













different distance metrics can be considered to examine the clustering results' robustness and identify alternative OGD portal categorizations.

#### REFERENCES

- [1] A. Luthfi dan M. Janssen, "A conceptual model of decision-making support for opening data," in *Communications in Computer and Information Science*, 2017, vol. 792, doi: 10.1007/978-3-319-71117-1\_7.
- [2] S. de Juana-Espinosa dan S. Luján-Mora, de Juana-Espinosa, S., & Luján-Mora, S. (2020). *Open government data portals in the European Union: A dataset from 2015 to 2017*, vol. 29. 2020.
- [3] M. Malacaria, S., De Mauro, A., Greco, M., & Grimaldi, "An Application of the Analytic Hierarchy Process to the Evaluation of Companies' Data Maturity," *ICEIS*, vol. 1, hal. 50–61, 2022.
- [4] X. Zhu dan M. A. Freeman, "An evaluation of US municipal open data portals: A user interaction framework," *J. Assoc. Inf. Sci. Technol.*, vol. 70, no. 1, 2019, doi: 10.1002/asi.24081.
- [5] M. Wen, "Leading successful government-academia collaborations using FLOSS and agile values," *J. Syst. Softw.*, vol. 164, 2020, doi: 10.1016/j.jss.2020.110548.
- [6] Y. Charalabidis, A. Zuiderwijk, C. Alexopoulos, M. Janssen, T. Lampoltshammer, dan E. Ferro, *The World of Open Data: Concepts, Methods, Tools and Experiences*. Granada: Springer International, 2018.
- [7] O. Belkahla Driss, S. Mellouli, dan Z. Trabelsi, "From citizens to government policy-makers: Social media data analysis," *Gov. Inf. Q.*, vol. 36, no. 3, 2019, doi: 10.1016/j.giq.2019.05.002.
- [8] Y. Lixin, X., & Li, "Research on Maturity Assessment of Local Open Government Data Portals," *Libr. Inf. Serv.*, vol. 63, no. 12, 2019.
- [9] L. Ayre, "Open Data: What It Is and Why You Should Care," *Jim Craner*, vol. 36, no. 2, hal. 173–184, 2017, doi: 10.1080/01616846.2017.1313045.
- [10] D. Matheus, R., Janssen, M., & Maheshwari, "Data science empowering the public: Data-driven dashboards for transparent and accountable decision-making in smart cities," *Gov. Inf. Q.*, vol. 37, no. 3, 2022.
- [11] B. B. Ansari, "Enhancing the usability and usefulness of open government data: A comprehensive review of the state of open government data visualization research," *Gov. Inf. Q.*, vol. 39, no. 4, 2021, doi: 10.1016/j.giq.2021.101657.
- [12] A. Luthfi dan M. Janssen, "Toward a Reference Architecture for User-Oriented Open Government Data Portals," in *International Symposium on Business Modeling and Software Design*, 2022, hal. 259–267, doi: 10.1007/978-3-031-11510-3\_17.
- [13] T. Jetzek, M. Avital, dan N. Bjorn-Andersen, "The Sustainable Value of Open Government Data," *J. Assoc. Inf. Syst.*, vol. 20, no. 6, hal. 702–734, 2019, doi:10.17705/1jais.00549.
- [14] A. Abella, M. Ortiz-de-Urbina-Criado, dan C. De-Pablos-Heredero, "Criteria for the identification of ineffective open data portals: pretender open data portals," *Prof. la Inf.*, vol. 31, no. 1, 2022, doi: 10.3145/epi.2022.ene.11.
- [15] R. Máchová, M. Hub, dan M. Lněnička, "Usability evaluation of open data portals: Evaluating data discoverability, accessibility, and reusability from a stakeholders' perspective," *Aslib J. Inf. Manag.*, vol. 70, no. 4, 2018, doi: 10.1108/AJIM-02-2018-0026.
