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Research Article

Artificial Intelligence and Its Impact on Administrative Decision-Making

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Abstract: This study studies the role and application of artificial intelligence (AI) in the administrative decision-making. It particularly focuses on improving the efficiency, accuracy, and responsiveness. AI significantly decreases the time to conduct tasks which humans do traditionally, minimises errors, and operates with no interruptions. Also, AI's predictive abilities and its role in cost optimisation show its importance in contemporary governance. This study analysis consists of two sections. The first explores the nature of AI, its features, and the legal considerations surrounding its uses. In addition, it deals with the ongoing debates on the legal personifications of AI systems or classification as tools under legal frameworks. The second studies the application of its AI in administrative decision-making, with examples by AI to evaluate employee performance and ensure equitable resource distributions in the civil service. Such AI-based decisions, legal and with no human interventions in repetitive tasks, explain the transformative potential of this technology in modern administration. According to this study, AI is a significant opportunity for the revolutionization of public administration by improving efficiency and improving decision-making processes. However, it is significant to shows challenges, such as accountability, social transparency, and, most notably, ethical practices. Addressing these fully harness the potential of AI is crucial while ensuring its alignment with justice and the public interest principles.

Keywords: Artificial Intelligence; Open Government; Involvement In Decision-Making; Agenda 2030; Efficiency, Clean Development Mechanism; Sustainable Development Strategies; Administrative Law.

1. Introduction

The rapid technology advancement has made AI as transformative in public administration which basically redesigns decision-making [1]. The recent hastening in technological innovation has made the widespread AI use which develops big societal implications [2]. AI now is critical in a variety of applications, such as healthcare, education, transportation, and governance. Specifically, public administration has used AI to decision-making, better service delivery, and streamline bureaucratic work [3]. The growing dependence on AI highlights its role in the traditional methods replacement with innovative ones to execute tasks at unparalleled performance and precision.

Its potential gave using AI in public administration many significant challenges, primarily legal foundations, accountability, and ethical considerations [4]. AI makes decisions autonomously, their compliance with legal standards, and their broader implications for governance which are subjects of intense debate and are the centre of this paper emphasising the transformative potential of AI in the improvement of administrative decision-making examining the risks. By exploring the definition and characteristics of AI, as well as its role in administrative systems, this study reveals the opportunities AI the problems to governance and public administration.

The public administration demand uninterrupted service delivery, requiring a incessant workforce operating on a rotational basis. This entails a substantial human workforce to address the needs of public administration and the citizens it serves [5]. Yet, adopting AI technologies in public administration has significantly reduced the reliance on human labour. These technologies efficiently address public needs automatically and electronically, reducing the necessity for human intervention. Also, AI systems make the long-term retention of records, orders, and correspondence, certain thereby it enhances administrative efficiency and reliability.

A notable characteristic of AI in public administration is responding quickly to user needs while predicting public needs. AI systems can effectively replicate the expertise of skilled employees without requiring continuous training, as they are inherently responsive and capable of making accurate predictions [6]. The implementation of AI, however, necessitates certain material requirements, including applications, devices, networks, and the ongoing maintenance of these technologies [7]. Despite these requirements, the associated material costs are significantly lower compared to human labour, which involves the ongoing expense of employee salaries and training programmes. Unlike new employees who require both experience and training to perform administrative tasks effectively, AI systems deliver consistent performance without such recurrent investments.

2. Literature Review

2.1. The Concept of Artificial Intelligence

There is no doubt that AI has emerged as a natural consequence of accelerated technological advancements and significant scientific progress. This development represents the pinnacle of human achievement, enabling industries to replace human labour across various sectors. AI builds upon human intelligence to drive progress in healthcare, education, and legal industries [8]. Human intelligence itself relies on cognitive abilities, experience, information extraction, analysis, and problem-solving to develop solutions. To elucidate the concept of AI, this section is divided into two parts:

Firstly, it is evident from comprehensive research that while many definitions of AI exist, no single integrated definition can be universally applied. This is due to the pioneering and ever-evolving nature of the technology, which defies strict categorisation. The definition of AI varies depending on the disciplinary lens through which it is examined. For instance, perspectives on AI differ among technical, managerial, legal, and computer science domains [9].

