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ARTIFICIAL INTELLIGENCE IN THE SPANISH RADIO ECOSYSTEM: PERCEPTIONS, USES AND ETHICAL DILEMMAS AMONG PROFESSIONALS AND AUDIENCES

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ABSTRACT

Introduction: This article analyzes the perceptions of radio professionals and the Spanish audience regarding the integration of artificial intelligence (AI) into the radio ecosystem, considering its current uses, perceived changes in professional routines, and associated ethical dilemmas. **Methodology:** A mixed-methods, exploratory approach is adopted, combining semi-structured interviews with ten radio professionals and an online survey of 2,500 radio listeners in Spain. The qualitative phase examines professional discourse on AI in relation to production processes and news practices, while the quantitative phase analyzes audience perceptions, paying particular attention to the acceptance of synthetic voices and generational differences. **Results:** The results indicate selective acceptance of AI as a support tool for technical and documentary tasks, such as transcription, audio editing, and content management. However, both professionals and the audience show a majority rejection of the use of synthetic voices in news contexts, associating them with lower credibility and authenticity. Statistical analysis confirms the existence of a

significant generational gap in the acceptance of AI. **Conclusions:** The study concludes that AI does not replace radio professionals, but rather redefines their role, reinforcing functions related to editorial judgment, ethical oversight, and mediation between automated systems and audiences. Transparency and human oversight emerge as key principles for the sustainable integration of AI in Spanish radio.

Keywords: artificial intelligence; radio; radio journalism; automation; synthetic voices; professional ethics.

1. INTRODUCTION

Interest in artificial intelligence (AI) in Spanish media has grown significantly in recent years, driven by digitization processes, multimedia convergence, and the need to optimize resources in an increasingly competitive environment. In the radio sector, the incorporation of automated tools is beginning to impact various phases of audio production, from documentation and content management to audio editing and multiplatform distribution.

Several industry reports indicate that a growing number of Spanish broadcasters, both public and private, have integrated some degree of automation into their workflows, especially in technical and organizational tasks. The National Radio of Spain (RNE, in Spanish), for example, has developed a project that uses AI to automatically edit news segments for radio news broadcasts, for later distribution on the RTVE website and social media (Bazán-Gil et al., 2021), while private networks have experimented with audience analytics tools and automated content management. At the same time, initiatives such as Hiperia (Gómez López, 2024) and AI-powered radio projects have helped to highlight the potential of these technologies, although their everyday implementation in professional practice remains limited and uneven.

Beyond its technical dimensions, the introduction of AI into radio raises cultural, professional, and ethical questions. Radio has historically built its identity around the human voice as the cornerstone of intimacy, credibility, and emotional impact. The possibility of incorporating systems capable of generating or simulating voices, as well as intervening in editorial processes through algorithms, puts pressure on this model and forces a rethinking of the role of the radio journalist in the contemporary media ecosystem.

In this context, the central question lies not only in determining what AI can do in radio, but also in understanding how it is perceived by those who work in the industry and by those who listen to it. The integration of automated technologies is mediated by attitudes, expectations, and regulatory frameworks that condition their acceptance and uses, making it pertinent to analyze not only the technological developments themselves, but also the assessments they generate among the stakeholders involved.

This article analyzes the perceptions of Spanish radio professionals and listeners regarding the integration of AI into radio broadcasting, focusing on the current uses of these tools, the perceived changes in professional routines, and the ethical dilemmas associated with automation. The study does not involve direct observation of production processes, but rather examines the interpretations that journalists and listeners make of these processes within the Spanish context.

To this end, a mixed-methods approach is adopted, combining semi-structured interviews with radio professionals with a survey of the audience. This strategy allows for a comparison of professional discourse with social perception and provides a complementary perspective on the level of acceptance of AI and the symbolic limitations still attributed to its use, especially in relation to news broadcasting and sound authenticity.

From this perspective, the research occupies a middle ground between technological analysis and communicative reflection, understanding artificial intelligence not as an autonomous agent of transformation, but as a tool whose integration depends on human decisions, professional values, and regulatory frameworks. The study thus contributes to expanding knowledge about the impact of AI on Spanish radio from the perspective of the perceptions, tensions, and opportunities that accompany this process of change.

1.1. Automation and Change in Professional Role

The automation of information processes is not a new phenomenon in radio broadcasting, although its scope and complexity have intensified with the development of AI systems capable of operating on large volumes of data and audio content. During the 2010s, automation in Spanish radio was mainly concentrated on technical functions, such as broadcast control, music programming, and schedule management. Currently, these technologies are extending to areas that have a more direct impact on journalistic work, such as automatic transcription, documentation, audio editing, and the production of news summaries.

Academic literature has analyzed this process from the perspective of algorithmic journalism and the redefinition of professional skills in environments mediated by automated systems (Clerwall, 2014; van Dalen, 2012; Dörr, 2016; Graefe, 2016; Lindén, 2017).

These studies converge in pointing out that automation does not necessarily imply the replacement of the journalist, but rather a redistribution of tasks and responsibilities within newsrooms.

The integration of AI into radio is not a uniform process, but rather involves the application of different tools throughout the radio production cycle. In this regard, the systematization proposed by Ribes Guardia et al. (2025) is particularly relevant, as they identify AI uses in the planning, documentation, production, broadcasting, and distribution phases, distinguishing between applications for technical support, document automation, and editorial assistance.

This typology allows for a shift in focus from discourses centered on the replacement of professionals to the actual uses of automation. As these authors point out, most of the implemented applications are geared towards tasks of low creative value —such as automatic transcription, indexing of audio files, or optimization of production workflows— which reinforces the idea of selective and instrumental automation in contemporary radio.

