ATESTASI: JURNAL ILMIAH AKUNTANSI
Vol 5, Issue 2, (2022), 887 - 903

Study of the Impact of Electronic Administration Policy Implementation and The Use of Artificial Intelligence on Bureaucratic Transformation in the Local Government Environment

Johnson Pasaribu[1*]

[1] HKBP Nommensen University, Medan, Indonesia.

Email:
jhonson.pasaribu@uhn.ac.id

Received: March 08, 2022 **Revised:** September 02, 2022 **Accepted:** September 30, 2022

Abstract

The purpose of this study was to determine and analyze the variables of electronic administration policy and the application of artificial intelligence to bureaucratic transformation in the Government environment through the variable of work effectiveness as a mediator variable...The subject of this study is the number of ASNs working in 37 Provinces in Indonesia, where the variables in this study are endogenous variables, namely the variables of electronic administration policy and the application of artificial intelligence, while the exogenous variable is bureaucratic transformation in the Government environment, and the mediator variable is the work effectiveness variable, where the data analysis used uses SEM analysis using SMART PLS 3.0 software.The research method used is to use a quantitative descriptive approach by using data analysis with the structural equation model (SEM) method, where the results of data processing with the SEM method are carried out with the PLS application. From the results of this study, the conclusion is that partially the variables of electronic administration policy and the use of artificial intelligence have an effect on bureaucratic transformation within the Provincial Government throughout Indonesia and also affect work effectiveness within the Provincial Government throughout Indonesia. Work effectiveness variables within the Provincial Government throughout Indonesia affect bureaucratic transformation within the Provincial Government throughout Indonesia. Simultaneously, the variables of electronic administration policy and the use of artificial intelligence affect bureaucratic transformation in the Provincial Government throughout Indonesia through work effectiveness in the Provincial Government throughout Indonesia. With the process of organizational digital technology transformation in MSMEs, it can increase the agility of the organization to be adaptive and able to change itself, as well as change the mindset of the owners of these MSMEs so that later they have a vision and mission that makes businesses on a medium and large scale, where MSMEs must be able to improve their quality and capacity so that MSMEs in Medan City can be known not only throughout the archipelago, but can also be known throughout foreign countries.

Keywords: Electronic administration policy, Use of artificial intelligence, Work effectiveness, Bureaucratic transformation.

DOI : https://doi.org/10.57178/atestasi.v5i2.956
p-ISSN : 2621-1963
e-ISSN : 2621-1505

Introduction

The government is currently carrying out reforms in the field of bureaucracy, where bureaucratic reforms carried out by the government include carrying out management research and development, where the government will train and develop the potential of its human resources, thus affecting the performance of these employees. (Chatfield, Akemi Takeoka, and Reddick, 2019).. A country's bureaucratic system can be changed and improved through a process called bureaucratic reform. This reform seeks to improve public services through increased efficiency, transparency, accountability, and responsiveness of the bureaucracy. Various aspects of bureaucratic reform can include management, regulations, procedures, and workplace culture. (Arenal, Alberto, 2020). Other bureaucratic reform activities that are currently taking place are simplifying procedures, where bureaucratic simplification is carried out by reducing redundant bureaucracy and convoluted processes to speed up and improve the efficiency of administrative processes and there is also transparency, where this process is carried out to allow public supervision and control, all administrative procedures and decisions must be made more transparent and accessible to the general public. (Ortega-Fernández et al., 2020).. In addition, there are forms of accountability and responsive activities in bureaucratic reform, where accountability is carried out by setting performance benchmarks and evaluating bureaucratic achievements based on predetermined goals and objectives, as well as the process of carrying out responsive activities to the community, such as by paying more attention and taking action on suggestions and problems that worry the community, it can increase the responsiveness of the bureaucracy to the needs and expectations of the community. (Zuiderwijk, Anneke, Chen, Yu Che and Salem, 2021).. In addition, bureaucratic reform activities are also carried out using technology that is currently trending, where the use of technology is carried out by utilizing information technology to increase the effectiveness and efficiency of public services, in addition to changing the bureaucratic work culture that tends to be rigid, and encouraging a work environment in the bureaucracy that prioritizes ethics, integrity, and community involvement. (Gupta, Anushri, Panagiotopoulos, Panos and Bowen, 2020).. Reforming the bureaucracy can be a challenging and time-consuming process, especially if it requires significant cultural and policy changes. In order to minimize corruption, improve the effectiveness and efficiency of public services, and ensure that the bureaucracy can adequately serve the needs of society, these reforms are essential. (Androniceanu, Armenia and Georgescu, 2021). One of the changes made by the Government in bureaucratic reform efforts is to implement an electronic administration policy, where with the presence of the digital world in the 4.0 era, administrative policies are no longer carried out manually, but can also be electronically, where this can be exemplified by the emergence of e-ktp, where with this e-ktp, arrangements related to population administration can be quickly resolved and help improve services at the Dukcapil Office, so that the level of accountability and transparency can be carried out properly. (Wirtz, Bernd W., Weyerer, Jan C. and Sturm, 2020). In addition, to support electronic administration, a public complaint service is not only carried out by the central government, but also in local governments, where this electronic administration system will make it easier for the central and local governments to capture aspirations, as well as public complaints about population administration services carried out in various regions, as well as a form of change from bureaucratic transformation that places accountability, transparency, and is able to apply the use of technology for the effectiveness of services to be provided to the community. (Cahyarini, Benedicta Retna and Samsara, 2021). Public administration policies carried out today in Regional Governments in Indonesia must be based on the concept of maximum service and abandon the old concept that has the slogan "If it can be slowed down why should it be accelerated", where this slogan allows services to be provided to certain people, such as the families of employees, as well as relatives of the Regional Head who take precedence over other people. This indicates that the slogan makes existing employees unable to improve efficiency and effectiveness in administrative services, so that KKN, which became a scourge during the New Order era, became

