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The Adoption of Artificial Intelligence Technologies in Arab Newsrooms: Potentials and Challenges

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Abstract

Arab newsrooms and journalists are still attempting to process how to benefit from using artificial intelligence (AI) in their daily news production. Many have started experimenting with generative AI. However, in countries with strong economies, or in newsrooms funded by strong economies like in the UAE, Saudi Arabia, and Qatar, news organizations have endorsed AI technologies beyond ChatGPT and similar tools. The majority of Arab journalists, however, are yet to understand what is meant by AI. Very few news organizations in the region have strategically approached the question of AI. Arab newsrooms need to examine when and why they need to use AI technologies, whether they have the infrastructure or can afford the resources. Implementing AI in Arab newsrooms presents an additional set of challenges, including language complexities, cultural sensitivities, potential biases in algorithms, and the need for tailored solutions that resonate with local audiences. The ethical implications present its own set of challenges. ChatGPT has proven to generate inaccurate data in Arabic. Resources are to be put in place to ensure the model is trained on a diverse and comprehensive dataset of Arabic text. Implementing bias detection and mitigation techniques to ensure the models are free from biases and offensive content is crucial. Newsrooms

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operating in authoritarian regimes have to be aware of governments' attempts to use generative AI to whitewash and promote state-centered actions and policies. Maintaining editorial integrity remains an important consideration.

Keywords

AI technologies, generative AI, Arab newsrooms, large data models, Global South, Arab media

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Prelude

The global media landscape is characterized by a stark divide between the Global South and the Global North where technological dominance in the latter is predominantly in the hands of the United States and technological giants, such as Silicon Valley-based tech firms including Google, Apple, Microsoft, Meta, and others. The birthplace of artificial intelligence (AI) tools and models, underscores this reality. According to Sabrina Argoub, the director of the JournalismAI project at the London School of Economics, the impact of AI innovations on the Global South newsrooms repeats the pattern of colonial history where the powerful and the wealthy become richer at the expense of the poorer as "data is the new oil" (Argoub, ARIJ Forum, 2023).

In the context of the Arab World, the model of technological control and team formation prevalent in the United States and Western Europe newsrooms does not necessarily mirror Arab media circumstances. As Lu et al. (2023) stated that successful adoption of AI on a scaled level requires a demanding infrastructure that has elements of technical infrastructure, models and tools, data, talent and capacity. On top of that, policies and guidelines are essential to ensuring trustworthiness in regulating new technologies.

This commentary aims to offer comprehensive insights into the Arab newsroom's use of AI including the different implementations, challenges, and ethical considerations associated with technology deployment. The commentary further offers an action plan and suggests recommendations for Arab newsrooms on how to promote responsible AI adoption and what role different actors should play in implementing this including news managers, journalists' syndicates, and academic institutions.

AI adoption in Arab newsrooms: Initial steps and economic divide

Arab newsrooms and journalists at large are still processing how to benefit from using AI tools in their daily news gathering, production, and dissemination. A recent statistical study shows the

frequency of using AI tools in Arab newsrooms does not exceed 6.2% (Al-Zou'bi & Fyadh, 2023). The study, however, does not indicate how many newsrooms it surveyed and in which countries. The percentage might, hence, be much lower than that. Speaking to journalists in Egypt and Lebanon, for example (interviews conducted in 2024 for a wider research project on Cultures of Journalism in Egypt and Lebanon), it is clear they have started experimenting with large language models such as ChatGPT, Arabic grammar-checking tools such as Lisan and Saheh, in addition to fact-checking tools such as Tahaqaq. However, learning how to use these tools are mostly done through personal training initiatives and not organized by their respective newsrooms.

Nevertheless, stepping away from newsrooms operating in weak and fragile economies, Arab newsrooms funded by strong economies like in the Gulf region (United Arab Emirates [UAE]), Saudi Arabia, Qatar, and Kuwait, for example, have adopted AI technologies in their news production routines including generative AI tools, even prior to the introduction of ChatGPT and have been experimenting with news automation (AI-powered news anchors) beside generative AI (Al Shurafa, 2023).

