A COMPARATIVE ANALYSIS OF ARTIFICIAL INTELLIGENCE IMPLEMENTATION IN CIVIL SERVICE USING PROJECT MANAGEMENT STANDARDS

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Annotation. This research delves into the complex interplay between technological innovation and ethical considerations in the integration of artificial intelligence (AI) within civil service frameworks. Focusing on the practical aspects, the study conducts a comparative analysis of foreign experiences, particularly highlighting the role of project management standards. By scrutinizing the adoption of AI technology, the ethical implications, and the efficacy of project management standards, the research aims to contribute insights into achieving a harmonious and responsible AI implementation in civil service.

Keywords: *Artificial Intelligence, Civil Service, Project Management Standards, Technological Innovation, Ethical Considerations, Comparative Analysis, Governance, Public Administration, AI Implementation, Legal Frameworks.*

LOYIHA BOSHQARUVI STANDARTLARIDAN FOYDALANGAN HOLDA DAVLAT XIZMATIDA SUN'IY INTELLEKTNI JORIY ETISHNING QIYOSIY TAHLILI

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Annotatsiya. Ushbu tadqiqot texnologik innovatsiyalar va sun'iy intellektning (AI) davlat xizmati doirasidagi integratsiyasidagi axloqiy mulohazalar o'rtasidagi murakkab o'zaro bog'liqlikni o'rganadi. Amaliy jihatlarga e'tibor qaratgan holda, tadqiqot xorijiy tajribalarning qiyosiy tahlilini o'tkazadi, xususan, loyihalarni boshqarish standartlarining rolini ta'kidlaydi. AI texnologiyasini qabul qilish, axloqiy oqibatlar va loyihalarni boshqarish standartlari samaradorligini sinchkovlik bilan o'rganib, tadqiqot davlat xizmatida AIni uyg'un va mas'uliyatli tatbiq etishga erishishga yordam berishga qaratilgan.

Kalit so‘zlar: *Sun’iy intellekt, davlat xizmati, loyiha boshqaruvi standartlari, texnologik innovatsiyalar, axloqiy mulohazalar, qiyosiy tahlil, boshqaruv, davlat boshqaruvi, AIni joriy etish, huquqiy asoslar.*

СРАВНИТЕЛЬНЫЙ АНАЛИЗ ВНЕДРЕНИЯ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА НА ГОСУДАРСТВЕННОЙ СЛУЖБЕ С ИСПОЛЬЗОВАНИЕМ СТАНДАРТОВ УПРАВЛЕНИЯ ПРОЕКТАМИ

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Аннотация. Это исследование углубляется в сложное взаимодействие между технологическими инновациями и этическими соображениями при интеграции искусственного интеллекта (ИИ) в структуру государственной службы. Ориентируясь на практические аспекты, в исследовании проводится сравнительный анализ зарубежного опыта, особо подчеркивая роль стандартов управления проектами. Тщательно изучая внедрение технологии искусственного интеллекта, этические последствия и эффективность стандартов управления проектами, исследование направлено на то, чтобы внести вклад в достижение гармоничного и ответственного внедрения искусственного интеллекта на государственной службе.

Ключевые слова: *искусственный интеллект, государственная служба, стандарты управления проектами, технологические инновации, этические соображения, сравнительный анализ, управление, государственное управление, внедрение ИИ, правовая база.*

Introduction. The integration of artificial intelligence (AI) technology into civil service holds paramount importance in modern governance. As societies progress into the digital era, leveraging AI in public administration introduces unprecedented opportunities for efficiency, innovation, and improved service delivery. This transformative integration has the potential to streamline bureaucratic processes, enhance decision-making, and optimize resource allocation.

AI's capacity to analyze vast datasets rapidly and make data-driven predictions can revolutionize policy formulation and implementation. Moreover, automation of routine tasks allows civil servants to focus on high-value responsibilities, fostering a more agile and responsive government. As technology continues to advance, embracing AI in civil service becomes not just advantageous but imperative for staying abreast of societal needs and global developments.

However, amid these promising prospects, ethical considerations must be integral to the implementation of AI in civil service. Striking a balance between technological advancements and ethical principles is crucial to ensure responsible governance, protect citizens' rights, and maintain

public trust. Thus, the integration of AI into civil service represents a pivotal step towards modernization, efficiency, and, critically, ethical governance.

