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Artificial Intelligence as A Driver of Digital Government Transformation: Applications and Trends in Government Operations in the Philippines

Abstract

Digital transformation in government operations hastens transparency, efficiency, and customer satisfaction, and the application of artificial intelligence (AI) and machine learning (ML) can optimize digitalization initiatives. This study sought to identify the digitalization and digital transformation policies of the Philippine government and explore how AI technologies can be leveraged in government operations, specifically in *frontline services*, *human resource management*, and *financial services*. Document reviews are the primary methods. It examined legal government documents, published journal articles, and papers. Digital government transformation is still in its foundational/initiation phase. However, it is noticeable that national policies on AI strategy are set, political support is evident, and government agencies are already leading the digitalization of their services. As AI adoption in digital government transformation has gained traction, there is a need to utilize AI technologies and algorithms to accelerate these efforts, thereby spurring economic growth. Potential AI technologies applicable to these identified services include predictive analytics, deep learning, neural networks, RNN, CNN, and recommender systems, among others.

Keywords:

artificial intelligence; digital government transformation; Government Operations in the Philippines

Introduction

The major reasons why companies and governments have taken the digital transformation journey include gaining public trust through the transparent and efficient delivery of public services, sustaining resilience, and complying with sustainable development commitments.

Public trust is the currency of governments, because it generates participation in governance and compliance with laws and regulations. Digital transformation can “potentially solve the declining trend of public trust” (Mahmood et al., 2019, as cited in Virnandes, 2024, p. 1183) and can “be leveraged to generate

public trust' (Virnandes et al., 2024). In that study, the use of cloud computing and artificial intelligence in a computer-assisted test (CAT) system by Indonesia's National Service Agency generated higher acceptance of the test results, which led to higher trust in the recruitment process in civil service. In addition, employing digital interaction with citizens increases the renewed image of transparency, thereby serving as a channel to improve the trust-inequality relationship (Palmisano & Sacchi, 2024).

One positive impact of the COVID-19 pandemic is the adoption of technologies that tempered major disruptions in operations and activities across industries brought about by lockdowns and social distancing. During the COVID-19 outbreak in Shanghai, China, citizens' use of Government Social Media (GSM) for information facilitated by the local government promoted compliance with government policies and measures (Chen et al., 2024). The Austrian government response during the pandemic has led to "the increased use of technologies and employees' favorable attitudes towards technology and organizational culture toward innovation" (Moser-Plautz & Schmidhuber, 2023). Various sectors and industries, such as banking (Rahman et al., 2024), health (Jimenez-Zarco et al., 2025), and education and human resource management (Nuutinen & Bordi, 2025), shifted to the adoption of digital apps to cope with the crisis. Even during the post-COVID, some government agencies and private corporations have continuously embraced technology-driven operations/activities and alternative work arrangements. The Civil Service Commission of the Philippines has recently adopted a hybrid work arrangement for its Central and Regional Offices, which includes four days onsite and one remote day each week (Civil Service Commission, 2024). In summary, the use of digital platforms serves as a tool for navigating disruptions and uncertainties, thereby securing a resilient society.

Digital transformation has been recognized as playing an "essential role in achieving the 2030 Agenda for Sustainable Development" (Department of Economic & Social Affairs, 2015, as cited in Digital Regulation Platform, 2023) and "its 17 Sustainable Development Goals (SDGs)" (Digital Regulation Platform). Consider the case of climate change and environmental protection. Member states have strategized measures to mitigate the ill effects of environmental pollution and climate change to demonstrate their commitment to UN sustainable development goals. In the study conducted by Linghu & Guo (2024), it revealed that a "digital government enhances mining companies' EP significantly thus validating the environmental benefits of a digital government policy." To add, the study of Guan, Li, Liu, and Ullah (2024), which explored the nexus of the digital government and natural resources rents of 65 countries from 2003-2021 found that the digital government escalates natural resources rent globally in Asia, America, and Europe". In short, the digital government enhances environmental protection, thus contributing to the realization of the United Nations Sustainable Development Goals (SDGs).

