular case studies- with respect to the thematic ones -impact on a global sector-, and in the binomial between personal impact -with testimonies of experiences of anonymous people- and social impact, which encompasses more general consequences. Consequently, it can be affirmed that Spanish television channels have sought a plurality of frames when dealing with each piece of information on AI. This plurality has also been manifested in the list of sources consulted and the number of testimonies inserted, which endorses the trend detected to explain in a clear and detailed way the edges of this technological-social phenomenon.

Regarding the sources, this study reveals the prevalence of political, economic, business and scientific agents, in line with the analyses of De Lara (2022) or Gurr and Metag (2023), but the novelty is the significant presence of anonymous people in the news pieces to know their opinion, unlike the approach of Sun et al. (2020). This typology of sources turns television into a citizen loudspeaker where to expose fears, concerns or positive perspectives, which is consistent with the precepts of frame setting or the establishment of frames about the attitudes, behaviors and opinions of society (Edy & Meirick, 2007) on the topics covered in the media.

A relevant finding is the appearance of a new spectrum of sources with an expert role such as engineers, researchers or thinkers, who represent 20.5% of the 1,542 records. This cast allows to redimension the scope addressed by the classic news. Although television news programs, due to their limited duration, are not very prone to extensive genres such as interviews or reports, these sources allow complementing and amplifying the testimonies of the usual sources.

Specifically, the analysis of the results between each type of source and approach reveals clear predominant tendencies. Those sectors associated with findings or advances have greater representation in friendly frames; hence the high presence of doctors, researchers and engineers in this variable analysis. Entrepreneurs and CEOs also have a greater media focus in this part of the study, from which it can be deduced that Spanish television news is associating business development with positive approaches.

In contrast, the misuse of AI causes, the negative frames, the constant presence of sectors analyzing legal repercussions, thus explaining the high prevalence of lawyers, police forces and cybersecurity experts in the negative spectrum. Artistic and academic areas are also protagonists. The appearance of professors in these frames reflects the social controversy over where to place the limits of technology as a learning mechanism.

Artists also face legal problems, as they rebel against the infringement of their rights by plagiarizing their voices to create artificial songs.

This controversy is supported by the use of text, audio or image generation tools, also studied as information sources. Here, too, there is a balance of presence in contents with positive and negative approaches, reinforcing the premise that the Spanish audiovisual sector has sought equidistant positions aimed at showing both sides of the coin.

Journalists from the network or other media have appeared as an expert or involved source to assess the repercussions and impact of AI, both socially and within their sector, following the trend of previous research (Calvo-Rubio & Ufarte-Ruiz, 2020; Parratt-Fernández et al., 2024).

A media professional, in fact, has gained relevance in this research. The signing by Telecinco of Carlos Franganillo, promoter in 2023 of news programs and special documentaries on AI on TVE, symbolizes the commitment of the channel -the most active in the 14 months under analysis- to this topic, which has even implemented artificial systems on its set. Since its debut at the beginning of 2024, the Mediaset channel has maintained its high production rate and even increased it during February.

The journalists themselves in each medium have taken on new roles to their classic performance by trying to explain in an informative way both on television and especially on the web how to verify fake content, in line with the demonstrations of Beckett (2019), Thurman (2020) and Newman (2022). In addition, they have made use of AI systems for generating text, image-video and audio to build 10% of their content. This paradigm is in line with the precepts of the new productive routines of augmented journalism (Tejedor & Vila, 2021) and the concern of the sector to assume critical approaches to explain to society how to detect and combat elements that lead to misinformation (Lyu, 2022; Rana et al., 2022).

Another fact that reinforces the critical spirit is the correlation between content frames and time of use of content generated through an AI source. In purely positive or negative frames, the correlation between variables has been clearer than in mixed or neutral frames. In the latter, the media have avoided using AI images, opting for real shots. In mixed frames, the low correlation rate indicates heterogeneity in the strategies of each media to build the audiovisual narrative.

