JGG-Jurnal *Green Growth* dan Manajemen Lingkungan
p-ISSN: 2303-2332; e-ISSN: 2597-8020
Vol. 15 No. 1 June 2025
DOI : doi.org/10.21009/jgg.151.05

DESIGNING AN URBAN ENVIRONMENTAL MANAGEMENT MODEL TOWARDS A SUSTAINABLE GLOBAL SMART CITY

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Abstract

This study examines the low level of adolescent participation in utilizing technology-based public services in the Special Capital Region of Jakarta (DKJ), despite the implementation of the Jakarta Smart City (JSC) initiative since 2014. Limited engagement among young citizens indicates a gap between smart city development and public education effectiveness, particularly in fostering smart people for sustainable urban governance.The study employs a Research and Development (R&D) approach based on the Gall, Gall, and Borg framework. The unit of analysis consists of adolescents aged 10–19 years residing in Pulo Gadung District, East Jakarta. A proportional random sampling technique was applied, yielding 397 respondents from a target population of 43,760 adolescents. Data were analyzed using descriptive statistics and Structural Equation Modeling (SEM) with WarpPLS to examine the relationships among smart city maturity, public education management, and adolescent participation. The study develops and validates a smart city maturity measurement instrument, a public education management instrument, and an urban environmental management model oriented toward a sustainable global smart city. Additionally, training modules and Training of Trainers (TOT) programs based on the smart people concept are produced to strengthen youth engagement. This research contributes by providing empirically grounded instruments and models to support evidence-based policies and enhance adolescent participation in smart city ecosystems.

Keywords: *smart city maturity; public education management; smart people; urban sustainability*

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

INTRODUCTION

Rapid urbanization has become one of the most pressing global challenges of the twenty-first century. The continuous increase in urban populations has exacerbated a range of environmental problems, including pollution, inefficient waste management, excessive resource consumption, and the gradual decline of environmental quality. These pressures have forced cities to move beyond conventional development paradigms and adopt integrated environmental management strategies that are capable of balancing economic growth, social well-being, and ecological sustainability (Sari, 2019).

Within this framework, environmental management is understood as a systematic and coordinated process that includes planning, organizing, implementing, and controlling environmental resources to ensure sustainability across generations. In urban contexts, environmental management does not merely focus on technical or infrastructural interventions, but also incorporates social, institutional, and behavioral dimensions, such as governance mechanisms, community participation, and organizational commitment to environmental protection (Darisman et al., 2025). Therefore, sustainable urban environmental management requires comprehensive models that integrate governance structures, stakeholder engagement, and sustainability-oriented principles.

To strengthen such integrated environmental management, education and capacity building play a strategic role. Education for Sustainable Development (ESD) is widely recognized as a key instrument for developing environmental awareness, ethical values, and responsible behavior among individuals and communities (Vivanti et al., 2025). Through ESD, individuals are not only provided with environmental knowledge but are also equipped with the skills and attitudes necessary to actively engage in sustainability initiatives. Previous studies indicate that ESD-based approaches significantly contribute to the formation of environmentally responsible behavior and the achievement of long-term sustainability outcomes (Safitri et al., 2025).

In addition to education, behavioral and organizational factors strongly influence the effectiveness of environmental management. Organizational Citizenship Behavior for the Environment (OCBE) refers to voluntary and discretionary behaviors that exceed formal job requirements and

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

contribute to environmental sustainability (Hidayati et al., 2025). Empirical evidence shows that a supportive organizational environment can stimulate pro-environmental behaviors, including participation in environmental programs, efficient resource utilization, and shared responsibility for environmental protection (Sari et al., 2019). These behaviors are critical for cultivating a sustainable environmental culture within urban organizations and communities.

Alongside educational and behavioral dimensions, governance and leadership play a pivotal role in shaping sustainable urban systems. The transition toward smart cities requires adaptive leadership and innovative governance models that are capable of responding to rapid technological change, complex social dynamics, and escalating environmental challenges (Maulana et al., 2024). Importantly, smart cities are not solely characterized by the adoption of advanced technologies, but by the integration of technology with inclusive governance, environmental sustainability, and active community participation (Pertiwi et al., 2025).