One definition describes AI as "the ability of computerised systems and other devices to emulate human cognition or human-like capabilities, including decision-making, learning, and adaptation" [10]. More broadly, AI can be understood as systems capable of autonomous decision-making by applying programmer-defined logic in conjunction with relevant data [11]. Synthesising these perspectives, AI can be defined as a collection of intelligent devices and applications capable of creative, independent thinking, relying on data and information provided by humans. The main aim of AI is comprehending fundamental cognitive processes underpining human thoughts, enabling these systems to analyse, collect data, and autonomously solve problems with no external human input [12]. AI is known for it features making it chiefly appealing to public administration, which surpass traditional systems- those reliant on human labour as explored further in this section.

2.2. Improving the Administrative Decision-Making Process

The administrative decision-making is a public administration feature, serving as the primary mechanism by which duties are executed, and services are delivered. Administrative decisions are the essential to enable management to accomplish its objectives effectively [13]. These decisions align with established rules and legal frameworks promoting public benefits and productivity. AI has significantly improved decision-making by leveraging the flow of information in a systematic and sequential manner which makes faster and more efficient decision-making, streamlining administration and better general effectiveness [14].

2.3. Reducing Human Errors

AI techniques, in public administration, is able to reduce human errors by omissions, miscalculations, or logical mistakes of humans [15]. These technologies make consistent and reliable results by full alignment outputs with the inputs, which eliminating errors, omissions, and lapses in consideration of data and outcomes. This capability mitigates the common errors often by employees in the public sector, so improving operational accuracy and efficiency.

2.4. The Legal Nature of Artificial Intelligence

AI is related to human intelligence, encompassing cognitive abilities, mental quality, learned capabilities, and experiences acquired by exposing to diverse situations. AI is a human ingenuity, emerging from the programm of computers, designing algorithms, and the integration of derived from human experiences and learned knowledge [16]. By these inputs, AI systems are imbued with abilities mimicing positive aspects of human cognition and decision-making. From a legal perspective, the question of the legal status of AI stays a argumentative issue. One school is against granting AI any legal status, arguing for its lacks the fundamental qualities for legal recognition. Contrariwise, another advocates for recognising AI as a legal personality, which enables it to acquire rights and bear obligations. Both provide compelling arguments as follows:

Advocates of granting AI a legal personality are with the legal recognition need not be confined to humans. They contend that legal personality to non-humans, as by the recognition of corporations and other legal persons. So, AI systems, much like corporations, is assigned legal status, holding rights and assume obligations [17]. Its advocates emphasise the legal personality rooted in social value and not necessarily requiring the presence of will or cognition in the traditional human sense. This broadens legal personality to entities that contributing to societal and economic functions, even with no human attributes.

2.5. Artificial Intelligence with Legal Personality

Supporters argue that, by analogy with natural persons who possess a tangible physical existence, AI systems can take form of tangible occurrence, albeit unique. Different from humans, AI has no flesh and blood, nor the same faculties as humans; yet, it has a physical presence that can be realised in a distinct way [18]. To ensure legal protection for society, the legal personality of AI has been proposed, which mirrors the legal personality granted to other legal entities, such as corporations [15]. Proponents of this perspective assert that AI should not be classified merely as machines without legal personality, as its advanced capabilities set it apart from conventional machines. These intelligent systems possess exceptional abilities that far exceed those of ordinary machines. AI systems can be influenced by their environment, make informed decisions, and adopt positions based on their analyses. The self-awareness exhibited by AI, which enables them to independently make decisions, is seen as a foundation for granting legal personality. Consequently, AI's legal personality would be separate from the individuals or entities that own or control them [19]. This view suggests that AI's advanced functions and decision-making capacity warrant recognition as autonomous legal entities with rights and responsibilities, independent of human operators.

2.6. Artificial Intelligence Without Legal Personality

Supporters of this position maintain that, despite the practical and scientific significance of AI, it does not possess legal personality. They argue that the law does not recognise AI as having legal standing. According to civil law, only two types of legal personality are acknowledged: that of natural persons, which requires birth and ends with death, and that of legal persons, which must meet specific conditions, most notably legal recognition. AI does not meet these criteria, as it lacks the attributes of a legal person and is always subject to human control and representation, unlike AI, which can generate ideas independently [20].

This view is supported by the prevailing legal understanding that patent rights, for example, require the inventor to be a natural person. Consequently, AI cannot be recognised as an inventor. While AI systems may contribute to inventions, they are considered tools rather than creators, lacking the awareness, perception, or life required for legal personhood. Furthermore, granting legal personality to AI raises practical challenges, particularly the absence of will. Without the capacity for self-determination, it is difficult to assign civil or criminal liability to AI systems, as responsibility must be linked to the individuals or entities that design, control, and exploit them [21].

