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Role of Artificial Intelligence in Public Value Creation in Local Government in Chongqing, China: Inputs to Improved E-Governance

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Abstract: This study assessed the role of artificial intelligence in local government in terms of data integration, policy innovation, smart application and collaboration; and public values created by the adoption of artificial intelligence. The respondents are the residents and local government employees of Chongqing, China. Respondents noted strong improvements in several public value areas, particularly in transparency, cost savings, and effective decision-making. This indicates that AI has the potential to significantly enhance service delivery and citizen engagement in local governance. The findings indicate a significant relationship between the role of AI in local government and the creation of public values. This suggests that as AI is integrated into local governance, it has the capacity to produce notable public benefits, reinforcing its importance in policymaking and service delivery.

Keywords: Artificial intelligence in local government, improved public service delivery, enhanced citizen engagement, improved transparency, better decision-making, cost savings, and improved e-governance.

Introduction

Artificial intelligence (AI) is a cutting-edge technology that is transforming how cities are planned, governed, and how local services are delivered. In simple terms, AI comprises interconnected devices and systems that replicate human cognitive processes to perform tasks, solve problems, and make recommendations or decisions—often with minimal or no human intervention [4], [6].

Chongqing, a sprawling municipality at the confluence of the Yangtze and Jialing Rivers in southwestern China, is actively integrating AI into its urban and governmental systems. The city has formulated a comprehensive "14th Five-Year Plan" (2021–2025) for data governance, leveraging advanced digital technologies, including AI, to become a smarter metropolis.

This study addresses existing gaps by analyzing how AI is deployed in Chongqing through the lens of digital transformation and public value theory. It identifies four dimensions of AI deployment in the public sector: data integration, policy innovation, smart applications, and collaboration. It also illustrates how AI contributes to public value creation in the digital age. Findings show that AI serves two primary functions: creating technological frameworks for each service delivery stage, thereby regulating the actions of frontline workers; and assisting these workers in decision-making, thereby improving flexibility in public service delivery.

Literature Review

Over the last two decades, governments globally have recognized the urgent need to accelerate digital transformation [1]. Beyond digitizing front-end services, many are pursuing the concept of "government as a platform" (GaaP), leveraging integrative technologies like AI to redesign public systems and operations.

Local governments have used AI to increase operational efficiency in diverse city functions [3], [5]. In urban contexts, AI drives automated decision-making, delivering efficiencies across complex municipal services [7]. AI is increasingly embedded in our everyday lives [8]. It shapes our digital and physical environments, influencing public decisions and behavior. AI improves public health, safety, and cleanliness while mitigating traffic congestion and pollution. Robots manage infrastructure, businesses, and transportation. Smart platforms oversee services like waste collection and air quality monitoring [11]. Urban AI—integrated within infrastructure and space—enables responsive, real-time services. Cities already lead in applying AI and big data to improve energy use and infrastructure connectivity [2].

Furthermore, AI systems can improve information processing, expedite case management, and reduce dependence on human labor. By relieving people from labor-intensive tasks, AI may ultimately foster societal benefits and open new career and lifestyle pathways.

Statement of the Problem

This study assesses the role of artificial intelligence in local government with the end view of giving inputs for improved E-governance. Specifically, it seeks answers to the following questions:

1. What is the profile of the two groups of respondents in terms of
1.1 Age 1.2 Sex 1.3 Civil Status 1.4 Educational Attainment

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2. What is the assessment of the two groups of respondents on the role of AI in local government in terms of the following dimensions:
2.1 Data Integration; 2.2 Policy Innovation; 2.3 Smart Application; and 2.4 Collaboration?
3. Is there a significant difference in the respondents' assessment of the role of AI in local government when their profile is taken as test factor?
4. What is the assessment of the two groups of respondents on the public values created in the adoption of AI in terms of the following:
4.1 improved service delivery; 4.2 enhanced citizen engagement; 4.3 increased transparency;
4.4 better decision making; and 4.5 cost savings?
5. Is there a significant difference in the respondents' assessment of the public values created by the adoption of AI in local government when their profile is taken as test factor?
6. Is there a significant relationship between the role of AI and the creation of public values in local government?
7. Based on the findings of the study, what inputs for improved e-governance can be proposed?

Methodology

The research design utilized in this study is the evaluation survey research design. A survey method is the preferred type of approach for this study. In this case, it can be beneficial to acknowledge the advantages of survey designs, through the use of the assessments of the two groups of respondents on the role of artificial intelligence in terms of data integration, policy innovation, smart application, and collaboration. Likewise, their assessment of public values was created through the adoption of AI in local government in terms of improved service delivery, enhanced citizen engagement, increased transparency, better decision-making, and cost savings.

Questionnaire

The first part of the questionnaire pertains to the demographic profile of the two groups of respondents in terms of age, sex, civil status, and educational attainment.

