THE POSITIVE EFFECTS OF IMPACTS THAT ARTIFICIAL INTELLIGENCE ON THE PERFORMANCE OF ARAB NEWSROOMS - (SAUDI ARABIA, THE UNITED ARAB EMIRATES, QATAR AND KUWAIT AS MODELS)

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ABSTRACT

This study measures the effectiveness of using Artificial intelligence (AI) in news content production in Arab newsrooms and determines the rate of enhancement of such news content as a result of applying AI systems and tools specifically in the case of the Arab countries which are indicated in this research as case studies, namely the rich Gulf States of Saudi Arabia, UAE, Qatar and Kuwait and economically weak countries namely Egypt, Lebanon, Jordan and Tunisia. The findings of the study indicate with much confidence that AI has begun to reshape the Arab news landscape, offering tools that enhance efficiency, diversify content, and expand audience engagement. The path forward requires targeted investment in AI literacy, partnerships with global and regional organizations, and development of Arabic-specific datasets and ethical frameworks. With strategic planning and collaborative initiatives, AI can become a transformative force for all Arab newsrooms, narrowing the gap between the technologically advanced and the resource-constrained countries. However, the study identified significant challenges in the implementation of AI, including concerns around data privacy, algorithmic bias, copyright issues, and unequal access to technology. To address these gaps researchers cited here recommended incorporating AI literacy and ethical training into media curricula. They emphasize the need for human-centered AI policies, increased funding, and educator-led awareness to prepare students for the evolving media landscape.

1. INTRODUCTION

Artificial Intelligence (AI) can be classified as the machine-created digital works that allow computer-based machines to carry out humanized or human-inspired cognitive, emotional, and social activities that are intelligent in nature. Since the early 1950s, computer science experts predicted that the world will very soon see AI systems that can carry out computer-based intelligent behaviors that are very similar to human behaviors in all aspects of life, and that are at the same time cognitive, social and emotional in nature (Haenlein and Kaplan, 2019).

During the past few years, computer science experts found that knowledge and experience will soon confirm that the capabilities of artificial intelligence (AI) will evolve on yearly-basis making the cost of AI systems that continually evolve in the form of more advanced systems more and more affordable in terms of computing power (Broussard et al. 2019, p. 673).

AI has shown by now considerable potential in many experimental studies, especially in the scientific and technological fields. Despite the fact that it will not be feasible to estimate the costs that result from the creation of an AI project or an individual application before delving into the details of such a project or application, many experts still found that it is already possible to develop an AI system at much a reduced cost than ever before. But the fact that will always prevail is that AI systems will continue to require specialized experts to work on their creation and make them more and more fit for the jobs that they will be created for. On the other hand, it is expected that big Silicon Valley companies will soon ensure their control on such systems by actively creating startup companies to deploy AI solutions to survive and prosper in the evolving AI market and face competitors (Linden 2017a).

This article is particularly concerned with the impact that AI made on the performance of Arab newsrooms, as recent developments in this field indicate that AI made considerable positive changes in the performance of Arab newsrooms just as it made on the performance of other world newsrooms. With the increasing introduction of AI applications in the news media, much flexibility will be required from the personnel who develop and deliver news in such newsrooms and work with the evolving AI systems, and there will be much competition among newsrooms to attract and retain professionals, who will ask for much higher salaries as the field becomes more and more sophisticated (Cook et al. 2021). This will be accompanied by the continuous adoption of increasingly developed technologies in these news newsrooms (Broussard et al. 2019; Lokot and Diakopoulos, 2016).

Recently, newsrooms started to automate their news stories more than ever (Linden 2017b). They now use machine learning algorithms to a certain degree in some of their projects, but still many projects are merely based on automation that complete the template stories without producing stories based on previously prepared data (Biswal and Gouda 2020).

The scope of this research is limited to the manner in which AI has developed a positive effect on newsrooms' performance in terms of professionalism, transparency and valid news, as well as attractiveness and increase in the number of viewers. Nevertheless, the article also covers some of the challenges that make the application of AI to the news content somewhat difficult and in some cases daunting.

1.1. Research Problem

The statement that artificial intelligence (AI) is now shaping many aspects of our daily life is believed to be true by many experts who are now studying the field. It has indeed changed many of the traditional tools that have been used to create and deliver content in the news media field and adopted more advanced technological tools that are now termed AI systems. Now the use of AI advanced technology has created many new possibilities that are capable of generating various patterns of media content and enhancing the classical ones, thus rendering the news content more attractive and more informative than ever.

However, the introduction of the AI systems and their use in the media is not without cost. First of all, it has raised many concerns about how some of the AI tools may replace the media professionals in many routine jobs threatening them with job loss as well as falling in the pitfalls of fake news and other issues such as copyright infringement and increase in cost per single unit of time and news delivery.

However, a lot of debate has been raised in terms of how the positive effects and the enhancing effects that are brought out by AI systems will counterbalance the negative effects. This article covers these and other developments that seem inevitable to occur in the field of news content in the future as a result of introducing AI tools into the content produced and delivered by newsrooms.