increasingly clear. (Mills, David, 2022). With the emergence of sustainable bureaucratic reform, it will have the impact of changing the paradigm to improve services quickly and effectively, where bureaucratic reform must be implemented continuously from the Central Government to local governments, so that the Government can properly carry out bureaucratic reform, especially administrative services that many people used to complain about. (Valle-Cruz et al., 2020).. The challenge in this 4.0 era is the emergence of digital technology that allows a paradigm shift in the completion of work or how to work in the process of serving the community and completing administrative work, so that what is called artificial intelligence appears, where this technology is very developed and has been used in various countries in accelerating the improvement of services to the community, especially administrative settlement. (Kundu, Debasish and Kundu, 2019). With the application of artificial intelligence technology, it is hoped that work effectiveness and work efficiency will occur, so that it takes time to serve the community quickly and never linger, so that people can feel that they are served quickly and optimally. This will affect the transformation within the local government. (Lee, DonHee and Yoon, 2021). Provincial governments in 37 provinces in Indonesia tend to have to carry out bureaucratic transformation well, where changes in work procedures are a must, so that services can be excellent, efficient and effective, especially policies regarding public administration which now require service technology that no longer requires people to face and meet, where the existence of encounters between the public and employees is prone to corruption and abuse of authority. (Shava, Elvin and Doorgapersad, 2022).. Among the 37 Provincial Regional Heads (Governors) there are some who have successfully implemented public administration policies by applying artificial intelligence technology by overhauling the staffing structure, thus affecting efficiency and effectiveness in the bureaucratic transformation process within the Provincial Government, and there are also those who are less successful in implementing electronic administration policies by utilizing artificial intelligence, where there are still employees in the Provincial Government in 37 Provinces throughout Indonesia totaling 3,365.900 people, some of whom still have the old mindset and also the old mindset through the slogan of administrative services with the old patterns and slogans that serve the public quickly if it is their relatives or relatives and other parties outside the relatives are served long, so that even though an electronic system using artificial intelligence has been implemented, but because human resources who still nurture the old pattern will not be able to improve maximum service quickly, effectively and efficiently, thus disrupting the work effectiveness and work productivity of the Regional Government in several provinces.

Literature Review

Electronic Administration Policy

The government has established a number of measures and policies known as the e-Government Policy to utilize information and communication technology (ICT) to improve efficiency, transparency, accessibility, and public services. (Ullah, Fahim, 2021). This strategy aims to increase engagement between government and society and modernize and improve government processes. (Fusi, Federica and Feeney, 2017).. Depending on local needs, infrastructure, and community priorities, e-governance regulations vary by country and region. However, to improve the effectiveness of government and public services, e-administration is becoming increasingly important in the digital age. (Pereira, Gabriela Viale, 2020). The following are some of the main topics often discussed in e-administration policies:

1. To facilitate the implementation of e-administration, the government must invest in a robust ICT infrastructure. This includes the construction of data centers, internet networks, and other ICT infrastructure.

2. Information security is enforced to safeguard the data that the government collects and manages, the policy should address information security issues. Information security risk management, personal data protection, and cyberattack prevention are also included.
3. Electronic public services, where the Government should create and offer various electronic platforms for public services. This includes public service portals, web-based or mobile applications, and other electronic channels that allow the public to interact with the government and access information.
4. Public participation, where Policies governing e-administration may seek to encourage public input and participation in decision-making. *Online* forums, polls, or public consultations can be used for this.
5. Accountability and transparency, where the government should improve public access to information. Open data publication and open performance reports are examples. The government must also ensure accountability in the utilization of resources and the application of laws. (Sharma, Gagan Deep, 2019).

The indicators of the electronic administration policy carried out by the Regional Government are:

1. Increased *online* public services, where the availability of *online* public services by local governments is the first indicator. To meet the needs of the public, this could involve the development of public service portals, mobile applications and other online platforms.
2. Level of public participation by increasing public engagement in decision-making processes, for example by tracking how many people take part in online polls, forums or electronic public consultations.
3. Service response time by comparing the amount of time taken before and after the implementation of e-administration to handle public requests or complaints. Reducing service response time is a key sign of success.
4. The level of user satisfaction by conducting a user satisfaction survey can be used to measure how satisfied the public is with local government electronic administration services.
5. Improving transparency by measuring the extent to which local governments have made decisions and released data more transparently. This can be evaluated by assessing the availability of public data *online*.
6. System integration Where is it possible to effectively integrate the e-administration system with existing systems? To prevent data fragmentation and information disconnection, this capacity is critical.
7. Bureaucratic culture change by assessing the extent to which the bureaucracy has undergone a cultural shift in favor of e-administration. This cultural shift may pose great difficulties in many situations (D'Amico, Gaspare, 2020).

Application of Artificial Intelligence (AI)

The use of artificial intelligence (AI) in government and public administration, especially at the local government level, has the potential to provide a number of positive impacts, including improved public services, higher efficiency, and wiser decision-making. (Chang, I. Chun Catherine, Jou, Sue Ching and Chung, 2020). Investment in technology infrastructure, training, and careful planning are necessary for the implementation of artificial intelligence in local government. When implementing AI solutions, it is also important to consider privacy and data security issues. The application of AI can improve the effectiveness of local governments and public services if done correctly and responsibly. (Gorelova, Irina, 2021). According to experts, the use of artificial intelligence (AI) may differ substantially depending on the industry and its purpose (Pencheva, Irina, Esteve, Marc and Mikhaylov, 2018).. Here are some examples of how artificial intelligence can be used in local government environments:

1. Data analytics, where big data collected by city governments can be analyzed using artificial intelligence. This can be applied to discover patterns, trends, and insights that support decision-making.
2. Automated public services, where virtual assistants and chatbots can be used to deliver faster and more effective public services. Without speaking directly to government representatives, citizens have access to information and the ability to ask questions.

3. Prediction of public service needs, where local governments can estimate future public service needs such as road repairs, waste management, or medical services using predictive analysis.
4. Security and crime detection, where AI systems can be used to evaluate security data and help identify criminal activity or security threats. Security and Crime Detection. This can help oversee civilian security.
5. Public sentiment analysis, where AI can assist local governments in providing better responses by helping them understand the thoughts, feelings, and issues facing the public through text and sentiment analysis.
6. Plan and budget optimization, where AI can be used to assist with resource allocation and budget planning. As a result, local governments may be able to prioritize more productive initiatives. (Sobrino-García, 2021).

Indicators that the Regional Government is using artificial intelligence are as follows:

1. Improved operational efficiency, where one of the main objectives is whether the implementation of AI has improved operational effectiveness in local government. This can be measured by how little money is spent on running the business, how quickly mundane tasks can be completed, or how effectively resources are used.
2. Improved public service delivery, which includes improved standards and accessibility of public services. Do mobile apps or internet platforms make it easier for people to obtain government services? Relevant indicators include the level of user satisfaction and the length of time taken to handle public service requests.
3. Decision quality, where the use of artificial intelligence can lead to more informed choices. Increased predictive accuracy, improved data understanding, and more effective policy impact are examples of decision quality indicators.
4. Public participation, where local governments can measure how much the general public participates in various AI-related activities. A relevant measure is the number of people participating in online forums, polls, or public consultations regarding AI technologies.
5. Availability of human resources, where one important factor is the availability of AI-trained workers. Has the local government invested in the development and training of its human resources to use AI technology? (Bullock, 2019).