The second part of the questionnaire pertains to the role of artificial intelligence in local government in terms of data integration, policy innovation, smart application, and collaboration.

The third part of the questionnaire consists of public values created through the adoption of AI in local government in terms of improved service delivery, enhanced citizen engagement, increased transparency, better decision-making, and cost savings. The researcher adopted 5 questions in each of the variables of the role of AI and public values of AI.

Sample and Sampling Technique

The participants in this study are 200 residents of Chongqing, China, and 50 government employees of the local government of Chongqing.

Data Gathering Procedure

Firstly, the researcher's questionnaire was submitted for validation by the experts in the field. Then, a letter of request to the respondents was given by the researcher asking permission to conduct the study. Upon approval, the questionnaires were distributed to the respondents for data collection.

Results and Discussion

Table 1 Frequency and Percentage Distribution of the demographic profile of respondents in terms of Age

Age	**Community Residents**		**Local Gov't Employees**	
	f	**%**	**f**	**%**
20-25 years old	40	20	10	20
26-30 years old	70	35	15	30
Above 30 years old	90	45	25	50
Sex				
Male	70	35	30	60
Female	130	65	20	40
Civil Status				
Single	38	19	15	30
Married	150	75	30	60
Separated	5	2.5	2	4
Widow/er	3	1.5	1	2
Others	4	2.0	2	4
Educational Attainment				
Undergraduate	40	20	5	10
College Graduate	115	57.5	32	64

Technical Vocational Graduate	30	15	5	10
Post Graduate	15	7.5	8	16
Overall	**200**		**50**	**100**

The majority of respondents in both groups, Community Residents (45%) and Local Government Employees (50%), are aged above 30 years. The next largest group, 26-30 years old, makes up 34% of the total sample.
The youngest age group, 20-25 years old, accounts for 20% of the overall respondents, with similar percentages in both groups (20% for Community Residents and Local Gov't Employees).
This age distribution suggests that a larger portion of both groups is in the older age bracket (above 30), with fewer respondents being in the younger 20-25 age range.
There is a higher proportion of female respondents in the Community Residents group (65%) compared to Local Government Employees (40%).
Overall, females account for 60% of the total sample, while males make up 40%. This sex distribution shows that the overall sample has a greater number of female respondents, and this trend is especially noticeable among Community Residents, where females are the dominant group. In contrast, Local Government Employees have a higher proportion of male respondents.
The majority of respondents are married (72% overall), with Community Residents showing a higher percentage (75%) compared to Local Government Employees (60%).
Single respondents make up 21.2% of the overall sample, with Local Government Employees having a higher percentage of single individuals (30%) compared to Community Residents (19%).
Only a small percentage of respondents are separated (2.8%), widowed (1.6%), or fall under other civil status categories (2.4%).
This distribution suggests that most of the respondents, particularly from the Community Residents group, are married, while a smaller portion is single. The data also shows that civil status diversity is present, with a few respondents in separated, widowed, or other categories.
The majority of respondents are college graduates (58.8% overall), with Local Government Employees having a slightly higher percentage of college graduates (64%) compared to Community Residents (57.5%).
Technical vocational graduates make up 14% of the overall sample, with more Community Residents (15%) having this level of education compared to Local Government Employees (10%).
Undergraduate respondents represent 18% of the total sample, with Community Residents showing a higher percentage (20%) than Local Government Employees (10%).
A smaller portion of respondents have post-graduate education (9.2% overall), with Local Government Employees having a higher percentage (16%) than Community Residents (7.5%).
This distribution indicates that a significant portion of the sample has completed higher education (especially college education), with Community Residents showing a more diverse range of educational attainments, while Local Government Employees lean more toward higher education and post-graduate degrees.

Table 2 Assessment of the two groups of respondents on the role of AI in local government in terms of Data Integration

Data Integration	**Community Residents**		**Local Gov't Employees**		**SD**	**Rank**
	WM	**VI**	**WM**	**VI**		
Consolidate the information, identify patterns, and optimize operations.	3.41	A	3.58	SA	.893	1
Integrating data from different departments promotes transparency by providing a comprehensive view of government activities and expenditures.	3.15	A	3.23	A	.862	3
AI-powered tools can help integrate data across different departments and systems, leading to more efficient and effective service delivery.	3.20	A	3.15	A	.917	4
Data is accurately classified and consistently managed across all departments, minimizing risks and fostering transparency.	3.12	A	3.20	A	.557	5
Enhancement of data accessibility for operational efficiency and decisionmaking.	3.35	A	3.43	A	.514	2
Composite Mean	**3.25**	**A**	**3.32**	**A**	.591	

Legend: 3.51-4.00 Strongly Agree (SA)/Very Good (VG); 2.51-3.50 Agree (A)/Good (G); 1.51-2.50 Disagree (D) /Poor (P); 1.00-1.50 Strongly Disagree (SD)/Very Poor (VP)