Empirical evidence on automation in radio news broadcasting has been analyzed by Bazán-Gil et al. (2021) in their study of National Radio of Spain (RNE, in Spanish), which confirms that AI is primarily applied to technical and organizational processes, while editorial decisions and news delivery remain under human control. This case confirms the consolidation of hybrid models in which artificial intelligence acts as a support tool without replacing the journalist's core functions.

In the Spanish context, several studies highlight that the adoption of AI in newsrooms is gradual and uneven. Túnñez-López et al. (2018) indicate an ambivalent perception among professionals, who value its usefulness for repetitive tasks but have reservations about its impact on roles requiring editorial judgment. Similarly, De Lara et al. (2022) emphasize AI's potential to optimize processes and manage complex data, provided there is effective human oversight.

More recently, Blanco Sánchez et al. (2025) argue that AI has evolved toward forms of “cognitive co-production,” intervening in decisions related to content structure, style, and prioritization. This development calls for a reevaluation of the role of the radio journalist, who now takes on responsibilities for managing and overseeing algorithmic processes.

From a critical perspective, the literature emphasizes that automation does not eliminate the human dimension of journalistic work, but rather reinforces functions linked to editorial control, ethical judgment, and communicative responsibility (Ribes Guardia et al., 2025). In this sense, radio journalists increasingly act as mediators between automated systems and the audience, ensuring that the incorporation of AI does not compromise fundamental values such as credibility, expressive diversity, and informational quality.

This research falls within this interpretative framework, addressing automation as a process perceived and negotiated by Spanish radio professionals, rather than as a purely technical transformation.

1.2. Synthetic Voices and Communicative Authenticity

The voice is the primary expressive vehicle of radio and a cornerstone of the relationship of trust between the medium and its audience. Beyond simply transmitting information, the human voice creates a communicative experience based on closeness, credibility, and the emotional dimension of radio discourse. In this context, the emergence of AI-generated synthetic voices presents itself as one of the most visible —though not necessarily the most widespread— challenges in the medium's automation process.

Recent advances in speech synthesis technologies, based on deep learning models, have enabled the development of artificial voices with high levels of naturalness and phonetic accuracy. Experimental initiatives such as Hiperia, promoted within the Spanish public radio sector, have demonstrated the technical feasibility of generating complete radio content using synthetic voices (Chaparro Domínguez, 2024; Gómez López, 2024). However, their use in everyday professional practice remains limited and it is mostly confined to experimental environments or auxiliary tasks.

From a communicative perspective, the simulation of the human voice raises questions about the authenticity of radio messages. Chaparro Domínguez (2024) emphasizes that the voice functions as a marker of identity and presence, so its artificialization can alter the communicative pact between sender and receiver and affect trust in the medium, especially when the listener is unaware of its algorithmic origin.

The debate intensifies with voice cloning techniques, capable of reproducing the timbres of real people. Although their use in Spanish radio is still marginal, the literature and professional discourse warn of risks of impersonation and information manipulation. The concern thus shifts from technical quality to the ethical implications of their use without the knowledge or consent of the audience and the professionals themselves.

At the regulatory level, the European Artificial Intelligence Act (Regulation (EU) 2024/1689) establishes transparency obligations for certain uses of AI, including the identification of artificially generated or modified content, with progressive application from 2026. This framework reinforces the need for explicit mechanisms for identification and human supervision, especially in media subject to public service principles.

Consequently, most academic approaches do not propose a blanket ban, but rather the definition of limits and criteria for use. From this perspective, the ethics of automated sound, based on transparency, traceability, and editorial responsibility, constitute principles that are especially relevant in the radio ecosystem.

In line with these considerations, this study does not address synthetic voices as a widespread practice in Spanish radio, but rather as a point of symbolic friction that encapsulates many of the fears and expectations associated with artificial intelligence. Perceptions gathered from professionals and audiences indicate that resistance to these technologies stems not only from their technical origins, but also from a defense of the authenticity, credibility, and human dimension that have historically defined radio.

1.3. Transformation of Tasks in the Newsrooms

The core of this research lies in the perceived transformation of editorial and production tasks in Spanish radio as a result of the progressive incorporation of artificial intelligence tools. This transformation is part of a prior evolution of radio newsrooms towards more flexible and versatile models, in which the multitasking

editor acquires a central role, and in which automation acts as an accelerator of changes already underway.

Several studies have proposed typologies for analyzing levels of automation in the radio broadcasting sector. In this regard, Ribes Guardia et al. (2025) identify AI uses throughout the radio production cycle —planning, documentation, production, broadcasting, and distribution— and distinguish between technical support applications, document automation, and editorial assistance. Based on this systematization, four application areas can be differentiated within the context of this study: technical automation, linked to broadcasting and programming; document automation, focused on searching, transcribing, and classifying content; newswriting automation, centered on generating or synthesizing informational texts; and editorial automation, related to the prioritization and distribution of content.

In practice, these levels are not implemented uniformly by Spanish broadcasters. Professionals perceive that AI is primarily used at the technical and documentary levels, through tools such as automatic transcription, indexing of audio files, and assisted editing. These applications allow for a reduction in time spent on repetitive tasks and a reorganization of daily work, without necessarily altering the station's editorial principles.

From a professional perspective, this evolution implies a shift in effort from manual execution to review, validation, and supervision of the results generated by automated systems. Blanco Sánchez et al. (2025) describe this process as a form of algorithmic editorialization, in which content results from the interaction between human decisions and automated processes, reinforcing the centrality of editorial responsibility.

Automation also impacts the production rhythms of radio newsrooms, introducing more continuous dynamics that are less dependent on traditional hourly bulletins. However, the transformation of editorial tasks is not limited to a matter of efficiency. The literature warns that the extensive use of automated systems can lead to the homogenization of content and narrative standardization if there is no clear human editorial oversight (Sonni et al., 2024), which poses additional challenges to preserving the uniqueness of each editorial project.