The JournalismAI second global survey (Beckett & Yaseen, 2023) identified several challenges to AI adoption as identified by the survey respondents including respondents from 15 Arab newsrooms mostly based in countries with weak economies (all of which are categorized as small independent newsrooms except for one, Saudi owned MBC Egypt based in Cairo). The challenges include a lack of financial resources and AI-related skills, difficulty in hiring new talents, especially tech developers, as well as skepticism towards new technologies and their related job displacement doubts. Also, structural issues, such as technical disparities between departments, and the absence of a cohesive managerial strategy pose other challenges.

While we witness slow adoption of generative AI and automation tools in newsrooms in countries like Egypt and Lebanon, for example, several newsrooms in the Gulf region have been exploring the potential of AI automation technology. For example, Al Jazeera Arabic has created its own AI news anchor (Ebtekar) in 2023 and had earlier to that introduced AI tools to combat "fake news" (Al-Gody, 2021). The UAE Al-Ain news agency has introduced its own virtual robot writer named "Aref Bin Teqani." Aref produces a weekly AI-generated article spanning various topics. Al-Ain journalists speak of errors resulting from outdated data the AI system is fed (Al Shurafa, 2023). Al-Ain has also pioneered the use of AI in script-to-voice formats, which can greatly enhance accessibility for disabled individuals (Al Shurafa, 2023). Also, employing AI to substitute for the late arrival of news presenters for example (as happened at Sharjah Media City in the UAE) presented newsrooms with solutions to instant problems (Al Shurafa, 2023).

However, despite the rapid AI automation adoption at a national level in the UAE which has a dedicated minister for AI and a vision strategy to become the world leader in AI by 2031, different state-owned news organizations in the country have been slow to embrace AI in their newsrooms

(Ahmad et al., 2023). In the study by Ahmad et al. which collected primary data through interviews with journalists serving various roles within UAE news organizations most interviewees agreed that while experimentation with AI is underway, many organizations lack a clear AI implementation strategy, with factors such as editors' resistance to new technologies and senior newsrooms leaders' limited interest in AI integration have been impeding progress (Ahmad et al., 2023).

Not far from UAE, Kuwait News, an affiliate of the Kuwait Times, introduced its first AI-generated news anchor "Fedha" which depicts a woman with light-colored hair, dressed in a black jacket and white T-shirt and delivers online news bulletins (Radford, 2023).

Outside the Gulf region, Cairo 24, an Egyptian digital-native news outlet, has been hailed as a pioneer in Egypt for experimenting with news automation during the COVID-19 pandemic aiming to maintain their usual output of news stories during the lockdown (Arafat & Porlezza, 2023). However, that experiment, among other attempts has also been tainted with criticism for not paying close attention to plagiarized AI-produced content and the unethical approach to generating AI-powered content. The editor-in-chief of the Egyptian newspaper Al Masry Elyoum labelled the scene in the country as a "chaotic circus" (Elgatrifi, 2023).

Many Arab journalists are yet to understand what is meant by AI and how to differentiate between AI-empowered tools and other digital tools available for journalists. Developing and implementing AI technologies necessitates a skilled workforce proficient in AI, data science, and related fields. There is a lack of professionals possessing AI requisite skills and knowledge in many of the newsrooms across the region (Beckett & Yaseen, 2023). Very few Arab news organizations have strategically approached the question of AI. There is a clear gap in AI knowledge and AI knowledge transfer, particularly in the lack of dedicated teams of developers and programmers for implementing AI technologies in newsrooms. This problem is not applicable only to the Arab world, but globally (Beckett & Yaseen, 2023). Lack of training is surely an issue that Arab newsroom needs to be systematic about. Google News Initiative in collaboration with several NGOs in the region has sponsored such training in countries like Egypt, Lebanon, and Tunisia, but was at large limited to small independent newsrooms (newsrooms that do not exceed 20–25 news workers in capacity, such as Mada Masr in Cairo, 7iber in Jordan and Raseef 22 in Lebanon).

