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Harnessing the potential of artificial intelligence to create public value in the Caribbean

Introduction

Caribbean governments need to proactively harness and adopt artificial intelligence technology in public sector organizations to create public value.

Despite its numerous benefits, public sector organizations in the Caribbean are lagging in artificial intelligence¹ (AI) adoption. AI is a disruptive technology that has become increasingly ubiquitous and pervasive in modern societies. Extremely transformative, they have advanced rapidly, and affect virtually every aspect of our existence, including the way we interact with and transact within society. AI has provided many benefits, which were previously unimaginable, and has had a significant impact across diverse contexts, including education, healthcare, financial services, the delivery of justice, and the defence sector, to name a few. Today, many governments worldwide are at the nascent stages of integrating AI into their operations to gain efficiency and realize cost savings, improve the quality of services delivered to citizens, and enhance policymaking capabilities². The voluminous data that characterizes government agencies provides an ideal environment for adopting AI to learn from and efficiently process these data to resolve administrative problems in ways not previously possible.

Key recommendations

- **Develop national AI strategies that articulate the vision and policy framework towards the adoption of AI, particularly within the public sector.**
- **Assess the current and potential effectiveness of AI adoption in the public sector on public value creation.**
- **Embrace the public value management paradigm within the context of public sector reform.**
- **Develop national AI capability to ensure requisite human resources to drive all aspects of AI adoption within the public sector.**
- **Integrate AI systems in the public sector in a structural manner with a changing mindsets approach to public administration.**

¹ Given the continuing advances in technology, Artificial intelligence is defined as the ability of a system to identify, interpret, make inferences and learn from data to achieve predetermined organizational and societal goals (Mikalef and Gupta, 2021).

² The objective of this Policy Brief is to foster interest and draw attention to the opportunities for AI adoption within the public sector to create public value. While AI regulation is an important consideration, this issue is not directly addressed here.

Notwithstanding the recent advances in AI, including the release of generative AI and the opportunities to foster AI innovation within public sector organizations, governments are challenged “to ensure that AI is adopted effectively for the public good” (Hankins *et al.*, 2023, p. 4). It remains to be seen what effect AI will have on responsibilities and public values upheld by governments.

Public value management has emerged as a leading public management paradigm in the post-traditional bureaucracy and new public management (NPM) governance models era. It is based on the democratic process to explain the undergirding of public action and to mitigate failures of the previous models in the public sector. In this regard, public value does not only focus on efficiency and goal achievement, but also emphasizes the fulfilment of societal expectations and publicly-held values, including equity, transparency, and responsiveness, by taking into consideration citizens’ preferences. Within the context of public administration and policy, this paradigm is critical for public sector administrators. In particular, public sector administrators strategically create public value through a heightened emphasis on democratic and collaborative governance and citizenship to deliver quality public services (Moore, 1995; O’Flynn, 2007; Benington, 2009; Bojang, 2020). Thus, the government has a special role as guarantor of public values, that is, going beyond merely being the supervisor and provider of services to the public to value creation in the public sector.

Therefore, in light of the growing emphasis for governments to employ AI-enabled services, it is critical that the needs of citizens, as the primary beneficiaries of public services, remain paramount while harnessing the potential of artificial intelligence. Within this context, if public sector organizations are to fully harness the power of AI to deliver more efficient, inclusive and transparent services to citizens, it is important to clearly understand the challenges of AI and avoid potential pitfalls by implementing appropriate mitigation strategies. To that end, this policy brief explores the interconnections between the deployment of artificial intelligence within the public sector and public value creation, and proposes a framework for assessing the effectiveness of AI adoption in the public sector and its potential for public value creation.

Unlocking the potential value of artificial intelligence in the public sector

With the expansion of digital government, artificial intelligence and the collection and analysis of big data are set to make the public sector organizations leaner with increased levels of efficiency and responsiveness to the needs of citizens, all the while strengthening bureaucracy’s core purpose. With the introduction of AI-technologies in government public-sector ecosystems, traditional approaches to service provision, policymaking and enforcement can change rapidly. In addition, the public governance implications for AI use in government can be varied. In this regard, the rise of AI use in government, together with the increased level of sophistication of these applications has triggered several public governance questions.