Due to their extensive and detailed nature, the dismantling of textual or visual hoaxes fits in with the idiosyncrasy of the digital media. This is another example that Spanish television stations are taking advantage of the potential of the web spectrum to amplify the scope of their audiovisual content, in accordance with Rowan's theory (2003), which suggests the need to combine breaking news with interpretative approaches.

Based on the stated objectives, it is concluded that AI is a topic of growing interest (O1) in the Spanish audiovisual sector during 2023, especially from autumn onwards, and the first months of 2024. Telecinco leads the ranking of insertions in both media, with a significantly higher activity compared to its competitors in the digital area, although there are few differences in the television area.

The most worked thematic axes (SO1) have been economy, society and technology, ahead of politics, science and culture; although in all of them recurrent topics have been found in the agenda setting. The basic genre has been the news, although there is a trend for television companies to seek in-depth explanations of the AI phenomenon based on three findings: firstly, the introduction of reports and interviews, especially in the web media, which, thanks to migration strategies, make it possible to link the published content with the news broadcast in the news programs. Secondly, the balance in the frames detected, which makes it possible to perceive an equity or balance in the informative narrative line, with a slight preponderance of positive and mixed approaches as opposed to negative ones; and thirdly, by the combination of source typologies (SO2), ranging from the usual mass media sources -the political and economic ruling class-, through citizen opinion,

with significant connotations due to its high representativeness, to experts -engineers, researchers and doctors-, who tend to appear more in news with positive tones, while at the other extreme, the legal-security sector, teachers and artists have had more impact on those contents that broke down the harms or risks of AI in the social, educational and cultural spheres. A particular case is that of journalists, who appear to assume a triple role: sender of information, content fact-checker and expert/affected source.

Due to the audiovisual nature of the study, in the almost 6 and a half hours of news pieces under analysis and the more than 500 digital pieces of content, an upward trend has been detected (SO3) in the use of both AI systems to generate images, texts and audios to build part of their news (testing these tools or even interacting with them), and computer-generated shots and still images, protagonists of between 20% and 30% of the audiovisual and digital formats. There is a clear linear correlation between the use of digital images in clearly positive and negative content frames, which suggests that the media have sought to create a symbolic link between textual and visual meaning. In situations of impartiality of focus, the media have opted to use real shots.

The three hypotheses are verified. The Spanish TV channels with the largest audience show more and more interest in AI as a topical issue (H1), especially since autumn 2023, and they establish synergies with their digital portals by illustrating their web news with audiovisual formats. The approaches are increasingly critical or mixed, away from pure positivism, based on the testimonies of classical sources, but also experts in the sector, which allow to provide the information with a greater insight into positive and negative consequences (H2). The range of use of artificial content generation systems is still scarce (H3).

As future lines of research, the sample will be expanded to include the other two Spanish generalist television channels, Cuatro and laSexta, which belong to the two large Spanish audiovisual media conglomerates, Mediaset and Atresmedia. They also have daily news editions (in Cuatro, since the beginning of 2024). Therefore, the expansion of the field of action would enable comparative analyses to be carried out between television stations in the same group and among direct competitors. Trends in regional channels can also be studied. On the variables proposed in this study, several paradigms can be examined, such as the evolution of the Spanish audiovisual news sector during the current year, the use of AI systems as engines used to generate news content, or delve into the links between the different frames on which the news is focused around AI, undoubtedly the great revolution of our days.

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AUTHOR'S CONTRIBUTIONS, FUNDING AND ACKNOWLEDGEMENTS

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Funding: This study is part of the R&D&I Project PID 2019-104689RB100 "INTERNETICS: Truth and ethics in social networks. Perceptions and educational influences in young users of Twitter, Instagram and YouTube" and of the contract 'New forms of consumption, creation and production of information and other audiovisual content' (Cod.: OCENDI07/1618), of the OCENDI Observatory.

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