

AI-Enabled Enterprise Digital Transformation Strategies for Public Sector Modernization in Saudi Arabia

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Abstract- *Despite being a viable basis for enterprise digital transformation in public administrations, the benefit of AI depends on governance, data preparedness, workforce buy-in, and the ability to deliver tangible public value, not only on acquiring technology solutions. This review article analyses the potential ways of implementing AI-driven strategies of enterprise digital transformation in supporting public sector reform in the Kingdom of Saudi Arabia focusing on Vision 2030, public service improvement, operational effectiveness, transparency, and resiliency. The research will be based on a structured narrative review enhanced by a thematic synthesis of the relevant literature in the field published within 2020-2025, such as articles about digital government, AI implementation in public administrations, public value, data governance, cyber security, cloud computing, automation, and digital transformation policy in Saudi Arabia. The analysis will identify five strategic pillars – alignment of AI strategies, trusted infrastructure, intelligent automation processes, human-centered digital services, and responsible AI governance. In addition, it will suggest the framework for implementation and phased strategy for public sector entities in Saudi Arabia. The findings show that AI can help to increase the efficiency of services through accelerating them, improving decision-making, predicting demand, identifying fraudulent activities, triaging cases, allocating resources, interacting in multiple languages, and monitoring performance. However, such barriers as poor inter-operable platform, inadequate governance structure, inflexible procurement practices, lack of talent, explainability concerns, privacy issues, and resistance to change can negatively affect benefits achieved.*

Keywords- *Artificial Intelligence, Digital Transformation, Public Sector Modernization, Saudi Arabia, Vision 2030, Digital Government, Enterprise Strategy, Responsible AI.*

I. INTRODUCTION

Modernization of the public sector can no longer be limited to replacing forms with portals. The government modernization initiative in its current form entails an enterprise-level shift in the design of

governmental services, governing data, resource management, citizen protection, and evidence-based learning. In Saudi Arabia, modernization efforts are associated directly with the Vision 2030 strategy, the National Strategy for Data and AI, and general economic diversification. The deployment of government digitization already brought about positive changes in terms of wider usage of online governmental services, platform integration, and maturity of governmental services offered by public organizations (SDAIA, 2020; UN DESA, 2024; DGA, 2025). However, further progress would be possible only with the introduction of intelligent systems able to analyse data, personalize experience, automate actions, and inform the evidence-based decision-making process. It is clear that the tools necessary for such advancement in government services could be found in the sphere of artificial intelligence. Machine learning would recognize the need for specific governmental services, natural language processing would enable interaction in Arabic or other languages spoken by citizens, robotic process automation would allow reducing bureaucratic overhead, and predictive analytics would facilitate budget optimization and inspections. Besides, the use of generative AI technologies could revolutionize the government's response to queries, summary of legislation, support for case officers, and knowledge management. However, modernizing government services with the help of AI technologies should not be seen as purely technical efforts. According to the latest research, digital transformation brings sustainable benefits to the organization only when organizational processes, leadership practices, data governance, employee competencies, and internal control systems are redesigned (Verhoef et al., 2021; Mikalef et al., 2021; Zuiderwijk et al., 2021). The Kingdom of Saudi Arabia represents a significant context for reviewing the findings presented in the literature since the country has ambitions with regard to digital transformation and at the same time faces challenging

conditions that characterize every public sector organization. For example, public organizations operating in Saudi Arabia have to provide their services to all citizens, residents, businesses, investors, pilgrims, and regional developers while meeting strict requirements regarding security, confidentiality, and regulatory compliance. Therefore, the use of AI technologies in order to modernize government services has to be focused on public value and not pursued in a fragmented way. Public value can be defined as rapid and fair services, reduced bureaucracy, enhanced risk management, greater transparency, and more trust (Wirtz et al., 2020; Misuraca and van Noordt, 2020).