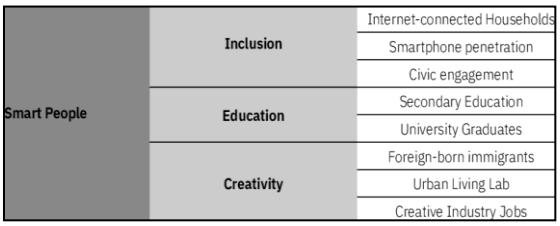
Consequently, the concept of a sustainable global smart city emphasizes the importance of intelligent environmental management systems that combine digital innovation, sustainable governance, and pro-environmental behavior. The absence of an integrated environmental management model often leads to fragmented policies and ineffective implementation at the urban level. Therefore, designing a comprehensive urban environmental management model that incorporates sustainability principles, education, organizational behavior, and adaptive governance is essential to support the realization of sustainable global smart cities.

A smart city represents a shared aspiration among cities worldwide and refers to an urban system that integrates digital, natural, and social dimensions to stimulate economic growth, improve infrastructure, create environmentally friendly urban spaces, and enhance transportation systems as well as overall quality of life (Annisa & Hidayat, 2024). In this context, smart city development is closely associated with the application of information and communication technology (ICT), where information systems and digital infrastructure are integrated across local governments, business sectors, communities, and regional development potentials (Astutik & Gunartin, 2019; Azwar; Badan Riset dan Inovasi Nasional [BRIN]).

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

Fundamentally, a smart city can be understood as an advanced stage of urban development that is capable of meeting citizens' needs while simultaneously promoting sustainable urban growth (Barab & Plucker, 2002; Borg & Gall, 2007). The core principle of smart city development lies in the strategic utilization of technology to enhance efficiency in resource management, reduce operational costs and energy consumption, improve public services and quality of life, and minimize ecological footprints, while supporting innovation and the transition toward a low-carbon economy (Cahyono, 2011; Dardak, 2022). In Indonesia, the direction of smart city development aligns with the National Urban Development Roadmap for the period 2015–2045 (Barab & Plucker, 2002).

Several indicators are commonly used to assess smart city implementation, including connectivity, which reflects access to digital infrastructure; sustainability, as demonstrated by policies promoting responsible resource use; smart people, which indicates the readiness and capacity of human resources; smart mobility, covering intelligent transportation and communication systems; and smart environment, which evaluates environmental management related to energy, waste, wastewater, and water resources (Farendy & Akbar, 2024; Giffinger et al., 2007; Gil-Garcia et al., 2016).



Picture 1. Smart People Dimension Specifications (Mohanty, S. P., Choppali, U., & Kougianos, E. 2016)

Among these dimensions, the smart people component plays a central role in the success of smart city development. Governments are responsible for ensuring equitable access to quality education and skills development as a foundation for fostering smart and capable citizens (Joshi et al., 2016; KSPPN Bappenas; Kurniawan et al., 2023). Educational programs that adapt to technological advancements while promoting environmental sustainability awareness contribute to the development of knowledgeable, competitive, and environmentally responsible citizens. In Indonesia, strengthening the smart people dimension aims to establish a resilient civil society supported by high-quality human resources (Lee et al., 2023; Meijer & Bolívar, 2016). As emphasized by

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

Giffinger et al. (2007), the maturity of smart city implementation is determined by the collective performance of its dimensions, each defined by specific and interconnected indicators (Mohanty et al., 2016).