1.2. Research Objectives

The objectives of this research emanate from the research problem formulated in the above section. It

is primarily concerned with the manner in which AI tools have been used to create and deliver content in the news media field and how it contributed to the emergence of diverse patterns of news content production on Arab newsrooms. The research aims to show how AI will play a more significant role in Arab newsrooms.

This research attempts to measure the effectiveness of using AI in news content production and determines the rate of enhancement of such news content as a result of doing so, specifically in the case of the Arab countries which are indicated in this research as case studies, namely Saudi Arabia, UAE, Qatar and Kuwait.

1.3. Research Questions

From the research problems and objectives of this research a primary question emerges regarding how AI contributed to the emergence of diverse patterns of news content production on Arab newsrooms. The following questions branch out from this primary question:

1. What is the role of AI in making news content?
2. What existing foundations (technologies / building blocks) that are used in news content where AI is applied?
3. What are the challenges facing implementation of AI to enhance the news-content industry?
4. How did the newsrooms of the rich Arab Gulf States (UAE, Saudi Arabia, Qatar and Kuwait) manage to successfully introduce AI systems and tools in their news content production and delivery?
5. What are the future prospects that lie ahead of the economically weak Arab newsrooms (Egypt, Lebanon and Tunisia) to follow the Gulf model of newsrooms?

1.4. Research Hypothesis

(1) There is a positive relationship between news content production and the effective implementation of AI, where the dependent variable here is news content production while the independent variable is AI.

(2) The implementation of AI systems in many Arab newsrooms especially those in countries with weak economy was met with many challenges including poor funding and the lack of AI-related expertise, particularly IT developers.

1.5. Research Sources

This research relies entirely on one source which consists of the positive changes that have been reported on the World Wide Web about the positive

changes that took place in the performance of newsrooms as a result of the application of AI systems to produce and deliver their news content, with special focus on the positive changes in the performance of Arab newsrooms including cases of the Saudi Arabia, UAE, Qatar and Kuwait and others. However, the challenges that have been reported by such newsrooms while applying AI tools and the limitations thereof will also be stressed in order to offer a clear picture of the present and future of the news content that is produced and delivered by such newsrooms.

1.6. Procedural Definitions

Artificial Intelligence: Machine-created digital works that allow computer-based machines to carry out humanized or human-inspired cognitive, emotional, and social activities.

Newsroom: Newsrooms are television newsrooms that broadcast news content via satellite signals, delivering programming directly to viewers' homes through satellite dishes.

News Content: The material produced and delivered by newsrooms including the wide array of news content, such as international news, business news, regional news, and specialized news programs focusing on areas like sports or entertainment. Many news newsrooms are available via satellite, offering diverse perspectives and coverage on various topics.

1.7. Methodology

This research uses the traditional method of the collection of data from the various sources that are available on the World Wide Web that belong to the type of data that can be used to answer the questions of this research, as well as other data that may be used to test the hypotheses that have been set out on this topic.

Data collection: Primary data are those that are related to areas where particular newsrooms have employed AI in their news content production and delivery and the positive changes that have been brought about, as well as the challenges and limitations that have been met by them.

Data analysis: Analysis of data is based on the extent to which such AI reports have had a considerable positive impact on the newsrooms after employing AI systems and tools to enhance their performance and the quality of news content.

Result interpretation: The resulting analysis of data is used to extract findings from the answers obtained in the discussion of the research questions as well as testing of the hypotheses that have been set out in this research regarding the positive changes

that have been reported such as identifying the benefits and risks associated with the use of AI in the news content production and delivery.

Findings: These are the final results reached by the researcher after answering the research questions and testing the hypotheses.

Recommendations: Finally, recommendations are made in order to offer advice in the use of AI in future research as well as the benefits that have been reaped in the past or may be reaped in the future from the use of AI to enhance news content production and delivery.

2. PREVIOUS STUDIES

1. In her 2024 study *"Exploring the Impact of Artificial Intelligence on Content Creation: A Comprehensive Study"*, Rachita Ota et al. examined how AI is revolutionizing the process of content production across various industries. The study highlights the transformative role of technologies such as natural language processing, machine learning, and computer vision in automating the creation of written, visual, and audio content. These advancements enhance productivity, scalability, and audience targeting by enabling content creators to analyze large datasets and tailor content more effectively.

The study focuses on key sectors like journalism, marketing, and entertainment. In journalism, AI improves the speed and accuracy of news reporting by generating articles and analyzing trends. In marketing, AI helps personalize content, optimize campaigns, and understand consumer behavior. In entertainment, AI creates original music, films, and media, blurring the line between human and machine creativity.

However, the authors also raised concerns about creativity, authorship, job displacement, bias in algorithms, and ethical challenges. The study emphasizes the need for responsible and ethical AI integration to harness its potential while mitigating risks. Overall, the study offers a comprehensive analysis of AI's evolving role in content creation and explores its future implications for creativity and innovation.

