

Analysis of the readiness of algorithm leadership implementation in the context of performance improvement in East Java Provincial government agencies

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ABSTRACT

The limitation of efficiency and accuracy in decision-making in East Java Provincial government agencies is a leadership problem caused by the lack of technology and data-based systems. This study aims to determine the level of readiness of East Java Provincial government agencies in implementing algorithm-based leadership. The methodology used in this study is a quantitative approach with data collection techniques through questionnaires distributed to 173 officials in the Regional Apparatus Work Unit (SKPD) of East Java Province. Data analysis used descriptive statistics and correlation tests to identify the relationship between organizational readiness and performance factors. The results of the study show that the level of readiness of government agencies in implementing algorithm leadership is quite good, with factors such as regulations, policies, and infrastructure getting high average scores. However, several aspects still need improvement, especially related to the understanding of algorithmic leadership styles and the continuity of strategic planning during leadership changes. The effect of implementation readiness on improving organizational performance is also significant, especially in terms of fast data processing and more timely decision-making. The suggestions are to enhance the understanding of government apparatus related to algorithm-based leadership, strengthen coordination between institutions, and improve routine training related to information technology infrastructure to support more effective implementation.

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1. Introduction

The government sector in Indonesia, especially in East Java Province, faces various increasingly complex challenges related to administrative management and improving the quality of public services (Makkulawu et al., 2025). Limited human resources, slow decision-making processes, and lack of efficiency in information management are some of the obstacles that continue to hinder the optimization of the performance of government agencies (Sarmawa, 2020; Zhao et al., 2020). On the other hand, the need to improve services to the community and achieve better regional development goals is increasingly urgent (Levy et al., 2021). Local governments need to innovate in finding solutions to overcome these problems so that their performance can be more responsive, efficient, and transparent (Novitasari et al., 2021; Riwukore & Habaora, 2022).

The development of information and communication technology (ICT) has become a key element in the transformation of government management (Caiza et al., 2024). One of the innovations that is starting to be considered is the application of algorithm-based leadership (Andrews, 2018; McGuire & De Cremer, 2023). This algorithmic leadership refers to the use of algorithms and *artificial intelligence* in decision-

making processes that previously relied on subjective judgment (Balbaa & Abdurashidova, 2024; Kolkman, 2020; Medlama et al., 2025; Sudirman et al., 2023). This technology can process large amounts of data, predict trends, and provide more timely recommendations, thereby speeding up decision-making processes and improving accuracy in public policy management (Akter et al., 2021; Sharma et al., 2020). Based on a report from the McKinsey Global Institute, the adoption of artificial intelligence in the public sector can reduce operational costs by 20-30% and improve decision accuracy by up to 25% (McKinsey, 2018). However, its application in the government agencies of East Java Province is still limited and not optimal, so it is necessary to research to find out the extent of readiness for the implementation of algorithm leadership in this discussion.

The importance of the application of algorithms in the leadership of East Java Provincial government agencies is also motivated by the fact that there is a misalignment between the need for fast and appropriate information management and the capacity of available human resources (Jaweria et al., 2023; Zhao et al., 2020). According to the National Survey of the Governance Index conducted by the State Civil Apparatus Commission (KASN) in 2023, many government agencies experience obstacles in effective decision-making, with nearly 40% of respondents stating that decision-making is often delayed due to reliance on manual processes and lack of technological support. In addition, most state civil servants in East Java do not have adequate digital skills to make the most of advanced technology. This is a significant obstacle in leveraging algorithms for more efficient and data-driven leadership (McGuire & De Cremer, 2023).

The readiness to implement algorithmic leadership in the East Java government environment is not guaranteed. Some research by Aminah & Wardani, (2018); Laureti et al., (2020); Roth et al., (2018), previously showed a gap in the readiness of organizations to embrace significant digital change. Data from the East Java Provincial Human Resources Development Agency (BPSDM) shows that although there has been an increase in digital-based training, only about 30% of the apparatus feel skilled in using artificial intelligence and data analytics-based systems. Factors such as inadequate technological infrastructure, limited understanding and skills of apparatus, and more conventional organizational culture are the main obstacles in adopting advanced technology. Therefore, it is essential to conduct an analysis related to the readiness of government agencies in East Java Province to identify existing obstacles and opportunities, as well as provide policy recommendations that can accelerate the process of implementing this technology (Aminah & Wardani, 2018; Hastuti & Sugiarsi, 2023).

