

Assessing the Effectiveness of Artificial Intelligence in Detecting Cybersecurity Misinformation in Emerging Countries: A Field Study in Algeria

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Abstract

This study aims to explore the effectiveness of artificial intelligence (AI) techniques in detecting fake news related to cybersecurity and their role in enhancing journalistic practices in Algeria. It focuses on analyzing journalists' awareness of these technologies, the challenges they face in using them, and the impact of AI tools on the accuracy and quality of journalistic work in this sensitive field. The findings reveal that journalists possess a moderate level of awareness regarding AI technologies and face obstacles such as limited resources and high implementation costs. Moreover, the study shows that AI is not yet considered an effective tool for improving news accuracy, highlighting the need for better training and capacity-building programs for journalists in the use of such technologies. **Keywords** Artificial Intelligence ; Fake News ; Cybersecurity ; Detection Techniques;

I- Introduction :

In today's digital age, fake news has become one of the most pressing challenges

facing media and journalism, particularly in the domain of cybersecurity. Various methods and tools are being used to disseminate false information, posing serious threats to both individuals and organizations. With the increasing reliance on the internet and social media as primary sources of news and information, fake news now represents a significant threat to media credibility and public trust in journalistic institutions. Within this context, artificial intelligence (AI) technologies have garnered growing attention as modern tools capable of playing a crucial role in detecting fake news and identifying misinformation quickly and accurately. Artificial intelligence has witnessed remarkable advancements in recent years. It encompasses a range of technologies designed to simulate human cognitive processes such as learning, reasoning, and decision-making. In the field of journalism and media, AI can contribute to improving the accuracy and quality of news by analyzing big data and detecting patterns that signal the presence of misinformation. Techniques such as machine learning and big data analytics are increasingly being adopted by journalists and media organizations to verify the authenticity of published content.

However, despite the vast potential that AI technologies offer in combating fake news, their adoption by journalists remains limited due to several challenges. Awareness of these technologies among media professionals is still relatively low, which hinders their full utilization. In addition, there are technical and knowledge-based obstacles, such as limited access to training resources, the complexity of available tools, and concerns about the high cost of implementation. These issues raise important questions about the actual effectiveness of AI techniques in identifying fake news, and how journalists particularly in the context of cybersecurity can be better equipped to benefit from them.

This study aims to shed light on the role of AI technologies in combating fake news related to cybersecurity by analyzing journalists' level of awareness, the challenges they face in implementation, and the impact of these technologies on the accuracy and quality of journalistic work.

I.1. Problem Statement:

In the digital era we live in marked by rapid advancements in media and digital technologies the negative impacts of fake news have become increasingly difficult to ignore, particularly in sensitive domains such as cybersecurity. This challenge becomes even more complex in the Algerian context, where the media sector faces persistent issues related to content integrity and journalistic standards, thereby amplifying the dangers of misinformation. Fake news concerning cybersecurity, in particular, represents a significant threat in today's world.

In Algeria, fake news spreads rapidly across internet platforms and social media, influencing public perception and circulating misleading information that may threaten national and economic security. This includes inaccurate reports of cyberattacks or the dissemination of false narratives about cybersecurity measures, often resulting in

confusion among individuals and institutions. Within this context, finding effective solutions to address this phenomenon has become essential, as it directly impacts the reputation and credibility of the media.

On the other hand, artificial intelligence emerges as a promising tool in combating fake news, especially given its growing applications across various sectors in Algeria. With the advancement of AI technologies, it is now possible to detect fake news and analyze online content more quickly and accurately using machine learning and neural network techniques. AI has the potential to support Algerian journalists in verifying the authenticity of cybersecurity-related news before publication. However, the adoption of AI in Algerian media still faces numerous challenges, including limited technical awareness within some media institutions, difficulties in training journalists, and concerns regarding the accuracy and efficiency of available AI tools.

Moreover, it remains unclear how these technologies can adapt to the specific characteristics of the Algerian media landscape and the local forms of misinformation prevalent in this context.

Accordingly, the core research problem addressed in this study is: To what extent are artificial intelligence techniques effective in detecting cybersecurity-related fake news among journalists in Algeria?

I. 2. SUB-QUESTIONS:

- 1.To what extent are journalists aware of artificial intelligence techniques used to detect fake news related to cybersecurity?
2. What are the main challenges journalists face in using artificial intelligence to uncover fake news?
3. How does the use of artificial intelligence affect the quality and accuracy of journalistic work in the field of cybersecurity?

I. 3. Hypothesis:

H1: Journalists have limited awareness of artificial intelligence techniques used to detect fake news related to cybersecurity.

H2: Journalists face technical and cognitive challenges that hinder the effective use of artificial intelligence in detecting fake news.

H3: The use of artificial intelligence contributes positively to improving the quality and accuracy of journalistic work in the domain of cybersecurity.