METHODS

This study adopts a quantitative research approach employing a survey method to examine the relationships among variables based on numerical data collected through structured questionnaires. The quantitative approach is selected because it enables an objective representation of the research phenomena through statistical analysis, allowing for precise measurement and comparison of variables.The survey method is implemented by distributing questionnaires to respondents who meet the predetermined research criteria, ensuring that the collected data accurately reflect real-world conditions. This technique facilitates hypothesis testing and supports the derivation of conclusions that can be generalized to a broader population, thereby enhancing the external validity of the studyThe unit of analysis in this study consists of adolescents aged 10–19 years who reside in Pulo Gadung District, East Jakarta. The target population was determined proportionally by calculating the ratio of the population of Pulo Gadung District to the total population of East Jakarta, multiplied by the number of adolescents aged 10–19 years in East Jakarta. Based on this calculation, the target population was estimated at approximately 43,760 individuals. A proportional random sampling technique was applied, and the sample size was determined using Slovin's formula with a margin of error of 5%, resulting in a total sample of 397 adolescents from Pulo Gadung District.

The research stages represent the activities that have been conducted and those planned to be carried out over a two-year period. In the first year, the study comprises four main phases. The pre-development phase includes literature review and data collection for needs analysis, both of which have been completed. The development phase involves identifying adolescent demographic data in Jakarta and East Jakarta, designing a smart city maturity measurement instrument based on the smart people indicators, developing an instrument to assess the effectiveness of public education management, and formulating an urban environmental management model aligned with the concept of a Sustainable Global Smart City. To date, the identification of

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

adolescent demographic data has been completed, while the remaining activities are yet to be undertaken.

The third phase in the first year is product testing, which includes expert validation, data collection, and data processing and analysis; these activities have not yet been conducted. The final phase focuses on research outputs, including publication in a Scopus-indexed international journal as first author, intellectual property registration for the developed instruments and model, documentation of research collaboration partnerships, evidence of student involvement, research outcome profile videos, and poster dissemination; all of which remain forthcoming.

In the second year, the research process begins with a pre-development phase consisting of a literature review and needs analysis, followed by a development phase that includes profiling adolescents in East Jakarta and designing a smart people–based public education management training module. The subsequent product testing phase involves expert review and revision, user testing and refinement, and final revisions. The final stages include product implementation through dissemination and application, as well as research outputs such as publication in a Scopus-indexed international journal, an ISBN-registered training module, intellectual property rights for the training module, documentation of research collaboration and student involvement, and dissemination materials including profile videos.

RESULTS AND DISCUSSION

Frequency tabulation analysis is employed to present the distribution of respondents' data based on their characteristics or responses to each questionnaire item. This analysis displays the number and percentage of respondents in each response category, enabling researchers to identify general trends and patterns within the data. For example, frequency tabulation can indicate how many respondents selected the categories "agree" or "strongly agree" for a particular statement, thereby providing an initial overview of respondents' perceptions of the studied variables.

In addition, frequency tabulation assists in identifying imbalanced distributions or dominant response tendencies among respondents. The results of this analysis are commonly used as a preliminary step prior to conducting more advanced statistical analyses, such as validity and reliability

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testing or inferential analysis. Consequently, frequency tabulation plays a crucial role in offering a comprehensive descriptive overview of respondent profiles and response distributions, which facilitates a clearer understanding of the data context for subsequent analysis.

Table 1. Smart People Tabulation Frequency

Dimension	Item	SD	D	N	A	SA	Mean
The Technology and Data Utilization							**3.94**
	SG1	8	8	22	137	55	3.97
	SG2	5	15	33	108	69	3.96
	SG3	0	14	58	83	75	3.95
	SG4	0	2	54	101	73	4.07
	SG5	3	16	62	94	55	3.79
	SG6	3	0	41	73	113	4.27
	SG7	7	5	67	90	61	3.84
	SG8	13	10	65	94	48	3.67
Participation and Engagement							**3.70**
	SG9	16	16	79	80	39	3.48
	SG10	11	6	61	117	35	3.69
	SG11	9	10	66	96	49	3.72
	SG12	2	5	48	124	51	3.94
	SG13	6	8	82	96	38	3.66
	SG14	5	5	90	79	51	3.72
The Transparency and Accountability							**3.91**
	SG15	9	6	33	116	66	3.97
	SG16	2	1	42	133	52	4.01
	SG17	8	8	47	115	52	3.85
	SG18	2	5	69	104	50	3.85
	SG19	8	12	46	107	57	3.84
	SG20	2	6	54	103	65	3.97
Public Service Efficiency							**4.10**
	SG21	9	6	40	111	64	3.93
	SG22	0	8	28	129	65	4.09
	SG23	0	4	38	118	70	4.10
	SG24	0	3	42	109	76	4.12
	SG25	9	3	27	90	101	4.18
	SG26	4	4	28	109	85	4.16
Innovation and Adaptability							**4.13**
	SG27	1	8	44	113	64	4.00
	SG28	3	1	25	116	85	4.21
	SG29	8	5	41	118	58	3.93