As AI technologies continue to proliferate, it remains clear that these systems are the result of human work and programming, not autonomous creations. Therefore, AI applications and smart devices cannot bear legal responsibility independently of their creators or programmers, whether in civil, criminal, or administrative contexts. The most widely accepted legal perspective is that AI should be classified as an object or inanimate entity, with liability resting on the human agent responsible for the AI's actions. In this framework, a causal relationship between the action and its cause—typically the AI's creator or operator—remains essential for assigning responsibility [5; 17].

3. The Role of Artificial Intelligence in Administrative Decision-Making

The general principle dictates that administrative decisions are made by public employees within the public administration. However, the introduction of AI systems has significantly reduced both effort and time in the decision-making process. AI has become an essential component in the development and enhancement of administrative practices, with the advent of vast databases and long-term processors capable of performing complex calculations and algorithms similar to human intelligence [22]. The growing role of AI in public administration, particularly in the issuance of administrative decisions, has been further accelerated by the transition to electronic governance. Under this model, the process of decision-making is no longer confined to individual judgment but is increasingly carried out by expert, efficient systems that analyse data, verify its accuracy, and subsequently issue administrative decisions. This shift is considered one of the emerging and pressing issues in the legal domain within the administrative field [23].

3.1. The Concept of Administrative Decision Caused By Artificial Intelligence

As previously defined, AI consists of a series of sequential instructions formulated in mathematical language, designed to solve problems automatically without the need for human intervention [24]. However, AI's capabilities may surpass those of humans, enabling it to issue administrative decisions. These decisions are not arbitrary; they are the result of careful thinking and analysis of data and information [25]. Administrative decisions are generally regarded as one of the most crucial tools for public administration in executing its functions. Traditionally, public administration issues these decisions through human employees. However, when administrative decisions are made

through AI techniques, the administration authorises the machine or computer to make decisions within the scope of its authority. This process involves specific stages that cannot be bypassed by the AI, starting with the storage of data, followed by analysis according to pre-established algorithms, and ultimately, the issuance of the administrative decision [26].

For example, AI in administrative decision-making is the disbursement of bonuses to public sector employees. This traditionally needs important effort to sort performance reports, categorising employees by their performance and evaluations, and issuing decisions regarding incentives to deserve individuals [27]. Traditionally, this is labour-intensive and time-consuming. Yet, when AI techniques are used, the decision can be made automatically within hours, without any human involvement. The distinction between decisions by AI and electronic administrative decisions is important. While electronic decisions are issued and communicated electronically by competent employees, AI-issued decisions are automatic, with no need for human intervention in the decision-making [28]. Electronic means only facilitate the communication of the administration, while AI techniques enable decisions independently, according to the data analysis and predefined algorithms [29].

An electronic decision, by definition, is one that is delivered through electronic means. On the other hand, artificial intelligence (AI) is not tied to any single technology or format. It can be applied in various ways, as long as the decision-making process is driven by AI techniques without human involvement—either in making the decision itself or directing the system toward a specific outcome. This doesn't mean that AI functions without input or data; rather, it highlights that no human influence directly shapes the final decision [30].

AI based administrative decisions are based on formal, objective rules. These follow structured processes for ensuring rationality and consistence. To better understand AI-based administrative decisions, the essential components of making up any administrative decision can be broken into: competence, form, and procedures. Each is crucial, as explained below.

3.2. Competence Element in the Administrative Decision Issued By Artificial Intelligence

For an administrative decision to be legally valid, it must come from the appropriate authority. The concept of jurisdiction is fundamental and cannot be ignored by whoever issues the decision. When it comes to AI, the responsibility for competence falls on the authority or organization managing the AI system [23; 27]. Jurisdiction is determined by laws, directives from authorized decision-makers, and other legal rules that outline the powers of the overseeing authorities. AI administrative decisions encompass personal and subject competence.

Personal competence is the authority of the AI system and its overseers to decisions according to the administrative structure. Subject competence, on the other hand, relates to the AI's ability to make decisions within the legal and administrative rules that govern its use [31]. Additionally, the AI system must function within specific time and location limits. In other words, administrative decisions should only be made during official working hours and within the jurisdiction assigned to the AI system. As a result, an administrative decision generated by AI cannot take place outside working hours or beyond its designated jurisdiction [32].

3.3. Form and Procedures Element in the Administrative Decision Issued By Artificial Intelligence

An administrative decision issued by AI does not necessarily require a specific form or procedural steps, unless stipulated by laws, regulations, or if the public administration prefers a particular format or procedure [27]. From a technical perspective, the process of making an administrative decision through AI requires the input of the necessary data and information into computers. For the decision to be valid and free from defects, it must be based on accurate and up-to-date information [33].