I. 4. Significance Of The Study:

This study holds considerable significance on theoretical, contextual, and practical levels. **Theoretically**, it contributes to the academic literature by expanding our understanding of the relationship between digital media, artificial intelligence technologies, and cybersecurity particularly within the Algerian context by shedding light on the effectiveness of AI in detecting fake news.

Contextually, the study explores the challenges faced by journalists in Algeria when using AI tools and highlights the broader societal impact of fake news, especially in the domain of cybersecurity.

Practically, the study offers concrete solutions for media institutions and journalists to improve their technical skills in combating fake news. It also provides organizations with insights to develop effective policies and technological strategies to counter misinformation and enhance media credibility in Algeria.

I. 5. Conceptual Definitions:

I. 5. 1. Artificial Intelligence

I. 5. 1.1. Conceptual Definitions

Artificial Intelligence (AI), first conceptualized by pioneers like John

McCarthy in 1956, is defined as the scientific and engineering pursuit of creating machines capable of intelligent behavior. Over time, AI has become a cornerstone of computer science, aiming to replicate human cognitive functions through advanced mathematical algorithms. As an interdisciplinary domain, it integrates knowledge from multiple fields to develop systems that can learn, reason, and make informed decisions based on the data they receive. Moreover, AI involves mimicking both human thought processes and behaviors, classified into thinking and acting in ways that are either human-like or rational. (Salem et al, 2024, p.06).

Artificial intelligence (AI) is defined as the capability of technological systems to simulate human behavior in perception, analysis, and understanding, enabling them to adapt to changing situations. The term "artificial" refers to activities created by humans to imitate natural cognitive abilities. AI is considered a scientific field dedicated to developing systems capable of performing tasks that typically require human intelligence by employing advanced algorithms and techniques for data processing and inference (Nawal, B., 2024, p. 24).

According to Russell and Norvig (2016, p. 2), AI is "a collection of systems and technologies capable of simulating human intelligence, such as reasoning, learning, and decision-making." Others view AI as a branch of computer science that aims to develop systems capable of carrying out functions requiring human-like intelligence, including learning, understanding, interaction, and problemsolving. It encompasses machine learning, data analysis, natural language processing, and computer vision, all based on sophisticated algorithms and software designed to mimic human cognitive processes (Al-Awaini, 2020, p. 45).

I. 5. 1.2. Operational Definition

In the context of this study, artificial intelligence refers to a set of computational technologies and algorithms used to analyze data and detect cybersecurity-related fake news. These technologies rely on machine learning and pattern recognition to support journalists in verifying information and identifying false content in digital media. **I. 5.**

2. Fake News

I. 5. 2.1. Conceptual Definitions

Fake news represents an increasingly concerning phenomenon, largely fueled by the ease of its online dissemination. Effectively addressing its spread necessitates a clear and precise understanding of what fake news truly entails. yet in everyday usage the term remains vague and inconsistent, lacking a universally accepted definition. Even within philosophical discourse despite growing interest in the subject there is still no agreed-upon definition of "fake news." (Anderau, 2021, p. 1) Fake news refers to information intentionally published to promote false or misleading stories on various topics, primarily to attract maximum engagement and sharing on social media platforms. The ultimate goal is to influence public opinion, shape perceptions, and steer audience behavior. (Dawaji & Sehnoun, 2023, p. 352)

In this context some researchers define fake news as a form of sensationalist journalism or propaganda that involves the intentional dissemination of false information or fabricated stories through traditional media outlets such as newspapers and television, as well as digital platforms like social media (Hota, Tilak, Ahluwalia, & Lohia, 2018, p. 3).

I. 5. 2.2. Operational Definition

In the context of this study, "fake news" refers to deliberately false or distorted content disseminated through digital media platforms with the aim of misleading the public,

particularly on issues related to cybersecurity. These fake news stories are characterized by inaccuracy and factual distortion, posing risks and harm to both individuals and institutions in terms of cyber threats. Artificial intelligence technologies are used to detect and verify such content, thus contributing to enhanced journalistic quality and protecting the audience from its negative consequences.

I. 5. 3. Artificial Intelligence

I. 5. 3.1. Etymological Definition

The term "cyber" has become widely used in the international security lexicon. It is derived from the Greek word *kybernetes*, meaning "helmsman" or "one who steers," and was introduced by American mathematician Norbert Wiener to describe automated control systems. In its modern usage, "cyber" encompasses everything related to electronic networks and the internet. Cyberspace refers to the digital environment that includes computer networks, the internet, and various applications such as WhatsApp, Facebook, and thousands of others. It also includes digital services like online banking, e-commerce, and communication platforms, all of which have become essential to daily life (Mona, 2020, p. 9).

I. 5. 3.2. Conceptual Definitions

Cybersecurity refers to all measures, procedures, techniques, and tools designed to ensure the safety and integrity of networks, software, and data against attacks, damage, or unauthorized access. It also includes the protection of digital devices and the information they contain (Mona, 2020, p. 7).