Literature review. In global literature and practical applications, diverse approaches to the digitalization of public administration have been conceptualized and put into practice [1; 2; 3; 4], These encompass not only the digital transformation of public administration but also various evolutionary paths of its digitalization [5; 6], Additionally, standards or models assessing the maturity of digital government are formulated and actively put into effect [7; 8]. The exploration extends to different methodologies for evaluating the efficacy of information and communication technologies within the public administration system. Furthermore, there is a focus on developing methodologies for appraising the effectiveness of employing artificial intelligence technologies in governmental operations [9]. The primary challenges and benefits of adopting a project-oriented approach in organizational development are scrutinized [10] An analysis of the effectiveness of integrating project management standards into public service, evaluating its impact on enhancing Uzbekistan's standing in international rankings and indexes was held. It was also examined the organizational and economic mechanisms governing the initiation and progression of this developmental process [11].

Research methodology. Analytical methodology and a comparative approach are employed in this research. The investigation relies on examining current statistical and analytical data, both foreign and domestic, concerning artificial intelligence and its practical implementation within public administration. Theoretical frameworks developed by scholars engaged in the exploration of artificial intelligence, encompassing its potential and challenges in contemporary contexts, form the foundational basis of this study.

Analysis and discussion of results. P.M. Morhat defines artificial intelligence (AI) as a system, whether fully or partially autonomous, that is self-organizing and can exist in a computer-software virtual, cyber-physical, or bio-cybernetic form. This definition encapsulates a range of capabilities and functionalities within AI [12]. According to some experts, AI encompasses a diverse array of rapidly advancing technologies and processes. Notably, machine learning emerges as a pivotal and actively evolving domain within AI. Machine learning, classified as a subset of AI methods, is extensively applied in the realms of Big Data and the Internet of Things (IoT). It involves the study and development of algorithms for automated pattern recognition and the extraction of knowledge from extensive datasets. Additionally, machine learning extends to training-based hardware systems that, leveraging acquired data, generate predictive values and recommendations [13].

Governments globally are eager to leverage the transformative potential of artificial intelligence (AI) for both economic growth and streamlined government operations. Numerous countries have publicly declared the formulation of AI strategies. For instance, Canada invested $125 million in 2017 to establish the Pan-Canadian AI Strategy, fostering initiatives like AI Institutes, Academic Chairs, the AI and Society Program, and the National AI Program. China's State Council outlined the "Next Generation Artificial Intelligence Development Plan" in 2017, emphasizing AI applications across various public services and proposing a pivotal role for AI in policy-making.

The United Arab Emirates unveiled its National Artificial Intelligence Strategy 2031, aiming to create a smarter and more efficient nation. The strategy focuses on investing in AI technologies and tools to enhance public administration efficiency, anticipating a 50% reduction in government spending and a 35% increase in national GDP. France introduced a digital strategy for AI in 2018, emphasizing meaningful AI and European collaboration. South Korea's plan, "Mid-term and Long-Term Master Plan for Preparing for the Intelligent Information Society," prioritizes citizens in creating an intelligent information society. The United States, with a robust AI ecosystem and global influence, leads in AI, followed by China, aspiring to be a leader by 2030.

The United Kingdom, thanks to its financial hub status, actively supports AI projects. Other countries like Canada, Japan, France, and Germany also play roles in the AI landscape. P.M. Morhat defines AI as a self-organizing computer-software or cyber-physical system with varying degrees of autonomy. Machine learning is a key area in AI, focusing on automated pattern recognition and knowledge extraction from vast data sets, contributing to the development of predictive values and recommendations.

In recent years, Uzbekistan has witnessed positive shifts in its international rankings across various domains due to the integration of digitized elements into public administration. Specifically, in 2014, the country held the 100th position in the UN e-Government Development Ranking. By 2022, it advanced to the 69th position among 193 countries, marking an improvement of 18 places from the previous year. This ascent placed Uzbekistan among the top 10 countries globally, showcasing its significant progress in electronic government development.