As a result, many larger Arab newsrooms seem to have fallen behind and have only realized the need to address their preparedness in the wake of the introduction of ChatGPT and similar generative AI tools. Having an AI strategy means producing a definition of what is meant by AI adoption for that specific organization and how to develop a clear development scheme for implementing AI and automation technologies, training news workers, and getting access to the proper digital infrastructure required for AI integration.

In addition, the economic divide within the Arab region between strong and weak economies has its impact on the wider adoption of AI tools in newsrooms. Currently, in countries with weak

economies such as Egypt, Lebanon, Jordan, and Tunisia, there are attempts to adopt AI technologies in small- and medium-sized independent newsrooms. These newsrooms are mostly funded by private or foreign donors. State-run larger newsrooms in the above-mentioned countries are still far behind. Many of these state-owned media are "still more dependent on their print versions and traditional storytelling formats giving less attention to producing interactive visual news content on their online platforms" (Arafat & Porlezza, 2023, p. 17). Journalists in several Arab newsrooms are seeking training on an individual basis through the work on media development NGOs in their respective countries or on a Pan-Arab level.

One such organization that has introduced online training to more than 4,500 journalists across the Arab region is ARIJ (2024). ARIJ is a nongovernmental organization that is mainly dependent on international donor money. Recently, ARIJ's offshoot organization Arab Fact Checkers Network (AFCN) has partnered with "Full Fact" to develop AI fact-checking tools in Arabic. Supported by the Google News Initiative, this collaboration aimed to streamline the work of Arab fact-checking organizations. After months of testing, data annotation, translation, and technical development, ARIJ's AFCN and Full Fact did launch the Arabic tools (ARIJ, 2024). According to AFCN and Full Fact teams, the annotation process focused on various aspects such as "identifying key terms, classifying claims, and predicting quotes, among others. Challenges arose due to the nuances of the Arabic language, including variations in spelling and meanings, a challenge met by other attempts to develop AI tools in Arabic mentioned earlier. Despite these challenges, the annotation process continues to improve the tools' features and expand their capabilities in Arabic" (ARIJ, 2024).

These types of projects are not cheap and need constant updating, which in turn need financial support and that is not available through national country-based funds.

Linguistic challenges and biases

Unlike major Western newsrooms, such as The Washington Post, The Wall Street Journal, BBC, and Der Spiegel, whose innovation labs fuel innovation and develop new tools aiming to meet the challenges of the changing journalistic industry (Cools et al., 2024), many Arab newsrooms contend with limited resources and technological capabilities dealing with AI tools that have been predominantly catered to the English language.

For example, when it comes to handling Arabic dialects, scholars found that ChatGPT is "consistently surpassed by smaller models that have undergone finetuning on Arabic" despite its good performance in English (Khondaker et al., 2023, p. 1). Thus, these Large Language Model tools lack of native support for Arabic, and their rich morphology makes them less effective and accurate when used in languages other than English (Beckett & Yassin 2023). Add to that, some Arab

regimes have put constraints on certain platforms such as banning ChatGPT in Egypt, for, what they say, is spreading disinformation.

According to Abdulmajeed and Fahmy (2022), a significant hurdle facing AI-powered Journalism in the Arab region is the nascent stage of development of Arabic Natural Language Processing (ANLP). ANLP, an application of AI and machine learning aimed at comprehending Modern Standard Arabic and dialects, faces challenges due to the intricate and ambiguous structure inherent in the Arabic language. While research in this linguistic domain is expanding, further efforts are necessary to fully integrate it into Arabic AI-powered news production (Abdulmajeed & Fahmy, 2022). As mentioned earlier, AI education is essential in addressing these challenges and advancing the capabilities of AI-assisted journalism in Arabic.

Algorithmic bias, including forms of historical, cultural, and content moderation biases, also pose a significant concern. Scholars reported how algorithmic bias has a significant influence on reshaping diversity, inclusion, and marginalization addressing "the potential harm experienced by those largely invisible workers in the Global South who clean up data and refine algorithm development for the benefit of those using algorithms in the Global North" (Arora et al., 2023, p. 1). For example, some generative AI tools such as DALL-E and Stable Diffusion were found to create imagery which reproduces racist and gender-biased depictions of individuals reinforcing stereotypes about gender roles and racial disparities in the real world (Hosseini & Holmes, 2024; Nicoletti & Bass, 2023). Such algorithmic bias, however, is particularly worse when generating content about the Global South. ChatGPT, for instance, perpetuates stereotypes related to "poverty, corruption, gender, family values, and journalists' perception of the West" in its generated content about countries in the Global South (Gondwe, 2023, p. 242). That is why human input is needed to detect these storyline and image biases to fit social and cultural contexts and realities.