In line with this approach, the present study addresses the transformation of editorial tasks as an ongoing process, interpreted in diverse ways by Spanish radio professionals. Analyzing these perceptions allows us to understand how artificial intelligence is reshaping daily work not through a direct replacement of functions, but through a redistribution of responsibilities that reinforces the journalist's role as guarantor of the meaning, quality, and coherence of the radio message.

1.4. Ethical and Labor Implications in the Spanish Context

The integration of AI into Spanish radio raises ethical and labor implications that affect the core of journalistic practice, reigniting debates about editorial responsibility, transparency, and accountability in algorithm-driven environments

(Dörr, 2016; Lindén, 2017). In particular, transparency toward the audience emerges as a central dilemma: if news content is generated, modified, or broadcast by automated systems, listeners must know its origin, as credibility can be compromised when automation is identified. In this regard, the European Artificial Intelligence Act (Regulation (UE) 2024/1689) reinforces this approach by establishing identification and traceability obligations, consolidating the principle that automation does not absolve media outlets and professionals of editorial responsibility, which continues to apply to them.

In parallel, the ethical codes of Spanish journalism, such as the Code of Ethics of the Federation of Associations of Journalists of Spain (FAPE, 2017), emphasize truthfulness, journalistic honesty, and the social responsibility of journalists. Within this framework, the use of synthetic voices or generative systems without human oversight can conflict with these principles if economic efficiency is prioritized over journalistic rigor. Therefore, technological transparency must be accompanied by effective human control and editorial responsibility (Graefe, 2016; Hansen et al., 2017).

In parallel, AI introduces significant labor challenges in Spanish radio, particularly impacting repetitive or standardized tasks linked to mid-level positions and learning stages —documentation, basic editing, or routine voice-over work— (De Lara et al., 2022; Marconi et al., 2017). These dynamics fuel concerns about job insecurity and the reduction of training opportunities in newsrooms.

However, professional perceptions gathered in recent studies point to a more nuanced scenario. AI is largely seen as a factor that accelerates the transformation of professional profiles and redefines the skills necessary for practicing journalism, rather than as an immediate threat of replacement. In this context, technological skills, editorial oversight capacity, and ethical judgment emerge as key elements of employability and professional resilience (De Lara et al., 2022; Túnéz-López et al., 2018).

In Spain, adaptation to this environment varies depending on generation and type of broadcaster: senior professionals tend to express greater concern about the loss of artisanal control and the decline in employment, while younger professionals adopt a more pragmatic stance, valuing AI for its potential to improve efficiency and free up time for higher value-added tasks. This pattern is consistent with research linking the acceptance of automation to processes of digital socialization and organizational integration.

The literature underscores that the ethical and labor challenges of AI require training and regulation. Technological and ethical literacy is key to a balanced integration of AI into Spanish radio, protecting both professional rights and audience trust (Blanco Sánchez et al., 2025). AI emerges as a transformative factor that demands conscious editorial decisions and a reaffirmation of the values of radio journalism.

1.5. Towards a Hybrid Model of Radio Production

The literature review and analysis of the Spanish professional context converge on the consolidation of a hybrid model of radio production, characterized by the coexistence of human intervention and automated systems at different stages of the communication process. This model does not represent a break with the medium's traditional practices, but rather a progressive reconfiguration of production routines, in which artificial intelligence is integrated as a support tool under editorial supervision.

The literature on algorithmic journalism agrees that automation tends to be implemented in a complementary, rather than a replacement, manner. Dörr (2016) and Lindén (2017) emphasize that AI systems are particularly effective in repetitive or data-intensive tasks, while functions related to interpretation, contextualization, and ethical decision-making continue to depend on human judgment. In the radio sector, this logic translates into a functional division of labor that reinforces the notion of collaborative production.

In the Spanish context, Blanco Sánchez et al. (2025) describe this evolution as a form of cognitive co-production, in which audio content emerges from the interaction between algorithmic processes and human editorial decisions. This approach allows us to overcome the dichotomy between automation and creativity, positioning AI as a resource that amplifies the journalist's productive capabilities without diminishing their communicative responsibility.

From an organizational perspective, the hybrid model implies a redistribution of responsibilities and a redefinition of professional profiles. Recent research indicates the emergence of roles linked to systems supervision, validation of automated results, and content curation, without this implying the disappearance of traditional narrative skills (Graefe, 2016; Hansen et al., 2017; Marconi et al., 2017).

The acceptance of this model is closely linked to its ethical sustainability. De Lara et al. (2022) emphasize that the integration of AI in newsrooms depends on the existence of clear regulatory frameworks and a professional culture oriented towards transparency and human oversight, since these are editorial decisions that directly affect the credibility of the media outlet.

Regarding the sound dimension, the literature on the subject warns that technological hybridization should not compromise the expressive identity of radio. Avilés Rodilla and Venier (2023) highlight the centrality of voice, rhythm, and emotional closeness as distinctive features of the medium, which explains why the use of AI is more acceptable when it is geared towards support tasks and preserves the human voice in content of editorial value.

Finally, several authors insist that the transition to hybrid models must be accompanied by technological and ethical literacy processes, both in university education and in ongoing professional development (López-García et al., 2025). Within this framework, the hybrid model of radio production can be understood as an

opportunity for controlled innovation, in which artificial intelligence expands production possibilities without displacing the central role of the journalist as a mediator between technology and the audience.

This approach places the present research in a perspective that combines empirical analysis and critical reflection, providing evidence on how professionals and audiences interpret and negotiate the process of technological hybridization in the Spanish radio context.

2. OBJECTIVES

The overall objective of this research is to analyze how radio professionals and the audience perceive the inclusion of artificial intelligence in the Spanish radio ecosystem, as well as to examine how automation is transforming professional routines, editorial tasks, and the technical processes and sounds of the medium.