2. The study titled "AI in Newsrooms Assessing Perception Challenges in Bangladesh Media" authored by Nadia Rahman, focuses on the challenges faced by developing nations, specifically Bangladesh, in adopting AI in newsrooms. Rahman mentions in her study that developed nations have already integrated AI into journalistic practices, showcasing its versatility in different news functions. However, developing nations, such as Bangladesh, a south Asian nation, face obstacles in catching up with other nations, due to marked technological and economic disparities. As an emerging economic nation Bangladesh encounters different obstacles in the adoption of AI in its media landscape. Despite the expansiveness of its media industry, the country grapples with limited technological support and inadequate training opportunities. These challenges bring up concerns regarding the familiarity and introduction of AI in mainstream journalism in various countries along with the potential opportunities that lie ahead.

3. Similarly, *"Revolutionizing Satellite Communication with Artificial Intelligence: An Overview"* (2023), by Manasi Shahapurkar explores how AI is transforming satellite communication. The paper reviews current advancements and highlights key applications of AI, including resource allocation, interference management, and signal processing. AI, particularly through machine learning algorithms, can predict and manage signal interference, optimize satellite networks, and improve overall communication quality.

This study emphasizes that AI holds great promise for making satellite systems more efficient and reliable. However, it also acknowledges significant challenges, such as data security, privacy concerns, regulatory barriers, and technical constraints. Despite these issues, the author says that the current research aims to develop innovative solutions to address them and unlock AI's full potential in this field. Overall, the paper underscores AI's crucial role in the future of satellite communication, suggesting that with responsible integration and continued research, AI could significantly enhance global connectivity and communication infrastructure.

4. Pihlajarinne and Alén-Savikko discussed in their 2025 article titled *"Introduction to Artificial Intelligence and the Media"* how AI is transforming media by automating routine newsroom tasks, enabling data-driven content production, and enhancing content processing on social platforms. They highlighted that AI's effectiveness depends heavily on access to vast amounts of data, making data utilization central to modern media practices. However,

this shift raises significant legal and policy concerns, particularly around data ownership and intellectual property rights. The article emphasizes the need to reassess these frameworks to ensure responsible and fair use of AI in media environments.

5. In their 2025 review entitled "*Artificial Intelligence in Media Studies in Arab Countries: A Systematic Review*", Assad et al. studied the impact of AI on communication and media education across the Arab world. Using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) method, the study found that AI technologies such as augmented reality (AR), virtual reality (VR), and 3D design enhance students' learning outcomes, technical competencies, and career readiness. AI integration helps students develop key skills in data analysis, content creation, and digital media production.

However, the review also identifies significant challenges, including concerns around data privacy, algorithmic bias, copyright issues, and unequal access to technology. Additionally, the study notes a lack of awareness among students regarding AI's influence on future employment. To address these gaps, the authors recommend incorporating AI literacy and ethical training into media curricula. They emphasize the need for human-centered AI policies, increased funding, and educator-led awareness to prepare students for the evolving media landscape.

6. Prof. Rajeshwari M. Shettar in his 2025 overview titled "*Artificial Intelligence in Digital Media: An Overview*", discusses how AI has deeply embedded itself into modern society, influencing nearly every sector, including media. The article explains AI as the simulation of human intelligence in machines capable of learning, reasoning, and problem-solving. Over time, AI has grown from a supportive tool into a dominant force, transforming how people interact with technology and perform daily tasks.

Focusing on mass communication, this study is based on secondary data from scholarly articles and government sources highlights AI's expanding role in journalism and media production. Newsrooms worldwide are increasingly relying on AI for content creation and distribution. While AI brings efficiency and innovation, it also raises concerns about the loss of human creativity, emotion, and personal touch in media work. The conclusion emphasizes that AI is now central to modern computing, offering vast potential across industries, while also reshaping traditional roles in journalism and digital media.

7. In their article titled "*Artificial Intelligence in News Media: Current Perceptions and Future Outlook*" (2021), Mathias-Felipe de-Lima-Santos and Wilson Ceron highlight how AI is reshaping news media. They mention that AI has evolved from science fiction to a practical tool influencing the creation, production, and distribution of news. The study analyzes AI adoption in journalism through seven subfields, finding that machine learning, computer vision, and planning/scheduling/optimization are the most actively developed.

Machine learning, in particular, is used to increase audience engagement via recommendation engines and enhance business strategies such as predicting subscription cancellations or customizing pay walls. However, the research notes that AI development in news is largely driven by tech giants like Google, limiting broader industry access. Third-party tools like Jigsaw and platforms such as Piano and Deep BI are also used to automate content moderation and business optimization. The study concludes that while AI offers great potential, its use is concentrated and unevenly distributed across the industry.

8. Jana Elmesselmani investigated how AI is perceived within the news sector, using Al Jazeera as a case study. In her 2022 thesis "*The Perception of Artificial Intelligence in the News Industry*", she employed qualitative and exploratory methods, including four in-depth interviews and a survey of 33 Aljazeera staff. Interviewees offered diverse viewpoints from academia, journalism, and AI technical expertise.