Crucial elements in any digital transformation initiative are beating silos. Companies should adopt systems thinking because "silos are limiting the ideation and creation within the silo itself" (Liolis, 2024). For digital transformation to be successful, the fundamental requirement of breaking down the silos must be achieved (Liolis). In the public sector, such elements need more emphasis because the government's complexities in regulations, agency mandates, and their multilayered structures are more pronounced. According to Bertrand and McQueen (2021), it is the role of the center of government to break down the silos and to achieve "interoperability of different systems, databases, and registers to provide one-stop access to public services". In effect, the central government takes the

lead in creating policies and standards, while government agencies are expected to craft their own digital transformation initiatives and roadmaps to implement those set by the former. Consider the case of the Brazilian e-government service development. Its digitalization efforts have evolved to Open Government Data, which has accelerated the Sustainable Development Goals by establishing common strategies, plans, and actions, as well as the efficiency of policy reform formulation and program implementation (Santos, 2024).

It can be deduced that such digital transformation efforts across agencies in a government need to be interconnected, integrative, and systemic. Even if sophisticated models, algorithms, and technologies are adopted, they are sporadically utilized in various departments, and the realization of digitalization objectives may be delayed.

In the Philippines, the government has taken bold steps in setting policy initiatives for digital transformation and the recently released *ASEAN Guide on AI Governance and Ethics* guided by the “core principles of transparency, fairness, human-centricity, accountability, and robustness” has strengthened this resolve. The Guide encourages alignment within ASEAN as to AI use, “fostering the interoperability of AI frameworks across jurisdictions,” and encourages governments in the ASEAN region to consider the design, development, and deployment of AI systems responsibly (Association of Southeast Asian Nations, 2024). To supplement the ASEAN Guide, an Enhanced ASEAN Guide with policy considerations related to the use of generative AI (Gen AI) was released. Arguably, having vast knowledge of AI tools and mastery of their applications can be leveraged to speed up digitalization government transformation efforts.

Governments serve the public and ensure excellence in the delivery of public services. Admittedly, transforming the systems and

processes of government operations using digital technologies can enhance the efficiency and quality of service delivery. This study argues that the speed of these digitalization initiatives can be accelerated by the application of AI-driven technologies.

This paper seeks to identify the status of the digitalization efforts exerted by the Philippine government and explore how AI / Machine learning can accelerate the speed of digital government transformation initiatives, specifically in *frontline services*, *human resource management*, and *financial services* among government agencies, to expedite its economic programs and reforms.

Methods

A document review was the main method used in this study. This paper reviewed government legal documents, policies, and reports related to government digitalization and digital transformation to identify the policy initiatives and legislative measures undertaken by the Philippine government. Also, recent targeted and related literature such as published journal articles were surveyed and examined by this author to determine the trends of AI/ML adoption in digitalization initiatives and identify the applicability of AI technologies in driving digital transformation to match government operations. News articles and papers supplemented the academic literature review. Guided by the objectives of this study, the presentation and discussion of results in the succeeding section are based on major themes such as digitalization in the Philippines and how artificial intelligence can be leveraged in digital government transformation.

Results and Discussion

Digitalization in the Philippines The digital transformation journey of the Philippines has taken a major leap under the current administration of President Ferdinand R. Marcos

Jr. Evidently, the embrace towards adoption of AI-driven technologies is reflected in his 3rd State of the Nation Address (SONA) (“President Marcos highlights digital transformation in third SONA,” 2024) and the 8-Point Agenda of the Philippines Development Plan (2023-2028) (National Economic & Development Authority, 2022).

However, it is important to note that his predecessor, Former President Rodrigo R. Duterte released the e-Government Masterplan 2022, which “serves as a blueprint for a harmonized government information system” (Department of Information & Communications Technology, 2024). This master plan contains four major objectives: 1) Optimize Government Operations (G2G), 2) engage citizenship (G2C), 3) Transform Services (G2B), and 4) empowered government employees (G2E). Considering that it was only released towards the end of his term as president, the fate of its implementation is in the hands of the succeeding administration. During the administration of Duterte, Executive Order No. 170 – Adoption of Digital Payments for Government Disbursements and Collections was issued by the Office of the President on the 12th day of May 2022 (Bureau of the Treasury, 2022), and the first phase of ARTA’s Central Business Portal (CBP) was launched to reduce documentary requirements and shorten processing time, specifically those transacting with the Security and Exchange Commission (SEC) and the Bureau of Internal Revenue (BIR) (Crismundo, 2021). According to the Presidential Communications Office (2021), 4,000 free Wi-Fi sites were established in 2020, providing free Wi-Fi spots in public hospitals, quarantine centers, and public schools. But even the first years of the Duterte administration, it had given a signal that the government will be harnessing the “powerful tools of information and communication technology (ICT) to reinvent government and make it more responsive, accessible and accountable to the

people” as emphasized by the Former Finance Secretary Carlos Dominquez (Department of Finance, 20218). In other words, the policies and standards during the Duterte administration served as a necessary impetus for the jumpstart transformation journey.

