

ARTIFICIAL INTELLIGENCE IN PUBLIC SECTOR

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ABSTRACT

Artificial intelligence (AI) advancement has allured more attention from both practitioners and researchers. It has also aided in creating a number of opportunities that are beneficial for the integration of AI within the public sector. Therefore, regarding this emergence of AI, there comes the essence for a more comprehensive knowledge of the impact and range of applications based on AI and challenges which are coupled with it within the public sector. The application of AI and the associated challenges have always been considered only in fragmentarily and isolation. Therefore, this means that there lacks a thorough overview of applications which are focused on AI and various issues within the public sector. This paper will perform a conceptual approach that will aid in analyzing and compiling insights that are relevant from literature reviews to bring out an overview of AI technology and the challenges associated with it. The research will also examine the current use of AI in the U.S., future aspirations, and the challenges associated with AI technology. The reviews in this paper focus on specific areas in which AI is applied in the public sector. The paper will focus on application areas by describing the functioning and value created together with specifies public use of AI cases. Additionally, the paper investigates the significant dimensions of challenges associated with AI. Finally, the paper discusses the findings from literature reviews, implications for both practice and theory, and suggestions regarding future research on AI in the public sector.

KEY WORDS: Public sector, Artificial Intelligence, Public administration, Impact, Framework.

INTRODUCTION:

AI offers a description of a computer system's capacity to perform problem-solving and human-like intelligent behavior through specific learning, action, understanding, comprised perception, and core competencies. AI is becoming an exciting topic for governments all over the world and the public sector at large. This significance is partly attributed to AI's capacity to highly contribute to the solving various problem within the public sector, such as language barrier, delays in service delivery, long waiting times, large unmanageable caseloads, and a high rate of turnover (Mehr et al., 2017). Thus, AI will help improve significant benefits for society, the public sector, and governments, including more excellent working, reduced burden of administration, and the automated working processes. The objectives of AI research are the ability to manipulate and move objects, realization, natural language processing, learning, planning, knowledge presentation, and reasoning. All these are considered long term goals in the entire sector of AI.

In the process of enhancing their public services, several government agencies are pursuing developments of AI technologies. Since AI will dramatically improve governmental operations, programs and policies, the results of using AI are empirically confirmed by minimal studies (Chui, 2017). A first review on establishing a theoretical framework for a more detailed analysis of AI's impacts on the public sector is suggested in this research article. The proposed model components build on the current scientific understanding of the people driving AI adoption and consider the need for additional societal improvements to maximize their impact. The paper supports a public benefit

framework to explain the potential effect of AI on both the public's internal structure, the public sector's performance, and broader societal impacts. It is believed that AI has tremendous potential to transform public services, both by enhancing the quality and functionality of the services rendered and increasing the design and execution of policy actions. These are intended to improve public enterprises' quality and guarantee that public services are individually tailored. This, in particular, this should increase the effectiveness and productivity of public procurement, affective involvement, strengthen housing and medical assistance, promote engagement with bigger audiences, solve many social problems and ultimately become the primary driver of economic growth.

LITERATURE REVIEW

AI in the Public Sector

AI has an enormous opportunity to assist the public sector, the society and economy at large and has shown its potential to produce benefits in different domains and applications. Fortunately, as it transforms its definition as a technology or science, AI is not very well defined as a vital technology among society policymakers and academia. Therefore, it makes it extremely difficult to help determine the spectrum of what is meant by AI within the public sector. A few refer to AI as either the overarching science or practice of intelligent technology making, a field of study operating since the 1950s (Cooke, 2017). Also, there are different approaches, priorities, and objectives within the sphere of AI in this field of study. Additionally, industrial processes and machines supported by AI systems significantly augment the human capacity to provide digital assistance and decision-making in critical and highly problematic situations (Horowitz et al., 2018). Therefore, with these regards, there exists a greater interest for the governmental institutions to collect the utmost benefits that are brought about by AI in the public sectors.