According to research by Kastawan et al. (2018), the level of readiness of government agencies to implement artificial intelligence technology in Indonesia still varies, with some regions being more advanced than others in terms of infrastructure and training. Although several agencies have started digitalization initiatives in East Java Province, many are still hampered by data management limitations and optimal use of technology. On the other hand, the development of algorithmic leadership in the private sector, as recorded in large companies in Jakarta, has shown positive results in faster and more targeted decision-making. Therefore, implementing an algorithm-based leadership model in the East Java Provincial government needs to be considered more seriously in order to support the improvement of the quality of public services.

Taking these factors into account, this study will examine the extent of the readiness of East Java Provincial government agencies in implementing algorithmic leadership, as well as evaluate its impact on improving organizational performance. Given the importance of the role of leadership in directing the organization's vision and strategy, the application of algorithms in the decision-making process is a strategic step that will not only increase administrative efficiency but also encourage government performance in meeting the needs and expectations of the community (Aminah & Wardani, 2018). Therefore, this research is very relevant to understanding and answering the challenges faced in an effort to realise a more effective and data-based government.

This research has a novelty in analysing the readiness of algorithm-based leadership implementation in East Java Provincial government agencies. This topic is still rarely explored in the context of local government in Indonesia. Although there have been several studies on the use of artificial intelligence and algorithms in the private sector, their application in the context of government leadership, especially in public decision-making and improving the performance of local government agencies, is still minimal. In addition, this study also identifies and analyzes factors that affect the readiness of the technology, which have not been widely researched in similar studies. By focusing on East Java Province with unique administrative

challenges and resources, this research will provide a new understanding of how local governments can adopt and utilize algorithmic leadership to improve performance more effectively, efficiently, and data-driven.

Based on this explanation, it can be concluded that algorithmic leadership models can theoretically address decision-making delays in government agencies by reducing the cognitive burden on decision-makers (bounded rationality theory), accelerating processes through automated data processing, and providing transparent, auditable decision logic (principal-agent theory). Furthermore, algorithms offer neutrality in politically sensitive contexts (public choice theory), enable rapid feedback and adaptation within complex bureaucratic systems (cybernetic systems theory), and strengthen public trust by delivering consistent, data-driven, and depoliticized decisions (technocratic legitimacy) (Estlund, 2008; Simon, 1965)

This study aims to determine the readiness level of East Java Provincial government agencies to implement algorithm-based leadership. And to analyze the influence of the readiness of algorithm leadership implementation on improving the performance of government agencies in East Java Province.

2. Research Method

This study will use a descriptive-analytical approach to analyze algorithm leadership implementation's readiness to improve performance in East Java Provincial government agencies. The design of this research is a quantitative research that focuses on collecting and analyzing numerical data to obtain a more objective and measurable picture of the readiness to implement algorithm leadership (Riyanto & Hatmawan, 2020).

This study uses a quantitative approach with questionnaire tools as a data collection tool. The population used in this study is officials of the Regional Apparatus Work Unit (SKPD) who occupy strategic positions. Meanwhile, the sample of this study was 173 people taken from each SKPD within the scope of East Java Province. From each SKPD, it can represent filling out a questionnaire between 2-4 officials who have positions and leadership in each SKPD. To obtain a representative research sample that is free from sampling bias, a probabilistic sampling approach is used, namely stratified random sampling, in which the SKPD population is grouped based on certain characteristics (field of task or agency size), then samples are taken randomly from each group. This questionnaire uses the Likert scale to measure the degree of approval or disapproval of respondents to various statements. For this researcher's frame of mind, it is presented as follows:

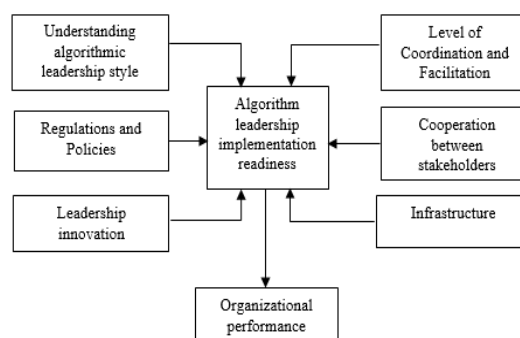


Figure 1. Research framework

This study's data analysis used descriptive analysis, which was adopted from Aydin and Tasci (2005). Correlation tests were carried out to identify the relationship between certain variables, such as understanding innovation, regulatory readiness, innovative leadership, innovation culture, coordination and facilitation, stakeholder cooperation, and infrastructure readiness, and their influence on the performance of public agencies.

3. Result and Discussion

For descriptive analysis with the algorithm leadership implementation readiness analysis approach adopted from Aydin and Tasci (2005), as follows:

Table 1. Descriptive analysis results

Factor	Questionnaire statement items	Score Mean	Results
Understanding algorithmic leadership styles	I understand that the leadership style of algorithms involves data-driven decision-making and automated systems	4.1792	<i>Ready but needs a few improvement</i>
	I realized that in the leadership style of algorithms, managerial decisions can be influenced by the results of technological analysis or artificial intelligence	3.9942	<i>Ready but needs a few improvement</i>
	I know the difference between traditional leadership styles and leadership styles that use an algorithmic approach	4.0405	<i>Ready but needs a few improvement</i>
	Total average score	4,0713	<i>Ready but needs a few improvement</i>
Regulations and policies	I understand that the application of algorithmic leadership styles requires clear and accessible regulation	4.3237	<i>Ready go ahead</i>
	I believe that algorithm-based leadership planning must be done consistently to be implemented effectively	4.3757	<i>Ready go ahead</i>
	I believe that the success of algorithmic leadership is influenced by the readiness of supporting policies in the organizational environment	4.3121	<i>Ready go ahead</i>
	Total average score	4.3372	<i>Ready go ahead</i>
Leadership innovation	I believe that the implementation of algorithmic leadership requires a high commitment from organizational leaders	4.4277	<i>Ready go ahead</i>
	In my opinion, the success of algorithmic systems in decision-making is greatly influenced by the active support and commitment of leaders	4.3064	<i>Ready go ahead</i>
	I believe that algorithmic leadership can help maintain the direction of organizational policies despite the change of leaders	4.1734	<i>Ready but needs a few improvement</i>
	In my opinion, an algorithm-based leadership system can ensure the continuity of strategic planning in a situation of leadership change	4.1561	<i>Ready but needs a few improvement</i>
Level of Coordination and Facilitation	Total average score	4.2659	<i>Ready go ahead</i>
	I consider that the implementation of algorithmic leadership requires intensive coordination between institutions at the central government level	4.2081	<i>Ready go ahead</i>
	I see that synergy between local governments is essential to support the implementation of algorithm leadership	4.2659	<i>Ready go ahead</i>
	I consider that the availability of budget, human resources, and technology greatly determines the smooth implementation of algorithm leadership	4.3410	<i>Ready go ahead</i>
Cooperation between stakeholders	Total average score	4.2717	<i>Ready go ahead</i>
	I consider that the application of algorithmic leadership requires strong coordination between universities to support academic and research collaboration	4.1676	<i>Ready but needs a few improvement</i>
	In my opinion, cross-agency coordination is needed so that algorithm leadership can be applied comprehensively and consistently	4.2890	<i>Ready go ahead</i>
	I believe that community involvement in providing data or feedback is critical to supporting algorithmic leadership	4.2717	<i>Ready go ahead</i>
Infrastructure	Total average score	4.2427	<i>Ready go ahead</i>
	I consider that ICT infrastructure support is very important in supporting the implementation of algorithm leadership	4.3988	<i>Ready go ahead</i>
	I consider that regular training is needed so that leaders and staff can understand and manage algorithmic systems properly	4.2775	<i>Ready go ahead</i>
	I believe that digital communication media plays an important role in accelerating the delivery of algorithm-based information	4.3642	<i>Ready go ahead</i>
Organizational performance	I believe that access to real-time and accurate information is an essential part of algorithmic leadership	4.3699	<i>Ready go ahead</i>
	Total average score	4.3526	<i>Ready go ahead</i>
	Implementation of algorithmic leadership improves organizational productivity through fast data processing and timely decision-making	4.2601	<i>Ready go ahead</i>
	The use of algorithms in leadership helps organizations deliver public services that are more accurate and according to the needs of the community	4.2832	<i>Ready go ahead</i>