I. 5. 3.3. Operational Definition

In the context of this study, "cybersecurity" is defined as a set of preventive measures aimed at safeguarding digital systems and networks from cyber threats and attacks. It involves

ensuring the confidentiality, integrity, and availability of information, as well as protecting data from unauthorized access or manipulation. With the increasing reliance on technology, cybersecurity becomes essential to shielding individuals and institutions from damages caused by cyber intrusions, including data breaches and disruptions of critical systems.

I. 5. 4. Detection Technologies

I. 5. 4.1. Operational Definition:

In the context of this study, "detection technologies" refer to artificial intelligence tools that rely on advanced algorithms to analyze news content and identify patterns associated with fake or misleading information. These technologies aim to support journalists in verifying the credibility of news related to cybersecurity

II– Methods and Materials:

II.1. Research Method

A research method is defined as the systematic arrangement and organization of ideas to explore the nature of a particular phenomenon or to address a specific scientific problem (Abidat et al., 1999, p. 35). It serves as a structured approach to analyzing a phenomenon or solving a problem using precise scientific methods (Bin Abdullah AlMusnad et al., 2007, p. 17). The analytical descriptive method focuses on an in-depth analysis of a specific phenomenon or topic using qualitative or quantitative data, with the aim of understanding various aspects of the phenomenon or assessing a particular case to achieve clear scientific objectives (Mohammad Abidat et al., 2004, p. 46).

This study adopts the descriptive method as a methodological framework to collect and analyze data related to evaluating the effectiveness of artificial intelligence

technologies in detecting fake news within the field of cybersecurity. The goal is to provide a comprehensive understanding that highlights the role of these technologies in addressing challenges associated with this vital domain.

II.2. Research Population and Study Sample

II.2.1. Research Population

The research population refers to the entire group of individuals or phenomena that the researcher aims to study in order to obtain results that reflect the characteristics of that population. The "target population" is defined as the broader scope to which the researcher aspires to generalize the study's findings. However, due to practical difficulties in accessing every individual within this larger population, researchers often focus on the accessible or available population from which data can be more easily collected. This accessible group is considered a subset of the target population, from which a specific sample is selected that meets the study's needs and fulfills its objectives (Mahjoub, 2005, p. 150). In this study, the research population includes all journalists working in television, radio, online, and print media institutions who use social media platforms, particularly Facebook.

II.2.2. Study Sample

In this study, a probability or random sampling method was employed. This type of sampling involves selecting units randomly based on specific criteria, ensuring that each unit within the population has a known probability of being included in the sample. However, this does not necessarily imply that all units have an equal chance, as is the case with simple random sampling. On the contrary, probabilities may vary among units, which can enhance the accuracy of results particularly when dealing with heterogeneous populations. In such cases, the use of stratified random sampling

contributes significantly to improving precision. The sample is selected using one of the random selection techniques that ensure known probabilities are achieved (Al-Baldawi, 2007, p. 59).

II.2.2.1. Simple Random Sampling Justification:

Simple random sampling is considered the most appropriate method for studying the target population, as it provides all individuals (journalists) with equal opportunities to be selected as part of the sample. This is achieved by assigning a number to each individual in the population and then selecting units using a table of random numbers, commonly found in many statistical references. Due to the large size of the study population—which includes a significant number of journalists it is impractical to rely on a purposive or nonprobability sample, as controlling such a broad and diverse population would be challenging. Therefore, simple random sampling offers the most suitable approach to ensure fair and accurate representation of the population under investigation (Abdelmajid Lotfi, 2018, p. 353). This method was chosen over purposive sampling because the research population encompasses Algerian journalists from various sectors, including print media, online journalism, and audiovisual media. These sectors involve a wide range of profiles such as reporters, hosts, editors, and bloggers, many of whom are actively engaged in investigative work aimed at detecting and verifying fake news. Based on this diversity, we opted for random selection as the most reliable means of collecting statistical data from study participants, ensuring precise analysis and interpretation of the results.

II.2.2. Data Collection Tool The Questionnaire:

The questionnaire is a research instrument consisting of a series of well-crafted questions

designed to address a specific topic. These questions are presented to the target individuals either through mail or direct distribution. Its primary purpose is to collect participants' responses, which are later retrieved by the research team for analysis and interpretation (Zerouati, 2002, p. 123). This method of data collection is considered the most appropriate for our study, as it enables respondents to complete the questionnaire quickly, facilitates rapid access to results, and is cost-effective. Moreover, given the large size and wide dispersion of the target population, alternative methods such as interviews are less feasible. In contrast, the questionnaire allows for broader coverage of the intended audience.

In light of the above, the questions of the electronic questionnaire were scientifically formulated and distributed across four main axes as outlined below:

- **First Axis:** Demographic data of the respondents.
- **Second Axis:** Journalists' awareness of artificial intelligence techniques in detecting fake news related to cybersecurity.
- **Third Axis:** Challenges faced by journalists in using artificial intelligence to detect fake news.
- **Fourth Axis:** The impact of using artificial intelligence on the quality and accuracy of journalistic work in the field of cybersecurity.