Traditional approaches to service delivery have been rapidly changing. Globally, AI has been used to improve the quality of services, foster the trust of citizens, as well as increase service delivery efficiency and effectiveness. Altogether, proactive governments have achieved greater levels of accurate forecasting and enhanced levels of policymaking, as value has been created in various functional areas, including “decision support, transportation, public health and law enforcement” (Zuiderwijk, *et al.*, 2021).

Notwithstanding, the use of AI within the public sector can create some challenges and considerations which must be addressed. At the core, it is critical that the adoption of AI in the public sector advances the public good. In this regard, to ensure citizens’ confidence, the use of this technology must be transparent and predictable, such that the outcomes are inclusive, fair, free of bias, and adhere to societal concerns for citizen privacy, safety, and trust.

Adopting new technologies can be one of the main approaches for transforming governments. However, public administrations, in today’s increasingly data-intensive environment, have at times failed to deliver flagship policies that are reliant on information and communications technologies (ICTs). New theories

and conceptual frameworks are required to understand and adopt the latest technology to realize the promise of fundamentally transforming government. In the case of AI, a critical challenge to its adoption in the public sector is the need to ensure the protection of public interest, notwithstanding the velocity at which the system is evolving.

The November 2022 release of ChatGPT-3 represented a major tipping point in AI development, which repositioned AI from being a tool for software developers, to a “consumer-focused” tool that everyone could use without needing technical expertise. Within four months of that release, GPT-4 was unveiled, which exponentially expanded the processing capability of this system to enable it to exhibit human-level performance. In two months, the website had garnered over 100 million users, making it the fastest-growing website in history (Wheeler, 2023).

At this pace, and with the introduction of new technology players into the global AI race, existing rules and legal guardrails can be woefully insufficient to deal with the velocity of AI developments. These guardrails, which were predicated on regulatory assumptions for expanding the physical power of humans, lack the focus and agility to be meaningful for artificial intelligence and its augmenting of cognitive power. This can have direct consequences for the regulatory considerations of privacy, competition, manipulation and misinformation, particularly given that the accuracy of AI models increases with the expansion of the data on which it is trained. In this regard, traversing the regulatory tightrope in the AI era between protecting public interest and promoting innovation and investment requires a multi-layered analysis for AI that takes cognizance of the varied use cases and their accompanying applications, adoptions and inherent risks.

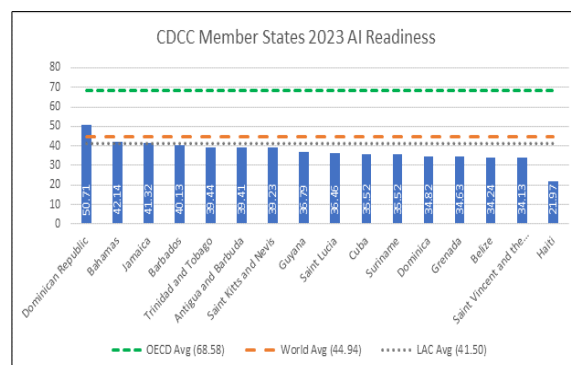
In the hope of making government services more effective and responsive, public sector agencies have begun to deploy AI applications that implement government policies. However, thanks to their self-learning and adaptive capabilities, AI systems have

the ability to act autonomously and self-modify their underlying architecture and functioning without learning from new training data or explicit programming instructions. This brings to the forefront technical and social challenges relating to the transparency and explainability of these systems and the inherent implications, particularly for bias, trust, fairness and accountability (OECD, 2023). The adoption of these systems within public agencies would necessitate embedding operational procedures that articulate epistemic criteria that are aligned with societal norms and concerns to mitigate human-centric rational thinking being substituted by an algorithmic reality that is intractable, impenetrable and incontestable.