Survey results revealed that 91% of respondents believe AI is less biased than humans, yet 62.5% disagreed that AI could replace journalists in writing articles. Additionally, 66% feared AI could raise unemployment in the news industry, while only 21% felt AI would uphold journalism ethics.

The author concluded that AI is gaining importance in the news industry and could help combat the high prevalence of fake news estimated at 60% globally and even higher in the Middle East, where government-controlled media skews public perception. AI may offer solutions, but ethical concerns remain.

9. The 2024 BBC News article "*Representation of BBC News Content in AI Assistants*" delves into how artificial intelligence is reshaping the

media landscape, offering both opportunities and challenges. The BBC embraces AI's potential to enhance content creation and audience engagement. Current AI applications include adding subtitles on BBC Sounds, translating content on BBC News, and supporting staff with AI tools for everyday tasks. Additionally, BBC is exploring AI-driven innovations such as personalized learning tools through.

However, the article also addresses significant concerns, for example AI assistants from companies like OpenAI, Google, and Microsoft are increasingly repurposing content from news publishers, often without consent to answer user queries. This raises ethical and legal concerns about content ownership, especially within the UK's media network. While AI can provide meaningful value if used responsibly, the BBC emphasizes the need to balance innovation with fair content use practices to protect journalistic integrity and ensure sustainable, high-quality information for the public.

10. In their 2024 article titled *"The Adoption of Artificial Intelligence Technologies in Arab Newsrooms: Potentials and Challenges"*, Zahera Harb and Rana Arafat scrutinize how AI integration in Arab media differs from Western models due to unique infrastructural and institutional challenges. Citing Lu et al. (2023), they emphasized that successful AI adoption requires robust infrastructure, skilled talent, and clear policies. The article provides insights into current AI implementations, ethical concerns, and practical obstacles in Arab newsrooms. It also presents an action plan, recommending collaboration among news managers, journalists' syndicates, and academic institutions to ensure responsible and effective AI deployment in the region.

11. In their 2022 article *"Use of Artificial Intelligence for the Generation of Media Content"*, Branislav Sančanin and Aleksandra Penjisevic analyzed the transformative role of AI in media operations and content creation. The paper emphasizes AI's potential in high-performance data analytics and its ability to enhance innovation, creativity, and efficiency in media production. The authors stress the importance of ethical and responsible AI use, highlighting the need for transparency, standardization, and trust-building to manage potential risks effectively.

The article envisions a future where digital media evolves into emotionally intelligent media,

paralleling past technological revolutions like radio and television. AI promises to unlock diverse media formats and improve data-driven content generation. However, to fully realize its benefits, the authors call for integrative research and a zero-tolerance approach to risks such as misinformation. They conclude that journalists should harness AI tools in order to streamline workflows, protect public interest, and ensure credible, relevant reporting in an increasingly complex media environment.

3. LITERATURE REVIEW

3.1. AI In the Arab Gulf Region Newsrooms

Arab newsrooms and journalists in general are still figuring out how to use AI tools to their everyday news production, distribution, and delivery. Al-Zou'bi and Fyadh (2023) found that the percentage of Arab newsrooms that currently use AI tools is less than 6.2%. However, the report doesn't say which nations or how many newsrooms it polled, making it possible that the percentage may be far smaller than that. Journalists in Egypt and Lebanon, for instance, have begun experimenting with Arabic grammar-checking tools like Lisan and Saheh, as well as large language models like ChatGPT. These and other polls have been conducted in 2024 for a larger research project on the cultures of journalism in Egypt and Lebanon.

Arab newsrooms funded by strong economies, such as the Gulf region (United Arab Emirates [UAE]), Saudi Arabia, Qatar, and Kuwait, have incorporated AI technologies into their news production routines, including generative AI tools, even before ChatGPT was introduced. In addition to generative AI, these newsrooms have been experimenting with news automation such as AI-powered news anchors (Al-Shurafa, 2023). This contrasts with newsrooms operating in weak and fragile economies.

For instance, a number of newsrooms in the Gulf area have been investigating the possibilities of AI automation technologies, despite the sluggish adoption of generative AI and automation tools in nations like Egypt and Lebanon. For instance, Al Jazeera Arabic launched AI technologies to counter "fake news" before creating its own AI news anchor (Ebtekar) in 2023 (Al-Gody, 2021). "Aref Bin Teqani," a virtual robot writer, has been unveiled by the UAE's Al-Ain news agency. Every week, Aref creates an AI-generated article covering a range of subjects. Journalists for Al-Ain in UAE discuss mistakes brought on by the AI system using out-of-date data (Al-Shurafa, 2023). Additionally, Al-Ain has led the way in script-to-voice AI formats, which can

significantly improve accessibility for people with disabilities (Al-Shurafa, 2023). Additionally, using AI to replace news presenters who arrive late, as was the case at Sharjah Media City in the United Arab Emirates, gave newsrooms immediate answers to issues (Al-Shurafa, 2023).