III- Results and discussion :

Data were collected through a questionnaire administered to a sample of 34 Algerian journalists working across various public and private national media outlets. The questionnaire included both open-ended and closed-ended questions, utilizing a three-point Likert scale to assess the effectiveness of artificial intelligence in detecting fake news related to cybersecurity. The questions covered various dimensions of the phenomenon, including journalists' awareness of AI

techniques used in identifying fake cybersecurity news, the challenges they face when using AI for this purpose, and the impact of AI utilization on the quality and accuracy of journalistic work in the cybersecurity domain.

Below, we present the method used to measure the respondents' attitudes based on the Likert scale adopted in the study:

Table 1. Opinion Trend Scale According to the Three-Point Likert Scale.

Mean Score	Opinion Trend
From 1 to 1.66	Opposed
From 1.67 to 2.33	Neutral
From 2.34 to 3	Agree

Table prepared by the researcher

The table shows that if the result of the three-point Likert scale falls within the range of 1 to 1.66, the general opinion trend is considered opposed. If the result falls within the range of 1.67 to 2.33, the opinion trend is considered neutral, while results between 2.34 and 3 indicate an agreement with the statement.

In the following section, we present the tables related to the demographic data of the study sample.

Table 2. Distribution of the Sample by Gender

Gender	Frequency	Percentage (%)
Male	17	50.0
Female	17	50.0
Total	34	100.0

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

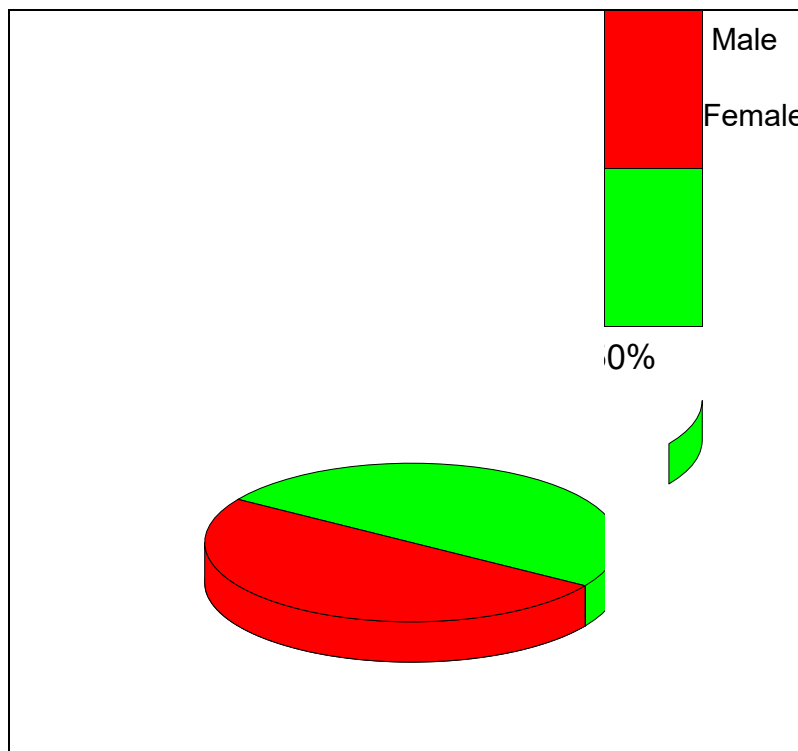


Figure 1. The Figure Was Created by the Researcher Using Origin Software

The table shows that the sample consists of 34 journalists, including 17 males and 17 females. It is evident that the gender distribution is perfectly balanced, with males representing 50% of the sample and females also accounting for 50%. This equal representation ensures a well-balanced diversity in terms of gender, allowing for a comprehensive analysis of opinions and perspectives based on gender.

Table 3. Distribution of the Sample According to Age

Age Group	Frequency	Percentage (%)
25 to 35 years	14	41.2
36 to 45 years	12	35.3
Over 45 years	8	23.5
Total	34	100.0

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

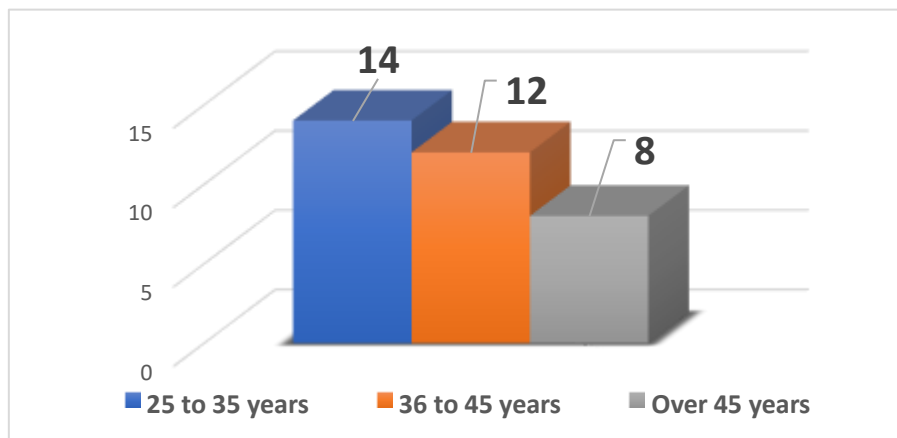


Figure 2. The figure was prepared by the researcher using Excel.

