

Ethical Considerations and Governance in AI-Driven IT Strategy

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Abstract—AI adoption spans critical sectors such as healthcare, education, and public administration, positioning it as a key driver of national development. However, the rapid integration of AI systems brings ethical challenges, including algorithmic bias, data privacy concerns, and a lack of transparency in decision-making. This conceptual study examines these issues through sector-specific case studies, by comparing the governance practices of some firms in UAE with those of global frameworks. By analyzing the UAE's unique market dynamics and existing AI initiatives, our study proposes gaps in the local governance frameworks to address these ethical dilemmas.

Keywords—AI adoption, Frameworks, Ethics, AI, Benchmarking

I. INTRODUCTION

Artificial intelligence (AI) is revolutionizing industries worldwide, offering unprecedented opportunities for innovation and operational efficiency. Its applications are broad, spanning healthcare, education, finance, and public administration, and offering solutions to complex challenges such as urban planning and personalized healthcare. Across the globe, countries are rapidly adopting AI technologies to enhance decision-making, improve efficiency, and foster economic growth.

In rapidly growing markets like the UAE, AI is integral to national development strategies. The UAE's integration of AI is notable for its focus on addressing societal challenges through technology-driven innovation. However, alongside these advancements, the nation faces significant ethical and governance challenges, such as ensuring fairness in AI-driven decisions, protecting data privacy, and maintaining transparency in automated systems.

Issues such as algorithmic bias can perpetuate societal inequities [1], while the opacity of AI-driven decision-making systems often erodes trust among users. For instance, firms using AI chat boxes should exercise caution when soliciting sensitive information, as it could inadvertently establish unintended client relationships [2].

Addressing these challenges requires a governance framework that balances the dual imperatives of fostering innovation and ensuring ethical responsibility. These form the objectives of our conceptual study, which are given below:

1. Examine sector-specific case studies to highlight successes and ethical challenges.
2. Analyze global governance frameworks and their applicability to the UAE context by comparing governance practices of some UAE firms with Global Frameworks such as European Union (EU) AI Act and Singapore's framework
3. Propose actionable recommendations to advance ethical AI adoption and governance in the UAE.

By bridging gaps in literature and policy, our conceptual study aims to contribute to the discourse on ethical AI integration, offering practical solutions tailored to the UAE's unique market dynamics.

II. BACKGROUND AND LITERATURE REVIEW

The ethical and governance challenges associated with AI adoption require robust frameworks. This section first explores the literature that examines ethical issues in the context of UAE followed by an examination of global frameworks that we will use for benchmarking.

A. Ethical Considerations in AI Systems

Ethical issues are among the most significant challenges in AI adoption, particularly in sectors like finance, healthcare, and public administration. We will focus on three primary ethical concerns as given by [3]:

1. Algorithmic Bias:

Bias in AI systems often stems from skewed training datasets. In financial decision-making, algorithms may perpetuate historical discrimination against marginalized groups. For instance, credit-scoring systems trained on biased data could disproportionately deny loans to underrepresented communities [3]. In the UAE, where financial inclusion is a national priority, addressing algorithmic bias is critical to ensuring equity.

2. Transparency Deficits:

Many AI systems function as “black boxes,” making their decision-making processes hidden [4]. This lack of transparency can damage trust in sectors like healthcare, where patients and providers need clarity about AI-based diagnoses. The Dubai Health Authority (DHA) addresses this challenge by requiring explainability in its AI tools, such as IBM Watson [5].

3. Data Privacy Risks:

The vast amounts of data required for AI systems raise concerns about security and misuse. In the UAE, Smart Dubai’s initiatives use extensive surveillance data to optimize urban planning. While this enhances efficiency, it also raises privacy concerns that necessitate stringent data protection regulations [6].

Addressing these ethical challenges requires embedding principles like fairness, accountability, and transparency into AI design and deployment processes. Organizations must adopt governance frameworks that prioritize these values without stifling innovation [3]. Several international frameworks offer valuable lessons for ethical AI governance that UAE firms can learn through benchmarking. The governance frameworks that we use for this study are discussed next:

1. The EU AI Act:

This regulation categorizes AI applications into risk tiers, emphasizing transparency, accountability, and fairness for high-risk systems. For example, the act mandates stringent checks for AI used in healthcare and law enforcement [6].

2. OECD Principles on AI:

These principles focus on human-centered design, transparency, and accountability. They emphasize the importance of ensuring that AI systems benefit society while mitigating risks [5].

3. Singapore’s Model AI Governance Framework:

Singapore provides practical guidelines for businesses to manage AI risks. It emphasizes explainability and human oversight, ensuring that AI systems remain accountable [6].

While these frameworks provide robust models, their implementation in the UAE requires adaptation to local contexts. Next, we will focus on the methodological approach for our study.