However, various state-owned news organizations in the UAE have been slow to adopt AI in their newsrooms, despite the country's rapid adoption of AI automation at the national level. The UAE has a dedicated minister for AI and a vision strategy to become the world leader in AI by 2031 (Ahmad et al., 2023). The majority of interviewees in Ahmad et al.'s study, which gathered primary data through interviews with journalists in a variety of roles within UAE news organizations, concurred that although AI experimentation is in progress, many organizations lack a clear strategy for implementing AI. They cited obstacles to progress, including editors' reluctance to adopt new technologies and senior newsroom leaders' lack of interest in integrating AI (Ahmad et al., 2023).

Near the United Arab Emirates, Kuwait News, a subsidiary of the Kuwait Times, debuted its first artificial intelligence (AI)-generated news anchor, "Fedha," who presents online news bulletins and is portrayed as a lady with light-colored hair wearing a black jacket and white T-shirt (Radford, 2023[AQ4]).

3.2. AI In Economically Weak Arab Newsrooms

According to respondents from 15 Arab newsrooms, the majority of which are located in economically weak nations (all of which are classified as small independent newsrooms with the exception of one, Saudi-owned MBC Egypt, based in Cairo), a global journalism survey by Beckett and Yaseen (2023) revealed a number of obstacles to the adoption of AI. Lack of funding and AI-related expertise, trouble recruiting fresh people, particularly IT developers, and skepticism about new technologies and the potential job displacement they may cause are some of the difficulties. Other difficulties include the lack of a unified administrative approach and structural problems such technological differences between departments.

In order to continue producing their regular news stories during the lockdown, Cairo 24, an Egyptian digital-native news organization, has been praised as a pioneer in Egypt for experimenting with news automation during the COVID-19 epidemic outside of the Gulf area (Arafat and Porlezza, 2023). However, that project and other initiatives have also been criticized for failing to closely monitor content produced by AI that has been plagiarized and for

using an unethical method to create content powered by AI. Al Masry Elyoum, the head editor of the Egyptian newspaper, described the situation in the nation as a "chaotic circus" (Elgatrifi, 2023).

Many Arab journalists still don't know what artificial intelligence (AI) is or how to tell AI-powered products apart from other digital tools for journalists. The creation and application of AI technologies require a workforce with expertise in data science, AI, and related domains. Many newsrooms in the region lack professionals with the necessary AI skills and knowledge (Beckett and Yaseen, 2023). The issue of AI has not been tackled strategically by many Arab news outlets. The lack of specialized teams of engineers and programmers for deploying AI technologies in newsrooms is one obvious example of the gap in AI knowledge and AI knowledge transfer. This issue affects the entire world, not just the Arab world (Beckett & Yaseen, 2023). Undoubtedly, the Arab newsroom needs to take a methodical approach to the problem of inadequate training. Such training has been sponsored in Egypt, Lebanon, and Tunisia by the Google News Initiative in partnership with a number of regional NGOs. However, it has primarily been restricted to small, independent newsrooms, such as Mada Masr in Cairo, 7iber in Jordan, and Raseef 22 in Lebanon, which employ no more than 20 to 25 news employees.

Many major Arab newsrooms appear to have lagged behind as a result, only realizing the necessity of improving their readiness once ChatGPT and other generative AI technologies were introduced. Having an AI strategy entails defining what AI adoption means for that particular organization, as well as how to create a clear development plan for integrating AI and automation technologies, educating news staff, and gaining access to the right digital infrastructure.

3.3. Disparity Between AI Tools In Newsrooms of Arab Rich and Poor Countries

The increased use of AI tools in newsrooms is also impacted by the economic disparity between the Arab economically strong and weak countries. Currently, small- and medium-sized independent newsrooms in economically disadvantaged nations like Egypt, Lebanon, Jordan, and Tunisia are making an effort to implement AI technologies. Foreign or private contributors provide the majority of the funding for these newsrooms. In these nations, state-run newsrooms are lagging far behind. According to Arafat and Porlezza (2023, p. 17), a large number of these state-owned media "continue to rely more on

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their print versions and traditional storytelling formats, giving less attention to producing interactive visual news content on their online platforms." Journalists in a number of Arab newsrooms are looking for individual training through their engagement with national or Pan-Arab media development NGOs.

ARIJ (2024) is one such organization that has provided online training to over 4,500 journalists throughout the Arab world. As a nongovernmental organization, ARIJ mostly relies on funding from foreign donors. Recently, "Full Fact" teamed up with Arab Fact Checkers Network (AFCN), ARIJ's subsidiary, to provide AI fact-checking tools in Arabic. This partnership, which was backed by the Google News Initiative, sought to make the work of Arab fact-checking groups easier. The Arabic tools were released by ARIJ's AFCN and Full Fact following months of testing, data annotation, translation, and technical development (ARIJ, 2024). The annotation process, according to the AFCN and Full Fact teams, concentrated on a number of areas, including "identifying key terms, classifying claims, and predicting quotes, among others." Other attempts to create AI tools in Arabic have been met with many difficulties; this is because of the subtleties of the Arabic language, such as differences in spelling and semantics. The annotation process keeps enhancing the tools' features and extending their capabilities in Arabic in spite of these obstacles (ARIJ, 2024).