Bureaucratic Transformation

The administrative apparatus or bureaucracy of a government can be changed and made to function better through a process called bureaucratic transformation. In order to provide public services to the community, this transformation seeks to make the bureaucracy more effective, responsive, efficient, transparent and accountable. (Radu, 2020). Typically, changes in management, processes, organizational culture, technology, and regulations are part of bureaucratic transformation. (Kuziemski, Maciej and Misuraca, 2020).. Governments and stakeholders often need to invest a lot of time, money and dedication for bureaucratic restructuring to be successful. The goal is to develop a more receptive, effective and service-oriented government. These changes have the potential to improve people's quality of life and make governments more competitive on a global level. (Bolívar, 2017). The following covers a number of elements and guidelines commonly used in bureaucratic transformation:

1. Management improvement, where improving management effectiveness is important in bureaucratic reform. Strategic planning, performance evaluation, effective human resource management and strong leadership development are part of this.
2. Changes in government policy, where an important aspect of bureaucratic reform is the evaluation and modification of government policy. The vision and goals of transformation must be supported by policy.
3. Transparency and accountability, where transparency in resource management and decision-making should be emphasized during bureaucratic change. Information about government activities should be more accessible to the wider public.

4. Better public services, where one of the main objectives of bureaucratic restructuring is to provide better public services. The government should pay attention to people's suggestions and needs while working to improve the quality and availability of services.
5. Changing organizational culture, where changing organizational culture is often part of bureaucratic transformation. This includes improving work ethics, teamwork, creativity and community-focused services.
6. Public participation, where the bureaucratic change process should include public participation. Forums for public input, tools to track performance, and feedback systems can be included. (van den Homberg, Marc J.C., Gevaert, Caroline M. and Georgiadou, 2020).

The indicators of bureaucratic transformation in local government are as follows:

1. Bureaucratic improvement measures that result in operational efficiency, such as speeding up administrative procedures, lowering operational costs, or eliminating unnecessary bureaucracy.
2. Public service quality, which assesses the level of customer satisfaction, the length of time required to process requests, and advances in service accessibility when evaluating the quality of public services provided by local governments.
3. Transparency and accountability is done by assessing the level of accountability in resource management as well as the level of transparency in the decision-making process and reporting.
4. Community participation by determining the extent to which the community participates in the formulation of local government policies and initiatives.
5. Use of technology and innovation, by measuring how much information technology, such as artificial intelligence or analytics-based solutions, has been used by local governments to improve operational effectiveness and public services.
6. Organizational culture change, by measuring the extent to which improvements in organizational culture, such as increased work ethic, teamwork, and community-oriented service, have occurred within the bureaucracy. (Kornberger, Martin, 2017).

Work Effectiveness

Work effectiveness is the extent to which a task or job successfully achieves its objectives. It is a measure of how well a person or organization is able to produce the desired results when carrying out a specific task or project. (Aoki, 2020). Work effectiveness is critical to achieving goals and expected outcomes in the context of business, management, and government. (Soe & Drechsler, 2018).. In many situations, improving work effectiveness is an important goal, and it can help you succeed in a number of different ways. (Fatima, Samar, Desouza, Kevin C. and Dawson, 2020). Here are some elements and tactics that can improve work effectiveness:

1. Clear Goals, where before starting a task or project, it is important to have clear and measurable goals. Setting clear goals helps focus attention on what must be achieved.
2. Thorough planning, where effectiveness depends on careful planning. Setting priorities, figuring out what needs to be done, and creating a reasonable schedule are all part of this.
3. Time management by improving effectiveness requires good time management. This includes preventing time wastage, setting appropriate time limits, and utilizing time management technology.
4. The ability to solve problems by improving effectiveness requires problem-solving skills. This requires identifying problems, investigating their causes, and creating workable solutions.
5. The use of technology, by utilizing the right equipment and technology can increase productivity and effectiveness at work. The use of specialized software, programs, or tools may be part of this.
6. Strong leadership, where the effectiveness of a project or organization is significantly influenced by its leader. Teams will work better under the supervision of a leader who can inspire, direct, and assist them.

7. Collaboration and teamwork by working well together can make achieving goals more efficient. Better results can come from being able to communicate with coworkers, exchange ideas, and tackle problems as a team.
8. Good communication skills with effective coordination and adequate understanding between teams or parties participating in a job or project depend on good communication skills.
9. Adaptability by being able to adjust to new situations and obstacles might help you become more effective. It is critical to be able to manage change while continuing to be productive (Yigitcanlar, Tan, 2021).

Indicators of the effectiveness of local government work are:

1. Achievement of strategic objectives by examining whether local governments have successfully achieved the strategic objectives outlined in their long-term plans and initiatives.
2. Community satisfaction is conducted by surveys and evaluation of community satisfaction can explain how happy the local community is with local government services and performance.
3. The level of public service use by measuring the extent to which citizens use local government public services, including services related to health, education, and other areas.
4. Accountability and transparency are done by evaluating how accountable and transparent the decision-making and use of resources are by local governments.
5. Leadership and management by assessing local government capacity in leadership and management to ensure that resources are managed effectively and given appropriate direction.
6. Public participation by investigating how much the general public is involved in decision-making and given the opportunity to provide input by the local government. (Tan, Si Ying and Taeihagh, 2020)..