Additionally, the uncritical approach in cheering the advancement AI technologies bring to newsrooms makes it easier for countries with authoritarian regimes, to deploy AI-powered content to bolster control over traditional media. One example is "Allam" a Saudi Government-developed chatbot similar to ChatGPT (Beckett & Yaseen, 2023). This is particularly dangerous when chatbots mirror the emotions and prejudices of their creators through the presence of inherent biases in existing databases and language models (Gondwe, 2023, p. 242). Therefore, Al-Zoubi and Faydh (2023) voiced concerns by Arab journalists about the lack of reliable sources for information or videos generated by generative AI, emphasizing the importance of knowing the origins of journalistic content to bolster credibility. The use of AI in journalism might result in news organizations acquiring news, texts, images, and videos without clear knowledge of their true sources.

Responsible AI and ethical guidelines

Ethical implications present their own set of challenges when it comes to implementing GenAI in Arab newsrooms. ChatGPT has proven to generate inaccurate data (referred to as hallucinations) in Arabic. While similar tools introduced in the region such as, the one mentioned above, *Allam* in Saudi Arabia is the make of the state, with all what that implies on political biases the tool might generate. Other Gulf countries worked on similar tools populated by government-controlled data such as Jais and Jais-Chat in UAE, which is considered the largest language model in Arabic and English, that outperform existing models, but not ChatGPT (Schreiner, 2023).

Arab Reporters for Investigative Journalism (ARIJ), the largest network of investigative journalists and fact checkers in the Arab region, has issued its own strategy for small and medium newsrooms on using AI for large data analysis and visualization in news content production. The focus of the strategy is to prepare journalists to use AI tools transparently and ethically and most importantly equip journalists with the technical means to use it (ARIJ, 2023). ARIJ has teamed up with London School of Economics Journalism AI project and Google News Initiative to detect biases in the use of AI tools in Arabic along with ethical guidelines for using AI in news gathering and production (ARIJ, 2024). Similarly, King Abdullah University of Science and Technology launched its "Dear AI" campaign in March 2023 to address gender bias, stereotypes, and underrepresentation of women, Saudi, and Arab people in AI tools (KAUST, 2023).

While large newsrooms such as Pan Arab media (mostly funded by the Gulf States) including A Jazeera, Al Arabiya, Al Shareq (an offshoot of Bloomberg in Arabic), and Sky News Arabia have been more committed to experimenting with generative AI and AI automation, their ethical and editorial guidelines on using AI-powered tools in the newsroom are still missing.

In the politically charged Arab region, the risk of AI-generated deepfakes created by political and nonpolitical actors and its potential to pose threats to the safety of individuals, and vulnerable groups by using rumors, data manipulation, tampering of evidence, and spreading propaganda in politics (Khapra, 2022) pose major challenges to freedom of speech. Thus, while AI might offer accessibility benefits, sets of careful safeguards and code of conducts (not state regulation) are necessary to mitigate potential risks related to data privacy, censorship, and biases. To this end, transparency of resources is essential to ensure that the model is trained on a diverse and comprehensive datasets of Arabic text. There is also a need to implement a user feedback loop to collect feedback from users on inaccurate responses in Arabic and use feedback to improve the model's performance over time. Implementing bias detection and mitigation techniques to ensure the models are free from biases and offensive content is crucial. Also, newsrooms operating in authoritarian regimes must be aware of governments' attempts to use generative AI to whitewash and promote state-centered actions and policies. This might reinforce censorship by employing AI-driven content surveillance, social media monitoring, propaganda generation,

predictive policing, and online disruption (Karanasios & Risius, 2024). Since AI introduces new ways of producing disinformation at scale (Karanasios & Risius, 2024), maintaining editorial integrity by applying transparency and factchecking remain an important consideration for news workers.