Factor	Questionnaire statement items	Score Mean	Results
	Algorithmic leadership enables organizations to more quickly respond to changing societal needs based on real-time data analysis	4.3064	<i>Ready go ahead</i>
	The implementation of algorithmic leadership ensures that every decision taken is in accordance with regulations and good governance principles	4.2312	<i>Ready go ahead</i>
	The use of algorithms in decision-making clarifies and makes it easier for organizations to be accountable to the public for their work	4.2428	<i>Ready go ahead</i>
	Total average score	4.2647	<i>Ready go ahead</i>

Based on the results of the descriptive analysis presented in Table 1, this study measures the readiness to implement algorithm leadership in East Java Provincial government agencies. These factors include understanding algorithmic leadership styles, regulations and policies, leadership innovation, coordination and facilitation levels, stakeholder cooperation, infrastructure, and organizational performance. From the study results, most of the factors show quite good results with an average score above 4.0 which indicates that government agencies in East Java Province are ready to implement algorithm leadership. However, some improvements are still needed in several factors. The algorithm's leadership style comprehension factor, although the average total score was 4.0713; several statements show that this understanding already exists, but it still needs some improvement to better understand the differences between traditional leadership styles and algorithms. regulatory and policy factors, with an average score of 4.3372; which shows that clear and consistent regulations have supported the implementation of algorithm leadership. For the leadership innovation factor, it was shown that the success of the algorithm system was greatly influenced by the support and commitment of the leader, with an average score of 4.2659; However, several statements show the need for improvement, such as in maintaining the continuity of strategic planning in leadership changes. Coordination and facilitation between institutions was also considered important with an average score of 4.2717, which shows the importance of synergy between local governments to support the implementation of algorithm leadership. The infrastructure factor also scored very well, namely 4.3526, which shows the importance of ICT infrastructure support, regular training, and access to real-time information in supporting the implementation of algorithm leadership. In addition, with an average score of 4.2647 in organisational performance factors, it can be concluded that the implementation of algorithmic leadership has the potential to increase organizational productivity and effectiveness through fast data processing and more timely decision-making.

The results of this study show that East Java Provincial government agencies are ready to implement algorithmic leadership but still need improvement in several aspects, such as increasing understanding of the differences between traditional leadership styles and algorithms and refining cross-agency coordination.

After the readiness test with descriptive analysis was carried out, a correlation test was carried out, which aimed to determine the relationship and influence between the factors used in this study. The results of this correlation test can also choose the close relationship between factors so that an increase can be made in the factors that have the lowest relationship. Here are the results of the correlation test