II. AIM, OBJECTIVES AND RESEARCH QUESTIONS

The objective of this study is to build a practical knowledge about the digital transformation of enterprises using artificial intelligence for the modernization of the public sector in Saudi Arabia. This paper does not focus on AI as an independent software product; rather, it focuses on AI as a strategy that requires integration into the organization's architecture, services, governance, security, procurement, human resources, and performance. The objectives include: (1) conducting a literature review of recent developments regarding the usage of AI, digital government, and digital transformation between 2020 and 2025; (2) identifying strategic approaches that AI would require in order to modernize Saudi public sector activities; (3) reviewing the obstacles, risks, and governance requirements associated with AI implementations within government agencies; and (4) formulating a model and roadmap based on the review. In order to accomplish this, four research questions have been defined as follows: RQ1: Which AI-based strategies are more applicable for modernizing public sector organizations in Saudi Arabia? RQ2: How can the use of AI be aligned with digital transformations and Vision 2030 of Saudi Arabia? RQ3: What are the barriers, risks, and governance mechanisms that impact the successful implementation of such initiatives? RQ4: What kind of roadmap should be used?

III. METHODOLOGY

For this purpose, a thematic analysis-based narrative review framework will be used. The chosen framework suits the nature of AI-supported public sector transformation due to its interdisciplinary character comprising public administration, information systems, data governance, cybersecurity, organizational change management, and national policy. A systematic review is not optimal in this case due to many sources being policy documents, frameworks, and practice studies. For this reason, literature sources and authoritative policy documents will be combined to develop recommendations and guidelines on public sector transformation in the Saudi context. A specific search will be conducted based on the following parameters: literature published from 2020 to 2025; keywords include "artificial intelligence in government", "digital government transformation", "public sector AI", "data governance", "enterprise architecture", "Saudi Arabia digital transformation", "Vision 2030", "responsible AI", "smart government", "generative AI public services", and "GovTech". The criteria of interest will be related to topics concerning public sector modernization, enterprise transformation, factors impacting the AI implementation, ethical governance, citizen services, efficiency, and barriers to AI implementation. A review will go through five stages. First, sources related to the issue will be identified and divided into several categories, namely policy, technology, governance, service delivery, and organizational change. Second, repeating themes will be selected for coding including data readiness, leadership, interoperability, automation, citizen experience, trust, cybersecurity, skills, and evaluation. Third, themes will be analysed against Saudi policy priorities like Vision 2030, digital government maturity, and data and AI strategies. Fourth, themes will be synthesized into a conceptual framework. Finally, the review will lead to developing a phased modernization roadmap. This methodology is based on the reference model of literature synthesis, interpretation, concept creation, and policy orientation.

Table 1. Review methodology matrix

Review element	Applied criterion	Rationale	Output
Time scope	2020-2025 literature and policy sources	Captures recent AI, cloud and digital government developments	Current evidence base
Source type	Peer-reviewed studies, official Saudi strategy, international reports	Balances academic rigor with public sector relevance	Contextual synthesis
Screening focus	AI adoption, data governance, service modernization, risk, public value	Filters sources aligned with modernization goals	Theme coding
Synthesis method	Structured narrative review with thematic analysis	Suitable for interdisciplinary strategy topics	Framework and roadmap

IV. LITERATURE REVIEW

Research into digital transformation shows that a transformation requires changes to business models, organizational processes, culture and even the technology in use (Verhoef et al., 2021). However, digital transformation in the public sector faces additional concerns related to public accountability, regulatory compliance, politics, social equity and citizen trust. While governments need to seek digital efficiency in their operations, they need to ensure fairness, explainability, accessibility and reliability (Wirtz et al., 2020; OECD, 2021). This means that any AI transformation should be informed by a public value perspective. Government adoption of AI is motivated by the fact that public organizations collect large amounts of both structured and unstructured data. The potential use of AI in governments includes case triaging, assistance program eligibility assessments, fraud detection, physical asset risks prediction, health care resources planning, tax assessment, inspection prioritization, smart mobility, emergency management and effective citizen engagement. Although there is evidence suggesting that AI can make governments operate more efficiently and can help governments make decisions, there is also a number of risks related to the opacity,