The data shows that the majority of journalists in the sample (41.2%) are between 25 and 35 years old, while those aged 36 to 45 account for 35.3%. Participants over 45 years old represent 23.5% of the total. This age distribution highlights a relatively young workforce, with a significant portion belonging to a generation likely more familiar and adaptable to modern digital tools such as artificial intelligence, which could influence their perspectives and engagement in the field.

Table 4. distribution of the sample by years of experience in the media field

Years of Experience	Frequency	Percentage (%)
Less than 5 years	4	11.8
5 to 10 years	14	41.2
More than 10 years	16	47.1
Total	34	100.0

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

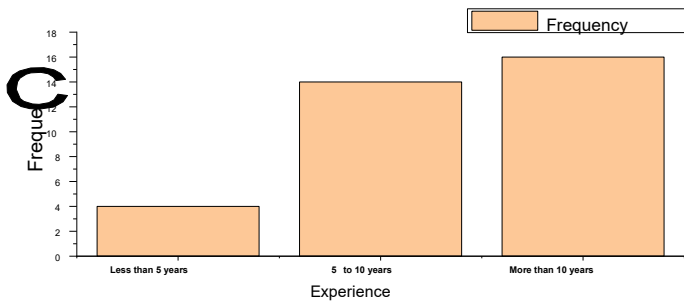


Figure 3. The Figure Was Created by the Researcher Using Origin Software

The distribution of professional experience among the surveyed journalists reveals that nearly half of the participants (47.1%) have more than 10 years of experience in the media sector. A significant portion (41.2%) has between 5 and 10 years of experience, while only a small fraction (11.8%) have been in the field for less than 5 years. This indicates a sample composed predominantly of experienced professionals, which enhances the depth and reliability of the insights gathered particularly in relation to the evolving nature of media practices and the integration of technologies like artificial intelligence.

Table 4. distribution of the sample according to the type of media institution

Type of Media Institution	Frequency	Percentage (%)
Television	4	11.8%
Radio	7	20.6%
Online	12	35.3%
Print	11	32.4%
Total	34	100.0%

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

The data in the table indicates that online media outlets are the most represented in the sample, accounting for 35.3%, This highlights the growing prominence of digital journalism and its significant involvement in addressing cybersecurity issues. Print media follows with 32.4%, suggesting that traditional platforms continue to maintain relevance despite the digital shift. Radio institutions constitute 20.6% of the sample, while television outlets are the least represented at 11.8%. This distribution reflects a diversity of media sources and demonstrates the varied engagement of journalists across different types of institutions in exploring the effectiveness of artificial intelligence in combating fake news.

Table 5. Assessment of journalists' awareness level of artificial intelligence techniques in detecting fake news related to cybersecurity

Statement	Disagree	Neutral	Agree
I am familiar with AI technologies used to detect fake news.	8	11	15
	23.5%	32.4%	44.1%
	10	8	16

The media organizations I work for provide training sessions on AI technologies.	29.4%	23.5%	47.1%	
I believe AI enhances the accuracy of cybersecurity news.	8	18	8	
	23.5%	52.9%	23.5%	
I know how to use AI tools to analyze news content.	10	16	8	
	29.4%	47.1%	23.5%	
statement	Mean	Std. Dev.	General Trend	Rank
The first statement	2.21	0.81	Neutral	1
The second statement	2.18	0.87	Neutral	2
The third statement	2.00	0.70	Neutral	3
The fourth statement	1.94	0.74	Neutral	4

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

Table analysis reveals that journalists' awareness of artificial intelligence (AI) technologies used to detect fake news related to cybersecurity varies across levels of agreement, neutrality, and disagreement, with noticeable disparities in their assessments. For the first statement, "I am familiar with AI technologies used to detect fake news," the mean score was 2.2059 with a standard deviation of 0.808270. The responses were distributed as follows: 44.1% agreed, 32.4% were neutral, and 23.5% disagreed. This suggests a moderate level of awareness among journalists, although it does not reflect strong familiarity or in-depth knowledge of such technologies. Regarding the second statement, "The media organizations I work for offer training courses on AI technologies," the mean was 2.1765, with a standard deviation of 0.869360. Here, 47.1% agreed, 23.5% were neutral, and 29.4% disagreed. While nearly half of the respondents acknowledged the availability of training opportunities, the relatively high percentage of disagreement points to a significant gap in access to such programs. For the third statement, "I believe