In the midst of all of these challenges to freedom of expression, the Arab Satellite Broadcast Union (ASBU) in its third conference called for the need to regulate the use of AI in Arab media (AIJRF, 2023), instead of encouraging organizations to develop AI centered codes of conduct. ASBU is the biggest union of Arab state-run broadcasters. While organizations like the ASBU advocate for AI regulation in a region, which is predominantly run by authoritarian regimes, the question remains: who will regulate AI in the region and on what grounds? What role would journalists and media workers trade unions play in establishing such regulations? How much of these regulations would be used to curb freedom of speech in many of these countries?

Preliminary actions and recommendations

While AI tools offer opportunities to enhance efficiency, productivity, and audience engagement in news production and personalization, Arab newsrooms need to examine when and why they need to use AI technologies, and whether they have the digital infrastructure or can afford the resources. Implementing AI in Arab newsrooms presents an additional set of challenges, including, as mentioned earlier, language complexities, cultural sensitivities, potential biases in content generated, and the need for tailored solutions that resonate with local audiences. These challenges are not unique to Arab newsrooms. Similar concerns, challenges, and attitudes toward AI adoption in newsrooms were reported by journalists from other countries in the Global South. Pakistani journalists for example reported the lack of training, digital resources, and data access as the main challenges widening the digital divide in AI technology deployment (Jamil, 2021). The wider political context also has an influence on journalists' perceptions of AI, especially in countries with political unrest, displacement, and media censorship such as Venezuela where journalists tend to view AI to be a threat to the democratic values of the press to a greater extent (Soto-Sanfiel et al., 2022).

The different levels of AI divide in technology innovation adoption and diffusion should be taken into consideration. First, the technological divide between the Global North and South where giant tech firms in the Global North, especially the United States, are "reinventing colonialism in the Global South through the domination of digital technology" and computer-mediated interactions, leading to exerting direct influence over "political, economic, and cultural spheres—" (Kwet, 2019, p. 3). Second, the divide within the Arab region among countries with more and less developed economies whose different access to technological infrastructure, resources, skills, and education significantly define their AI innovation adoption. Third, the divide between state-run and private profit-driven newsrooms within the same country as the former group's urgent needs to "abandon traditional mindsets" should reflect on offering proper training programs to upgrade the digital skills of their news workers (García-Avilés, 2021).

In Arab newsrooms, the adoption of AI technologies faces numerous challenges, outweighing the opportunities. The critical issues of transparency and integrity are paramount for any meaningful progress in integrating AI tools (automated and generative) into the Arab context. Additionally, the effectiveness of AI, particularly big data models, in the Arabic language is still in its infancy, lacking the finesse observed in English. These hurdles underscore the need for concerted efforts to address technical limitations and ethical concerns to realize the full potential of AI in Arab newsrooms.

To this end, we recommend

1. Newsrooms should establish clear editorial policies on the use of large language models.
2. Newsrooms should introduce training sessions for their journalists on the use of generative AI models, including discussions on ethical boundaries.
3. Newsrooms should commit to core journalism values such as accuracy, fairness, transparency, and privacy in content production, making these principles the foundation of any approach to new technology.
4. Newsrooms should not rely entirely on machines to generate content.
5. Newsrooms should recognize that content produced by large language models requires human supervision and should not be accepted without verification.
6. Newsrooms should be aware that large language models still have significant limitations when it comes to producing accurate and factual content in Arabic.
7. Newsroom management needs to understand that machines cannot replace humans, especially when it comes to producing content.
8. Journalists' syndicates and media workers' associations in the Arab region have a role in training journalists on using generative AI tools, including fact checking and detecting disinformation, especially in the context of the ongoing conflicts in the region.
9. Encouraging news managers to invest in technology development to develop tailored tools to their organizations' needs, overcoming the hegemony of AI technology dominated by Western countries. This involves investing in Arabic AI language models.
10. Collaborating with universities, AI experts, and academics, especially in researching the effectiveness of AI use in content production.

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