Central to the current administration is its commitment to full digitalization of the country’s bureaucracy because according to President Marcos Jr. that it is “not only the greatest, most powerful tool to improve ease of doing business but also to stamp out graft and corruption” (Department of Information & Communications Technology, 2023). The President has emphasized major digital transformation goals, which include the following: a) right sizing the bureaucracy; b) Free Internet in Public Spaces Act (RA 10929) and National Broadband Plan; and c) cybersecurity standards across government agencies.

The Department of Information and Communication Technology (DICT) has initiated the launch of pioneering e-government programs in the country, including e-Travel, eGov PH Super App, eGovPay, eGovCloud, eLGU, and eReport. The Department of Budget & Management (DBM) has also taken its share in such efforts by introducing projects such as “Robotics Process Automation, Application Programming Interface, and the Budget Treasury Management System for its Integrated Financial Management Information System (IFMIS)” (Department of Budget & Management, 2024). In addition, the Department of Trade and Industry (DTI) launched the National AI Strategy Roadmap 2.0 (Department of Trade & Industry, 2024) and the Center for AI Research in July 2024. As the central personnel agency of the government, the Civil Service Commission has received technical assistance from the Asian Development Bank. This provides expert advisory services for the former’s Digital Transformation Framework and Roadmap (2024-2029) with US\$ 500,000.00 as the Technical Assistance Special Fund (Asian Development Bank, 2024). This two-

and-a-half year project focuses on information and communications technology (ICT) resource assessment, digital strategy development, and capacity-building programs for CSC personnel (Vera-Ruiz, 2024). The Department of Information and Communications Technology leads the government's digitalization with its Government Digital Transformation Bureau (GDTB) focusing on a *four-point agenda* that includes the following: 1) safer, protected, and reliable ICT; 2) an ICT-enabled government; 3) greater public reach; and 4) ICT capacity development (Department of Information & Communications Technology, 2024). These programs aim to bolster efficiency and transparency in government services and support data-driven policies and decisions among government agencies, both at the national and local levels.

To complement the Executive's efforts, the Philippine Congress has responded to the call towards digital government, as evidenced in the following legislative measures: Senate Bill No. 2781 (e-Governance Act) authored by Cayetano, A.P. et al. and the House Bill 7327 (e-Governance Act) authored by Romualdez, M. et al. The former is "pending" for the Second Reading as of September 11, 2024 (Senate Bill N0. 2781, 2024), while the latter was already approved in its Third and Final Reading on January 22, 2024 (House Bill No. 7327, 2024). Lately, House Bill No. 10567, authored by Villafuerte et al., aims to regulate AI use, especially in the prevention of the proliferation of deepfakes. It is still pending to the Committee on Information and Communications Technology (House Bill No. 10567, 2024). On the part of the Judiciary, the Philippine Supreme Court was one of the first few agencies to take the lead in advancing the use of artificial intelligence in its operations, adopting its Strategic Plans for Judicial Innovations (2022-2028) in modernizing the judiciary's systems and workflows by exploring the AI potentials (Supreme Court of the Philippines, 2024). Initially, the Supreme Court started pilot testing in voice-

to-text transcription software for stenographers and streamlined legal research using AI-enhanced platforms (Supreme Court of the Philippines). Thus, it can be deduced that the whole government is gearing towards AI use with the primary reason for enhancing the delivery of government services with high efficiency and accuracy, thereby improving the lives of its citizens.

Using the *Cycle of DTS (Digital Transformation Strategy) Development* specifically in Phase I and Phase II in an article published in the World Bank's Digital Regulation Framework (Digital Regulation Platform, 2023), it is evident that previous and present administrations have openly expressed their desire to embrace digitalization in government operations through their issued policies and programs, and identified lead agencies to champion digitalization initiatives. Various agendas, frameworks, and strategy roadmaps have been crafted and adopted, and some government agencies have already implemented existing digitalization efforts. In short, political will is apparent, coupled with established policies and strategies for the country's digital transformation.