The following specific objectives are derived from this general objective:

1. To identify the current uses of AI in Spanish radio stations, differentiating between instrumental functions and uses with editorial implications.
2. To analyze the perceptions of professionals and the public regarding the use of synthetic voices, content automation, and their ethical implications.
3. To evaluate the perceived transformations in the labor structure, professional skills and emerging profiles in the radio industry.
4. To explore how the incorporation of AI coexists with the preservation of the identity, the credibility and authenticity of radio sound.

The research takes an exploratory, multi-method approach, combining qualitative and quantitative techniques, in line with the emerging nature of the academic literature on artificial intelligence and radio in the Spanish context. The empirical work was carried out between October 2024 and March 2025.

3. METHODOLOGY

This study adopts a mixed-method, exploratory, and non-experimental design to analyze the perceptions of radio professionals and the Spanish audience regarding the integration of artificial intelligence (AI) into the radio ecosystem. The combination of qualitative and quantitative techniques allows for a complementary approach to the phenomenon: on the one hand, exploring in depth the professional discourse on automation and, on the other hand, contextualizing these perceptions based on audience opinion. Fieldwork was conducted between October 2024 and March 2025.

3.1. Quantitative Phase: Audience Survey

The quantitative phase consisted of a self-administered online survey, designed to analyze the perception of the Spanish audience on the use of AI in radio, with special attention to the acceptance of synthetic voices, informative advertising and the assessment of automation in radio tasks.

The target population consisted of radio listeners and internet users residing in Spain. The sample was obtained through non-probability self-selection sampling, given that participation was voluntary and open, which is a common strategy in exploratory studies of digital communication. This type of sampling entails limitations in terms of statistical representativeness, which are explicitly acknowledged in the study's limitations section.

Data collection took place between January and February 2025 using the Google Forms platform. The questionnaire was distributed exclusively through digital channels (email and social media such as Facebook, Instagram, LinkedIn, and X), with the aim of reaching diverse profiles in terms of age and media consumption habits. Initially, 2,743 responses were received. After a data cleaning process that removed incomplete questionnaires and potential duplicates, the final sample consisted of 2,500 valid responses ($n = 2,500$).

The data collection instrument includes closed items and five-point Likert-type scales, organized into four blocks:

- Radio listening habits;
- Perception of the use of AI in radio;
- Acceptance and recognition of synthetic voices;
- Basic sociodemographic variables.

Before its final application, the questionnaire underwent a pilot test and review by communication experts to ensure item clarity and content validity. The internal reliability of the scales was assessed using Cronbach's alpha coefficient, yielding values equal to or greater than 0.78, considered adequate for social science studies. The complete questionnaire is included as Annex 1.

3.2. Qualitative Phase: Interviews With Radio Professionals

The qualitative phase consisted of ten semi-structured interviews with professionals in the Spanish radio sector. Participants were selected using purposive sampling, based on criteria of professional, generational, and organizational diversity, with the aim of capturing a range of perspectives on the integration of artificial intelligence in radio.

The inclusion criteria were: having a minimum of five years of professional experience, performing various roles within the radio industry, and working for public or private stations, whether national, regional, or local/regional. This strategy allowed for the collection of perspectives from different levels of the radio value chain, from production and on-air performance to editorial and technical management.

The interviews were conducted individually by telephone between October 2024 and March 2025, and lasted an average of 45 minutes. All interviews were recorded with informed consent, transcribed verbatim, and subsequently anonymized to ensure

participant confidentiality. In the text, interviewees are identified by alphanumeric codes (E1–E10).

Table 1.

Anonymized Characterization of the Professionals Being Interviewed

Code	Professional Role	Type of Station	Affiliation	Years of Experience	Generation
E1	Announcer/Writer	National public	Public	>20	Senior
E2	Writer	National private	Private	10–15	Intermediate
E3	Announcer	National public	Public	>20	Senior
E4	Producer	Local/regional private	Private	5–10	Young
E5	Sound Technician	National public	Public	>15	Senior
E6	Writer/Announcer	National private	Private	5–10	Young
E7	Digital Content Editor	National private	Private	10–15	Intermediate
E8	Program Manager	Regional public	Public	>20	Senior
E9	Announcer	Local/regional private	Private	10–15	Intermediate
E10	Writer	Regional public	Public	5–10	Young

Source: Elaborated by the authors.

Institutional affiliation (public/private) is included to contextualize the statements and facilitate the interpretation of the discourse, while maintaining the anonymity of the participants. The selection of these profiles was based on the desire to maximize the diversity of roles, professional backgrounds, and types of broadcasters, in order to analyze how artificial intelligence is perceived from different perspectives within the Spanish radio ecosystem. This diversity is especially relevant for addressing the transformation of professional routines, given that the incorporation of automated tools does not affect all functions or organizational contexts uniformly.

Furthermore, the inclusion of professionals from different generations allows us to explore the existence of generational differences in the perception and use of artificial intelligence, an aspect identified as relevant both in the academic literature and in the results of the present study.

The interview script was structured into five thematic blocks:

1. General perception of artificial intelligence;
2. Specific uses in radio production and broadcasting;
3. Task transformation and professional adaptation;
4. Ethical and labor implications;
5. Expectations about the future of radio in Spain.

The complete questionnaire is included as Annex 2.

3.3. Data Analysis

Quantitative data were analyzed using descriptive statistics, paying particular attention to frequency distribution, percentages, and differences according to age

groups. Results are presented systematically in tables and figures, always indicating absolute values (n) and percentages (%).

The interviews were analyzed using thematic analysis, following the approach proposed by Braun and Clarke (2006). The procedure included initial open coding, grouping codes into thematic categories, and identifying cross-cutting patterns. Deductive categories, derived from the theoretical framework (e.g., authenticity, ethics, efficiency, employment), were combined with emergent categories arising from the participants' discourse.