		Organizational performance	Understanding algorithmic leadership style	Regulations and policies	Leadership innovation	Level of Coordination and Facilitation	Cooperation between stakeholders kepentingan	Infrastructure
Organizational performance	Pearson Correlation	1	.589**	.891**	.809**	.722**	.764**	.774**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	173	173	173	173	173	173	173
Understanding algorithmic leadership style	Pearson Correlation	.569**	1	.528**	.584**	.509**	.539**	.505**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	173	173	173	173	173	173	173
Regulations and policies	Pearson Correlation	.891**	.528**	1	.745**	.756**	.750**	.735**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	173	173	173	173	173	173	173
Leadership innovation	Pearson Correlation	.809**	.584**	.745**	1	.777**	.779**	.763**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	173	173	173	173	173	173	173
Level of Coordination and Facilitation	Pearson Correlation	.722**	.509**	.756**	.777**	1	.811**	.741**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	173	173	173	173	173	173	173
Cooperation between stakeholders kepentingan	Pearson Correlation	.764**	.539**	.750**	.779**	.811**	1	.791**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	173	173	173	173	173	173	173
Infrastructure	Pearson Correlation	.774**	.505**	.735**	.763**	.741**	.791**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	173	173	173	173	173	173	173

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 2. Correlation test

Based on the correlation test results, it is known that organizational performance with an understanding of the algorithm's leadership style has a Pearson correlation of 0.569 with a significance of 0.000, indicating a moderate positive relationship between organizational performance and the sense of algorithmic leadership style. This means that the better the knowledge of algorithm-based leadership, the higher the organization's performance. Organizational performance with regulations and policies has a correlation of 0.691 with a significance of 0.000, indicating a strong positive relationship between organizational performance and regulations and policies. This shows that clear and supportive policies can improve organizational performance, or the better the regulations and policies implemented in government agencies, the higher the organization's performance. Organizational performance with leadership innovation has a correlation of 0.809 with a significance of 0.000, indicating a strong and significant relationship between leadership innovation and organizational performance. This suggests that innovations in leadership, such as technology and new approaches, profoundly improve organizational performance. Organizational performance with the level of coordination and facilitation has a correlation of 0.722 with a significance of 0.000, indicating a strong positive relationship between organizational performance and the level of coordination and facilitation between institutions. This means that the higher the level of coordination between institutions, the better the organizational performance. Organizational performance with cooperation between stakeholders has a correlation of 0.764 with a significance of 0.000 indicating a strong and significant relationship between organizational performance and stakeholder cooperation. This shows that good collaboration between various parties in the organization will contribute greatly to improving organizational performance. The performance of an organization with infrastructure has a correlation of 0.774 with a significance of 0.000 indicating a very strong positive relationship between organizational performance and infrastructure. Adequate infrastructure, especially regarding information and communication technology (ICT), plays an important role in improving organizational performance.

Based on the results of the existing correlation test, it is also known that the correlation with the smallest and largest influences is known. The greatest influence was seen in leadership innovation on organizational performance, with a correlation of 0.809. This shows a very strong and positive relationship, which means that the higher the level of innovation in leadership, the higher the organization's performance. Innovations in leadership, such as the use of technology and new approaches in decision-making, profoundly affect the effectiveness and productivity of organizations. The most negligible influence was seen in understanding the algorithm's leadership style on infrastructure, with a correlation of 0.505. Although this relationship is still significant, the correlation value is lower than other relationships. This suggests that the understanding of algorithmic leadership styles has only a moderate influence on the infrastructure that supports the implementation of algorithm-based leadership.

Discussion

The Level of Readiness of East Java Provincial Government Agencies in Implementing Algorithm-Based Leadership

The readiness of the East Java provincial government to implement algorithm-based leadership will be influenced by several factors that support the success of algorithmic leadership and can impact organizational performance. Based on the results of this study, it emphasizes that the factor to the understanding of the algorithm's leadership style which has an average score of 4.0713; shows that the respondents are quite prepared to understand algorithm-based leadership. However, despite a good understanding, this score also shows that some things still need improvement. For example, an understanding of data-driven decision-making and automated systems (score 4.1792) and the difference between traditional leadership and algorithms (score 4.0405) require more attention. Therefore, to strengthen this readiness, it is necessary to conduct further in-depth training on the fundamental differences between these two leadership styles and how they are implemented in the context of government agencies.