III. METHODOLOGY

The methodology adopted for this report systematically explores the ethical considerations and governance strategies for AI adoption within the UAE. By analyzing secondary sources, including academic articles, global frameworks, and sector-specific case studies, the report develops actionable insights for the UAE’s AI-driven IT strategy.

This report employs a qualitative research approach to evaluate how AI systems can be integrated ethically and governed effectively. The analysis focuses on:

1. Identifying key ethical challenges, such as data privacy, bias, and transparency.

2. Assessing the role of governance in ensuring compliance, accountability, and societal trust in AI systems by benchmarking with global frameworks.

3. Proposing a governance framework under the oversight of the UAE Council for Artificial Intelligence and Blockchain.

Data Sources

The analysis is based on the following secondary sources:

- Academic Articles: Peer-reviewed studies discussing global and UAE-specific AI adoption and governance practices.

- Case Studies: Real-world examples in healthcare (IBM Watson), public administration (Smart Dubai), and education (Alef Education) to contextualize ethical and governance challenges.

- Global Frameworks: References to international governance models, including the EU AI Act, OECD Principles, and Singapore’s AI Governance Framework, to benchmark UAE practices.

Next, we will present our preliminary findings.

IV. INITIAL FINDINGS

The integration of artificial intelligence (AI) systems across various sectors in the UAE demonstrates significant potential but also exposes critical ethical and governance challenges. Examining other case studies in healthcare, public administration, and education, could highlight sector-specific insights, recurring themes, and the implications of existing governance frameworks and tools provided by the UAE Council for Artificial Intelligence and Blockchain. We start off with the first use case in healthcare, highlighting observed governance frameworks, comparisons with global standards, and an evaluation of their strengths and weaknesses.

A. First Case Study: Healthcare: Dubai Health Authority (DHA) and IBM Watson

The Dubai Health Authority (DHA) has integrated IBM Watson into its healthcare systems to enhance cancer diagnosis and treatment. Watson analyzes vast datasets to recommend personalized treatment plans, reducing diagnostic errors and improving accuracy [5].

DHA’s governance practices include:

- Data Privacy: Implementation of anonymization protocols to protect patient data.

- Transparency: Requirements for explainability in AI-driven diagnostic tools, ensuring that healthcare professionals can interpret recommendations.

We then compared the DHA’s governance practices with Global Frameworks such as European Union (EU) AI Act and Singapore’s framework. We noted that there is an alignment of

DHA governance practices with the EU AI Act. Just like the EU's emphasis on transparency and accountability, the DHA mandates explainable AI systems in healthcare. But DHA's governance practices differ from Singapore's Framework. For example, Singapore focuses more on risk management and industry-led governance, while the DHA prioritizes regulatory oversight.

The strengths of using AI in healthcare include:

- Enhanced diagnostic accuracy.
- Reduction in human error in treatment recommendations.
- Proactive focus on data privacy and explainability.

However, this is complemented by weaknesses. Firstly, reliance on historical datasets introduces potential biases in treatment outcomes. Secondly, there is limited scalability to other areas of healthcare due to the high cost of AI systems.

The DHA case study demonstrates the UAE's proactive approach to leveraging AI for societal benefit, showcasing robust governance practices in some areas while highlighting gaps in others. In short, the benefits include:

- o Transparency: Explainability in healthcare (DHA) promotes trust among stakeholders.
- o Efficiency: Faster, and more accurate analysis because of AI.

As mentioned earlier, some of the challenges include:

- o Data Bias: Across sectors, reliance on historical datasets in AI systems can result in biased outputs, as flawed or inequitable data inevitably leads to flawed outcomes. This phenomenon is often described as "garbage in, garbage out"

Such findings underscore the need for stronger alignment with global frameworks, particularly in addressing privacy concerns and ensuring fairness across sectors.

V. CONCLUSIONS

Our conceptual study proposes a governance framework and prioritizes fairness, transparency, and accountability, directly addressing the ethical risks identified in the case studies.

For citizens, this translates into greater trust in AI systems, particularly in sectors like healthcare, where personal and sensitive data are most vulnerable. By embedding transparency measures such as explainable AI outputs and privacy protections, our proposed framework could ensure that societal concerns, including bias and data misuse, are systematically addressed.

The proposed governance framework, overseen by the UAE Council for Artificial Intelligence and Blockchain, provides a comprehensive strategy to embed fairness, transparency, and accountability into AI systems. By addressing critical challenges such as data privacy, algorithmic bias, and fragmented regulations, our proposed framework could ensure consistent oversight while promoting innovation. Key recommendations include transitioning existing guidelines from advisory to enforceable standards, enhancing data protection measures, and mandating fairness audits to foster equity across sectors.

Finally, we presented the findings from 1 case study, which may not be representative enough to draw policy conclusions. We will be working on more use cases as part of our study.

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