Conceptual Framework

The general description of the conceptual framework can be seen in the following figure:

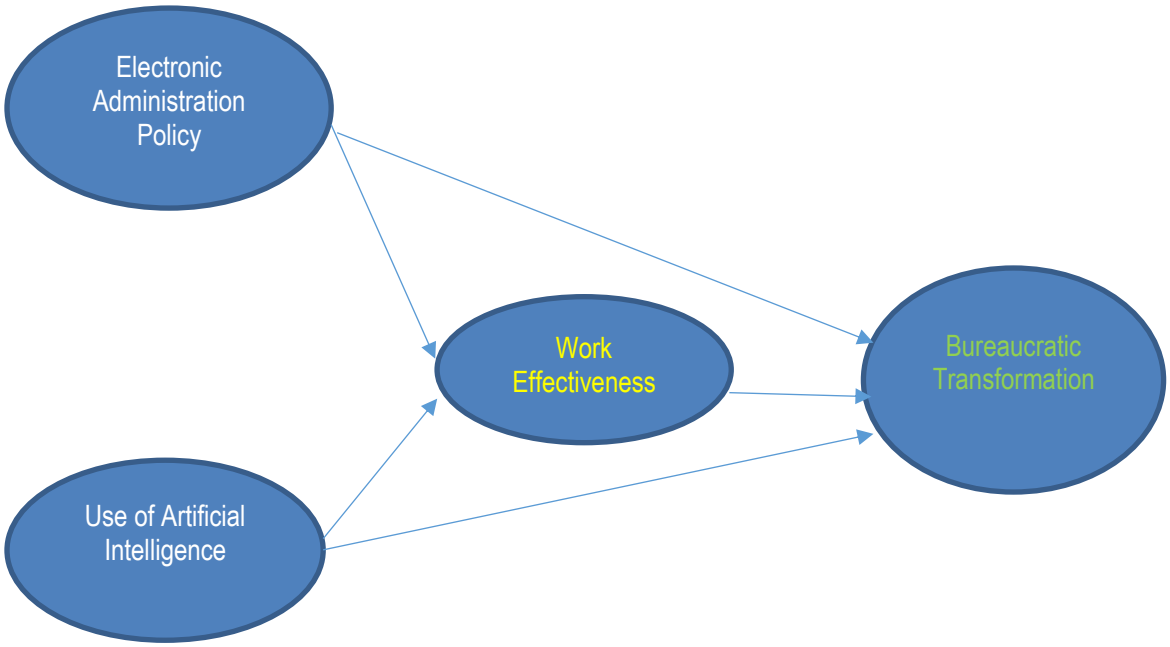

Figure 1 Conceptual Framework

Hypothesis

1. Electronic administration policy affects bureaucratic transformation within the Provincial Government
2. The use of artificial intelligence affects the transformation of bureaucracy within the Provincial Government
3. Electronic administration policies affect work effectiveness within the Provincial Government
4. The use of artificial intelligence affects work effectiveness within the Provincial Government
5. Work effectiveness within the Provincial Regional Government affects bureaucratic transformation within the Provincial Regional Government.
6. Work effectiveness within the Provincial Local Government mediates a positive relationship Electronic administrative policies affect bureaucratic transformation within the Provincial Local Government.
7. Work effectiveness within the Provincial Government mediates the positive relationship between the use of artificial intelligence affects bureaucratic transformation within the Provincial Government.

Research Method and Materials

The research method carried out is to use a quantitative descriptive method using structural equation model (SEM) analysis, where the results of data processing with the SEM method are carried out with the PLS application. According to (Hair, Joe F., Howard & Nitzl, 2020) quantitative descriptive method with SEM analysis is a research method used to collect and evaluate data in an effort to explain the relationship between variables in a conceptual model.

The population in this study were 3,365,900 employees in the Provincial Government in 37 Provinces throughout Indonesia, where the sampling method was carried out using the accidental sampling method, where according to the sampling method using accidental sampling is a sampling technique where the object under study is at the research site. (Hair, Joe F., Howard & Nitzl, 2020).

The sampling can use the Slovin formula, where the calculation results are as follows:

$n = N / (1 + N e^2) = 3{,}365{,}900 / (1 + 3{,}365{,}900 \times 0.05^2) = 399.99 = 400$ employees in the Provincial Governments in 37 Provinces across Indonesia.

So the total sample is 400 employees in the Provincial Government in 37 Provinces throughout Indonesia. The data analysis carried out in this study is by conducting descriptive testing, convergent validity testing, AVE testing, R Square test and hypothesis testing.

Results and Discussion

Results

1. Electronic Administration Policy Variables

Table 2 Descriptive Analysis of Public Administration Policy Variables

Question	Respondent Answer Score									
	SS (5)		S (4)		N (3)		TS (2)		STS (1)	
	F	%	F	%	F	%	F	%	F	%
Q1	147	36,75	188	47	55	13,75	10	2,5	-	-
Q2	144	36	187	46,75	57	14,25	12	3	-	-
Q3	142	35,5	186	46,5	56	14	16	4	-	-
Q4	143	35,75	184	46	54	13,5	19	4,75	-	-
Q5	145	36,25	189	47,25	52	13	14	3,5	-	-
Q6	148	37	191	47,75	51	12,75	10	2,5	-	-
Q7	150	37,5	190	47,5	53	13,25	7	1,75	-	-

Source: Processed with Primary Data, 2022

The table that explains the distribution of data on public administration policy variables that most respondents answered for question 1 were agreed as many as 188 respondents (47%), for question 2 the most respondents answered agreed as many as 187 respondents (46.75%), for question 3 many respondents answered agreed as many as 186 respondents (46.5%), and for question 4 the respondents who answered agreed as many as 184 respondents (46,5%), and for question 4 respondents who answered agree as many as 184 respondents (46%), for respondent 5 most respondents answered agree as many as 189 respondents (47.25%), for respondent 6 most respondents answered agree 191 respondents (47.75%) and for respondent 7 most respondents answered agree as many as 190 respondents (47.5%).

2. Artificial Intelligence Usage Variables

Table 3 Descriptive Analysis of Artificial Intelligence Usage Variables

Question	Respondent Answer Score									
	SS (5)		S (4)		N (3)		TS (2)		STS (1)	
	F	%	F	%	F	%	F	%	F	%
Q1	150	37,5	190	47,5	53	13,25	7	1,75	-	-
Q2	144	36	187	46,75	57	14,25	12	3	-	-
Q3	143	35,75	184	46	54	13,5	19	4,75	-	-
Q4	145	36,25	189	47,25	52	13	14	3,5	-	-
Q5	147	36,75	188	47	55	13,75	10	2,5	-	-

Source: Processed with Primary Data, 2022

The table that explains the distribution of data on the variable use of artificial intelligence that most respondents answered for question 1 was agreed as many as 190 respondents (47.5%), for question 2 the most respondents answered agreed as many as 187 respondents (46.75%), for question 3 many respondents answered agreed as many as 184 respondents (46%), and for question 4 respondents who answered agreed as many as 189 respondents (47.25%) and for respondent 5 the most respondents answered agreed as many as 188 respondents (47%).