The regulatory and policy factors have an average score of 4.3372 which indicates that the existing policies already support the implementation of algorithm leadership. Clear and consistent regulation is one of the key requirements for the successful implementation of algorithm-based systems. This high score shows that existing policies are sufficiently supportive of the use of technology in decision-making at the government level. For example, policies that ensure access to clear and consistent regulation, as well as a commitment to ongoing planning, are helpful in facilitating the implementation of algorithm-based leadership. The leadership innovation factor showed an average score of 4.2659 which means that East Java Provincial government agencies are ready to adopt and implement an algorithm-based leadership system. The leader's commitment to supporting the algorithmic system is very important, and a high score on the item stating that the success of the algorithm's leadership is strongly influenced by the leader's commitment (score

4.3064) indicates good readiness. However, there are things that need to be improved, such as maintaining the continuity of strategic planning during the change of leaders (score 4.1561), which indicates the importance of leadership stability for the continuity of algorithm implementation.

The coordination and facilitation factor between institutions obtained an average score of 4.2717 which shows that there is an awareness of the importance of intensive coordination between government agencies, especially at the central and regional government levels. The availability of budget, human resources, and technology are factors that affect the smooth implementation of algorithm leadership. This shows that in the context of the implementation of the algorithm system, solid cooperation between institutions is needed to ensure the system's successful implementation and smooth operation. Cooperation between stakeholders, involving universities, the private sector, and the community, scored an average of 4.2427. Although these results show that most respondents agree on the importance of strong cooperation between various parties in the implementation of algorithm leadership, there is still a need to improve coordination, especially between agencies and related parties. With the involvement of the community in providing data and feedback (score 4.2717), the application of algorithmic leadership will be more effective in answering public needs.

Supporting Infrastructure factors, especially Information and Communication Technology (ICT) infrastructure, obtained an average score of 4.3526 which indicates excellent readiness. This score reflects that the East Java Provincial government has the infrastructure that supports running algorithm-based systems. With access to real-time information and regular training (score 4.2775), the readiness of government agencies in terms of infrastructure is very high. However, it is important to ensure that the training provided is ongoing so that leaders and staff can manage the algorithm system properly.

The results of this study support the research conducted by Aminah & Wardani (2018), explaining that leadership readiness will be influenced by factorization interpretation factors, regulatory readiness, leadership, innovation culture and infrastructure.

The Effect of Algorithm Leadership Implementation Readiness on Improving the Performance of Government Agencies

The results of this study prove that the readiness for the implementation of algorithmic leadership within the East Java Provincial government is influenced by the factors of understanding algorithmic leadership style, regulations and policies, leadership innovation, level of coordination and facilitation, cooperation between stakeholders, and infrastructure. Of these six factors, they also have a role in reminding the performance of the organization, especially in the East Java Province government.

In this discussion, it was also explained that the readiness to implement algorithm leadership to improve the performance of government agencies in East Java Province is also supported by:

1. Fast data processing and timely decision-making, this study scored organisational performance in terms of fast data processing and timely decision-making at 4.2601, which shows that the application of algorithmic leadership can increase productivity and organizational efficiency. By using algorithm-based systems, decision-making can be made faster and more accurately, reducing the likelihood of human error and increasing responsiveness to changes.
2. Improve public services that are accurate and according to the needs of the community, in the statement related to improving public services that are accurate and according to the community's needs, an average score of 4.2832 was obtained. This shows that the use of algorithms in decision-making helps organizations provide more accurate and in accordance with the community's needs. Algorithmic leadership enables more data-driven decision-making, which results in services that are more efficient and responsive to changing societal needs.
3. Algorithmic leadership and good governance, statements related to algorithmic leadership and good governance have a score of 4.2312. The application of algorithmic leadership ensures that every decision taken is in accordance with regulations and good governance principles. Algorithm-based leadership facilitates more transparent and accountable decision-making, which clarifies the organization's accountability to the public.
4. Clarifying Accountability to the Public, the use of algorithms in decision-making also makes it easier for organizations to be accountable to the public has a score of 4.2428 indicating that the application of the

algorithm system clarifies and simplifies the process of accountability of organizations for their work, which increases transparency and public trust in the government.