Artificial intelligence government readiness

Artificial intelligence has the potential to transform the public sector by increasing institutional productivity and providing higher quality of services to citizens. In this regard, it is important to assess the level of AI readiness of the country to operate and avail AI-based solutions. On the basis of their level of readiness to implement AI in the delivery of public services to their citizens, the 2023 edition of the Oxford Insights Government Artificial Intelligence Readiness Index 2023 reported the AI readiness index scores for 193 countries (Hankins, *et al.*, 2023). Figure 1 presents the scores for the 16 member States of the Caribbean Development and Cooperation Committee (CDCC).

Figure 1: Oxford insights government artificial intelligence readiness



Source: Hankins, *et al.*, 2023.

Apart from the Dominican Republic, CDCC member States are below both the OECD and global average levels of AI readiness, with most also being below the average for Latin America and the Caribbean. One of the key indicators for this is the absence of national AI strategies. In October 2023, the Dominican Republic became the first country in the subregion to release its strategy (Government of Dominican Republic, 2023). Other countries are at various stages of articulating their vision and national strategy for artificial intelligence, with Oxford Insights reporting indications of forthcoming strategies from Cuba and Jamaica. Globally, the Dominican Republic scored within the second quintile of countries. The Bahamas, Jamaica, Barbados, Trinidad and Tobago, Antigua and Barbuda, Saint Kitts and Nevis, and Guyana scored within the third quintile. Except for Haiti, which scored in the fifth quintile, all other countries scored in the fourth quintile. Going forward, it would be critical for the governments of the subregion to be proactive, if they are to harness the potential of AI. A first step, in this regard, would be the articulation of national AI strategies.

Public value creation

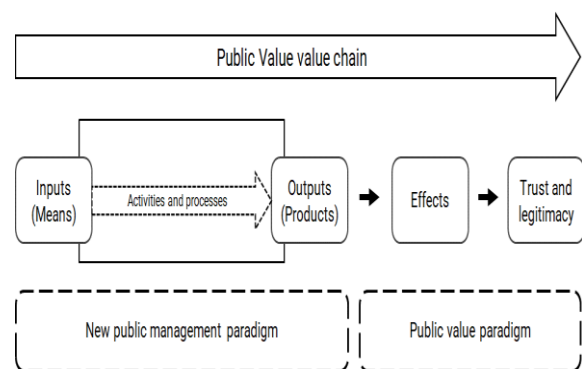
As a new way of thinking, the shift from New Public Management to public value management has signaled “a shift away from the logic of results and efficiency to the broader governmental goal of creating public value” (Amrani et al., 2022, p. 360). The focus of public value management is on what is valued by the public and strengthening the public sphere. It does not emphasize the short-term activities and outputs of previous paradigms. Rather, it highlights value creation and longer-term outcomes of the public sphere.

At its core, it incorporates the dimensions of trust, equity and legitimacy of public action into the notion of public performance within the context of collective preferences. In this regard, public value is not defined by the producers of the services and products, but rather by the citizens who consume them. Public value management, therefore, represents

a paradigm shift in the way public agencies manage and deliver services to citizens.

This mode of management places value creation as the primary focus for public organizations, which has necessitated that public administrators model the organization “by showing transversal processes that create value for ... different stakeholders ... through activities and processes, outputs and outcomes” (Amrani *et al.*, 2022, p. 363). Whereas the NPM paradigm emphasized inputs and outputs, the public value paradigm extends the value chain to incorporate effects, trust and legitimacy as part of the outcome process (diagram 1).

Diagram 1: Public Value value chain



Source: Adapted from Amrani *et al.*, 2022.

Within this context, the adoption of ICTs, including AI, in the public sector is not only deployed as a means of optimizing performance as measured by effectiveness and efficiency gains. Instead, given the profound changes to the nature of services and the means by which they are delivered, ICTs now incorporate the broader dimensions of the effectiveness of government programme achievements, as related to democratic outcomes, and thus play a mediating role in public administration because of their ability to change the way public administrations organize and deliver services.