3.4. Subject Elements of the Administrative Decision Issued By Artificial Intelligence

The subject elements are critical characteristics of the administrative decision issued by AI, and they include the factors of reason, place, and purpose. The reason behind an administrative decision typically represents the factual or legal circumstances that precede the decision and motivate its issuance. Before making the decision, the AI system must incorporate the relevant factual or legal context that justifies the administrative decision. This is embedded within the inputs provided to the system, ensuring that the AI verifies all necessary conditions for the applicant or those affected by the decision [34]. Regarding the place of the administrative decision, it is determined by the outputs of the AI system. The adherence to place is literal, as the AI strictly follows the instructions programmed into it. Unlike human decision-makers, who may interpret situations based on emotions or external influences, the AI system operates without such discretion. It does not possess the capacity for emotional interpretation; rather, it executes decisions strictly according to its programming. Discretion remains a characteristic of human decision-making, which AI does not emulate [35].

3.5. The Purpose of the Administrative Decision Issued By Artificial Intelligence

The primary goal of administrative decisions is to serve the public interest, achieved through the deliberate will of individuals. While artificial intelligence (AI) lacks independent conscious will [24], it operates based on the intent of its developers or supervisors. This will manifest during the design or programming stages of AI systems [36]. AI systems offer significant potential for accurate and efficient administrative decision-making, but they require safeguards to prevent misuse for personal gain. Transparency is essential, ensuring that beneficiaries understand the AI's actions, and public administration must take responsibility for any harm caused by AI errors [37]. Unlike human decisions, AI operates through software processes that are often inaccessible and incomprehensible to the public. Consequently, AI systems can be perceived as "black boxes," fostering distrust and concerns about their neutrality, as their inner workings are known only to their creators [29].

A key challenge with AI in administrative decision-making is no transparency. Citizens have a right to know the principles, rules, and factors influencing these decisions. So, it is crucial to have laws or guidelines clearly explaining how AI systems work and make decisions such as the France's Digital Republic Law, defining the rules for data processing and the algorithms in public administration. [38]. We argue that transparency is achieveble in AI systems in administrative decisions[32].

4. Responsibility for AI Managerial Decisions

Responsibility is a key protection in administrative decisions made by public authorities. If a decision is flawed or violates legal rules, the administration is accountable for the mistake. This also comprises ensuring that AI systems is operational, as they now act as public services and run with no interruptions for maintaining consistent and reliable service. The administration is has to allocate all necessary resources for keeping these technologies functioning smoothly [36].

In addition, public administration is in charge of the outcomes of AI-based decisions: accountablity for any software errors, from faulty programming or physical damage to the AI system. The administration is required to safeguard sensitive information from leaks and protect against breaches in the data networks feeding the AI. Avoding errors and cyberattacks compromising the system is also critical responsibility [33; 34].

Technical failures are the sources of the public administration's responsibility for AI systems causing incorrect administrative decisions. If an administrative decision is issued incorrectly due to a technical malfunction in the system, it can be considered invalid. In cases where technical issues—such as errors in the electronic system, computer program malfunctions, or security breaches in information networks—result in administrative decisions, those decisions may be regarded as non-existent and unfounded [37].

Defective administrative decisions, or those deemed illegal, can be categorised into two forms: invalid decisions and null decisions. An invalid decision is one where a defect seriously impacts the decision materially, but it still retains legal effects unless cancelled or withdrawn. In contrast, a null decision is one with such a significant defect that it undermines the core characteristics of the administrative decision itself [35]. A decision issued by an AI system that has been hacked or suffers from a technical defect can be considered invalid or null depending on the severity of the defect. If such a decision is made by an AI system that is not competent to issue it, it is similar to a decision made by a non-competent human employee. In this case, the decision is considered non-existent, with no legal or material effects. Consequently, the situation must revert to the state before the defective decision was issued, and it may be subject to amendment, cancellation, or withdrawal by the relevant authority [6].

Considering an administrative decision issued by artificial intelligence due to a technical error or defect as a non-existent decision

results in a series of legal implications. A non-existent administrative decision loses its administrative status, becoming a mere physical act performed by the AI system, with no legal effect. Individuals affected by such a decision do not need to prove its absence via a formal declaration from a competent authority. It is sufficient to assert that the decision should not be considered, and it is essentially non-existent [34]. Those negatively impacted by a non-existent decision may seek compensation from the public administration for the damages caused by the erroneous decision. The administration cannot argue that the issue was due to a technical defect or error by the AI; they bear full responsibility for the performance of their devices, even if they did not directly influence the error [39].