The results of this study support the research conducted by Kastawan et al., (2018), that leaders who can apply algorithmic leadership have a high level of accuracy and can be developed into an e-performance system that can provide predictions or input in making decisions both for position recommendations, ranks and the provision of performance allowances. As Harms & Han (2019) researched, algorithms can improve performance and well-being and in turn algorithms can provide information for their users.

4. Conclusion

Based on the results of data analysis, it can be concluded that East Java Provincial government agencies have shown good readiness in implementing algorithm-based leadership. Understanding algorithm leadership style, regulatory support, and adequate infrastructure are the main factors in this readiness. The implementation of algorithmic leadership can improve organizational performance by accelerating decision-making, improving the quality of public services, and ensuring that decisions taken are by regulations and good governance principles. However, even though the readiness of government agencies is quite good, some things still need improvement, such as increasing understanding of the differences between traditional leadership styles and algorithms and improving coordination between institutions. Additionally, there needs to be more training to ensure leaders and staff can properly manage and use algorithmic systems, which in turn will accelerate implementation and improve organizational performance.

References

- Akter, S., McCarthy, G., Sajib, S., Michael, K., Dwivedi, Y. K., D'Ambra, J., & Shen, K. N. (2021). Algorithmic bias in data-driven innovation in the age of AI. *International Journal of Information Management*, *60*, 102387. <https://doi.org/10.1016/j.ijinfomgt.2021.102387>
- Aminah, S., & Wardani, D. K. (2018). Readiness Analysis of Regional Innovation Implementation. *Jurnal Bina Praja*, *10*(1), 13–26. <https://doi.org/10.21787/jbp.10.2018.13-26>
- Andrews, L. (2018). Public administration, public leadership and the construction of public value in the age of the algorithm and 'big data.' *Public Administration*, *97*(2), 296–310. <https://doi.org/10.1111/padm.12534>
- Balbaa, M. E., & Abdurashidova, M. S. (2024). the Impact of Artificial Intelligence in Decision Making: a Comprehensive Review. *EPRA International Journal of Economics, Business and Management Studies*, *11*(2), 27–38. <https://doi.org/10.36713/epra15747>
- Caiza, G., Sanguña, V., Tusa, N., Masaquiza, V., Ortiz, A., & Garcia, M. V. (2024). Navigating Governmental Choices: A Comprehensive Review of Artificial Intelligence's Impact on Decision-Making. *Informatics*, *11*(3), 64. <https://doi.org/10.3390/informatics11030064>
- Estlund, D. (2008). *Democratic Authority: A Philosophical Framework*. Princeton University Press.
- Harms, P. D., & Han, G. (2019). Algorithmic Leadership: The Future is Now. *Journal Of Leadership Studies*. <https://doi.org/DOI:10.1002/jls.21615>
- Hastuti, E. S., & Sugiarsi, S. (2023). Analisis Tingkat Kesiapan Penerapan Rekam Medis Elektronik Di Puskesmas Wilayah Kabupaten Boyolali. *Jurnal Manajemen Informasi Kesehatan Indonesia (JMIKI)*, *11*(2). <https://doi.org/10.33560/jmiki.v11i2.570>
- Jaweria, Ghias, S., & Muhammad, J. (2023). Role of Artificial Intelligence on Leadership Decision Making: A Perspective of Business Sector Organization. *Annals of Human and Social Sciences*, *4*(3). [https://doi.org/10.35484/ahss.2023\(4-iii\)18](https://doi.org/10.35484/ahss.2023(4-iii)18)
- Kastawan, P. W., Wiharta, D. M., & Sudarma, M. (2018). Implementasi Algoritma C5.0 pada Penilaian Kinerja Pegawai Negeri Sipil. *Majalah Ilmiah Teknologi Elektro*, *17*(3), 371. <https://doi.org/10.24843/mite.2018.v17i03.p11>
- Kolkman, D. (2020). The usefulness of algorithmic models in policy making. *Government Information Quarterly*, *37*(3), 101488. <https://doi.org/10.1016/j.giq.2020.101488>
- Laureti, T., Palermo, M., & Ripa, M. (2020). Challenges in AI Implementation in Government Agencies: An Empirical Analysis. *International Journal of Public Administration*, *43*(7), 601–617.
- Levy, K., Chasalow, K. E., & Riley, S. (2021). Algorithms and Decision-Making in the Public Sector. *Annual Review of Law and Social Science*, *17*, 309–334. <https://doi.org/10.1146/annurev-lawsocsci-041221-023808>
- Makkulawu, A., Kessi, P., Daeng, A., Feronica, P., & Muchsidin, F. (2025). *The Role of Leadership in Effective and Efficient Human Resource Management Decision Making*. *8*(2), 509–524.
- McGuire, J., & De Cremer, D. (2023). Algorithms, leadership, and morality: why a mere human effect drives the preference for human over algorithmic leadership. *AI and Ethics*, *3*(2), 601–618. <https://doi.org/10.1007/s43681-022-00192-2>
- McKinsey. (2018). *Artificial Intelligence: The Next Digital Frontier*. McKinsey Global Institute.
- Medlana, M., Vianney, L. S., Piring, R., Sentosa, I., & Annamalah, S. (2025). The Impact of Artificial Intelligence on