AI technologies play an important role in enhancing the accuracy of cybersecurity-related news," the mean was 2.0000 and the standard deviation was 0.696310. A majority (52.9%) were neutral, while 23.5% agreed and 23.5% disagreed. These results reflect uncertainty or hesitation in affirming the effectiveness of AI in improving the accuracy of cybersecurity-related reporting. Lastly the fourth statement, "I am knowledgeable about how to use AI-based tools to analyze news," yielded a mean of 1.9412 with a standard deviation of 0.736130. Responses were 47.1% neutral, 29.4% disagreed, and 23.5% agreed. This indicates that many journalists lack sufficient knowledge or practical skills in using AI-powered tools for news analysis. In summary the findings suggest that journalists in the sample exhibit a moderate level of awareness about AI technologies. However, this awareness tends to remain at a basic or surface level. The high proportion of neutral responses further indicates a general lack of decisive opinions or concrete experience regarding the use of AI in detecting fake news

Table 6. The Evaluation of the Challenges Faced by Journalists in Using Artificial Intelligence (AI) Technologies to Detect Fake News Related to Cybersecurity

Challenges Faced by Journalists in Using AI to Detect Fake News		Disagree	Neutral	Agree
I face technical difficulties in using AI tools to detect fake news.		11	9	14
		32.4%	26.5%	41.2%
There is a lack of resources within my organization to enhance my ability to use AI.		5	11	18
		14.7%	32.4%	52.9%
I believe the cost of implementing AI technologies hinders their widespread application.		5	13	16
		14.7%	38.2%	47.1%
I find it difficult to identify appropriate AI-based tools.		9	9	16
		26.5%	26.5%	47.1%
Existing laws do not encourage the use of AI in the media sector.		15	7	12
		44.1%	20.6%	35.3%
statement	Mean	Std. Dev.	Sample Trend	Statement Rank
The first statement	2.0882	0.86577	Neutral	4
The second statement	2.3824	0.73915	Agree	1
The third statement	2.3235	0.72699	Agree	2
The fourth statement	2.2059	0.84493	Neutral	3
The first statement	1.9118	0.90009	Neutral	5

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

The table reveals that journalists encounter a variety of challenges when employing artificial intelligence technologies to detect fake news, with noticeable differences in how they assess these obstacles. The foremost challenge, as indicated by the statement “There is a lack of resources within my organization to enhance my ability to use AI,” holds the highest average score of 2.3824 and a standard deviation of 0.73915. Over half of the respondents (52.9%) agreed with this, while 32.4% remained neutral, and 14.7% disagreed, highlighting that insufficient institutional resources are the most significant barrier.

The second-ranked challenge, “I believe the cost of using AI technologies limits their widespread adoption,” had a mean of 2.3235 and a standard deviation of 0.72699. Nearly half of the participants (47.1%) agreed, 38.2%

were neutral, and 14.7% disagreed, reflecting that financial constraints also play a major role in hindering broader implementation.

Next, the statement “I find it difficult to identify the appropriate AI tools” ranked third, with a mean of 2.2059 and a standard deviation of 0.84493. Here, 47.1% of journalists agreed, 26.5% were neutral, and an equal 26.5% disagreed, indicating that while tool selection poses a notable difficulty, it is somewhat less problematic than the previous issues.

The fourth challenge, “I face technical difficulties in using AI tools to detect fake news,” had a mean score of 2.0882 and a standard deviation of 0.86577. Agreement was recorded by 41.2% of respondents, neutrality by 26.5%, and disagreement by 32.4%, suggesting moderate technical hurdles among journalists.

Finally, the statement “Current laws do not encourage the use of AI in the media sector,” which ranked fifth, showed a mean of 1.9118 and a standard deviation of 0.90009. A plurality of 44.1% disagreed with this point, 35.3%

technologies, alongside difficulties in identifying suitable tools. Technical challenges, while present, are less pronounced, and legal restrictions appear to have minimal impact. Consequently, media

Table 7. Assessment of the Sample’s Perception of the Impact of Artificial Intelligence on the Quality and Accuracy of Journalistic Work in the Field of Cybersecurity

statement		Disagree	Neutral	Agree
Using AI helps me detect fake news related to cybersecurity faster.		29.4 %	20.6%	50.0 %
AI technologies enhance the accuracy of the news I publish.		26.5%	41.2%	32.4 %
I believe AI contributes to improving the credibility of journalistic work related to cybersecurity.		20.6%	47.1%	32.4 %
AI helps me verify the sources of cybersecurity news.		38.2%	50.0%	11.8 %
I believe using AI reduces the likelihood of publishing misleading news.		41.2%	29.4%	29.4 %
statement	Mean Score	Std. Dev.	Sample Trend	Rank
The first statement	2.20	0.88006	Neutral	1
The second statement	2.05	0.77621	Neutral	3
The third statement	2.11	0.72883	Neutral	2
The fourth statement	1.73	0.66555	Neutral	5
The first statement	1.88	0.84440	Neutral	4

Table prepared by the researcher based on SPSS 27 statistical analysis outputs

agreed, and 20.6% were neutral, indicating that existing legal frameworks are not perceived as a major impediment to AI adoption in media. Overall, the data suggest that the primary obstacles for journalists in leveraging AI stem from a shortage of institutional resources and the high costs associated with these. The table reveals that journalists generally hold a neutral stance regarding the impact of

organizations . should prioritize investing in adequate resources and comprehensive training programs to empower journalists and facilitate more effective use of AI technologies artificial intelligence on the quality and accuracy of journalistic work in cybersecurity.