Furthermore, the World Bank's GovTech Enablers index positioned Uzbekistan as the 4th country worldwide in terms of digital skills and innovations in public services. This ranking reflects a notable rise of 65 places compared to 2020. Additionally, the "GovTech Maturity Index" for state and public services demonstrated Uzbekistan's remarkable advancement by climbing 37 places to secure the 43rd position out of 198 countries. This achievement propelled Uzbekistan into the "A" group of leading nations in digital transformation.

However, the Government Effectiveness Index indicated a different perspective, with Uzbekistan's average score at -0.2 points in 2021. This suggests room for improvement compared to the world average of -0.03 points for 191 countries in the same year. Despite variations in specific indices, Uzbekistan's overall trajectory in international rankings signals a commendable commitment to advancing its digital capabilities and enhancing public services [14] (Figure #1).

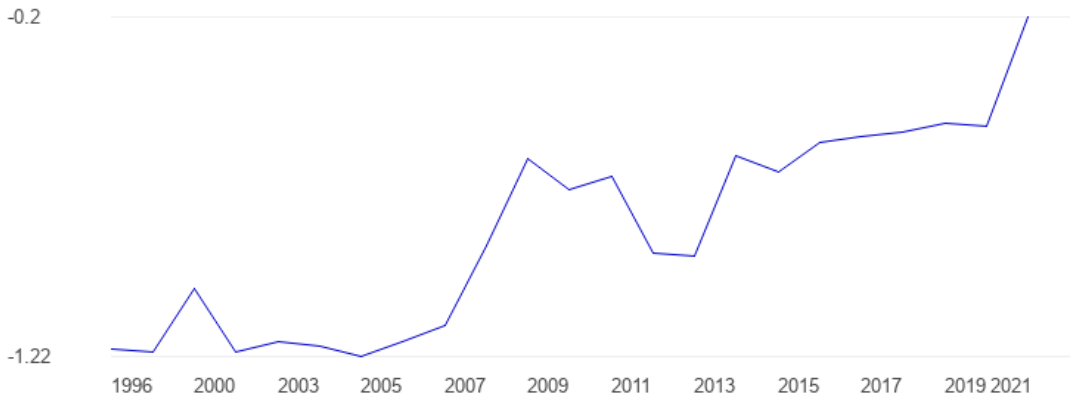
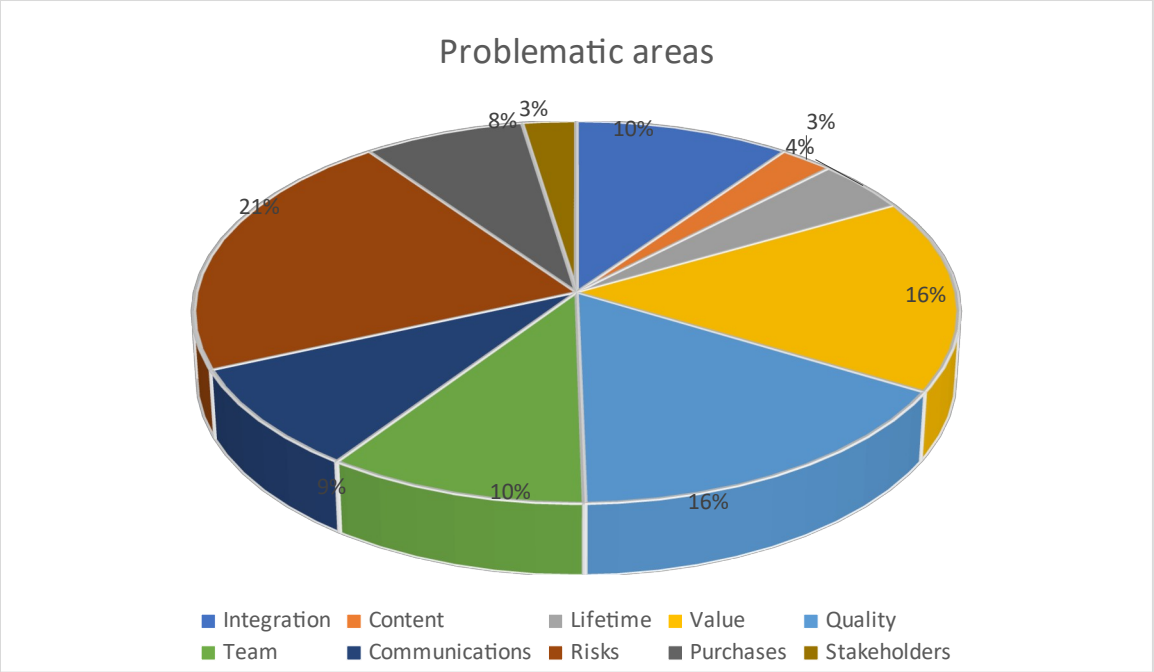