How AI / ML can be Leveraged in Digital Transformation in the Philippines

Considered as the technology of the 4th Industrial Revolution, AI/Machine Learning can have an "economic benefits thereby increasing productivity" as claimed by US Government Accountability Office (2018, as cited in Ahn & Chen, 2022) and accelerating the speed in the attainment of goals in digital transformation and initiatives. Admittedly, digital technology supporting the public service effectively specifically in healthcare technology of which "these innovations do not replace the public service 'per se,' but they can enhance effective delivery" (Osborne S.P, Cucciniello M., Nasi G, et al., 2022). Also, it is reported in McKinsey Global Institute's Notes from the AI Frontier Modeling the Impact of AI on the World Economy that Artificial Intelligence / Machine Learning "could

potentially deliver additional economic output of around \$13 trillion by 2030, boosting global GDP by about 1.2 percent a year” (McKinsey & Company, 2018). The Report adds that China, EU Bloc, South Korea, Singapore, Canada are countries taking the lead in designing plans and adopting initiatives to spur their economic growth with AI use (McKinsey & Company, 2018) which can be leveraged in the digital transformation initiatives of companies and governments. Globally, more governments have adopted such a strategy (Ahn & Chen, 2022). In addition, the US Government Accountability Office reported that “more sophisticated algorithms and greater availability of data have been rapidly utilized for public service”(Engstrom et al., as cited in Ahn & Chen, 2022). In a study conducted by Koliouis et al. (2024), it was found out that the proposed generative AI platform performed better in strategic decision-making than human decision-making in terms of applicability, efficiency, and accuracy.

Public policies affect the lives of people, and choosing the best policy options necessitates objective tools and techniques of AI that offer an opportunity for decision-making in governments.

One such technology is generative AI. It facilitates “acquisition of knowledge from different sources, optimizing decisions in the same manner as policymakers do”(Pizhuk, 2020). Qudah and Muradkhanli (2024) pointed out that Generative AI can be utilized to enhance customer experience through the use of chatbots, virtual assistants, intelligent contact centers, customization, and content moderation. In public administration, GenAI-powered chatbots can help to handle and answer queries of citizens, and with the advancement of AI technologies, these chatbots will be “more accurate, multilingual, efficient, multi-communication mode and auto-learning”(Nirala et al., 2022). To add, it was found out in the study of Nguyen et al. (2023) that the more sophisticated the humanlike language can lead to perceived competence of the chatbots as compared to the interactions with human

The power of AI / Machine learning depends mainly on its predictive and prescriptive capabilities. Using powerful algorithms, AI / Machine learning can perform prediction and classification, thereby generating forecasts of demand, sales, weather, and identifying anomalies and frauds in government transactions. Given the right data and supervised machine learning models, governments can identify the number of school buildings to be constructed and teachers to be hired, which is similar to hospitals, jails, and other social services facilities. Using unsupervised machine learning models, fraudulent transactions and anomalies can be easily detected in financial services and profiling police operations. Another strength of AI / Machine Learning is its prescriptive ability. Utilizing computer vision technology in healthcare, not only can it diagnose ailments, but it can also suggest the best possible options for treatment of the patient (Marr, 2023). In addition, prescriptive algorithms and robotics can hasten the inventory and delivery logistics.

Sentiment analysis provides a “positive impacts on government, civic administration, and public services” and an “increase of efficiency of administrative processes” (Verma, 2022). Through sentiment analysis, governments are guided by citizens’ reactions and feedback to deliver improved public services. Gharbaoui et al. (2024) sought to determine the impact of a recommender system on citizens’ participation in Moroccan e-government. The study revealed that recommender systems enhanced satisfaction of citizens due to customization of e-government services, thereby improving its service delivery (Gharbaoui et al.)

It can be deduced that there is a growing global trend of AI use, specifically in the public sector, because of its economic benefits and efficiency in service delivery. GenAi, predictive analytics, and neural networks have been adopted in government operations.