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Dimension	Item	SD	D	N	A	SA	Mean
	SG30	6	10	22	100	92	4.14
	SG31	4	5	24	106	91	4.20
	SG32	5	0	22	95	108	4.31
Total							**3.96**

Based on the table above, the overall mean score (Mean Total) for the Smart People variable is 3.92, indicating a moderately high level. Among the examined dimensions, Creativity records the highest mean score (4.09), followed by Education (3.98) and Inclusion (3.70). These findings suggest that respondents hold a generally positive perception of creativity within the smart people context, while the inclusion dimension remains an area that requires further strengthening.

Within the Inclusion dimension, the mean item scores range from 3.36 to 3.98. The highest scores are observed for items SP6 (3.98) and SP7 (3.94), whereas the lowest score is found for item SP3 (3.36). Overall, although inclusion is perceived at a reasonably positive level, several items indicate the need to enhance awareness and practical implementation of inclusive values.

The Education dimension demonstrates relatively consistent mean scores across items, with the highest scores recorded for SP14 (4.19) and SP16 (4.24), while the lowest scores are observed for SP12 (3.63) and SP10 (3.53). This pattern indicates that respondents generally perceive educational aspects positively; however, certain indicators remain comparatively lower and warrant attention to further improve educational quality.

Creativity achieves the highest average scores among all dimensions, with item means ranging from 3.79 to 4.34. The highest-scoring items include SP30 (4.34), SP35 (4.31), and SP40 (4.28). These results suggest that respondents exhibit relatively high levels of creativity, which may serve as a key asset in supporting the development of the smart people concept across various domains of life.

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Table 2. Smart Government Tabulation Frequency

Dimension	Item	SD	D	N	A	SA	Mean
The Technology and Data Utilization							**3.94**
	SG1	8	8	22	137	55	3.97
	SG2	5	15	33	108	69	3.96
	SG3	0	14	58	83	75	3.95
	SG4	0	2	54	101	73	4.07
	SG5	3	16	62	94	55	3.79
	SG6	3	0	41	73	113	4.27
	SG7	7	5	67	90	61	3.84
	SG8	13	10	65	94	48	3.67
Participation and Engagement							**3.70**
	SG9	16	16	79	80	39	3.48
	SG10	11	6	61	117	35	3.69
	SG11	9	10	66	96	49	3.72
	SG12	2	5	48	124	51	3.94
	SG13	6	8	82	96	38	3.66
	SG14	5	5	90	79	51	3.72
The Transparency and Accountability							**3.91**
	SG15	9	6	33	116	66	3.97
	SG16	2	1	42	133	52	4.01
	SG17	8	8	47	115	52	3.85
	SG18	2	5	69	104	50	3.85
	SG19	8	12	46	107	57	3.84
	SG20	2	6	54	103	65	3.97
Public Service Efficiency							**4.10**
	SG21	9	6	40	111	64	3.93
	SG22	0	8	28	129	65	4.09
	SG23	0	4	38	118	70	4.10
	SG24	0	3	42	109	76	4.12
	SG25	9	3	27	90	101	4.18
	SG26	4	4	28	109	85	4.16
Innovation and Adaptability							**4.13**
	SG27	1	8	44	113	64	4.00
	SG28	3	1	25	116	85	4.21
	SG29	8	5	41	118	58	3.93
	SG30	6	10	22	100	92	4.14
	SG31	4	5	24	106	91	4.20
	SG32	5	0	22	95	108	4.31
Total							**3.96**

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Overall, the Smart Government variable records a mean score of 3.96, indicating a moderately high level. The highest-scoring dimensions are Innovation and Adaptability (4.13) and Public Service Efficiency (4.10), while Participation and Engagement shows the lowest mean score (3.70). These findings suggest that government performance is perceived as relatively strong in terms of innovation and service efficiency, yet there remains considerable scope for enhancing citizen involvement in decision-making processes.