Figure #1. Uzbekistan's GEI index by years

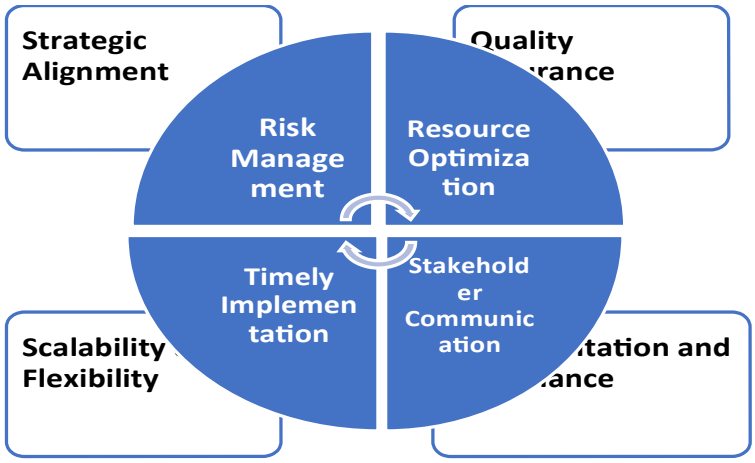
Of course, international ratings have an impact on the country's image and its foreign political and economic relations. This, in turn, leads to an increase in the demand for public service and its quality. The standards of labor management introduced to public service greatly contribute to increasing its positive potential. However, there are a number of difficulties in this matter. In a



survey conducted among civil servants of Uzbekistan, 21% of participants noted project risk management as the most problematic and complex area in project management, while 16% of participants noted that it is related to quality and value management. Only 3% of participants noted the complexity of project content and stakeholder management, indicating that these areas do not cause much difficulty (Figure 2).

Figure 2. Problem areas of PM standards implementation in civil service

The role of project management standards in optimizing AI adoption is crucial for ensuring a structured and effective integration of artificial intelligence (AI) technologies into various projects and processes. Project management standards provide a framework that helps organizations streamline the implementation of AI initiatives, ensuring they align with organizational goals and industry best practices. Here are key aspects highlighting the importance of project management standards in optimizing AI adoption (Figure #3):



Picture #1. The importance of project management standards in optimizing AI adoption

Project management standards enable organizations to align AI initiatives with overall business strategies. By defining clear objectives, milestones, and deliverables, these standards ensure that AI projects contribute directly to organizational goals and priorities. The adoption of AI involves inherent risks, including technical challenges, data privacy concerns, and ethical considerations. Project management standards provide a systematic approach to identifying, assessing, and mitigating risks, promoting a more secure and responsible implementation of AI technologies.

AI projects often require substantial resources, including skilled personnel, technology infrastructure, and financial investments. Project management standards help optimize the allocation of resources, ensuring efficient utilization and preventing unnecessary costs. Adhering to project management standards ensures a well-defined project schedule with clear timelines and milestones. This helps in avoiding delays and ensures that AI projects are implemented in a timely manner, aligning with business objectives and market demands.

Effective communication is critical in AI adoption, involving various stakeholders with diverse interests. Project management standards facilitate transparent communication channels, ensuring that all stakeholders are informed about project progress, challenges, and outcomes. Maintaining high-quality standards in AI projects is essential for achieving reliable results. Project management standards include mechanisms for quality assurance, allowing organizations to monitor and enhance the performance of AI applications throughout the project lifecycle.

Project management standards provide a scalable framework that accommodates the evolving nature of AI technologies. This ensures that organizations can adapt and scale their AI initiatives in response to changing business requirements and technological advancements.