3. Bureaucratic Transformation Variable

Table 4 Descriptive Analysis of Bureaucratic Transformation Variables

Question	Respondent's Answer Score									
	SS (5)		S (4)		N (3)		TS (2)		STS (1)	
	F	%	F	%	F	%	F	%	F	%
Q1	145	36,25	189	47,25	52	13	14	3,5	-	-
Q2	143	35,75	184	46	54	13,5	19	4,75	-	-
Q3	150	37,5	190	47,5	53	13,25	7	1,75	-	-
Q4	147	36,75	188	47	55	13,75	10	2,5	-	-
Q5	144	36	187	46,75	57	14,25	12	3	-	-
Q6	142	35,5	186	46,5	56	14	16	4	-	-

Source: Processed with Primary Data, 2022

The table that explains the distribution of data on the bureaucratic transformation variable that most respondents answered for question 1 was agreed as many as 189 respondents (47.25%), for question 2 the most respondents answered agreed as many as 184 respondents (46%), for question 3 many respondents answered agreed as many as 190 respondents (47.5%), and for question 4 respondents who answered agreed as many as 188 respondents (47%), for respondent 5 the most respondents

answered agreed as many as 187 respondents (46.75%) and for respondent 6 the most respondents answered agreed 186 respondents (46.5%).

4. Work Effectiveness Variable

Table 5 Descriptive Analysis of Work Effectiveness Variables

Question	Respondent Answer Score									
	SS (5)		S (4)		N (3)		TS (2)		STS (1)	
	F	%	F	%	F	%	F	%	F	%
Q1	142	35,5	186	46,5	56	14	16	4	-	-
Q2	147	36,75	188	47	55	13,75	10	2,5	-	-
Q3	146	36,5	181	45,25	57	14,25	16	4	-	-
Q4	145	36,25	189	47,25	52	13	14	3,5	-	-
Q5	150	37,5	190	47,5	53	13,25	7	1,75	-	-
Q6	144	36	187	46,75	57	14,25	12	3	-	-

Source: Processed with Primary Data, 2022

The table that explains the distribution of data on work effectiveness variables that most respondents answered for question 1 were agreed as many as 186 respondents (46.5%), for question 2 the most respondents answered agreed as many as 188 respondents (47%), for question 3 many respondents answered agreed as many as 181 respondents (45.25%), and for question 4 respondents who answered agreed as many as 189 respondents (47.25%), for respondent 5 the most respondents answered agreed as many as 190 respondents (47.5%) and for respondent 6 the most respondents answered agreed 187 respondents (46.75%).

The results of the SEM test can be described from the following *Bootstraping* diagram:

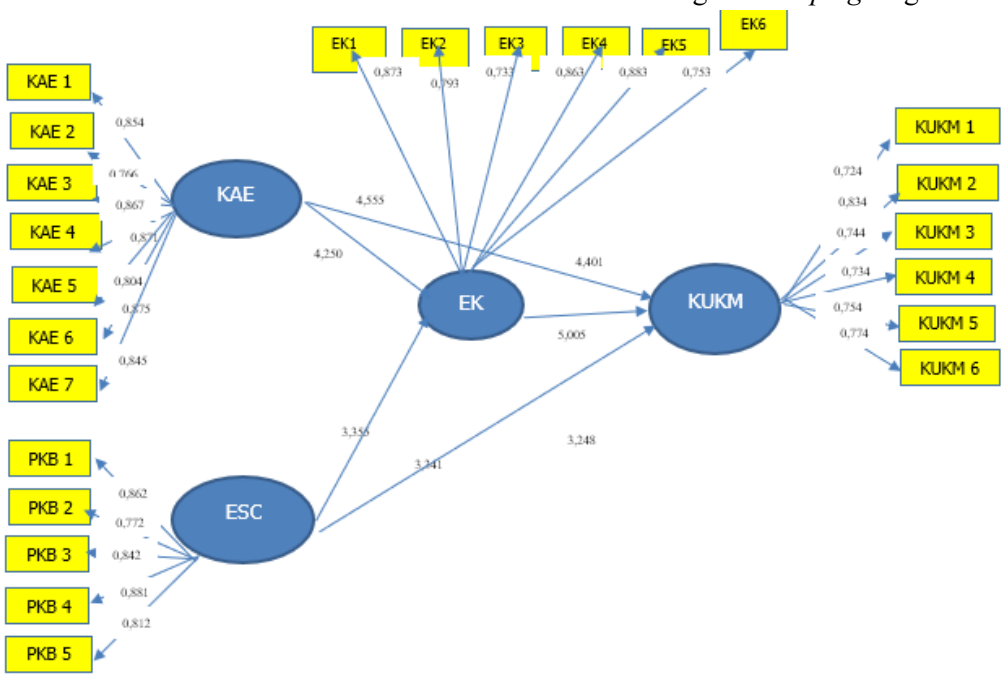

Figure 2 Bootsraping diagram

5. Convergent Validity Analysis

(Hair, Joe F., Howard & Nitzl, 2020) stated that the *convergent validity* test in the SEM PLS test

is a valid test step using, the *outer loading* value.

Table 6 *Convergent Validity* Test

Variables	Indicator	Outer Loading
Electronic Administration Policy (X)1	KAE 1	0,854
	KAE 2	0,766
	KAE 3	0,867
	KAE 4	0,871
	KAE 5	0,804
	KAE 6	0,875
	KAE 7	0,845
Use of Artificial Intelligence (X)2	PKB 1	0,862
	PKB 2	0,772
	PKB 3	0,842
	PKB 4	0,881
	PKB 5	0,812
Work Effectiveness (Z)	EK 1	0,873
	EK 2	0,793
	EK 3	0,733
	EK 4	0,863
	EK 5	0,883
	EK 6	0,753
Bureaucratic Transformation (Y)	TB 1	0,724
	TB 2	0,834
	TB 3	0,744
	TB 4	0,734
	TB 5	0,754
	TB 6	0,774

Source: Results of Data Processing with PLS 3.0, 2022

In the table above, the *outer loading* values of several variables listed, namely the electronic administration policy variable, the variable use of artificial intelligence, the work effectiveness variable, the bureaucratic transformation variable have valid data distribution and are suitable for hypothesis testing.