AI is not a futuristic technology because it is here now and cannot be held off at any given time. The earliest governmental departments who adopted artificial intelligence were able to claim that, the more cost-effective the AI technology becomes, the more the economy gets better (Kokina & Davenport, 2017). AI helps the public sectors in various fields as the public servants implement AI in multiple ways. This includes establishing drone paths, triage health care cases, adjudicating bail hearings, answering citizen queries, planning new projects for infrastructure, detecting fraud, immigration decisions, and welfare payments. Furthermore, there is a greater need to understand the risks, opportunities, barriers, and drives to AI adoption in the public sector (Kumar & Sharma, 2017). Additionally, there is still a need to understand the potential impact generated from AI implementation within the public sector, be it negative or positive impacts. Early studies suggest numerous interdisciplinary challenges that revolve around implementing AI in public, which does not primarily focus on the technology itself.

Conceptual Framework Proposed on the Impact of AI

In order to further strengthen such a need to perhaps have appropriate enabling factors in operation before AI will make a real impact, the conceptual framework proposed takes perspectives from previous research on public sector and eGovernment innovation. Secondly, the approach builds on studies into evaluations of the technical effects and seeks to be more analytical. Current research frameworks that evaluate the governmental impact of ICT have been deemed inadequate due to the limited availability of counterfactual metrics, data or research to establish causal ties between ICT expenditure on the one side and consequences from the other side (Petit, 2017). AI technology

enables new actions, but on the other hand, this enablement does not result in a practical implementation necessarily. Technology itself does not create the impact, but it is how the technology is used and how it transforms existing structure and processes. Therefore, as a result, this means that the actual impact generated by AI differs concerning context and the application sector (Horowitz et al., 2018). Also, citizens may respond very differently based on their characteristics, culture or location.

Furthermore, even the civil servants may alter their behaviour without expectations when the AI systems are introduced to the public, which may influence their input data and workflows, which in turn impacts AI technology. Additionally, the impact of AI technologies in public may be more challenging to assess than suggestions from other reports (Bundy, 2017). Thus, any form of assessment concerning AI's impacts requires a deep understanding of the AI system to comprehend the effects properly.

The short-term impact of understanding AI will be significantly increased by systematically comparing the policy or public situation before and after introducing AI. This type of research approach has been previously used in algorithm research, most especially in more critical studies. Thus, it will suit well when combined with the current policy research methods (Makridakis, 2017). Although the framework should not, by any chance, be regarded as a framework of operation, it will be viewed as a conceptual framework to help invite enough researchers. The researchers will critically assess the assumptions that are commonly made when researching the impact of AI within the public sector (Thierer et al., 2017). Significant technological advances have improved AI's growth and its future effects on society in hardware and software. Steadily increasing information gathering, and use amplifies machine learning procedures and enhances highly data-dependent AI systems' efficiency.

Additionally, because of the way public sectors operate and will be transformed by AI, agencies still battle with a number of barriers to achieve a high rate of performance and exploit such technologies. Previous research in other technological innovation argues that corporations need to orchestrate and implement the necessary complementary resources effectively (Chui, 2017). Therefore, it is argued that because the public is yet to realize any meaningful superior performance from their AI resources, they must build an AI capacity and encourage it. In recommending the best methods for implementing AI infusions and broadcasting application procedures, it is necessary to gain understanding in which areas will the AI be stationed (Mehr et al., 2017). Like with any other technological adoption, if adequate steps are not taken at the early phases of initiatives, viscous effects and obstacles are likely to adversely affect the implementation or decrease the public sector's future success.

Challenges Associated with AI in the Public Sector

AI promises to be a driver for boosting growth and helping emerging countries to resolve some conventional barriers. However, it raises challenges including the need for capacity-building, the ethical implications of some of its services, and its impact on the workforce that would radically revise a certain kind of training required during the next era. Skills in AI and performance assessment are in limited supply (Osoba & Welser, 2017). Although the information management learning process is relatively overwhelming, it is challenging to acquire the requisite skills to implement AI technological innovations. Institutions put a premium on recruiting more significant AI talent, increasing salaries and making it more challenging to achieve the best candidates for areas with limited recruitment

expenditures, such as public sectors (Bundy, 2017). Therefore, public organizations lack essential AI expertise, which hampers their ability to integrate AI strategies and run them.

Furthermore, public servants do not often have adequate data and AI knowledge in non-technical positions, including procurement officials, policymakers, and department heads (Kaplan, 2016). This requires technical expertise and, above all, understanding of the professional and practical ramifications of the use of large quantities of data, whereby privacy is the biggest priority. Therefore, it becomes difficult for some of them to feel confident interacting with technology or be aware of current regulations, like privacy and data legislation that directly impact AI ventures.