Standards in project management emphasize documentation and compliance, essential for auditability and regulatory adherence. This becomes particularly important in AI, where ethical considerations, data protection laws, and industry regulations play a significant role.

The integration of Artificial Intelligence (AI) into civil service using project management tools introduces several key elements that contribute to efficiency, effectiveness, and innovation. Below are some prominent elements (Table #1):

Table#1.

The integration of Artificial Intelligence (AI) into civil service using project management tools

Subfields of AI	***In Civil Service***	***PM implementation***
Natural Language Processing (NLP):	NLP enables AI systems to understand and interpret human language, facilitating improved communication between stakeholders.	Chatbots and virtual assistants powered by NLP can enhance user engagement and provide instant responses to queries.
Task Automation	Repetitive and rule-based tasks within projects and administrative processes can be automated using AI technologies	This automation leads to increased operational efficiency, reduced errors, and a focus on more strategic aspects of management
Machine Learning Algorithms	Machine learning algorithms enable systems to learn from data, adapt to changing circumstances, and improve performance over time	In project management, machine learning can optimize scheduling, resource allocation, and risk assessment
Image and Pattern Recognition	AI-driven image recognition can be applied in public administration for tasks such as facial recognition in security systems or processing visual data	In project management, it can aid in monitoring and assessing physical progress through images.
Enhanced Data Security	AI technologies play a role in strengthening cybersecurity measures to protect sensitive information in public administration and project management	AI-driven threat detection systems can identify and respond to potential security breaches
Dynamic Resource Allocation	AI can analyze real-time data to dynamically allocate resources in projects and public services, ensuring optimal utilization and cost-effectiveness	
Continuous Learning and Adaptation	AI systems can continuously learn from new data, adapting to evolving circumstances and	This adaptability is particularly valuable in dynamic project environments

	improving their performance over time	and changing administrative landscapes
Citizen Engagement and Services	AI-powered applications can enhance citizen services by providing personalized recommendations, addressing queries, and streamlining interactions	Virtual assistants can offer efficient and accessible services, improving overall public satisfaction
Automated Decision-Making	AI systems can analyze vast amounts of data to support decision-making processes in project management and public administration	Automated decision-making tools can enhance the speed and accuracy of routine decisions, allowing human resources to focus on more complex tasks
Predictive Analytics	AI algorithms can utilize historical data to predict future trends, risks, and outcomes in project management and public administration	Predictive analytics help in proactive planning, resource allocation, and risk mitigation, improving overall project success rates

The incorporation of these AI elements contributes to more streamlined processes, informed decision-making, and enhanced overall performance in project management and public administration.

Ethical considerations in AI implementation are paramount to ensuring responsible and fair use of artificial intelligence technologies. The adoption of AI comes with various challenges related to privacy, bias, accountability, transparency, and the impact on society. Addressing these ethical considerations is crucial for building trust, minimizing risks, and promoting the responsible development and deployment of AI systems. Here are key ethical considerations in AI implementation:

Transparency and Explainability: Ethical AI requires transparency, where organizations should strive to make AI systems understandable and explainable to users and stakeholders.Providing clear explanations of how AI decisions are made helps build trust and allows individuals to understand the basis of automated decisions.

Fairness and Bias Mitigation: AI systems must be designed to be fair and unbiased, treating all individuals and groups equally. Developers should identify and mitigate biases in training data and algorithms to prevent discriminatory outcomes and ensure fairness.

Privacy Protection: Privacy is a fundamental ethical concern in AI, especially when dealing with personal data.Implementing robust privacy protection measures, such as data anonymization and encryption, is essential to safeguard individuals' sensitive information.

Accountability and Responsibility: Establishing clear lines of accountability is crucial when implementing AI systems. Organizations must take responsibility for the impact of their AI technologies, and mechanisms for accountability should be in place in case of unintended consequences.

Security and Robustness: Ethical AI requires a focus on security to prevent malicious use or exploitation of AI systems. Ensuring the robustness of AI models and protecting against adversarial attacks is essential for maintaining ethical standards.

Informed Consent: Individuals affected by AI systems should be informed about how their data will be used, and their consent should be obtained when necessary.Transparency about the purposes of AI applications helps users make informed decisions about their participation.