bias, lack of accountability and overreliance on AI (Zuiderwijk et al., 2021; Dwivedi et al., 2021; Madan and Ashok, 2023). For this reason, explainable AI and human monitoring become key aspects of public sector AI usage. Most of the literature on enterprise digital transformation focuses on developing a digital platform and implementing appropriate data governance practices. In the same way, AI technologies require high-quality, interoperable and secure datasets. Fragmentation, lack of clear definition, bad metadata and data ownership lead to inaccuracies and low levels of trust in datasets. Digital government transformation requires data stewardship, data standardization practices, cloud readiness, enterprise architecture and interoperability across government agencies (Janssen et al., 2020; World Bank, 2022). This is relevant for Saudi Arabia in view of the fact that most national-scale services require collaboration between various governmental departments, municipalities and other organizations involved in service delivery. The digital government ecosystem in Saudi Arabia has changed significantly thanks to the existence of national platforms, cloud computing initiatives, data and AI governing bodies, and digitized public services guidelines. For example, the National Strategy for Data and AI names the government as one of the priorities and relates the AI abilities of the government to the objectives of Vision

2030. Meanwhile, the Digital Government Authority is interested in digital services, digital governance and technological innovation. Lastly, guidelines for using generative AI in digital government call for responsible usage, inclusiveness and creation of value for stakeholders (SDAIA, 2020; DGA, 2025). This creates a solid framework for the analysis of public sector digital transformation although there will be more work needed for actual implementation. As far as research on AI and public administration goes, the factors contributing to the adoption of AI in such organizations include technology, organizational and environmental factors. As far as technology is concerned, the factors include accuracy, explainability, cybersecurity, integration and scaling ability. The organizational factors include organizational commitment, employee competences, data literacy, change management and process redesign. Finally, the environmental factors encompass regulations, citizen needs, vendor ecosystem and national strategy (Mikalef et al., 2021; Medaglia et al., 2023). This list of factors might be useful in the context of Saudi Arabia considering that AI adoption depends on the maturity of digital government initiatives. Finally, the emergence of generative AI leads to certain questions regarding digital transformation. For instance, generative AI might assist with knowledge discovery, drafting correspondence, translations, service provision through chatbots, summarizing policies, preparing educational materials, procurement evaluations and helpdesk services. While the deployment of generative AI in public organizations might reduce the administrative burden and enhance citizen engagement if it has robust language support for Arabic, it also carries certain risks. Specifically, generative AI can generate false information, leak sensitive data belonging to the government or misinterpret the laws. For this reason, the deployment of AI involves usage of approved models, safe environment, content verification, role-based access and final decision-making (DGA, 2025; UNESCO, 2025).

V. STRATEGIC PILLARS FOR AI-ENABLED PUBLIC SECTOR MODERNIZATION

The first pillar is Strategic Alignment of Leaders. AI transformation in a public organization depends on