The public administration can withdraw a non-existent administrative decision at any time, without restrictions or conditions, and without waiting for the typical legal appeal period (e.g., sixty days). Since the decision has no legal effect, it does not need to be invalidated through a new administrative decision, and it cannot be implemented [40]. A non-existent administrative decision cannot acquire finality because it has no legal or material effect. The decision may be retracted at any stage, and stakeholders have the right to appeal it. The decision remains open to challenge until it is cancelled by the administration or judicial authorities [41]. The public administration's responsibility for errors caused by artificial intelligence extends to tort liability, as provided by the Civil Code. The errors of AI systems are considered personal errors for the employees managing them but also represent a utility error for which the public administration is liable. The administration must compensate for the harm caused, reflecting the public sector's responsibility for the functioning of its systems [42].

5. Findings

Artificial intelligence has emerged as a significant innovation in contemporary public administration, gradually replacing many human functions in various aspects of management and decision-making. By mimicking the work of responsible employees, AI offers solutions to tasks traditionally solved by public servants. With its ability to analyse and classify data at remarkable speeds, AI accelerates transaction processing to levels that human labour cannot match. Furthermore, these systems operate with no constraints of fatigue of human and are effective to save operational costs. Yet, the increase in AI's role in public administration does not make the advance legal regulation, such as in Jordan. Current administrative laws address no consequences of decisions made by AI systems with technical flaws, network breaches, data entry errors, or changes in the AI code. This legal guideline lack creates significant challenges of legal responsibility and the decision validity of AI in administration.

An AI decision with an error is legally treated as if it never happened with no legal impact on the parties involved but leads to material consequences due to the unlawful actions taken. Then the question is how far public administrations are responsible for harm caused by such "non-existent" decisions.

Characteristically, compensation for damages caused by AI-based decisions relies on proving actual harm by the affected parties. Yet, tort liability for compensation remains untested because clear, substantial, and verifiable moral or financial damages remain vague. This gap shows the urgent need for a well-rounded legal framework for regulating AI in public administration and its role.

6. Conclusion

AI is transforming public administration and altering how decisions organization management and services delivered. By automatic routine tasks, AI makes public administrators focus on complex problems requiring human judgment and creativity with valuable data improving decision-making. Yet, integrating AI into public administration has challenges such as bias, transparency, and legal responsibility.

This study shows the need for strong governance frameworks for the effective management of AI systems. It argues that these frameworks have to ensure that AI follows ethical standards and reflects societal values for protecting stakeholders' interests. Tackling issues like biased data in machine learning algorithms and improving transparency are critical for public trust in AI. Also, updating administrative laws is critical for the clarification of liability and accountability by AI, ensuring fair and just public administration.

AI in public administration will depend on collaboration between policymakers, technologists, and legal experts. A partnership makes the public administration disruptive power of AI while using it responsibly and effectively. In the end, AI has can boost organizational performance preserving the core values of public service: fairness, accountability, and inclusiveness.

7. Recommendations

The successful integration of AI into public administration while managing its potential challenges requires several key recommendations.

First, current laws need to be updated to acknowledge decision-making of AI and its effect. Legislation needs a clear differentiation between super-intelligent systems and other types of AI, legally responsible for errors, system failures, and cyberattacks. The limits of AI's authority, make public administrations simplify its legal use and with no future problems.

Second, strict testing and validation must be placed before the use of AI systems for decision-making verifying the accuracy of algorithms, the reliability of data, and the strength. Transparency has to be prioritized, with public administrations explaining how algorithms, data, and decision-making logic development. This openness helps in build trust with stakeholders addressing complaints about bias or lack of clarity in AI decisions. Regular audits and public reports on AI are required regularly.

Third, raising awareness among public officials and citizens about AI's capabilities and limitations is essential. Public administrators need to understand how AI works to supervise its use effectively. Yet, public education can raise awareness on AI decisions and its consequences, ensuring proper oversight and trust in its uses.

Finally, the ethics of AI adoption must be addressed with public administrations requiring regulations and standards prioritizing human rights and avoid problems. Oversight committees from technologists, legal experts, ethicists are required to provide ongoing guidance for upholding ethical and AI legal integrity.

The implementation of these strategies, public administration can leverage the advantages of AI minimizing risks, giving more efficiency, accountability, and promoting justice, equity, and trust in administration.

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