Artificial intelligence capability and public value creation

Given the potential benefits for public value creation and improved government operations, the adoption of AI technologies in public administration has gained increasing attention. However, one of the factors hindering progress is the lack of human-related AI capability within public organizations. Both technical and non-technical human skillsets are required for the successful implementation of AI in the public sector. Mikalef et al. (2023) define AI capability as the innovation needed to uptake artificial intelligence. The mere existence of AI within a public administration does not necessarily create public value. The ability to deploy AI solutions that improve quality and efficiency requires internal competencies which transcend the motivation to use AI technologies. To derive value from AI technologies, not only do AI systems have to be successfully developed and deployed, they must also be integrated into the organization in a structural manner and with a changing mindsets approach to public administration. AI competencies are not only required of public administrators and managers. Rather, every public servant must have some form of AI-related competencies, enabling them to find new ways of working with AI systems, changing traditional work procedures, as well as their attitudes, to embrace new technologies to achieve improved outcomes.

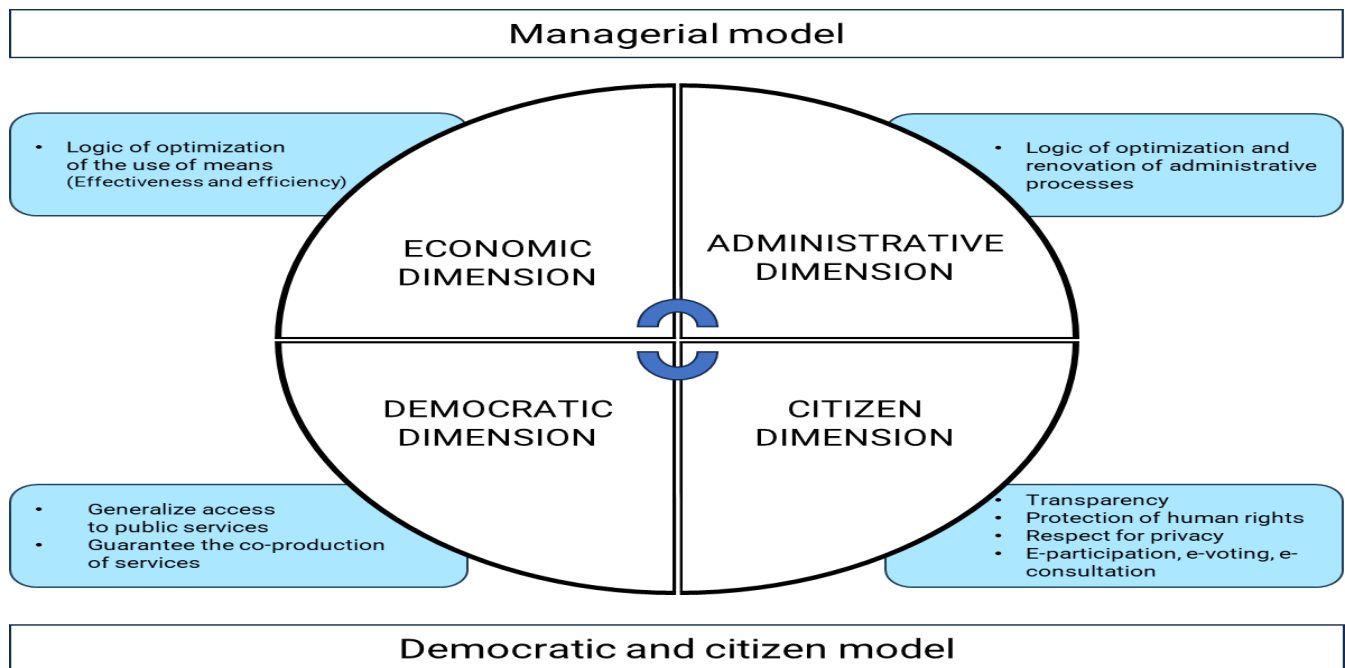
The adoption of AI in the public sector is transformative and will affect the domestic labour market and educational institutions with the need for reskilling and upskilling of competencies to ensure continued employability within an AI-enabled public sector. In this regard, the current labour force would need to possess unique tools and capabilities to succeed in a future with AI. New skillsets are required, particularly taking into consideration that several jobs and occupations in the public sector will be at risk of being automated. In this regard, it would be critical for government to adopt the role of enabler, providing the requisite political commitment and funding to ensure that training institutions are able to