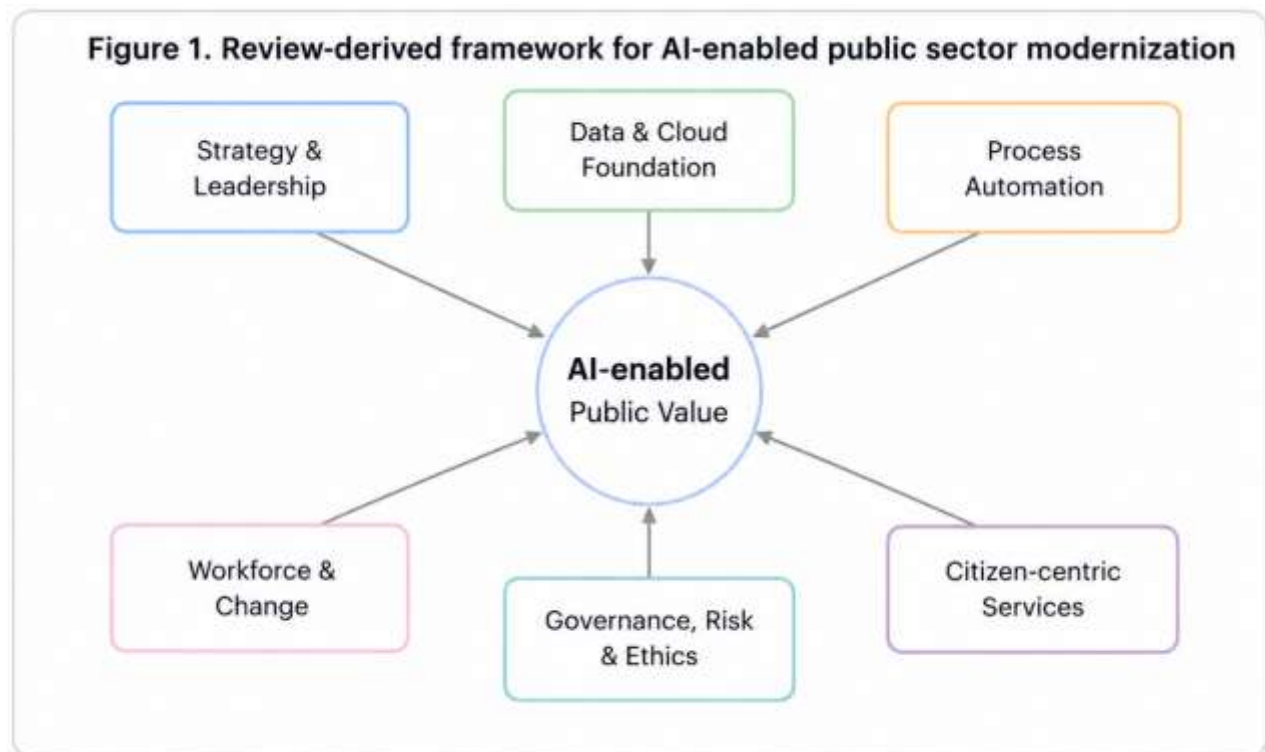
creating an alignment between the public entity mandate, objectives of Vision 2030, and the desired service results. Leaders need to define priority issues related to permits delays, backlogs in inspections, volumes of requests from citizens, possible fraud risks, and other challenges. If not addressed, AI transformation will fail to create value in the institution and will remain a set of standalone pilots. Another issue is related to the treatment of AI initiatives. Leadership determines whether the initiative will be considered as enterprise capability or as experimental activity. The second pillar is a Reliable Data and Cloud Infrastructure. Access to good quality data is necessary for AI implementation in the public sector. Classifications, security controls, and interoperable APIs are important. A cloud environment provides scale and analytical capabilities. However, such initiatives should work according to the local national regulations about cybersecurity and data protection. Programs for managing data quality should cover ownership, lineage, data retention, access management, anonymization, and data sharing. For public entities in Saudi Arabia, such initiatives are important since many services involve cooperation between multiple agencies. The third pillar is Intelligent Process Automation. Most of the processes have repetitive activities, document checking, routing of cases, and tracking the status of the case. The use of robotic process automation tools, machine learning techniques, and process analytics would help reduce cycle time and free employees to focus on complex tasks requiring judgment. Examples could include prioritization of cases, information extraction, detecting missing details, forecasting the demand for services, and recommending actions to case officers. However, before the process automation, organizations should undertake process redesign. The fourth pillar is Human-Centered Service Innovations. AI technologies should make government services more proactive, convenient, accessible, and tailored to customers' needs. Chatbots, virtual assistants, recommendations, and proactive notifications would contribute to the reduction of misunderstandings and improvement of customer satisfaction. Human-centered approach is critical for development of digital services since they are expected to serve people with various literacy, language skills, age, and accessibility barriers. For

instance, in Saudi Arabia, Arabic-first AI technology and culturally competent communication are important components of modernization. The fifth pillar is Responsible AI Governance. AI solutions in the public sector depend on the establishment of transparency, accountability, auditability, cyber resilience, and ethical principles of AI use. Governance should include guidelines specifying where AI is allowed, where human intervention is required, how to test the models, control biases, protect the data, and allow citizens to challenge decisions made by AI. The public entity should have an inventory of AI models, risk classification, and performance dashboarding.