Finally, a triangulation was performed between the qualitative and quantitative results, as well as with the reviewed literature, to strengthen the interpretive consistency of the study. The analysis did not aim to quantify the frequency of opinions, but rather to understand the meanings and tensions that shape professional and social perceptions of AI in Spanish radio.

4. RESULTS

The results are presented with a clear distinction between qualitative findings, derived from interviews with radio professionals, and quantitative results, obtained from the audience survey (n = 2,500). This separation allows for a clear distinction between professional discourse and social perceptions, avoiding interpretive overlaps.

4.1. Qualitative Results: Perceptions Of Radio Professionals

The qualitative results show a differentiated perception of the impact of artificial intelligence on Spanish radio depending on the areas of application. While the use of AI in instrumental tasks—such as assisted writing, documentation, or technical audio enhancement—is largely accepted, the use of synthetic voices in news contexts generates widespread and cross-cutting rejection among the professionals that were interviewed.

Regarding synthetic voices, nine out of ten interviewees expressed a clear opposition to their use in news or current affairs programs, regardless of the station's ownership. This opposition is based on the association between the human voice, credibility, and communicative authenticity. A senior announcer at a national public broadcaster explicitly stated: "The voice is credibility. You can have a perfect artificial voice, but it won't convey the same thing as a person" (E3, personal communication, December 15, 2024). Similarly, an announcer at a local/regional private station noted: "I don't see it working for a news bulletin. The listener wants to know there's a person behind it, not a machine" (E9, personal communication, November 5, 2024).

Several interviewees warn of the risk of "dehumanizing" the relationship with the audience and eroding the essence of radio broadcasting. E5 (personal communication, March 25, 2025) states, "I don't like it, generally speaking" and warns of a clear threat "if economic criteria prevail over journalistic ones" (E5,

personal communication, March 25, 2025). Furthermore, E6 (personal communication, November 10, 2024) describes the use of synthetic voices as “unethical,” especially in stations with fewer resources. These concerns extend to the impact on employment, particularly regarding learning opportunities for new professionals.

However, some interviewees acknowledge acceptable secondary uses for synthetic voices outside of news broadcasting. A producer at a local/regional private station clarifies, “For promotions, tests, or automated services, it can make sense, but always with a warning that it is not a human voice” (E4, personal communication, October 29, 2024). Along the same lines, some experts believe that AI could be used in highly standardized segments, although they warn of the risks associated with stylistic homogenization and potential algorithmic biases.

In contrast to the rejection of automated voice-over work, those interviewed showed a significantly more positive assessment of the use of AI in assisted writing, information retrieval, and documentation tasks. Several professionals acknowledged using automated systems to draft, summarize texts, or reorganize information. A young writer-announcer from a national private broadcaster explained, “If a text generator helps me summarize a news story, I use that time to find a better story” (E6, personal communication, November 10, 2024), while E1 (personal communication, November 7, 2024) emphasized that these systems are only useful as “initial support,” provided that the final text is reviewed by the journalist.

The documentation and retrieval of sound archives is emerging as one of the areas with the greatest acceptance of AI use. Automatic transcription and content indexing tools are valued for their ability to reduce time and facilitate access to complex materials. A sound technician from a national public broadcaster points out that “before, it could take hours to locate a specific clip; now you have it in minutes” (E5, personal communication, March 25, 2025), and E8 (personal communication, February 10, 2025) notes that these systems “are very helpful in programs with archives or historical memory, without affecting the editorial content.”

Audio enhancement and sound post-production are also areas where AI is increasingly being used. Interviewees mention applications focused on noise reduction, automatic equalization, and correcting technical errors, which are especially useful in fast-paced production environments. E4 (personal communication, October 29, 2024) states that “AI saves a lot of time when removing noise or improving a poor recording.” Additionally, E9 (personal communication, November 5, 2024) believes that these tools “improve the final quality without affecting the content or the voice.” However, some professionals warn that excessive reliance on these systems can contribute to the standardization of radio sound, and therefore insist on the need to maintain editorial and expressive criteria defined by the human team.

The thematic analysis also reveals a generational gap in the interpretation of automation. Senior professionals express greater reservations, linked to the loss of traditional skills and the precariousness of employment. As E1 (personal

communication, November 7, 2024) points out, “young people no longer go through the phase of cutting tape or assembling by hand, where they learn the rhythm of sound.” In contrast, younger professionals adopt a more pragmatic stance. E6 (personal communication, November 10, 2024) states, “I’m not afraid of AI; I see it as a shortcut,” and E10 (personal communication, January 28, 2025) considers that “learning to use AI is as fundamental today as learning to edit audio was twenty years ago.”

Despite these differences, there is broad consensus regarding the need for human oversight and transparency. The ethical dimension permeates professional discourse. A digital content editor at a national private broadcaster summarizes this concern by stating: “The final word must always belong to a person” (E7, personal communication, February 26, 2025), while E2 (personal communication, October 24, 2024) warns: “If a synthetic voice reads an editorial, the listener has the right to know.” Likewise, several interviewees express concern about the impact of automation on middle management positions and on professional development, although some acknowledge the potential emergence of new roles related to the supervision and verification of automated content.

4.2. Quantitative Results: Audience Perception

The quantitative results come from an online survey of 2,500 radio listeners residing in Spain. The questionnaire included a series of items formulated on a five-point Likert scale (1 = I strongly disagree; 5 = I strongly agree), designed to measure audience perceptions of the use of AI in radio production, the acceptance of synthetic voices, and the credibility associated with different uses of automation.

Since the sample was not weighted, the results should be interpreted as indicative of internal trends and associations, rather than as reliable estimates of the general population of radio listeners in Spain.

4.2.1. Sociodemographic Profile of the Sample

The age distribution of the sample is presented in Table 2. A higher concentration of participants is observed in the intermediate age ranges, especially between 30 and 44 years, which is consistent with the profile of active listeners and users of digital platforms through which the questionnaire was disseminated.