4. DISCUSSION

The objective of this discussion is to answer the research questions that have been raised in this research as well as examine the hypotheses that have also been set out here. The ultimate goal of all this is to extract the final findings that may offer a new understanding of how AI can safely be applied in the newsrooms of Arab media in their production and delivery of news content as well as live up to the various challenges that the introduction of AI may pose.

Question 1

What is the role of AI in making news content?

In this research it is found that AI has a very advanced role in enhancing news content production and delivery. According to Linden (2017b) newsrooms in various Arab countries have already started to automate their news stories and managed to make them more telling than ever. To make such news stories more informative and attractive they now use machine learning algorithms in many of them. However, Biswal and Gouda (2020) found that still many of them are merely based on the kind of automation that can only complete the template stories without creating stories built on previously prepared data.

Furthermore, Pihlajarinne and Alén-Savikko (2025) found that by automating routine newsroom tasks, AI is enabling data-driven content production, and enhancing content processing on social platforms. AI manages to do this job effectively by accessing vast amounts of data and by making utilization of such data central to modern media practices. However, such a shift creates considerable legal and policy problems, particularly regarding data ownership and in general intellectual property rights. In effect this emphasizes a significant need to reassess this attribute of AI in order to ensure fair use of AI in media environments.

Using out-of-date data, some of Al-Ain journalists managed to employ script-to-voice AI formats in order to significantly improve accessibility for people with disabilities in the United Arab Emirates. Additionally, using AI to replace news presenters who arrive late, as was the case at Sharjah Media City in the United Arab Emirates, gave newsrooms immediate answers to issues (Al-Shurafa, 2023).

Question 2

What existing foundations (technologies / building blocks) that are used in news content where AI is applied?

To answer this question, we cite the manner in which Manasi Shahapurkar (2023) explored how AI is transforming newsrooms and satellite communication performance into a highly sophisticated one. The author highlighted the key applications of AI through which it can improve the performance of newsrooms, including resource allocation, interference management, and signal processing. AI, particularly through machine learning algorithms, can predict and manage signal interference, optimize satellite networks, and improve overall communication quality. By virtue of these above elements AI holds great promise for making satellite systems more efficient and reliable.

In other related fields Assad et al. (2025) found that AI systems and technologies can greatly enhance communication and media education across the Arab world. Using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) method, the authors found that AI technologies such as augmented reality (AR), virtual reality (VR), and 3D design enhance students' learning outcomes, technical competencies, and career readiness. AI

integration helps students develop key skills in data analysis, content creation, and digital media production.

Question 3

What are the challenges facing the implementation of AI to enhance the news content industry?

Although Manasi Shahapurkar (2023) enumerated many aspects in which AI systems managed to greatly enhance the performance of Arab newsrooms and satellite communication, he also acknowledged significant challenges, such as data security, privacy concerns, regulatory barriers, and technical constraints. Despite these issues, the author ascertained that innovative solutions to address them and unlock AI's full potential in this field have already been developed. He underscored AI's crucial role in the future of satellite communication, suggesting that with responsible integration and continued research, AI could significantly enhance global connectivity and communication infrastructure.

However, in their review Assad et al. (2025) also identified significant challenges, including concerns around data privacy, algorithmic bias, copyright issues, and unequal access to technology. Additionally, the study notes a lack of awareness among students regarding AI's influence on future employment. To address these gaps, the authors recommend incorporating AI literacy and ethical training into media curricula. They emphasize the need for human-centered AI policies, increased funding, and educator-led awareness to prepare students for the evolving media landscape.

Question 4

How did the newsrooms of the rich Arab Gulf States (UAE, Saudi Arabia, Qatar and Kuwait) manage to successfully introduce AI systems and tools in their news content production and delivery?

To answer this question, we may cite Harb and Arafat (2024) who studied how UAE, Saudi Arabia, Qatar, and Kuwait, introduced AI technologies into their newsrooms production and delivery routines, including generative AI systems and tools, even before they incorporated ChatGPT. The newsrooms of these rich Arab Gulf States experimented with news automation using AI-powered news anchors a long time before that.

These newsrooms have had economic resources and national-level AI ambitions (e.g., UAE AI strategy, ministerial support) the matter which enabled them to enter into early experimentation

projects helped by abundant funding and easy access to technical talent and vendor solutions. Examples of these early projects include Al Jazeera's early AI tools and Al Jazeera Arabic network "Ebtekar" anchor (meaning innovation system), Al-Ain's weekly AI-written articles and script-to-voice projects, and Kuwait News' AI anchor "Fedha". These actors also benefited from state and organizational willingness to pilot new technologies (Harb and Arafat 2024).