6. *Average Variant Extracted* (AVE) test

(Mikhaylov, Slava Jankin, Esteve, Marc and Campion, 2018) stated that the AVE test is to measure a construct equation that occurs between one variable and another. The results of the *Average Variant Extracted* (AVE) test can be seen in the following table:

Table 7 AVE Test

Variables	AVE
Electronic Administration Policy (X)1	0,803
Use of Artificial Intelligence (X)2	0,773
Work Effectiveness (Z)	0,743
Bureaucratic Transformation (Y)	0,753

Source: Results of Data Processing with PLS 3.0, 2022

The table above for the *Average Variant Extracted* (AVE) test of the electronic administration policy variable, the variable use of artificial intelligence, the work effectiveness variable, the bureaucratic transformation variable has a value greater than the significance value of 0.5, where the results of the existing data are valid and suitable for further testing.

7. *Composite Reliability* Testing

According to (Park, Sora and Humphry, 2019) *Composite Reliability* test is an approach taken to increase the confirmatory value of existing variables, where this data test can be seen in the following table:

Table 9 *Composite Reliability* Test

Variables	Composite Reliability
Electronic Administration Policy (X)1	0,785
Use of Artificial Intelligence (X)2	0,825
Work Effectiveness (Z)	0,865
Bureaucratic Transformation (Y)	0,875

Source: Results of Data Processing with PLS 3.0, 2022

The table above tests the *composite reliability of* the electronic administration policy variable, the variable use of artificial intelligence, the work effectiveness variable, the bureaucratic transformation variable has greater than 0.6 significance, where the distribution of data between variables is appropriate and suitable for further testing.

8. *Path Coefficient* Testing

As for the *path coefficient* (R Square) test of each variable can be seen in Table 10 to Table 13 below:

Table 10 R Square Test

Variables	R Square
Electronic Administration Policy (X)1	0,857
Bureaucratic Transformation (Y)	0,715

Source: Results of Data Processing with PLS 3.0, 2022

The table above states that the R Square value of the electronic administration policy variable within the Provincial Government in Indonesia is 0.857, so that the percentage of electronic administration policies within the Provincial Government in Indonesia of 85.7% can be explained by bureaucratic transformation within the Provincial Government in Indonesia and the rest will be explained by other variables that are not included in the object studied by researchers by 14.3%.

Table 11 R Square Test

Variables	R Square
Use of Artificial Intelligence (X)2	0,864
Bureaucratic Transformation (Y)	0,707

Source: Results of Data Processing with PLS 3.0, 2022

The table above states that the R Square value of the variable use of artificial intelligence in the Provincial Government in Indonesia is 0.864, so that the percentage of the use of artificial intelligence in the Provincial Government in Indonesia of 86.4% can be explained by the transformation of bureaucracy in the Provincial Government in Indonesia and the rest will be explained by other variables that are not included in the object studied by the researcher by 14.6%.

Table 12 R Square Test

Variables	R Square
Electronic Administration Policy (X)1	0,833
Work Effectiveness (Z)	0,713

Source: Results of Data Processing with PLS 3.0, 2022

The table above states that the R Square value of the electronic administration policy variable in the Provincial Government in Indonesia is 0.833, so that the percentage of electronic administration policies in the Provincial Government in Indonesia of 83.3% can be explained by work effectiveness in

the Provincial Government in Indonesia and the rest will be explained by other variables that are not included in the object studied by researchers by 16.7%.

Table 13 R Square Test

Variables	R Square
Use of Artificial Intelligence (X)2	0,804
Work Effectiveness (Z)	0,721

Source: Results of Data Processing with PLS 3.0, 2022

The table above states that the R Square value of the variable use of artificial intelligence in the Provincial Government in Indonesia is 0.804, so that the percentage of the use of artificial intelligence in the Provincial Government in Indonesia of 80.4% can be explained by the effectiveness of work in the Provincial Government in Indonesia and the rest will be explained by other variables that do not enter the object studied by the researcher by 19.6%.

9. Hypothesis Test

Regarding the results of hypothesis testing accordingly can be seen in the following table:

Table 14 Hypothesis Test

Hypothesis	Influence	T-Statistics	P-Value	Results
H1	Electronic administration policy within the Provincial Government in Indonesia towards bureaucratic transformation within the Provincial Government in Indonesia	4,555	0,001	Accepted
H2	The use of artificial intelligence in the Provincial Government in Indonesia towards bureaucratic transformation in the Provincial Government in Indonesia	3,341	0,010	Accepted
H3	Electronic administration policies within the Provincial Government in Indonesia on work effectiveness within the Provincial Government in Indonesia	4,250	0,017	Accepted
H4	The use of artificial intelligence in the Provincial Government in Indonesia on work effectiveness in the Provincial Government in Indonesia	3.355	0,002	Accepted
H5	Work effectiveness within the Provincial Government in Indonesia towards bureaucratic transformation within the Provincial Government in Indonesia	5,005	0,001	Accepted
H6	Electronic administration policies within the Provincial Government in Indonesia on bureaucratic transformation within the Provincial Government in Indonesia through work effectiveness within the Provincial Government in Indonesia as a mediating variable.	4,401	0,000	Accepted
H7	The use of artificial intelligence within the Provincial Government in Indonesia on bureaucratic transformation within the Provincial Government in Indonesia through work effectiveness within the Provincial Government in Indonesia as a mediating variable	3,248	0,000	Accepted

Source: Results of Data Processing with PLS 3.0, 2022

The table above can be concluded that partially the electronic administration policy variables and the use of artificial intelligence have an effect on bureaucratic transformation within the Provincial Government throughout Indonesia and also affect work effectiveness within the Provincial Government throughout Indonesia. Work effectiveness variables within the Provincial Government throughout Indonesia have an effect on bureaucratic transformation within the Provincial Government throughout Indonesia. Simultaneously, the variables of electronic administration policy and the use of artificial intelligence affect bureaucratic transformation in the Provincial Government throughout Indonesia through work effectiveness in the Provincial Government throughout Indonesia.

Discussion

The results of the study state that the electronic administration policy variable has an effect on bureaucratic transformation within the Provincial Government throughout Indonesia, where according to (Malodia, Suresh, 2021) electronic administration policies carried out by the Regional Government will spur a full transformation of bureaucratic changes, so that the performance of the Regional Government can run efficiently.

The results of the study also state that the variable use of artificial intelligence has an effect on bureaucratic transformation within the Provincial Government throughout Indonesia, where according to (ElMassah, Suzanna and Mohieldin, 2020) the use of artificial intelligence in helping to serve the needs of the community will create an effective bureaucratic transformation in preventing punli and existing corruption.

According to the results of the study, it states that the electronic administration policy variable affects work effectiveness in the Provincial Government throughout Indonesia, where according to (Vogl, Thomas M., 2020) policies in services using electronic administration will increase work effectiveness in government in an effort to increase work productivity and improve the performance of local governments.