Table 2

Age Distribution of the Sample (Audience, n = 2,500)

Variable	Category	n	%
Age	18–29	620	24.8
Age	30–44	940	37.6
Age	45–59	670	26.8
Age	≥60	270	10.8

Source: Elaborated by the authors.

Based on this characterization, the results relating to voice type preference, informational credibility and acceptance of the use of artificial intelligence in radio are presented below, as well as the differences observed according to age.

The results of the survey applied to 2,500 listeners allow for contextualizing professional discourses from the perspective of the Spanish radio audience.

4.2.2. Voice Type Preference

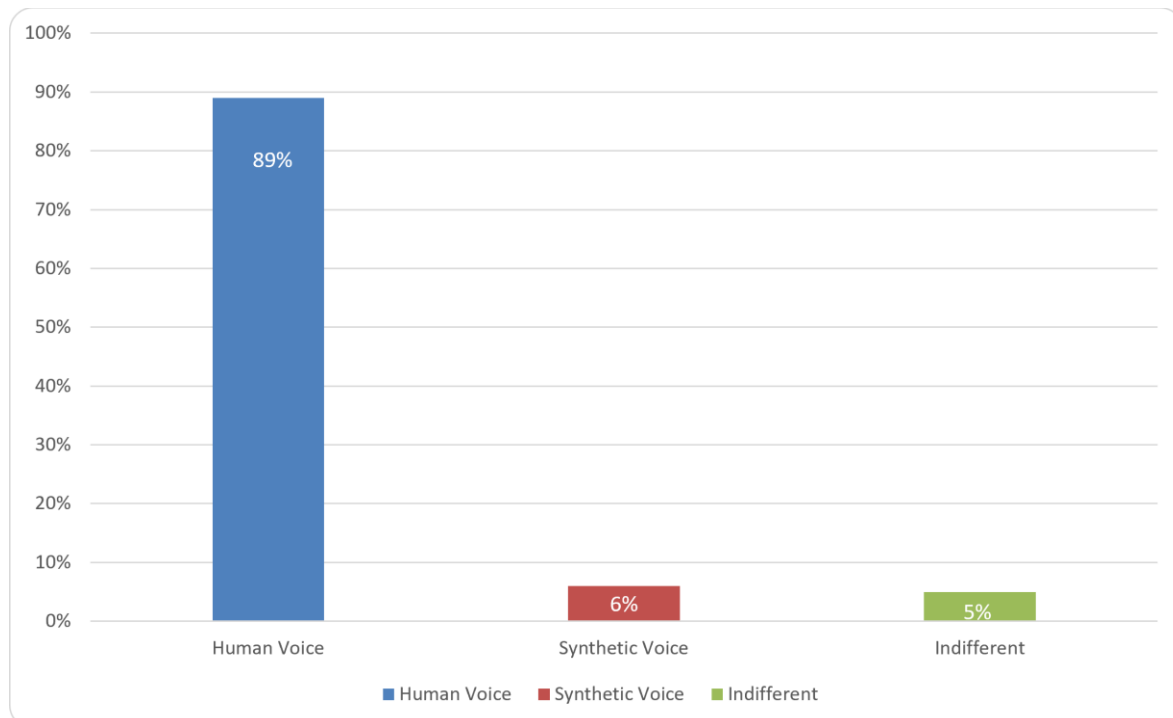
The preference for the human voice is consistently reflected in several items of the questionnaire, especially in the statement: "I prefer to listen to radio programs where all the announcers are human" (item 6 of the questionnaire addressed to the audience).

A total of 89% of respondents ($n = 2,225$) fall into the categories of "I agree" or "I strongly agree", compared to 6% ($n = 150$) who disagree and 5% ($n = 125$) who take a neutral position.

These results show a clear inclination of the audience towards human voice-over as a distinctive feature of the radio medium, as represented in Figure 1.

Figure 1

Preference for Voice Type on the Radio



Source: Elaborated by the authors.

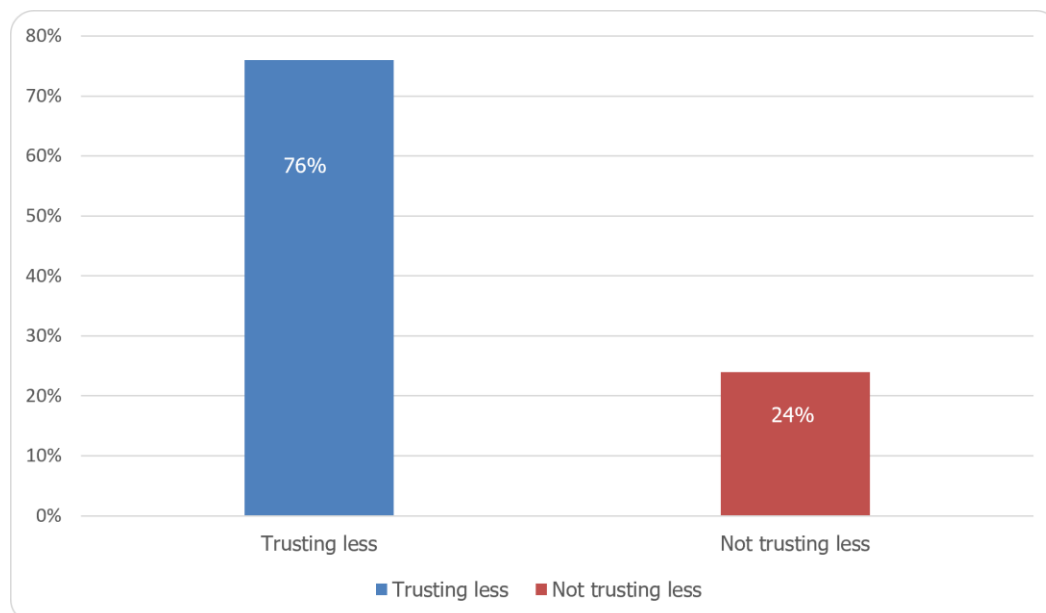
4.2.3. Informational Credibility

The relationship between artificial voice and credibility is analyzed using the item “I would trust a radio news program less if it were narrated by a voice generated by artificial intelligence” (item 4). The results show that 76% of participants (n = 1,900) “agree” or “strongly agree” with this statement. 14% (n = 350) adopted a neutral stance, while only 10% (n = 250) expressed “disagreement.”