VI. FIGURES AND REVIEW SYNTHESIS

Figure 1 represents the framework with its review-based approach. The AI-powered value for the public is considered to be a centre of six dimensions that interact with each other, which include strategy and leadership, data and cloud foundation, process automation, citizen-centric services, governance and ethics, and workforce change. It can be understood from the figure that the impact achieved due to the use

of AI technologies is dependent on a combination of technologies and institutions. Regardless of the algorithmic complexity, the absence of appropriate data ownership, no accountability, and poor employee adoption would result in the non-delivery of the benefit. On the other hand, Figure 2 presents a step-by-step roadmap. In the first stage, organizational readiness is evaluated by means of data inventories, process maps, and risk prioritizations. In the second stage, use cases that would have public value, be feasible, and supported by performance baselines are selected. The third stage focuses on the execution of the pilot tests with special emphasis on privacy by design, human control, and stakeholder feedback. Cloud integration and interoperability, procurement controls, and enterprise architecture are the focus of the fourth stage, while continuous optimization is a characteristic of the fifth stage. It seems that the common feature of both figures is the importance of proper order when transforming. Therefore, it is probably better for Saudi public agencies not to jump into acquiring new systems without prior preparations.





VII. IMPLEMENTATION OPPORTUNITIES IN SAUDI PUBLIC ENTITIES

AI Opportunities in Public Agencies in Saudi Arabia
To begin with, one should mention that this means that there will be quite a lot of opportunities to introduce AI within public organizations operating in Saudi Arabia. First of all, it is possible to consider such applications as chatbots. They will prove helpful in answering questions from citizens and giving information regarding the type of service they request. Predictive analysis will help the organization to foresee some changes and prepare the personnel accordingly in relation to such issues as school enrolment, municipal registration, healthcare, and pilgrimage. Document intelligence will prove useful when screening the applications. In the context of regulation, the introduction of AI will mean that an organization will be able to assess risks associated with the activity of each company. There will be no need to inspect every organization. All data will be analyzed and a decision will be made concerning the type of action required. Speaking about financial operations, there are a number of areas where AI will be used for the following tasks: anomaly detection,

procurement analytics, fraud detection, and budgeting. Also, AI will prove helpful for such operations within organizations as planning, training, and talent management.

Also, it may be introduced in the process of policymaking and strategic planning. Since public organizations deal with people and collect lots of information, it is also possible to use AI to analyse that information, conduct simulations, evaluate the effect of policy changes on society, etc. Thus, AI will become a foundation for strategic planning. At the same time, the use of performance dashboards will make it possible to monitor performance. In the end, AI will be needed within the process of making policies and strategic planning. Given that lots of information is collected by public agencies during their work, it would be appropriate to introduce AI for summarization purposes. It will be needed in creating communications, guide, translations, and educations. Nevertheless, it is necessary to emphasize that it is also very important to conduct human reviews of all decisions made by an organization.