Another area in which these newsrooms experimented is how to avoid fake news in utilizing AI systems. For example, Al Jazeera Arabic network launched in 2023 AI systems that can counter "fake news" even before introducing its AI news anchor which the network named "Ebtekar" (innovation) (Al-Gody, 2021). Al-Ain News Agency of the UAE launched at that same time "Aref" a virtual robot writer that can write stories in real time. Aref can create on a weekly basis an AI-generated article that covers a range of subjects. Additionally, it is also capable of replacing news presenters who happen to arrive late, by covering the gap that could have been created due to such an absence, thus giving the newsroom answers to the issues discussed at the time. Furthermore, Al-Ain Agency created script-to-voice AI formats, which can allow accessibility of people with disabilities (Al-Shurafa, 2023).

Question 5

What are the future prospects that lie ahead of the economically weak Arab newsrooms (Egypt, Lebanon, Jordan and Tunisia) to follow the Arab Gulf model newsrooms?

To answer this question, we start with the global journalism survey conducted by Beckett and Yaseen (2023) in which they recruited respondents from 15 Arab newsrooms. Most of these newsrooms have been found in economically poor nations, and many of them have been small independent newsrooms (except for Cairo's MBC Egypt which is Saudi-owned). The survey revealed several problems that stand in the way of adopting AI systems and tools by these newsrooms. The first and most affecting two factors involve the poor funding and the lack of AI-related expertise, particularly IT developers. These two factors have been coupled with some kind of early skepticism regarding fears that such new technologies may displace humans especially due to their ability to speed up the manner in which routine tasks are done by machines (Beckett and Yaseen, 2023).

To make the chances of adopting AI systems and tools more and more infeasible, many Arab newsrooms workers in the Arab world are not

educated about how AI tools function, and many of them cannot differentiate between AI-powered products and other digital tools that may be employed in newsrooms in order to enhance programs production and delivery. This is because the creation and application of AI technologies require a full-fledged workforce with ample expertise in data science, AI systems and tool, and related domains. Furthermore, many of the existing newsrooms in the Arab region lag behind in terms of the least AI expertise and knowledge (Beckett and Yaseen, 2023).

However, the adoption of AI technologies by the Arab newsrooms might not be as bleak as we have hitherto explained. Newsrooms in Egypt, Lebanon, and Tunisia have already taken a methodical approach at least to the problem of poor training, and they embarked on the Google News Initiative that has been created in partnership with a number of regional NGOs. The newsrooms partnered in this initiative include Mada Masr in Cairo, Egypt, 7iber in Jordan, and Raseef 22 in Lebanon, all of which are small, independent newsrooms employing workers in the range of 20-25 news employees.

In order to recall experiences from the past we tell the story of Cairo 24, an Egyptian digital-native news organization, which has been commended as a pioneer that experimented with news automation in Egypt during the two years of COVID-19 (Arafat and Porlezza, 2023). However, Cairo 24 and other similar initiatives have been criticized at the time for being unable to live to the ethics of AI systems adoption, as much of the AI-powered news content has been plagiarized and some news have even been fake. Al, the editor-in-chief of the Egyptian newspaper Masry Elyoum described the newsrooms situation at that time as utterly "chaotic" (Elgatrifi, 2023).

The disparity between the Arab rich and poor countries is perhaps proportional to the extent to which AI tools are applied in their respective newsrooms. However, economically disadvantaged nations like Egypt, Lebanon, Jordan, and Tunisia somehow managed to build some kind of small- and medium-sized independent newsrooms where they were capable of making an effort to implement AI technologies. Such efforts were made possible for these independent newsrooms through funding from foreign and private contributors, while state-run newsrooms lagged far behind. According to Arafat and Porlezza (2023, p. 17), many of these state-owned media "continue to rely more on their print versions and traditional storytelling formats, giving less attention to producing interactive visual news content on their online platforms." Nowadays, journalists in many Arab newsrooms in poor countries are looking for private training by getting engaged with foreign or Pan-Arab media development NGOs (Beckett and Yaseen, 2023).

Research Hypothesis 1

There is a positive relationship between news content production and the effective implementation of AI, where the dependent variable here is news content production while the independent variable is AI.

To test this hypothesis about the presence of a relationship between news content production (dependent variable) and the effective implementation of AI (independent variable), we may cite some of the previous studies that have been reported in this study. Among the findings of the study of Rachita Ota et al. is the fact that the implementation of AI (independent variable), though is still in its infancy, has definitely revolutionized the process of content production (dependent variable) across various industries. The study investigated the transformative role of AI technologies and the positive effects that they brought about including the advancements in enhancing productivity, scalability, and audience targeting by enabling content creators to analyze large datasets and tailor them to the content improvement more effectively.

Research Hypothesis 2

The implementation of AI systems in many Arab newsrooms especially those in countries with weak economy was met with many challenges including poor funding and the lack of AI-related expertise, particularly IT developers, but managed to grapple with them.