Figure 2 graphically summarizes these results, which reinforce the association between human voice and informational credibility from the audience's perspective.

Figure 2

Perceived Informational Credibility of the Artificial Voice



Source: Elaborated by the authors.

4.2.4. Acceptance of AI as a Support Tool

In contrast to the rejection of automated voice-overs, the audience shows a more nuanced acceptance of AI use in instrumental tasks. Item 5: “The use of AI in radio can be positive if it is limited to support tasks (transcription, editing, archiving)” received 37% favorable responses (n = 925), falling into the agreement category. 22% (n = 550) remained neutral, while 41% (n = 1,025) expressed disagreement.

These results indicate that the acceptance of AI depends on its degree of visibility and its function within the communication process, clearly differentiating between technical uses and editorial or expressive functions.

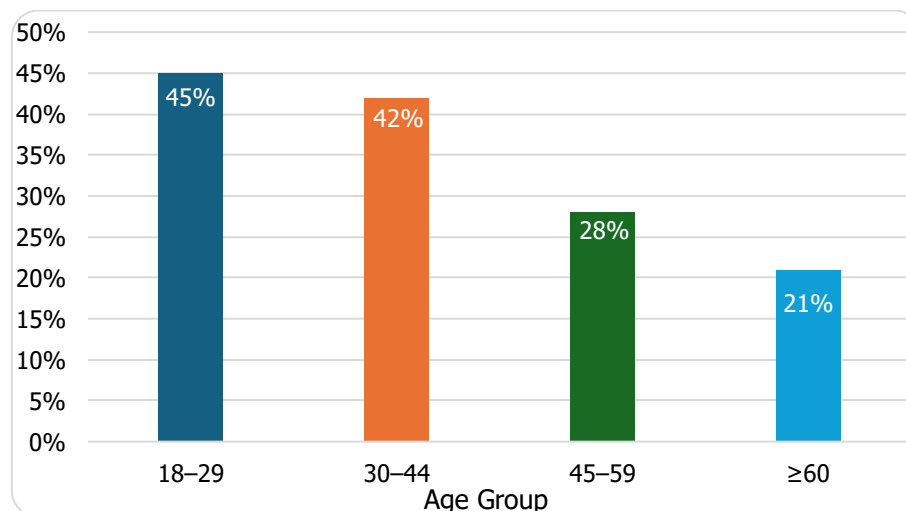
4.2.5. Generational Differences in the Audience

In order to empirically test the existence of a generational gap in the acceptance of AI, the relationship between age groups and the level of agreement with item 5 was analyzed. For this purpose, the Likert scale responses were recoded into three categories: disagreement (1–2), neutral (3) and agreement (4–5).

The descriptive results show that acceptance of AI as a support tool reaches 45% among listeners aged 18 to 29 ($n = 279$) and 42% among those aged 30 to 44 ($n = 395$), while it drops to 28% in the 45 to 59 age group ($n = 188$) and to 21% among those over 60 ($n = 57$). These differences are represented in Figure 3.

Figure 3

Acceptance of AI Use in Radio Base by Age Group



Source: Elaborated by the authors.

To assess the statistical significance of these differences, a chi-square test of independence was performed, which showed a statistically significant association between age and acceptance of AI use, χ^2 ($df = 3$, $n = 2,500$) = 96.42; $p < .001$. The effect size, measured using Cramer's V coefficient, was $V = .20$, indicating a small to moderate association. This result empirically confirms the existence of a generational gap in the perception of artificial intelligence in the radio broadcasting sector.

5. DISCUSSION

The findings allow for a deeper understanding of how AI is being incorporated and redefined within the Spanish radio ecosystem from the perspectives of both professionals and the audience. The results confirm that AI is primarily perceived as an instrumental support tool, rather than as a replacement for journalistic work, reinforcing the central arguments of the literature on algorithmic journalism and media automation (Dörr, 2016; Graefe, 2016; Lindén, 2017).

Regarding the first objective, aimed at identifying the uses attributed to AI in radio, the results show a clear convergence between professionals and the audience. Both the interviews and the questionnaire items demonstrate a selective acceptance of automation in technical and documentary tasks —transcription, audio editing, or sound file management— in line with research that places the implementation of AI in phases of low creative value in news production, where it optimizes time without altering the medium's editorial principles (Marconi et al., 2017; De Lara et al., 2022).

Conversely, the rejection of synthetic voices in news contexts highlights the value of the human voice on the radio. The high levels of agreement with items linking artificial voices to lower credibility, along with qualitative discourses that associate the human voice with authenticity and presence, reinforce theoretical approaches that conceive of the voice as an element of identity that is difficult to replace with automated systems (Avilés Rodilla & Venier, 2023; Chaparro Domínguez, 2024). The convergence between professional and social perceptions suggests the existence of an implicit communicative pact surrounding the radio voice, the alteration of which could erode trust in the medium.

From an ethical perspective, the results indicate that the main concerns are not directed at the technology itself, but at the conditions of its use. The emphasis on transparency, the identification of automated content, and constant human oversight aligns with the principles of algorithmic accountability advocated in recent literature (Diakopoulos, 2019). In this respect, the European regulatory framework (Regulation (EU) 2024/1689) reinforces this approach by establishing traceability and identification obligations, presenting broadcasting organizations with the challenge of integrating AI without diluting editorial responsibility.