For the last three years, the Philippine government has laid the foundation for digitalization in the country. This includes crafting ICT-related laws, national AI strategy roadmaps, designing and adopting AI apps, and creating offices. The latest pronouncements of President Marcos Jr. coupled with the issued policies on AI adoption to accelerate digital transformation in the country provide a conducive environment for institutionalizing the integration of AI technologies in the delivery of services to the public. It is also important to note that the ASEAN Guide on AI Governance and Ethics allows flexibility because of its model-based approach, which means it has a menu of model companies to choose from as reference to member states and their companies what model/s to adopt, which stands in contrast with the risk-based EU Law on AI.

Aligned with the government's policy, as advanced by the Philippine President, His Excellency Ferdinand R. Marcos, Jr., and as translated into National AI Strategy Roadmap 2.0 and other digitalization initiatives, AI / Machine Learning can be leveraged in the digital transformation among government agencies. For NEDA Secretary Arsenrio M. Balisacan, the adoption of AI technologies which is expected to enhance operational efficiency, automating tasks, and optimizing decision-making may generate an annual gain of Php 2.6 trillion ("Philippines poised to benefit P2.6 trillion from AI – Balisacan", 2024).

However, as quoted by NEDA Secretary Balisacan in the 2023 Government AI Readiness Index developed by Oxford Insights, it was reported that "the Philippines trails behind in government readiness to implement AI" ("Philippines poised to benefit P2.6 trillion from AI – Balisacan", 2024). Among the 193 countries evaluated, the Philippines ranked 65th in the *Technology Sector* and *Data & Infrastructure* pillars need to be addressed (Oxford Insights, 2023). Stirling (Satubaldina, 2025) describes an AI-ready government with a "strong performance

in government, in the technology sector, and the data and infrastructure". He adds that the local technology sector can work with AI and that there is a data infrastructure to fully harness AI potential. The government still has many things to deliver to achieve a digital transformation vision. For the Philippines to be AI ready, much emphasis should be placed on the technology sector.

Thus, utilizing AI/ML for government operations should be reasonably considered. AI use should be aligned with the government's digital transformation strategies, harmonized with the pace and intensity of existing digitalization efforts, and tempered with the realities of multiple layers and rigidity in bureaucratic processes.

The areas in which AI/Machine Learning can initially be applied in the preliminary stages of the *implementation phase* include *frontline services*, *human resource management*, and *financial services*. Justifications for the identification of those enumerated are anchored on a citizen-centric approach, aligned with the vision of the current administration, as evidenced by the policies and pronouncements on *digital transformation* and *AI use*. In addition, the digital transformation journey has gained momentum, and the technology sector needs to be more mature, innovative, and have higher levels of talent skills in terms of AI readiness.

Quality of frontline services takes a crucial role because "whatever is done at the front line affects the citizens' perceptions of the whole organization " (Gaster & Rutqvist, 2008). This is similar to human resource management in the public sector because the "quality of the welfare state and well-being of the nation depends on the performance of the public sector employees" (Knies et al., 2018). In the aspect of financial services, citizens are now expecting "convenient and easy ways to pay no matter what product or service it is they're paying for" (Kubra, 2021) while e-tax filing is an important tool to "support tax revenue and

enhance taxpayer compliance” (Anggoro, 2015, as cited in Mangoting et al., 2019)

Citizen-centricity involves the redesigning of institutions to be more flexible and responsive to citizens’ needs, promoting transparency, empowering citizens, and streamlining processes (UNO ECOSOC, 2016, as cited in Dechamps et al., 2025). More importantly, these identified services matched those mentioned by the president as areas of priority (Virgilia, 2024) in the government’s digitalization during his 2023 SONA.

In the study conducted by Kulal et al. (2024), this approach expedites processes and eliminates unnecessary human intervention such as mediators, thereby preventing corruption. The direct impact of these services on the transacting public may increase trust in the government, as well as AI trustworthiness. For South African local governments, focusing on how accessible and user-friendly digital services and flexible digital service delivery can counter the challenges in implementing digital transformation (Hofisi & Chigova, 2023). Moreover, meeting the needs and expectations of the citizens can be characterized as “public value in public sector digital transformation activities” (Kitsios, 2023) and more specifically, societal value like transparency, economic value through time and money advantages, and citizen value through improved interactions with the citizens (Twizeyimana & Andersson, 2019, as cited in Kitsios et al.).

Frontline Services

For Philippine President Marcos Jr, digitalization in the delivery of efficient public services is the “call of today” (Presidential Communications Office, 2023) and in effect, frontline services and its back-end functions take the center stage.