Responses vary across disagreement, neutrality, and agreement. For the statement “Using artificial intelligence helps me detect fake cybersecurity news faster,” which ranked first, the mean score was 2.2059 with a standard deviation of 0.88006. Half of the respondents (50.0%) agreed, 20.6% were neutral, and 29.4% disagreed, indicating a general belief that AI speeds up fake news detection, though opinions differ somewhat. In the second-ranked statement, “I believe artificial intelligence contributes to improving the credibility of cybersecurity journalism,” the mean was 2.1176 (SD = 0.72883), with 32.4% agreeing, 47.1% neutral, and 20.6% disagreeing. This suggests that most journalists do not perceive AI as significantly enhancing journalistic credibility, with mixed views on this point.

For the third statement, “AI technologies enhance the accuracy of the news I publish,” which ranked third, the mean was 2.0588 (SD = 0.77621), with 32.4% agreeing, 41.2% neutral, and 26.5% disagreeing. This reflects a slight divergence in opinions on AI’s role in improving news accuracy.

The fourth statement, “I think using AI reduces the likelihood of spreading misleading news,” ranked fourth with a mean of 1.8824 (SD = 0.84440). Here, 29.4% agreed, 29.4% were neutral, and 41.2% disagreed, indicating that journalists do not strongly perceive AI as effective in reducing misinformation dissemination.

Finally, for the fifth statement, “AI helps me verify sources of cybersecurity news,” the mean was 1.7353 (SD = 0.66555), with only 11.8% agreeing, 50.0% neutral, and 38.2% disagreeing. This points to a general skepticism about AI’s effectiveness in source verification among journalists.

Overall, while journalists acknowledge AI’s role in accelerating the detection of fake news, they are less convinced about its ability to enhance news accuracy, credibility, or reduce misinformation. The substantial neutral and

opposing responses highlight a need for specialized training to help journalists better leverage AI tools for improving the precision and trustworthiness of their reporting, as well as for effective source verification.

Discussion Results in Light of the Hypotheses:

First Hypothesis: Journalists have limited awareness of artificial intelligence techniques used to detect fake news related to cybersecurity.

Based on the data presented in the table, this hypothesis is somewhat supported. The average scores for all statements hover around 2.0, indicating that the journalists in the sample possess a moderate or neutral level of awareness regarding AI technologies. For instance, in the statement “I am familiar with artificial intelligence techniques used to detect fake news,” the mean score was 2.2059, with 44.1% of journalists agreeing that they are aware of these techniques. However, 32.4% remained neutral and 23.5% disagreed, reflecting a variation in the level of awareness. Regarding the statement “The media institutions I work for provide training courses on AI technologies,” 47.1% of journalists acknowledged the availability of such opportunities, yet the relatively high percentage of disagreement (29.4%) indicates a shortage of training provisions. For other statements, such as “I believe AI techniques play an important role in improving the accuracy of cybersecurity news” and “I am familiar with how to use AI-based tools to analyze news,” responses were largely neutral. This suggests that journalists neither strongly affirm the effectiveness of AI in enhancing accuracy nor feel fully confident in their ability to use these tools.

Considering the significant proportion of neutral responses alongside moderate levels of agreement and disagreement, it can be

concluded that the hypothesis stating “journalists have limited awareness of AI technologies” is partially validated. In reality, journalists’ awareness of AI techniques remains limited and requires further enhancement through comprehensive training and awareness programs. Media organizations must intensify their efforts to improve training and capacity building in this domain, which will ultimately empower journalists to more effectively tackle fake news related to cybersecurity.

Second Hypothesis: Journalists face technical and knowledge-related challenges that hinder the use of artificial intelligence in detecting fake news.

The hypothesis stating that "journalists face technical and cognitive challenges impeding the use of AI in detecting fake news" is clearly supported by the findings. It was evident that journalists encounter several major obstacles, including a lack of resources, the high cost of AI technologies, and difficulties in selecting appropriate tools. Survey results showed that resource scarcity within media institutions was the most significant barrier, with 52.9% of respondents agreeing that insufficient resources to develop skills in this field represent a genuine technical and cognitive challenge.

Furthermore, cost was identified as another major hurdle, with 47.1% of participants indicating that the expense of using AI technologies limits their widespread application. Regarding the difficulty in identifying suitable AI tools, 47.1% of journalists reported facing challenges in choosing the right tools for detecting fake news. Although technical difficulties were somewhat less prominent 41.2% of respondents agreed that they experience technical problems when using these AI tools this still highlights the importance of addressing such obstacles.