One of the most significant contributions of this study is the empirical verification of a generational gap in AI acceptance. Statistical analysis confirms a significant association between age and its acceptance as a support tool, which supports research linking the adoption of automated technologies to digital socialization processes and prior technological experience (van Dalen, 2012; Túnñez -López et al., 2018). The convergence between quantitative results and qualitative discourses reinforces the interpretation of this gap as a structural factor in AI adoption.

In the workplace, the results suggest that automation does not eliminate journalistic work, but it does redefine professional profiles. The growing importance of supervisory, validation, and editorial roles confirms the transition to hybrid models of radio production, in which human and artificial intelligence coexist in a complementary way, in line with the notion of cognitive co-production proposed by Blanco Sánchez et al. (2025).

From a methodological perspective, the convergence between qualitative and quantitative results strengthens the study's interpretive validity, although the use of non-probability sampling and the exploratory nature of the design suggest caution in generalizing the results. Nevertheless, the coherence between professional discourse and audience perceptions lends consistency to the identified trends.

AI is emerging as a factor in the gradual and negotiated transformation of Spanish radio. Far from full automation, the scenario taking shape is one of controlled hybridization, conditioned by professional values, audience expectations, and emerging regulatory frameworks. The impact of AI thus depends less on the technical capabilities of the systems than on the editorial, ethical, and organizational decisions that accompany its adoption.

6. CONCLUSIONS

The overall objective of this research was to analyze the perceptions of Spanish radio professionals and audiences regarding the integration of AI into the radio ecosystem, considering its current uses, perceived changes in professional routines, and associated ethical and labor dilemmas. Based on the results obtained, it can be stated that this objective has been successfully met.

Regarding the first specific objective, aimed at identifying the uses attributed to AI in radio, the results show a majority acceptance of AI as a support tool. Both professionals and audiences consider its uses related to technical and documentary tasks, such as transcription, audio editing, and sound file management, to be appropriate, provided these processes are carried out under human supervision. This finding confirms that automation is being integrated selectively and pragmatically into radio routines, without displacing the journalist's core functions.

The second objective, focused on analyzing perceptions of synthetic voices and their impact on credibility, leads to the conclusion that there is a widespread rejection of their use in news contexts. Quantitative data and professional discourse concur that the human voice remains a key element of authenticity, identity, and trust in Spanish radio. This finding confirms that automation encounters symbolic and cultural limits in radio when it affects core expressive elements such as voice-over.

Regarding the third objective, related to the ethical and labor dilemmas associated with the incorporation of AI, the study reveals that the main concerns are not directed at the technology itself, but rather at the conditions of its implementation. Transparency towards the audience, constant human oversight, and the preservation of editorial responsibility emerge as essential principles for the ethical integration of AI. In the workplace, the results indicate a widespread perception of transformation of professional profiles rather than direct replacement, confirming a redefinition of the radio journalist's role in terms of editorial judgment, ethical mediation, and validation of automated processes.

Furthermore, the analysis has identified a significant generational gap both among professionals and the audience, which aligns with the objective of exploring differences in the acceptance of artificial intelligence. Younger professionals show a greater willingness to integrate these tools into their daily practice, while senior professionals adopt a more cautious attitude, linked to standing up for their profession and traditional learning methods.

Taken together, the results suggest that AI is not leading to the complete automation of Spanish radio broadcasting, but rather to a gradual and negotiated hybridization of production processes. This hybrid model appears to be the most plausible scenario in the short and medium term, conditioned by professional values, audience expectations, and emerging regulatory frameworks.

6.1. Limitations of the Study

Like all exploratory research, this study has several limitations that must be considered when interpreting the results. First, the quantitative phase is based on non-probability self-selection sampling, which prevents the results from being generalized to the entire population of radio listeners in Spain. Although the sample size is large ($n = 2,500$), voluntary participation and the digital distribution of the questionnaire may have introduced coverage and motivational biases.

Secondly, the number of interviews conducted in the qualitative phase is limited, although this is consistent with the exploratory approach of the study. Even though the diversity of professional profiles allows for a plurality of perspectives to be gathered, the design does not allow the qualitative results to be extrapolated to the entire radio sector.

Finally, the research focuses on the perceptions and discourses of professionals and the audience, rather than on the direct observation of production routines or the technical analysis of the artificial intelligence tools used by broadcasters. Consequently, the results reflect subjective interpretations and assessments of automation, rather than an objective measurement of its actual impact on radio production processes.

7. RECOMMENDATIONS

Based on the results obtained and taking into account the methodological limitations of the study, the following recommendations are proposed, which are directly linked to the research findings.

First, it is recommended that Spanish radio organizations develop clear protocols for the use of AI, especially regarding the identification of automated content and the delimitation of editorial responsibilities. Transparency towards the audience is emerging as a key element for preserving trust in the medium, particularly in news contexts.

Secondly, it is recommended to strengthen the technical and ethical training of professionals, both at university and through ongoing professional development in newsrooms. The results suggest that the acceptance of AI depends largely on the ability to understand and monitor automated systems; therefore, technological literacy must also incorporate ethical reflection and editorial judgment.

In the workplace, it is important to pay particular attention to the impact of automation on learning stages and intermediate positions. Maintaining training

programs where narrative, sound, and editorial skills are consolidated is key to the sustainability of the radio profession.

From a research perspective, longitudinal studies are recommended to analyze the evolution of perceptions among professionals and audiences as the European regulatory framework is consolidated and the use of AI in radio becomes more widespread. Comparative research between public and private broadcasters, or between different countries, would also allow for the identification of distinct adoption patterns.

Finally, it is worth delving deeper into the sound and expressive dimension in automated environments, examining how technological hybridization affects the narrative, creativity and identity of the medium, in order to better understand the role of AI in the future of radio journalism.

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