The results of the study also state that the variable use of artificial intelligence affects work effectiveness in the Provincial Government throughout Indonesia, where according to (Tang, Tian and Ho, 2019) which states that the use of artificial intelligence will streamline services to the community in the context of maximum efforts presented in serving all community complaints regarding population administration activities.

The results of the study state that the variable work effectiveness in the Provincial Government throughout Indonesia has an effect on bureaucratic transformation in the Provincial Government throughout Indonesia, where this is in accordance with research (Rosa, 2019) which states that as long as the work in the Local Government environment is effective and efficient, there will be a transformation or change in the way of working in serving the bureaucracy in the Local Government environment.

The results of the study describe that electronic administration variables affect bureaucratic transformation within the Provincial Government throughout Indonesia through work effectiveness within the Provincial Government throughout Indonesia as a mediating variable. This is in accordance with research (Gong, Yiwei, Yang, Jun and Shi, 2020) which states that public administration policies with electronic administration will create good work effectiveness in the local government environment, and will make the bureaucratic transformation process in the local government environment run effectively.

The results of the study describe that the variable use of artificial intelligence affects bureaucratic transformation within the Provincial Government throughout Indonesia through work effectiveness within the Provincial Government throughout Indonesia as a mediating variable. This is in accordance with research (Allam, Zaheer and Dhunny, 2019) which states that artificial intelligence can help increase work efficiency and effectiveness to improve bureaucratic change which currently still uses a manual system that seems complicated and ineffective, and inefficient.

Conclusion

From the results of this study, the conclusion is that partially the variables of electronic administration policy and the use of artificial intelligence have an effect on bureaucratic transformation within the Provincial Government throughout Indonesia and also affect work effectiveness within the Provincial Government throughout Indonesia. Work effectiveness variables within the Provincial Government throughout Indonesia affect bureaucratic transformation within the Provincial Government

throughout Indonesia. Simultaneously, the variables of electronic administration policy and the use of artificial intelligence affect bureaucratic transformation in the Provincial Government throughout Indonesia through work effectiveness in the Provincial Government throughout Indonesia. With the electronic administration policy process and the use of artificial intelligence in provincial governments throughout Indonesia, the transformation of bureaucracy can be changed and can make Government work no longer hampered and delayed in serving all forms of administrative problems because it is facilitated by technology, and people no longer need to face each other to take care of all forms of administrative services that are complicated and long to complete.

Reference

Allam, Zaheer and Dhunny, Z. A. (2019). On big data, artificial intelligence and smart cities. *Journal Cities*, *89*, 80-91. https://doi.org/10.1016/j.cities.2019.01.032

Androniceanu, Armenia and Georgescu, I. (2021). E-Government in European Countries, a Comparative Approach Using the Principal Components Analysis. *NISPAcee Journal of Public Administration and Policy*, *XIV*(2), 65-86. https://doi.org/10.2478/nispa-2021-0015

Aoki, N. (2020). An experimental study of public trust in AI chatbots in the public sector. *Journal Government Information Quarterly*, *37*, 101490. https://doi.org/10.1016/j.giq.2020.101490

Arenal, Alberto, et al. (2020). Innovation ecosystems theory revisited: The case of artificial intelligence in China. *Telecommunications Policy*, *44*, 1-27. https://doi.org/10.1016/j.telpol.2020.101960

Bolívar, M. P. R. (2017). Governance Models for the Delivery of Public Services Through the Web 2.0 Technologies: A Political View in Large Spanish Municipalities. *Journal Social Science Computer Review*, *35*, 1-23. https://doi.org/10.1177/0894439315609919

Bullock, J. B. (2019). Artificial Intelligence, Discretion, and Bureaucracy. *Journal American Review of Public Administration*, 1-11. https://doi.org/10.1177/0275074019856123

Cahyarini, Benedicta Retna and Samsara, L. (2021). The Challengers of Digital Competency Implementation Towards World-Class Bureaucracy. *Journal of Borneo Administrator*, *17*(2), 259-274.

Chang, I. Chun Catherine, Jou, Sue Ching and Chung, M. K. (2020). Provincializing smart urbanism in Taipei: The smart city as a strategy for urban regime transition. *Journal Urban Studies*, 1-22. https://doi.org/10.1177/0042098020947908

Chatfield, Akemi Takeoka, and Reddick, C. G. (2019). A framework for Internet of Things-enabled smart government: A case of IoT cybersecurity policies and use cases in the U.S. federal government. *Journal of Government Information Quarterly*, *36*, 1-12. https://doi.org/10.1016/j.giq.2018.09.007

D'Amico, Gaspare, et al. (2020). Understanding Sensor Cities: Insights from Technology Giant Company Driven Smart Urbanism Practices. *Journal Sensors*, *20*(4391), 1-24.

ElMassah, Suzanna and Mohieldin, M. (2020). Digital transformation and localizing the Sustainable Development Goals (SDGs). *Journal of Ecological Economics*, *169*, 106490. https://doi.org/10.1016/j.ecolecon.2019.106490

Fatima, Samar, Desouza, Kevin C. and Dawson, G. S. (2020). National Strategic Artificial Intelligence Plans: A Multi-Dimensional Analysis. *Journal of Economics Analysis and Policy*, 1-48. https://doi.org/10.1016/j.econlet.2020.109231

Fusi, Federica and Feeney, M. K. (2017). Electronic monitoring in public organizations: evidence from US local governments. *Journal Public Management Review*, 1-24. https://doi.org/10.1080/14719037.2017.1400584

Gong, Yiwei, Yang, Jun and Shi, X. (2020). Towards a comprehensive understanding of digital transformation in government: Analysis of flexibility and enterprise architecture. *Journal Government Information Quarterly*, *37*, 101487. https://doi.org/10.1016/j.giq.2020.101487

Gorelova, Irina, et al. (2021). Antecedents and consequences of digital entrepreneurial ecosystems in the interaction process with smart city development. *Journal Administrative Sciences*, *11*(94), 1-14. https://doi.org/10.3390/ADMSCI11030094

Gupta, Anushri, Panagiotopoulos, Panos and Bowen, F. (2020). An orchestration approach to smart

city data ecosystems. *Journal of Technological Forecasting and Social Change*, *153*, 119929. https://doi.org/10.1016/j.techfore.2020.119929