Conversely, the current legal framework does not appear to be a significant impediment, as 44.1% of journalists disagreed with the notion that existing laws discourage the use of AI technologies.

Based on these findings, it can be concluded that journalists indeed face multiple technical and knowledge-related challenges that hinder effective use of AI in detecting fake news. This confirms the validity of the hypothesis and underscores the urgent need to address these challenges by providing adequate resources, offering targeted training for journalists, and reducing the costs associated with implementing AI technologies.

Hypothesis Three: The use of artificial intelligence (AI) positively contributes to improving the quality and accuracy of journalistic work in the field of cybersecurity.

The statistical analysis revealed that this hypothesis was not fully confirmed. The survey results indicate that journalists tend to view the impact of AI on the quality and accuracy of journalistic work in cybersecurity in a generally neutral manner. For instance, the statement "The use of AI helps me detect fake news related to cybersecurity more quickly" received the highest level of agreement among respondents (50.0%), with a mean score of 2.2059 and a standard deviation of 0.88006. This suggests that journalists believe AI can assist in the faster detection of fake news, although there is slight variability in opinions. On the other hand, the statement "AI technologies enhance the accuracy of the news I publish" showed greater divergence in responses, with only 32.4% agreeing. This reflects that the majority of journalists do not view AI as a strong tool for enhancing news accuracy. Moreover, journalists did not clearly agree that AI contributes to improving the credibility of journalistic work in the cybersecurity domain. The statement "I believe AI contributes to improving the credibility of

journalistic work related to cybersecurity" recorded a high neutral response rate (47.1%) and a mean score of 2.1176, indicating that most journalists are uncertain about AI's influence on the credibility of their work. Regarding the reduction of misinformation or verification of news sources, the data showed high levels of neutral and disagreeing responses. This implies that journalists do not perceive AI as an effective tool in this area either.

Based on these findings, it can be concluded that journalists perceive the role of AI in improving the quality and accuracy of journalistic work particularly in the field of cybersecurity as limited. Therefore, there is a need for specialized training for journalists on how to effectively utilize AI to enhance news accuracy and credibility, as well as to improve source verification techniques

IV- Conclusion:

The study of the effectiveness of using artificial intelligence (AI) technologies to detect fake news related to cybersecurity holds great significance in an era marked by growing cyber threats and the widespread dissemination of misinformation. In this context, it was essential to assess the extent to which journalists are capable of leveraging these advanced technologies to detect fake news and ensure the accuracy and quality of the information they publish.

In response to the central research question "To what extent are AI technologies effective in detecting fake news related to cybersecurity when used by journalists?"—the findings revealed that the effectiveness of these technologies remains limited. The results showed that journalists have only a moderate level of awareness regarding AI tools used for detecting fake news. Furthermore, numerous technical and cognitive challenges hinder their ability to effectively benefit from these tools. Although AI is perceived to help speed up the

detection process, its impact on improving the overall quality and accuracy of journalistic work in cybersecurity remains inconclusive. Therefore, there is an urgent need to enhance journalists' training and awareness of these technologies. The effectiveness of using AI to detect fake news related to cybersecurity requires significant reinforcement in several areas, including increasing awareness of AI capabilities, overcoming technological and knowledge-based barriers, and providing better training to journalists on how to use such tools effectively to improve the accuracy of published news.

As for the findings related to the sub-questions of the study, they can be summarized as follows:

1-To what extent are journalists aware of AI technologies used to detect fake news related to cybersecurity?

The findings indicated that journalists have limited awareness of AI technologies in this area. Their awareness levels generally ranged from neutral to moderate, with varied opinions regarding AI's role in improving news accuracy. Additionally, many journalists reported not receiving sufficient training from media institutions in this field. 2-What challenges do journalists face in using AI to detect fake news?

The study revealed that journalists face several key challenges, including limited resources within media organizations, the high costs associated with AI technologies, and difficulty in identifying the right tools to detect fake news. These barriers significantly impact their ability to effectively implement AI in their work.

3-What is the impact of AI use on the quality and accuracy of journalistic work in cybersecurity?

The results showed that AI does not significantly enhance the quality or accuracy of journalistic work in the cybersecurity domain. While journalists acknowledged that AI contributes to the faster detection of fake news,

its impact on improving accuracy and credibility was generally perceived as neutral. Journalists did not show clear consensus on the potential of AI to enhance the credibility of cybersecurity journalism.

Recommendations:

- Provide intensive training courses for journalists to increase awareness and enhance their skills in using artificial intelligence technologies through specialized workshops and training programs.
- Improve technological infrastructure and provide the necessary resources and tools within media institutions to ensure the effective use of AI tools.
- Encourage partnerships between media organizations and technology companies to exchange expertise and develop tools for detecting fake news.
- Develop shared platforms that allow journalists access to the latest technologies and information on methods for detecting fake news, thereby improving the accuracy and quality of news content.

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