- [16] G. M. Begany, E. G. Martin, dan X. (Jenny) Yuan, "Open government data portals: Predictors of site engagement among early users of Health Data NY," *Gov. Inf. Q.*, vol. 38, no. 4, 2021, doi: 10.1016/j.giq.2021.101614.
- [17] T. Janssen, M., Brous, P., Estevez, E., Barbosa, L. S., & Janowski, "Data governance: Organizing data for trustworthy Artificial Intelligence," *Gov. Inf. Q.*, vol. 37, no. 3, 2020.
- [18] A. Twizeyimana, J. D., & Andersson, "The public value of E-Government—A literature review," *Gov. Inf. Q.*, vol. 36, no. 2, hal. 167–178, 2019.
- [19] R. Pereira, G. V., Parycek, P., Falco, E., & Kleinhans, "Smart governance in the context of smart cities: A literature review," *Inf. Polity*, vol. 23, no. 2, hal. 143–162, 2018.
- [20] P. Glyptis, L., Christofi, M., Vrontis, D., Del Giudice, M., Dimitriou, S., & Michael, "E-Government implementation challenges in small countries: The project manager's perspective," *Technol. Forecast. Soc. Change*, vol. 152, 2020.
- [21] A. Quarati, M. De Martino, dan S. Rosim, "Geospatial open data usage and metadata quality," *J. Inf. Sci.*, 2021, [Daring]. Tersedia pada: <https://www.mdpi.com/959152>.
- [22] N. Janssen, M., & Helbig, "Innovating and changing the policy-cycle: Policy-makers be prepared," *Gov. Inf. Q.*, vol. 35, no. 4, hal. 99–105, 2018.
- [23] V. Govender, P., & Sivakumar, "Application of k-means and hierarchical clustering techniques for analysis of air pollution: A review (1980-2019)," *Atmos. Pollut. Res.*, vol. 11, no. 1, hal. 40–56, 2020.
- [24] S. Fränti, P., & Sieranoja, "K-means properties on six clustering benchmark datasets," *Appl. Intell.*, vol. 48, hal. 4743–4759, 2018.
- [25] Anne-Laure Mention, *Digital Innovation: Harnessing the Value of Open Data (Open Innovation: Bridging Theory and Practice)*. WSPC, 2019.
- [26] S. M. S. Ahmed, M., Seraj, R., & Islam, "The k-means algorithm: A comprehensive survey and performance evaluation," *Electronics*, vol. 9, no. 8, 2020.
- [27] F. A. Rodriguez, M. Z., Comin, C. H., Casanova, D., Bruno, O. M., Amancio, D. R., Costa, L. D. F., & Rodrigues, "Clustering algorithms: A comparative approach," *PLoS One*, vol. 14, no. 1, 2019.
- [28] S. S. Irfiani, E., & Rani, "Algoritma K-Means Clustering untuk Menentukan Nilai Gizi Balita," *J. Sist. dan Teknol. Inf.*, vol. 6, no. 4, hal. 161, 2018.
- [29] A. Bouyer, A., & Hatamlou, "An efficient hybrid clustering method based on improved cuckoo optimization and modified particle swarm optimization algorithms," *Appl. Soft Comput.*, vol. 67, hal. 172–182, 2018.
- [30] A. Fahim, "K and starting means for k-means algorithm," *J. Comput. Sci.*, vol. 55, 2021, doi: Journal of Computational Science.
- [31] M. J. Rezaee, M. Eshkevari, M. Saberi, dan O. Hussain, "GBK-means clustering algorithm: An improvement to the K-means algorithm based on the bargaining game," *Knowledge-Based Syst.*, vol. 213, 2021, doi: 10.1016/j.knosys.2020.106672.
- [32] Y. A. Elnaga dan S. Nasr, "K-means cluster interactive algorithm-based evolutionary approach for solving bilevel multi-objective programming problems," *Alexandria Eng. J.*, vol. 61, no. 1, hal. 811–827, 2022, doi: 10.1016/j.aej.2021.04.098.