provide the necessary courses and vocational training. The adoption of AI in public administrations would require professionals with an in-depth knowledge of the entire AI ecosystem, including development, deployment, and research and development. In this regard, a core mission of the school system would have to be lifelong learning to ensure continuous adaptation to the knowledge requirements of emerging technologies. In Malta, for example, not only does the national AI strategy recognize the need for teaching 21st-century skills throughout the education process, starting early on in childhood; it also sets out the government strategy for increasing the number of qualified AI specialists, which includes providing scholarships and financial support for post-graduate studies in AI, including tax credits (Malta, 2019).

Harnessing the potential of artificial intelligence

Within the public sector, the creation of public value intersects multiple domains. From the managerial model, public administrators emphasize economic and administrative logics of optimization to achieve efficiency and productivity gains. As shown in diagram 2, in the case of the democratic and citizen model, the emphasis is on ensuring that public services are delivered to address the needs of citizens, including the need for ethical and transparent responsiveness, and accountability. Within this framework, it remains that the adoption of AI within the public sector, with its transformative qualities, should continue to advance public value creation.

Diagram 2: Framework for assessing the effectiveness of artificial intelligence on public value creation



Source: Adapted from Amrani *et al.*, 2022.

In this regard, understanding and addressing the interconnections between public values and the adoption of AI is critical for advancing public values while minimizing negative consequences. As an example, an indicative mapping of the public values, benefits, threats and risks of AI in government is presented below, as adapted from Toll et al., (2020) and applied to the framework for assessing the effectiveness of AI on public value creation.

Category	Component	Characteristic
Threats / Considerations	Costs	The cost to develop new technological solutions, particularly within AI are large and will increase.
	Resources	Limited network infrastructure and capacity, particularly latency, could challenge the processing and response time of systems.
Risks	Economic harm	AI can lead to discrimination, lower trust, cause economic harm and affect how democracy functions.

Indicative public value mapping of artificial intelligence

Economic dimension

Category	Component	Characteristic
Benefits	Costs	Adopting the AI system should reduce the overall cost of operations with maximum ROI.
	Efficiencies	The AI system should make the process more efficient and effective and save time.
	Automating processes	AI systems should be used in different ways to automate operations.

Administrative dimension

Category	Component	Characteristic
Benefits	Security and accuracy	Workflow processes of administrative records can be monotonous and time-consuming for staff, which can lead to mistakes. The adoption of AI to process workflow processes frees case handlers to focus on more complex cases, with a reduced risk for mistakes.
	Sustainability	Artificial intelligence models can be used to achieve higher levels of sustainability, optimize processes and integrate value chains.

Category	Component	Characteristic
Threats / Considerations	Competence	An adequate number of skilled individuals with the requisite knowledge for developing and using AI technology is critical. Further, there should be at least a basic level of knowledge of competence in AI within the broader society to foster sustained uptake.
	Infrastructure	Various types of computation, network and technology infrastructure are required to ensure the full development and utilization of AI within the public sector.
	Data availability	AI models also require access to large data sets for training. Critical, in this regard, would be the ability for these data sets to be combinable with different data.
	Legality	Requisite laws, regulations, policies, and procedures are necessary to ensure appropriate protections.
Risks	Security	As AI systems become more advanced and connected, there is a risk of increased vulnerability and exposure to cyberattacks.
	Integrity	Data integrity can be compromised, leading to inaccurate outcomes and decisions, including data manipulation that could lead to misinformation.