Human-in-the-Loop and Human Oversight: Implementing AI systems with human oversight ensures that human judgment is involved in critical decisions. Enabling human intervention helps correct errors, prevent biases, and ensures that AI systems align with ethical guidelines.

Societal Impact: Ethical AI considers the broader societal impact of AI technologies. Organizations should assess and address potential negative consequences of AI on employment, inequality, and societal structures.

Continual Monitoring and Evaluation: Ethical AI requires ongoing monitoring and evaluation to identify and rectify emerging ethical concerns. Regular assessments help organizations adapt to changing circumstances and evolving ethical standards.

Collaboration and Stakeholder Involvement: Engaging with a diverse set of stakeholders, including users, experts, and impacted communities, ensures a broad perspective in addressing ethical considerations. Collaborative efforts help identify and respond to ethical challenges more comprehensively.

Analyzing the legal frameworks surrounding AI in civil service involves examining the existing laws, regulations, and policies that govern the development, deployment, and use of artificial intelligence technologies within government agencies. Legal frameworks play a crucial role in ensuring responsible and ethical AI practices, addressing concerns such as privacy, accountability, transparency, and fairness. Here is an analysis of key aspects of legal frameworks related to AI in civil service:

Data Protection and Privacy Laws: Legal frameworks often include provisions related to data protection and privacy, governing the collection, processing, and storage of personal information by AI systems. Compliance with laws such as the General Data Protection Regulation (GDPR) in the European Union or similar regulations in other regions is essential.

Transparency and Accountability: Legal frameworks may require transparency in AI systems, ensuring that government agencies disclose information about the use and decision-making processes of AI algorithms. Accountability mechanisms may be established to hold agencies responsible for the outcomes and impacts of AI applications.

Bias and Discrimination Mitigation: Regulations may address the issue of bias and discrimination in AI by prohibiting discriminatory practices and requiring agencies to take measures to mitigate biases in AI algorithms. Ensuring fairness and equal treatment is a key consideration in legal frameworks.

Algorithmic Impact Assessments: Some legal frameworks may mandate the conduct of algorithmic impact assessments before implementing AI systems in civil service. These assessments evaluate potential risks and impacts on individuals, society, and human rights.

Human Rights and Ethical Standards: Legal frameworks may incorporate principles of human rights and ethical standards to guide the development and use of AI in alignment with societal values. Respect for fundamental rights and adherence to ethical guidelines become integral components.

Procurement and Vendor Accountability: Governments may establish rules for AI procurement, ensuring that vendors adhere to legal and ethical standards. Contracts and agreements with AI service providers may include clauses that hold them accountable for compliance with relevant regulations.

National AI Strategies and Policies: Countries may adopt national AI strategies or policies that outline the legal framework for AI in civil service. These strategies may encompass a comprehensive approach, covering research, development, deployment, and governance of AI technologies.

International Collaboration and Standards: Legal frameworks might encourage international collaboration and adherence to global standards in AI development and deployment. Alignment with international norms helps address cross-border challenges and promotes a unified approach.

Public Participation and Consultation: Legal frameworks may require public participation and consultation in the development and implementation of AI systems in civil service. Ensuring citizen engagement contributes to a more inclusive and transparent decision-making process.

Oversight and Regulatory Authorities: Legal frameworks may establish oversight mechanisms or regulatory authorities responsible for monitoring AI activities within civil service.These entities may have the authority to investigate complaints, enforce regulations, and impose penalties for non-compliance.

Conclusions and recommendations. In summary, project management standards play a pivotal role in optimizing AI adoption by providing a structured approach to planning, executing, and controlling AI projects. They contribute to strategic alignment, risk management, resource optimization, timely implementation, stakeholder communication, quality assurance, scalability, flexibility, and compliance – all of which are crucial for the successful integration of AI technologies in diverse organizational settings.

The legal frameworks surrounding AI in civil service are multifaceted, addressing various dimensions of AI governance. These frameworks aim to balance technological advancements with ethical considerations, safeguarding individual rights, and ensuring accountability in the use of AI within government agencies. Continued refinement and adaptation of these legal frameworks are essential to keep pace with the evolving landscape of AI technologies and their applications in the civil service sector.

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