The two groups of respondents assessed the role of AI in local government in terms of data integration as “good” based on the overall mean score of 3.29 interpreted as “agree”. This suggests that Local Government Employees tend to agree more strongly with the statements regarding data integration compared to Community Residents, although both groups generally agree on the importance of data integration for improving operations, transparency, and decision-making.
The highest-ranked aspect across all groups is "consolidating information, identifying patterns, and optimizing operations".
Local Government Employees tend to show agreement on most aspects, especially regarding the enhancement of data accessibility and the integration of data across departments.
Both groups recognize the significance of accurate data classification and management, although they generally agree on this with a slightly lower mean.
The overall composite mean reflects an agreement with the statements about data integration, indicating that respondents view data integration as crucial for improving governmental operations.

In the age of big data, managing and integrating extensive and diverse datasets presents considerable challenges. Modern data platforms are evolving to tackle these issues by integrating advanced artificial intelligence (AI) and machine learning (ML) techniques. The role of artificial intelligence (AI) in local government regarding data integration is becoming increasingly significant as municipalities strive to enhance their operational efficiency, improve service delivery, and make data-driven decisions.
AI technologies can automate the collection of data from various sources such as sensors, social media, public records, and citizen feedback. This automation helps local governments gather large volumes of data efficiently and in real time.
AI can improve the quality of data by identifying errors, inconsistencies, and duplications. Through techniques such as machine learning and natural language processing, AI can refine datasets to ensure they are accurate and reliable, thus supporting better decision-making.
Without effective data integration, organizations struggle with incomplete or inconsistent information, which can lead to poor decisions and missed opportunities. Inaccurate data can also impede collaboration and limit the ability to perform comprehensive analyses. Almost 40% of projects fail due to difficulty integrating different data sets. Therefore, data integration is vital for achieving a holistic view of the business, improving operational efficiency, and driving strategic growth.
AI and Machine Learning (ML) are transforming data integration by providing advanced tools that simplify processes, improve decision-making, and maximize the value of data. These technologies help organizations navigate their data more effectively, making it easier to harness insights and drive growth.

Table 3 Assessment of the two groups of respondents on the role of AI in local government in terms of Policy Innovation

Policy Innovation	**Community Residents**		**Local Gov’t Employees**		**SD**	**Rank**
	WM	**VI**	**WM**	**VI**		
AI-powered predictive analytics can forecast future trends and outcomes, enabling local governments to anticipate emerging challenges and opportunities.	3.41	A	3.51	SA	.557	1
AI can facilitate policy simulation and scenario analysis to evaluate the potential impact of different policy interventions.	3.45	A	3.23	A	.514	3
AI algorithms can provide personalized policy recommendations tailored to individual or community preferences and circumstances.	3.25	A	3.15	A	.591	4
AI-powered tools can automate the monitoring and enforcement of policy compliance.	3.12	A	3.25	A	.367	5
AI-powered simulation models can simulate the impact of different policy scenarios.	3.35	SA	3.43	A	.858	2
Composite Mean	**3.32**	**A**	**3.32**	**A**	.298	

Legend: 3.51-4.00 Strongly Agree (SA)/Very Good (VG); 2.51-3.50 Agree (A)/Good (G); 1.51-2.50 Disagree (D) /Poor (P); 1.00-1.50 Strongly Disagree (SD)/Very Poor (VP)

The two groups of respondents assessed the role of AI in local government in terms of policy innovation as “good” based on the overall mean score of 3.32 interpreted as “agree”.
The highest-ranked item is "AI-powered predictive analytics can forecast future trends and outcomes", which received the strongest agreement, particularly from Local Government Employees.

The second-highest ranking item is "AI-powered simulation models can simulate the impact of different policy scenarios", with strong agreement from both groups.
Community Residents tend to show slightly higher levels of agreement compared to Local Government Employees on most items, except for the scenario analysis and policy simulation item.
Both groups generally agree that AI can enhance policy innovation, particularly in areas like forecasting, policy simulation, and automation of compliance.
The researcher infers that both Community Residents and Local Government Employees show a strong belief in the potential of AI to contribute to policy innovation, though Local Government Employees tend to express slightly stronger agreement on certain points. The overall view suggests that both groups see AI as an important tool for improving policy-making, enhancing decision-making capabilities, and streamlining operations in local government.
Artificial intelligence (AI) and data science are reshaping public policy by enabling more data-driven, predictive, and responsive governance, while at the same time producing profound changes in knowledge production and education in the social and policy sciences.
The above findings relate to the discussion of Wirjo[9], to twit: Artificial Intelligence (AI) encompasses systems that can execute tasks typically requiring human intelligence, notably through autonomous learning. It processes data to improve capabilities, such as solving problems or interpreting human speech. AI serves as a valuable asset in policymaking and implementation, enhancing efficiency and the quality of public services while streamlining administrative tasks throughout the policy cycle—covering agenda setting, formulation, decision-making, implementation, and evaluation.
However, AI struggles with policy-relevant concepts like fairness and equity, which require a human touch. Its understanding of complex human realities, including causality and cultural nuances, is limited. Additionally, the development of AI can introduce biases influenced by human factors, which can affect algorithmic outcomes, compounded by challenges related to data integrity and ethical considerations.
AI is already being utilized in policymaking for data analysis and specific tasks, and its adoption is expected to grow. Thus, promoting its responsible use is crucial to enhancing human welfare. Key measures include establishing AI governance frameworks, enhancing digital ecosystems, fostering trust in AI, encouraging partnerships, and supporting regional cooperation.