AI addresses problems that are not addressed by existing procurement processes, such as algorithms being viewed as IP by the private sector. Throughout the tool's lifecycle, governments who buy off-the-shelf models may want to edit and understand them as customization. It is because, the models are very popular in software procurement-but AI operators are likely to consent to this (Korinek & Stiglitz, 2017). This impacts most technology maintenance, but it also influences the government's potential to simultaneously upgrade the technology with new data to keep it current, dramatically affecting AI's lifetime.

Furthermore, processes for public procurement are very well regarded for being complicated and sluggish. Prevalent barriers include complete terms of the contract and prolonged wait times from both the contract proposal's presentation to the ultimate decision. Therefore, recommendations are made asking for concrete ideas instead of concentrating on the issue or opportunities at hand (Kemp, 2016). These variables make it difficult for providers, especially small businesses, to respond. Long queues, for example, make it very difficult for small companies to commit to potential hiring needs since as soon as one is free, they typically need to hire personnel on projects to maintain a positive cash flow. The government faces severe challenges in the mainstream implementation of AI (Baek et al., 2016). Technical issues are only part of the job at hand, compared to the common perception that technology is the key obstacle, but this is the most transparent element to solve. Before AI is entirely utilized, culture and procedures, which are both embedded in organizations, still need adjustment.

Recommendations for Artificial Intelligence in the Public Sector

AI and machine learning debates populate social media and today's news as promising innovations to address significant challenges in the world. Research demonstrates how various stakeholders' groups have different framings and multiple perceptions of AI's public sector issues. For example, IT company managers do not see technological obstacles in AI implementation, as government policymakers and hospital managers do. Hospital supervisors feel cost strain, while IT businesses do not (Meek et al., 2016). From the perspective of governance, this plurality should allow public executives to prevent adopting a single view of AI from a single stakeholder classes, as it will ultimately rely on one side. It is related to how authorities are advised when forming relationships with personal IT firms to prevent vendor lock-in. Therefore, policymakers should resist the lock-in of vision and, alternatively, establish comprehensive public sector AI frameworks and policy guidance. The first step towards such a straightforward optimization amongst different concerns may be to map various stakeholder groups' different expectations. Such optimization is politically motivated and does not emerge naturally from either the progress of AI technology itself.

The rise of AI with capabilities of performing tasks that need high levels of creativity, preparation, and empathic behavior is, as the AI research group unanimously acknowledges, still merely the topic of speculation, and unpredictable. Critical elements of public decision-making are fundamentally

political in nature, such as ethical trade-offs, creativity, and person and community identity concerns (Gulson & Webb, 2017). In interacting with humans, they need contextualized, imaginative, and empathetic actions that AI technology provide in its current form. Within the public sector, algorithmic governance is, at best, conceived only as relating to crucial activities (Bundy, 2017). However, the current public discourse on AI confuses the technology into two distinct governance concerns, such as using AI as a mechanism for automating AI's policymaking and governance.

How the Research on AI in the Public Sector will Affect the United States

The research on AI has enormous potential for improving healthcare, accelerating scientific research, and supporting all Americans' welfare and well-being. This is particularly valid because, as part of the international response to the healthcare and public needs AI technologies will leverage the public sector in the U.S. In this new age of AI, America has long always been a worldwide leader, mostly because of its deep innovation ecosystem, it is positioned to sustain this dominance further. It takes the collaborative government, academia, and industry to maximize AI's potential for the country (Cath et al., 2018). The research also addresses the goodness of the People of the united states. It is because it engages the government which has been involved in designing policies and implementing initiatives that enhance AI innovation within the U.S.

CONCLUSION

Government officials have debated artificial intelligence (AI) for much more than a decade. As technology and regulations develop, the emphasis on public sector effects is more significant than ever. Additionally, machine learning, which is characterized as computers that autonomously modify and improve their algorithms as they obtain more inputs, is an exciting research area. In an attempt to strengthen the United States as a global pioneer in a technology that helps in shaping the near future, authorities at all government levels are studying and embracing AI and ML. AI may enhance performance, conduct dull duties, help with decision-making, and allow scores of several other promising technologies. Sadly, the promise of AI also involves costs, among the most pressing problems today is the capacity for massive job displacement due to automation. It is still uncertain how this new technology will eventually change governments. However, organizations are using AI at all levels to help evaluate knowledge, perform manual tasks and recognize patterns.

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