Table 2. AI-enabled transformation strategies, public value outcomes and controls

Strategic area	AI-enabled application	Public value outcome	Example KPI	Key control
Citizen services	Virtual assistants, document intelligence	Faster, clearer service access	Completion time; satisfaction	Human review for sensitive advice
Regulation and inspection	Risk scoring, anomaly detection	Targeted compliance and reduced burden	High-risk detection rate	Bias testing and audit trail
Public finance	Procurement analytics, fraud detection	Improved integrity and spending control	Cost avoidance; exceptions resolved	Segregation of duties
Policy and planning	Forecasting, scenario analytics	Evidence-based resource allocation	Forecast accuracy; policy impact	Data quality validation
Internal operations	RPA, knowledge search, GenAI drafting	Employee productivity and consistency	Backlog reduction; error rate	Approved model and access controls

VIII. BARRIERS AND RISK CONSIDERATIONS

In spite of the promising opportunities discussed above, some barriers can hinder AI-powered modernization. First, there may be data fragmentation. Data used in AI models can be scattered across legacy software, spreadsheets, departmental databases, or vendor-specific platforms. When data cannot be aggregated and validated, AI applications may provide unreliable results. Moreover, the lack of data interoperability will hinder the provision of proactive services, which may require data integration between agencies. Second, there may be problems related to legacy infrastructure and rigid public procurement rules. AI applications usually require APIs, cloud services, reliable data pipelines, performance monitoring, as well as special expertise in this area. Procurement processes often emphasize predefined technical specifications, although AI projects should be more agile and allow room for iteration. Thus, there should be a new approach to procurement, where public organizations have an opportunity to experiment without breaking transparency rules and

wasting taxpayers' money. Third, skills gaps and resistance to change may present another significant barrier. Some employees may resist automation because they fear redundancy or believe that recommendations provided by algorithms are not valid and require manual confirmation. In addition, workers might be afraid of losing control over decisions due to insufficient knowledge of AI techniques. Any modernization strategy should incorporate training and communication, role redesign, and other change management activities aimed at engaging employees. Fourth, the problem related to transparency and trust is rather acute. Public sector decisions involve many people whose rights and entitlements may be affected. AI applications will generate recommendations that may be difficult to explain. Moreover, any potential bias risks must be assessed if historical data collected by governmental agencies are being used for analysis, since these data may not be complete or impartial. Fifth, cybersecurity and privacy concerns are among key challenges in using AI in the government context. There are various security threats posed by AI

applications, which involve sensitive financial, personal, medical, or identity information. Model poisoning, prompt injection, unauthorized access, data leaks – all these issues should be taken into account during the entire lifecycle of AI applications.

IX. DISCUSSION

Thus, based on what has been discussed above, it is evident that the process of transforming the public sector in Saudi Arabia using artificial intelligence should be approached through the prism of enterprise modernization rather than technological automation. Therefore, the key applications of AI will be those involving actual impact on public value creation, resolution of specific problems, and capabilities. In other words, chatbots, prediction, and automation should be assessed considering their impact on service quality, fairness, efficiency, employee performance, and transparency. The unique characteristics of the country ensure good conditions for the adoption of AI technologies. Indeed, there are no problems with guidance and prioritization as well as data governance, high-level digital government, and the implementation of Vision 2030. Still, there are certain limitations related to the nature of activities performed. In other words, departments ready to implement data governance may advance faster to the stage of predictions compared to those that need data standardization. Consumer services agencies will greatly benefit from generative AI systems. A regulatory body should concentrate on anomaly detection and risk management. In this respect, a portfolio-based approach becomes necessary. Another essential point is that there is a need to pay attention to language AI competence. Indeed, all government agencies interact with citizens, residents, and organizations. This means that a system created on a completely different basis, e.g., using the English language, might interpret specific concepts inaccurately. Thus, any AI solution to be selected by public bodies should be thoroughly tested in respect of language quality, sovereignty, and relevance. Finally, one more conclusion is that responsible governance can facilitate the innovation process. In other words, having clear regulations concerning access to data, human control, pilot project approval, cyber safety measures, and testing, it is possible to reduce uncertainty about a technology to zero. In other words,

employees and senior executives are able to experiment with new tools without being scared of doing something wrong.