Generative AI (Gen-AI) is a powerful technology that can be utilized in frontline services among government agencies in the country. The Ease of Doing Business Act mandates all

government offices to “establish effective practices aimed at efficient turnaround of the delivery of government services and the prevention of graft and corruption in government” (Republic Act 11032, 2018). This law emphasizes the mechanisms of efficient delivery of government services, enhancing transparency in government transactions, and preventing bureaucratic red tape.

Table 1 presents the possible AI technologies that can be utilized in the delivery of frontline services, specifically for customer queries and assistance. By using chatbots, queries can be answered in a manner similar to human-like conversations and operational 24/7. Government offices are open from 8:00 am to 5:00 pm with no noon-break during weekdays, and their responses to clients’ concerns are visibly outlined in the displayed Citizens’ Charters. However, the deployment of virtual agents can pave the way for a more efficient approach to transacting with clients even beyond office hours/days, thereby promptly responding to them and undoubtedly reducing costs. Aside from chatbots’ 24/7 functionality, the use of chatbots allows public employees to perform nonroutine, creative, and critical tasks and provides opportunities to refine communication strategies using its data analytics features (Chen & Gasco-Hernandez, 2024). This is because frontline service providers can be relieved from repetitive queries to perform creative tasks, which increases the use of communication channels in addition to email and phone calls (Magno et al., 2022, as cited in Chen & Gasco-Hernandez, 2024). With the use of website analytics and chatbot analytics, the government can “better monitor the evolving citizen information needs” (Chen & Gasco-Hernandez, 2024), thereby well-guided tailoring fit enhancements in engaging with citizens.

With the use of sentiment analysis and recommender systems, comments and feedback can be analyzed in real time, thus providing

opportunities for offices to address issues appropriately and promptly and offer online offerings in a personalized fashion. In addition, AI can offer individualized suggestions and options to clients based on their transaction/query histories and demographics. In fact, Public Service Media (PSM) companies in Europe “are looking to using viewer data to tailor content distribution” but are adopting measures to ensure public service goals like universality and diversity (Hilden, 2021).

Human Resource Management

The Civil Service Commission has always been at the forefront in advancing strategic HR systems and practices, one of which is PRIME-HRM (Civil Service Commission, 2013). The CSC sets guidelines for government agencies to craft competencies, systems, and practices for their human resource management toward HR excellence (Civil Service Commission). The complexity of integrating HR systems from different areas can be challenging; however, the integration of AI/ML may hasten the institutionalization of PRIME-HRM among government agencies.

In the area of *Recruitment & Selection*, as presented in Table 2, chatbots can handle application queries round-the-clock, whereas Machine Learning can assess voluminous applications. To shortlist applicants, ML can classify them whether they are “qualified” while Recurrent Neural Networks (RNN) can perform resume parsing by extracting and filtering resume data in order to have an efficient assessment

of applicants. In addition, Convolutional Neural Networks (CNN) can analyze audio and video data during video interviews, thus extracting insights into applicants, personalities, behaviors, and fitness to the positions applied for. In the case of *Performance Management*, performance outputs can be monitored in real time using dashboards, while ML can predict work productivity, in which case the agency can provide appropriate measures promptly. In addition, RNN can uncover workforce insights, feedback, and gain real-time assessment of the current state of emotions among employees.

For *learning and development*, AI / ML such as predictive analytics, sentiment analysis, and recommender systems, can provide individualized HR interventions, whereas Generative AI and e-learning management systems (e-LMS) can offer self-paced / -help training. In the area of Rewards & Recognition, predictive analytics is an appropriate tool for identifying potential awardees, high-fliers, and recipients of opportunities for career progression.

In addition, there is a need to establish an System (System (HRIS) embedded in an AI platform, especially in an AI-powered HR framework, making it more integrative and interconnected.