- Leadership Decision-Making: Opportunities and Challenges. *Communications on Applied Nonlinear Analysis*, 32(9), 1878–1885. <https://doi.org/10.1063/5.0184807>
- Novitasari, D., Supiana, N., Supriatna, H., Agung Ali Fikri, M., & Asbari, M. (2021). the Role of Leadership in Innovation Performance: Transactional Versus Transformational Style. *JIMFE (Jurnal Ilmiah Manajemen Fakultas Ekonomi)*, 07(01), 27–36. <https://doi.org/10.34203/jimfe.v7i1.2981>
- Riwukore, J. R., & Habaora, F. (2022). Pelatihan Penilaian Model Kepemimpinan Transformasional Oleh Pejabat Struktural Instansi Pemerintah Kota Kupang Pada Badan Keuangan Dan Aset Daerah Kota Kupang. *Lambung Inovasi: Jurnal Pengabdian Kepada Masyarakat*, 7(2), 274–181. <https://doi.org/10.36312/linov.v7i2.699>
- Riyanto, S., & Hatmawan, A. A. (2020). *Metode Riset Penelitian Kuantitatif Penelitian di Bidang Manajemen, Teknik, Pendidikan dan Ekperimen*. Yogyakarta: Deepublish. <https://doi.org/10.1017/CBO9781107415324.004>
- Roth, S., Butler, J., & Thomas, H. (2018). Artificial Intelligence for Public Administration: Benefits and Risks. *Public Administration Review*, 78(6), 896–909.
- Sarmawa, I. W. G. (2020). Gaya Kepemimpinan Transformasional Dan Transaksional Serta Hubungannya Dengan Kinerja Karyawan (Tinjauan Teoritis Dan Empiris). *Jurnal Ilmiah Manajemen Dan Bisnis*, 2(2), 61–67. <https://doi.org/10.38043/jimb.v2i2.2335>
- Sharma, G. D., Yadav, A., & Chopra, R. (2020). Artificial intelligence and effective governance: A review, critique and research agenda. *Sustainable Futures*, 2(November 2019), 0–5. <https://doi.org/10.1016/j.sfr.2019.100004>
- Simon, H. A. (1965). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization*.
- Sudirman, Aditya, A., & Mustakim, R. (2023). Penerapan Algoritma Path-Goal dengan Skala Likert dalam Mengidentifikasi Faktor-Faktor Kepemimpinan yang Mempengaruhi Motivasi Kerja Karyawan. *Buletin Sistem Informasi Dan Teknologi Islam*, 4(3), 195–201.
- Zhao, Y., Wang, X., & Zhang, Z. (2020). The Role of Algorithm-Based Leadership in Organizational Decision Making. *Journal of Leadership and Management*, 16(3), 200–215.