Summary of Findings

1. On the demographic profile of the two groups of respondents
The majority of the respondents are aged 30 years old and above; female, married, and college graduates.
2. On the assessment of the two groups of respondents on the role of AI in local government
In terms of data integration, assessment was "good" based on the overall mean score of 3.29, interpreted as "agree", interpreted as "agree".
In terms of policy innovation, assessment was "good" based on the overall mean score of 3.32 interpreted as "agree".
In terms of smart application, assessment was "good" based on the overall mean score of 3.39 interpreted as "agree".
In terms of collaboration, assessment was "good" based on the overall mean score of 3.48 interpreted as "agree".
3. On the significant difference in the respondents' assessment of the role of AI in local government when their profile is taken as test factor
There was no significant difference in the assessment of the two groups of respondents on the role of AI in local government when their profile in terms of age, sex, civil status, and educational attainment was taken as test factor.
4. On the assessment of Public Value through the adoption of AI
In terms of improved service delivery, assessment was "good" based on the overall mean score of 3.32, interpreted as "agree".
In terms of enhanced citizen engagement, assessment was "good" based on the overall mean score of 3.29, interpreted as "agree".
In terms of increased transparency, assessment was "good" based on the overall mean score of 3.62, interpreted as "strongly agree".
In terms of better decision-making, assessment was "good" based on the overall mean score of 3.35, interpreted as "agree".
In terms of cost savings, assessment was "very good" based on the overall mean score of 3.57, interpreted as "agree".
5. On the significant difference in the respondents' assessment of the public values created by the adoption of AI in local government when their profile is taken as test factor
There was no significant difference in the assessment of the two groups of respondents on the public values created by the adoption of AI in local government when their profile in terms of age, sex, civil status, and educational attainment was taken as test factor.
6. On the significant relationship between the role of AI and the creation of public values in local government
There is a significant relationship between the role of AI and the creation of public values in local government.

The conclusions that can be drawn from the findings can be summarized as follows:

Both groups of respondents generally appreciate the role of AI in local government, with assessments landing in the "good" range across various dimensions such as policy innovation, smart application, collaboration, and data integration. This indicates a favorable perception of AI's potential to enhance local governance.

The absence of significant differences in assessments based on demographic factors (age, sex, civil status, and educational attainment) suggests that views on AI's role and its public value creation are largely consistent among diverse groups. This uniformity may imply a widespread recognition of the benefits of AI across different segments of the population.
Respondents noted strong improvements in several public value areas, particularly in transparency, cost savings, and effective decision-making. This indicates that AI has the potential to significantly enhance service delivery and citizen engagement in local governance.
The findings indicate a significant relationship between the role of AI in local government and the creation of public values. This suggests that as AI is integrated into local governance, it has the capacity to produce notable public benefits, reinforcing its importance in policymaking and service delivery.
Given the positive assessments and the significant relationship identified, there is an opportunity for local governments to further explore and invest in AI technologies to optimize their operations, improve public services, and engage citizens more effectively.

Foregoing findings and conclusions considered, the following recommendations were proposed by the researcher, to wit:
1. Implement a centralized data management system that allows for real-time data sharing across all departments. This could involve investing in training for staff on data management best practices to enhance accuracy and consistency in data classification. Regular audits could also be introduced to ensure ongoing compliance and transparency.
2. Develop pilot programs that utilize AI-powered tools specifically for monitoring and enforcing policy compliance. Engage with stakeholders to gather feedback on these tools to make necessary adjustments, thus improving their effectiveness and acceptance.
3. Collaborate with tech companies to design and implement advanced AI-powered traffic management systems. This might include investing in infrastructure such as sensors and cameras while also ensuring that staff are trained on how to utilize this technology effectively for traffic flow analysis and optimization.
4. Establish a platform dedicated to fostering collaboration among local governments that can leverage AI for data analysis and predictive modeling. Regular workshops and forums should be organized to share insights, best practices, and experiences, fostering a community that enhances policy development and implementation across different jurisdictions.

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