X. RECOMMENDATIONS

First, the public entities of the Saudi government must create an AI transformation steering committee consisting of representatives of different areas, such as business owners, data officers, cybersecurity specialists, lawyers, human resource directors, and service designers. In this way, the project of implementing AI technologies can cover all aspects of governance.

Second, every entity must establish its portfolio of applications of AI depending on the public good, technical feasibility, risks, data readiness, and scaling possibilities. The portfolio will include such applications as search engines, automated knowledge discovery, document classification, request handling, and performance dashboards with a minimum level of risk and maximum benefits. Third, data readiness should be one of the key issues that should be paid attention to while the transformation process is going on. It concerns issues like data inventory, metadata, master catalogues of data, data quality standards, and data integration.

Fourth, a responsible policy regarding AI must cover issues like human involvement in the decision-making processes, explanation of models, mitigation of biases, privacy preservation, cyber defences, performance monitoring, and generative AI applications, only for some specific situations and places. Fifth, workforce capacity building efforts should aim at increasing practical skills in using AI applications among employees. People should know the mechanisms behind AI, learn how to believe in recommendations provided by the machine, and report issues when dealing with sensitive data. Sixth, performance measures should be introduced in every AI project. Such metrics may include, but are not limited to, the following parameters: response time; citizen satisfaction; number of mistakes; case backlog reduction; cost savings; fraud detection percentage; productivity of employees; accessibility; and compliance.

XI. CONCLUSION

AI-driven transformation of enterprises into smart digital organizations can have a key role to play in modernizing Saudi Arabia's public sector organizations. In light of the findings from this review, the use of AI can lead to improved service delivery, automation, enhanced decision-making, improved risk management, policy analysis, and improved citizen experience. Nevertheless, for such success, AI alone is not sufficient, as the implementation process needs to factor in other issues related to AI adoption, including strategic alignment, quality data sources, process transformation, governance, skills, and performance evaluation.

The suggested framework and roadmap offer a structured way to address AI-driven digital transformation efforts within the context of the Saudi public sector organizations in line with their Vision 2030 goals. The suggested implementation approach involves assessment of readiness, selection of priority uses cases, safe pilots, scale-up using enterprise platforms, and constant optimization of results. Following this approach allows for reducing risk and fostering innovation. Further research should focus on developing sectoral case studies, empirically measuring maturity, and cross-sectoral benchmarking of AI-driven digital transformation in Saudi Arabia ministries, municipalities, and public authorities.

XII. THEORETICAL AND PRACTICAL CONTRIBUTION

Firstly, the theory of this paper makes its contribution to the field of digital transformation of the public sector by attempting to bring the aspects of AI adoption, enterprise architecture, public value, and responsible governance into a cohesive modernization strategy. The problem is that much previous research on this topic tends to address either the challenges faced by digital governments, or the ethical considerations surrounding artificial intelligence, or changes within organizations. Instead, an approach suggested here attempts to link these different topics and prove that AI-based modernization should be evaluated not only in terms of operational outcomes but also from the institutional standpoint. Operational outcomes include efficiency, accuracy, reduced errors,

and greater availability of services. Institutional outcomes involve improved transparency, trustworthiness, cybersecurity resilience, inclusiveness, and accountability.

Secondly, this theoretical framework has several practical applications that could benefit public organizations that implement artificial intelligence. Specifically, it may be used as a roadmap for AI-enabled transformation of various ministries, authorities, municipalities, and public services agencies. As an advisor for public leaders who embark upon such modernization initiatives, this roadmap calls for conducting a readiness assessment, since many projects fail because of choosing an inappropriate technology before assessing an entity's technological and business capacity. Second, it is important to prioritize use cases. Not all processes require AI-based modernization. Sometimes, the issue can be solved through optimizing policies, designing services and user experience, and integration. Thirdly, this model allows for portfolio management. This is one more practical advantage of this framework that helps public-sector institutions to implement AI responsibly. Specifically, in a low-risk portfolio, one can apply this technology for internal searches, document classification, building dashboards for tracking KPIs, and using AI as an inquiry tool. A medium-risk portfolio implies developing recommendations on fraud detection, inspection planning, and forecasting of resources. Human reviews will still be necessary in such cases. Finally, in high-risk portfolios, recommendations will be made regarding eligibility and enforcement decisions or about health and welfare determinations. Finally, the proposed model is also useful in addressing specific needs and challenges faced by the government of Saudi Arabia in applying the principles of modernization. For instance, Vision 2030 involves improving the effectiveness of government, developing digital infrastructure, enhancing the quality of life, encouraging investments, and ensuring national competitiveness. Against this backdrop, the proposed modernization framework can help to achieve these objectives, including simplifying administrative processes for foreign investors, increasing the reliability of services provided for citizens, creating a standardized regulatory