Financial Services

Common issues in the collection of fees and filing of tax returns include long queues and backlogs. In addition, there are complaints of inaccurate computations and erroneous

Table 1.
AI Technology for Frontline Services Applications

Area	Legal Basis	AI Technology & Algorithms	Applications
Customer Query & Assistance	Establishment of Public Assistance / Complaints Desk (Section 10, par (h) of RA 11032)	Generative AI (NLP - chatbots)	Taking & answering queries 24/7
		Robotics	Processing of requests 24/7
		Machine Learning (sentiment analysis)	Understanding comments & reactions to services provided in real-time
		Neural Networks (recommender systems)	Providing advice and suggestions to clients based on individualized needs

Table 2.
AI Technology for Human Resource Management Applications

Area	Legal Basis	AI Technology & Algorithms	Applications
Recruitment & Selection	PRIME – HRM of the Civil Service Commission	Generative AI (<i>NLP-chatbots</i>)	Handling application queries 24/7
		Machine Learning (<i>Predictive analytics</i>)	Assessment of applications
		Neural Networks (<i>NLP -RNN & sentiment analysis</i>)	Resume parsing
Performance Management		Neural Networks (<i>CNN</i>)	Video interviews with facial analysis
		Machine Learning (<i>Predictive analytics; sentiment analysis; skill-gap analytics</i>)	Monitoring performance outputs in real-time
		Neural Networks (<i>NLP -RNN & sentiment analysis</i>)	Discovering workforce insights and feedback in real-time
Learning & Development			Understanding emotions of employees in real-time
		Machine Learning (<i>Predictive analytics; sentiment analysis; recommender systems</i>)	Providing individualized interventions
		Generative AI	Self-paced / -help trainings
Rewards & Recognition		Machine Learning (<i>Predictive analytics; sentiment analysis; recommender systems</i>)	e-Learning Management System (LMS)
			Identifying potential awardees
Support System	Human Resource Information System (HRIS)		Providing tailored career path

Source: Processed by author

Table 3.
AI Technology for Financial Services Applications

Area	Legal Basis	AI Technology & Algorithms	Applications
Payment of fees	Executive Order 170, s. 2022	Generative AI (<i>chatbots</i>)	Attending queries 24/7 Scheduling appointments
		Neural Networks (<i>recommender systems</i>)	Automated reminders
Tax filing	Republic Act No. 11976 (<i>Ease of Paying Taxes</i>)		Accurate computations and recording
		Machine Learning (<i>predictive analytics</i>)	Detecting frauds, anomalies

Source: Processed by author

recordings. These issues can be addressed by addressing the concerns of clients 24/7, scheduling appointments, and providing recommendations and options to the transacting public, as shown in Table 3. Additionally, AI/Machine Learning can detect fraudulent transactions and anomalies. The major legal bases include Executive Order 170. 2022 - Adoption of Digital Payments for Government Disbursements and Collections and Republic Act No. 11976 - Ease of Paying Taxes

Act. EO 170 mandates all government agencies to utilize digital payments in all transactions involving collections and disbursements (Bureau of the Treasury, 2022) while the latter adopts a mechanism for a policy on “file and pay anywhere” in filing and making payments for taxes (Bureau of Internal Revenue, 2024)

In summary, AI technologies/algorithms can be leveraged in the digital transformation efforts in the country. The use of chatbots not only cuts

opportunity costs by the transaction public, but also the convenience brought by its 24/7 features. Neural Networks offer individualized recommendations, whereas ML-predictive analytics can classify clients and transactions that can provide immediate attention by service providers.

Conclusions

The objective of this study is to investigate how AI / Machine Learning can be leveraged in the digital transformation of the Philippines. It traced the digitalization journey of the government and examined applicable laws and policy directions in the field of ICT. However, the central focus of this study was to identify applicable AI technologies and algorithms to accelerate digital government transformation.

Utilizing AI/Machine Learning in digital government transformation shall be citizen-centric, aligned with national digitalization, and harmonized with the pace and intensity of digitalization initiatives. It is evident that national policies on AI strategy are set, political support is pronounced, and some government agencies are already digitalizing their services. There is a need to regularly monitor digital transformation implementation targets, specifically in the context of strategic governance, effective collaboration, and coherence for the necessary fine-tuning of digital transformation strategies. Because AI adoption, especially among governments, is now becoming a trend and gaining traction in accelerating economic growth, there is a need to utilize AI/ML technologies and algorithms in the areas of frontline services, human resource management, and financial services among government agencies in the country. AI/ML technologies and algorithms that are appropriate for applications in these services, such as predictive analytics, deep learning, neural networks, RNN, CNN, and recommender systems.

Consequently, the adoption of Artificial Intelligence in government operations has

implications for how government offices operate, and demand revisions and reforms of existing systems, processes, practices, and applicable laws and regulations.

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