This hypothesis is true with the newsrooms of the four countries represented in this study all of which managed to grapple with their limited technological support and inadequate training opportunities. Newsrooms in Egypt, Lebanon, and Tunisia have already taken a methodical approach to the problem of poor training, and they embarked on the Google News Initiative that has been created in partnership with a number of regional NGOs. The newsrooms that partnered in this initiative include Mada Masr in Cairo, Egypt, 7iber in Jordan, and Raseef 22 in Lebanon.

5. CONCLUSION

5.1. Findings

In conclusion, we can assert with much confidence that Artificial intelligence has begun to

reshape the Arab news landscape, offering tools that enhance efficiency, diversify content, and expand audience engagement. Wealthy Gulf newsrooms (in UAE, Saudi Arabia, Qatar and Kuwait) have leveraged strong funding, national AI strategies, and technical expertise to successfully integrate AI into their news production and delivery. However, economically weaker newsrooms in countries such as Egypt, Lebanon, Jordan and Tunisia face hurdles of limited resources, skills gaps, and infrastructural constraints. The path forward requires targeted investment in AI literacy, partnerships with global and regional organizations, and development of Arabic-specific datasets and ethical frameworks. With strategic planning and collaborative initiatives, AI can become a transformative force for all Arab newsrooms, narrowing the gap between the technologically advanced and the resource-constrained.

The integration of AI into media and journalism presents transformative possibilities that include enhancing efficiency, creativity, and content personalization. However, it also brings challenges - ethical concerns, job displacement, and unequal access in developing regions. Addressing these issues through responsible use, policy development, and inclusive infrastructure is essential to ensure AI benefits are shared across the global media landscape.

5.2. Limitations And Delimitations

1. Scope: The scope of this research is primarily restricted to the geographic region of the Arab Middle East and North Africa in terms of the positive impacts that AI made on the performance of Arab newsrooms, while the findings shown hereinabove are extracted from some selected Arab newsrooms mainly the rich Gulf States of UAE, Saudi Arabia, Qatar, Kuwait contrasted with the economically weaker nations of Egypt, Lebanon, Jordan and Tunisia, which may not fully represent all Arab newsrooms and far less the global news organizations. This regional focus of restricting the research to the analysis of the Arab newsrooms basing the arguments on simple specific comparisons between the newsrooms of wealthy Gulf States and resource-constrained countries, made the research missing in more important issues.

2. Evolving AI technologies: What is definitely missing here is the rapidly evolving AI technologies that may suddenly come to notice in various places on the globe including the geographic area to which this research is restricted, while AI tools and capabilities are advancing quickly, making some of our observations outdated as new systems emerge.

3. Data availability: The study relied heavily on reported cases that have mainly been extracted from the World Wide Web and some few other secondary sources, thus making quantitative performance data on AI's impact very limited.

4. Language-specific bias: The focus on Arabic NLP (natural language processing) challenges in Arab newsrooms may have overlooked AI-related linguistic issues in multilingual newsrooms in this research.

5. Potential publication bias: The examples cited often highlight successful AI adoption, possibly underrepresenting the failed or abandoned initiatives, which as a matter of fact have not featured in the discussion section of this research, let alone in the findings.

6. Industry scope: The study examined the use of AI in news content creation, production, and distribution, excluding other media sectors such as advertising, film industry and entertainment, among others.

7. Technological scope: The discussion is limited to AI tools relevant to journalism, including NLP, machine learning, computer vision, and automated content systems, without covering unrelated AI applications.

8. Time frame: The report reflects AI usage and developments up to early–mid 2025, without forecasting long-term technological breakthroughs beyond general prospects.

9. Perspective: The focus is on organizational and operational aspects, not on detailed technical architecture or AI engineering methods.

5.3. Recommendations And Future Research

The following recommendations, which are mainly drawn from the above research limitations and delimitations, may be directed to both newsrooms on various parts of the globe as well as to academic researchers from any academic institutions.

1. Since the scope of this research is primarily restricted to the geographic region that is chiefly confined to the Arab Middle East and North Africa in terms of the enhancement of

newsrooms brought by AI, while the findings are drawn from four rich Gulf States of UAE, Saudi Arabia, Qatar, Kuwait and contrasted with the economically weaker nations of Egypt, Lebanon, Jordan and Tunisia, this regional focus creates great opportunity for conducting research on newsrooms in countries in this same region or in other regions of the Arab world.

2. Various evolving AI technologies are rapidly developed including some that have been introduced in various parts of the world very recently, including other geographic areas making some of our observations outdated, and hence providing another area of research.

3. As this study relied heavily on reports extracted from the World Wide Web which is another ever changing setting of its own, a further field of research might come to being,

where Google search and other search engines not dealt with before might open up other reports thus creating other opportunities of research.

4. This study was confined to the use of AI systems in news content creation, production, and delivery, thus excluding other media sectors such as advertising, film industry and entertainment among others, which is also another area of research that may be tackled when the need arises.

5. Furthermore, this study is time restricted as it dealt with reports that reflect AI usage and developments up to early–mid 2025, without forecasting long-term technological breakthroughs beyond general prospects, which might up other opportunities of research of the rest of the year beyond this date.

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