Democratic dimension

Category	Component	Characteristic
Benefits	Citizen interaction	Automating various processes to leverage AI tools, such as ChatBots and voice processing systems, can improve citizens' contact experience.
Threats / Considerations	Accountability	If the society is to accept the growing role of AI in areas which previously included human intervention, data protection, transparency, and ethical AI use are required to ensure public trust that the systems are accountable and outcomes predictable and explainable.

Category	Component	Characteristic
Risks	Cooperation	AI deployment across public sector agencies should be fairly homogenous. The absence of inter-agency cooperation in research, development, data availability, and competency could, for example, lead to unnecessarily onerous adoption costs where each agency "reinvents the wheel".
	Transparency	Unexplainable AI and other Blackbox AI algorithms can lead to outcomes that undermine fairness, predictability and transparency in the delivery of services.
	Trust	Overly optimistic reliance on AI and overly pessimistic scepticism can erode public trust, particularly when systems are in their nascent phase of deployment, thus impacting their long-term adoption.
	Democracy	AI can lower the threshold of attacks against democratic functionality through misinformation and the perpetuation of bias found in training data.

Citizen dimension

Category	Component	Characteristic
Benefits	Service quality	The opportunity to implement assessments and analyses that are beyond human capability can contribute to improving the quality of service delivered to citizens.
	Personalization	As a result of their built-in capabilities for learning, AI systems are able to understand the customer and adapt the interaction to ensure a better user experience.
	Accessibility	Adopting AI systems in the public sector provides citizens with increased levels of access to services, both in terms time of day, as well as location for accessing the service.

Category	Component	Characteristic
Threats / Considerations	Service quality	The use of supplemental and other types of data to compliment the primary corpus could raise questions regarding ownership, quality assurance and accessibility.
	Data quality	Inaccurate and otherwise undesirable results can pose a risk if the data quality is insufficient, such as data transcription errors, systemic faults in data collection, and inaccurate sources and labelling of data.
Risks	Loss of jobs	Risk for job loss is not limited to menial operations, and could include para-professional positions, whose process of analysis can be categorized as routine and repetitive.

Source: adapted from Toll *et al.*, (2020).

This indicative public value mapping provided a context for understanding how public administrators can harness the potential of AI adoption in the public sector to create public value, by leveraging the benefits, mitigating the threats and considerations, and managing the risks of each dimension.

Policy recommendations

From this brief, five key policy recommendations are advanced for the consideration of CDCC governments.

- (i) Develop national AI strategies that articulate the vision and policy framework of the government towards the adoption of AI, particularly within the public sector.
- (ii) Conduct an assessment of the current and potential effectiveness of AI adoption in the public sector on public value creation.

- (iii) Governments may wish to consider embracing the public value paradigm within the context of public sector reform rather than the traditional forms of public sector management, such as NPM.
- (iv) Develop national AI capability to ensure the requisite human resources to drive all aspects of AI adoption within the public sector.
- (v) Integrate AI systems in the public sector in a structural manner with a changing mindsets approach to public administration.

Conclusion

The adoption of artificial intelligence in the public sector promises to transform public value creation. Public administrators need to rethink how they will best deliver services to citizens and continue to ensure public value, particularly since many existing governance structures and processes are likely to become irrelevant. There are many potential benefits and challenges from the adoption of artificial intelligence in the public sector. Benefits can be achieved in areas such as efficiency and performance, data and information processing, service delivery, decision-making, and society at large, including engagement and interaction benefits. Challenges to note include those associated with ethics and legitimacy, capability and skills, data and interpretation, accountability and transparency. The framework presented in this brief represents an important starting point for assessing the opportunity for public value creation with the adoption of AI in public administrations. It is, therefore, incumbent on Caribbean governments to take deliberate steps to identify and harness the potential of AI within the public sector, while ensuring the leveraging and creation of public value.

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