environment for companies, and making resource allocation data-driven.

XIII. LIMITATIONS AND FUTURE RESEARCH

All the mentioned limitations need to be taken into account when analysing the applicability of the framework. First of all, it is necessary to say that the analysis presented here relies only on existing literature sources, policies, and frameworks, not on any primary data obtained from governmental organizations in Saudi Arabia. Therefore, it would be better to apply a test to the presented model in the form of interviews, surveys, case studies, and maturity assessments in one of the several government organizations. Secondly, it is important to note that the current analysis deals with strategic approaches to implementation of the solutions discussed, and not technical ones.

The directions for further research can be related to the application of different models within each of the spheres in which the public sector operates. Thus, it can be supposed that the differences might be observed in the matter of data privacy protection, work process management complexity, regulations, as well as the impact of the implementation on citizens in such spheres as municipal services, healthcare, customs, taxation, education, judiciary, housing and urban planning, and investment operations. Moreover, an evaluation of AI-driven solutions within the governmental organizations might be conducted with respect to several parameters such as service cycle time, model accuracy, reduced workload of employees, client satisfaction, compliance, cybersecurity events, and financial performance. Also, further research can be performed using longitudinal design in case of governmental organizations and implementation projects; thus, the gradual positive results can be expected from them. Another direction can be comparative analysis of the Gulf Cooperation Council countries where other states are also implementing their economic activities digitally. Finally, research should also be done on Arabic models within the public sector.

XIV. SAUDI PUBLIC SECTOR AI MATURITY INDICATORS

In order for any modernization strategy to be effective, a maturity assessment framework should be designed to show the maturity and growth in maturity with regard to AI capabilities. Strategic maturity would include the following elements: approved objectives for AI projects, governance structure, and use case portfolio. Data maturity would involve ownership of data, quality, metadata, interoperability and agreements related to data sharing. Operational maturity would include workflow redesign, automation, shortened service cycle times and staff readiness. Risk maturity will encompass privacy review, cybersecurity testing, models documentation, bias evaluation, and incident readiness. Finally, value maturity would entail citizen satisfaction levels, reduced cost, accessibility of services, effectiveness of compliance and public trust. In light of the above discussed points, measures should be included in the maturity assessment framework to ensure that any superficial transformation efforts are curbed in the context of Saudi Arabia's public sector organizations. It is possible that although a government organization would have several initiatives, it may have minimal maturity as far as delivering better services, scaling up and lack of proper mechanisms for governance are concerned. At other times, an organization could have few initiatives, but high maturity due to quality data, impact, highly skilled staff and repeatability of deployments. For this reason, maturity assessment should not concentrate on the acquisition of many technologies but rather on capability development. Maturity assessments should take place annually through strategic alignment, budgeting, and performance monitoring.

XV. MANAGERIAL IMPLICATIONS

The crucial takeaway for senior public managers is to view AI as a shift in the operating model. The executives need to foster a cross-functional approach, secure the budgets for maintaining the quality of data, authorize the platforms to be used, and ensure clear communication with the employees regarding any changes in their roles. Each AI project needs to include the following items at the very beginning: users, risks, sources of data, points of human intervention, and potential gains.

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