Hair, Joe F., Howard, M. C. and, & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, *109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Kornberger, Martin, et al. (2017). When Bureaucracy Meets the Crowd: Studying "Open Government" in the Vienna City Administration. *Journal Organization Studies*, *38*(2), 179-200. https://doi.org/10.1177/0170840616655496

Kundu, Debasish and Kundu, D. (2019). Blockchain and Trust in a Smart City. *Journal Environment and Urbanization ASIA*, *10*, 1-13. https://doi.org/10.1177/0975425319832392

Kuziemski, Maciej and Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Journal Telecommunications Policy*, *44*, 1-13. https://doi.org/10.1016/j.telpol.2020.101976

Lee, DonHee and Yoon, S. N. (2021). Application of Artificial Intelligence-Based Technologies in the Healthcare Industry: Opportunities and Challenges. *International Journal of Environmental Research and Public Heath*, *18*(271), 1-18. https://doi.org/10.1109/IIHC55949.2022.10059767

Malodia, Suresh, et al. (2021). Future of e-Government: An integrated conceptual framework. *Journal of Technological Forecasting and Social Change*, *173*, 121102. https://doi.org/10.1016/j.techfore.2021.121102

Mikhaylov, Slava Jankin, Esteve, Marc and Campion, A. (2018). Artificial intelligence for the public sector: Opportunities and challenges of cross-sector collaboration. *Philosophical Transactions of the Royal Society*, *376*, 1-21. https://doi.org/10.1098/rsta.2017.0357

Mills, David, et al. (2022). Evidence-based public policy decision-making in smart cities: Does extant theory support the achievement of city sustainability objectives? *Journal Sustainability*, *14*(3), 1-23. https://doi.org/10.3390/su14010003

Ortega-Fernández, A., Martín-Rojas, R., & García-Morales, V. J. (2020). Artificial intelligence in the urban environment: Smart cities as models for developing innovation and sustainability. *Journal Sustainability*, *12*(7860), 1-26. https://doi.org/10.3390/SU12197860

Park, Sora and Humphry, J. (2019). Exclusion by design: intersections of social, digital and data exclusion. *Journal Information Communication and Society*, *22*(7), 934-953. https://doi.org/10.1080/1369118X.2019.1606266

Pencheva, Irina, Esteve, Marc and Mikhaylov, S. J. (2018). Big Data and AI - A transformational shift for government: So, what next for research? *Journal of Public Policy and Administration*, 1-21. https://doi.org/10.1177/0952076718780537

Pereira, Gabriela Viale, et al. (2020). South american expert roundtable: Increasing adaptive governance capacity for coping with unintended side eects of digital transformation. *Journal Sustainability*, *12*(718), 1-47. https://doi.org/10.3390/su12020718

Radu, L. D. (2020). Disruptive technologies in smart cities: A survey on current trends and challenges. *Journal Smart Cities*, *3*, 1022-1038. https://doi.org/10.3390/smartcities3030051

Rosa, A. T. R. (2019). The Role Of Government Apparatus (Devotion) On Development Of Bureaucracy In Public Policy Perspectives In The Industrial Revolution 4.0 Era. *SCIENTIFIC JOURNAL OF WAHANA BHAKTI PRAJA*, *9*(1), 17-30.

Sharma, Gagan Deep, et al. (2019). Artificial Intelligence and Effective Governance: A Review, Critique and Research Agenda. *Journal Sustainable Futures*, 1-15.

Shava, Elvin and Doorgapersad, S.-V. (2022). Elvin Shava Journal.pdfFostering Digital Innovations to Accelerate Service Delivery in South African Local Government. *International Journal of Research and Social Science*, *11*(2), 83-91.

Sobrino-García, I. (2021). Artificial intelligence risks and challenges in the Spanish public administration: An exploratory analysis through expert judgements. *Journal Administrative Sciences*, *11*(102), 1-21. https://doi.org/10.3390/admsci11030102

Soe, R. M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Journal Government Information Quarterly*, *35*, 1-13. https://doi.org/10.1016/j.giq.2017.11.010

Tan, Si Ying and Taeihagh, A. (2020). Smart city governance in developing countries: A systematic literature review. *Journal Sustainability*, *12*(899), 1-29. https://doi.org/10.3390/su12030899

Tang, Tian and Ho, A. T. K. (2019). A path-dependence perspective on the adoption of the Internet of Things: Evidence from early adopters of smart and connected sensors in the United States. *JournalcGovernment Information Quarterly*, *36*(2), 1-12. https://doi.org/10.1016/j.giq.2018.09.010

Ullah, Fahim, et al. (2021). Risk management in sustainable smart cities governance: A TOE framework. *Journal of Technological Forecasting and Social Change*, *167*, 120743. https://doi.org/10.1016/j.techfore.2021.120743

Valle-Cruz, D., Criado, J. I., Sandoval-Almazán, R., & Ruvalcaba-Gomez, E. A. (2020). Assessing the public policy-cycle framework in the age of artificial intelligence: From agenda-setting to policy evaluation. *Journal Government Information Quarterly*, *37*, 101509. https://doi.org/10.1016/j.giq.2020.101509

van den Homberg, Marc J.C., Gevaert, Caroline M. and Georgiadou, Y. (2020). The changing face of accountability in humanitarianism: Using artificial intelligence for anticipatory action. *Journal Politics and Governance*, *8*(4), 456-467. https://doi.org/10.17645/pag.v8i4.3158

Vogl, Thomas M., et al. (2020). Smart Technology and the Emergence of Algorithmic Bureaucracy: Artificial Intelligence in UK Local Authorities. *Journal Public Administration Review*, *80*(6), 946-961. https://doi.org/10.1111/puar.13286

Wirtz, Bernd W., Weyerer, Jan C. and Sturm, B. J. (2020). The Dark Sides of Artificial Intelligence: An Integrated AI Governance Framework for Public Administration. *International Journal of Public Administration*, *43*, 1-12. https://doi.org/10.1080/01900692.2020.1749851

Yigitcanlar, Tan, et al. (2021). Responsible urban innovation with local government artificial intelligence (Ai): A conceptual framework and research agenda. *Journal of Open Innovation: Technology, Markets, and Complexity*, *7*(71), 1-16. https://doi.org/10.3390/joitmc7010071

Zuiderwijk, Anneke, Chen, Yu Che and Salem, F. (2021). Implications of the use of artificial intelligence in public governance: A systematic literature review and a research agenda. *Journal Government Information Quarterly*, *38*, 1-19. https://doi.org/10.1016/j.giq.2021.101577