The Technology and Data Utilization dimension achieves a mean score of 3.94, with item-level scores ranging from 3.27 to 4.07. Item SG4 records the highest score (4.07), reflecting positive perceptions of certain technological applications, whereas SG6 exhibits the lowest score (3.27), indicating that some technologies or data resources are not yet fully optimized.

Participation and Engagement emerges as the lowest-rated dimension, with an average score of 3.70. The highest scores within this dimension are observed for SG10 (3.78) and SG14 (3.72), while SG13 records the lowest score (3.34). This pattern underscores the need for improved programs or policies to foster greater public participation and active engagement in governance.

The Transparency and Accountability dimension reports a mean score of 3.91, with item scores ranging between 3.70 and 4.07. SG16 attains the highest score (4.07), indicating favorable perceptions of transparency in specific areas, whereas lower scores for SG19 (3.70) and SG18 (3.85) suggest that accountability and information openness could be further strengthened.

Public Service Efficiency achieves a mean score of 4.10, with SG25 recording a high score of 4.12. These results indicate that public services are perceived as relatively effective and efficient, although high-performing items such as SG26 (4.16) should be maintained as key indicators of service excellence. Finally, Innovation and Adaptability records the highest overall mean score at 4.13. Items SG30 (4.22) and SG31 (4.24) demonstrate the strongest performance, reflecting positive perceptions of the government's capacity to innovate and adapt to changing conditions. This finding highlights innovation as a core strength within the smart government framework.

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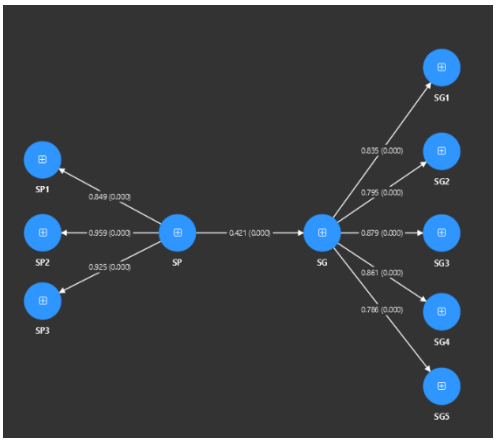

Picture 2. Estimaiton Model Smart People and Smart Government

The structural model illustrates the relationships between the latent variables Smart People (SP) and Smart Government (SG) through their respective underlying dimensions. The model shows that all structural paths are positive and statistically significant, indicating that the proposed research model is consistent with the theoretical hypotheses. This visualization demonstrates that Smart People represented by inclusion, education, and creativity makes a substantial contribution to the enhancement of Smart Government.

Overall, the model reflects a strong interconnection between societal intelligence and the successful implementation of efficient and participatory digital governance

The hypotheses tested in this study are formulated as follows:

H0: Smart People has no significant effect on Smart Government.

H1: Smart People has a significant effect on Smart Government.

The decision criterion is to reject H0 and accept H1 if the p-value is less than the significance level of 5% ($\alpha = 0.05$)

Table 3. Estioamtion effect Smart People on Smart Government

	Coefficient	**T statistics**	**P values**
Effect of Smart People	0.421	5.610	0.000
	Coefficient	T statistics	P values
Inclusion Dimension	0.259	3.035	0.002
Education Dimension	0.272	3.124	0.002
Creativity Dimension	0.274	3.113	0.002

The results of the main structural analysis indicate that Smart People exerts a positive and significant influence on Smart Government, with a path coefficient

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

of 0.421, a t-statistic of 5.610, and a p-value of 0.000. Since the p-value is below the 0.05 threshold, the effect is statistically significant. This finding implies that higher levels of Smart People within a region are associated with higher levels of Smart Government implementation. Accordingly, H0 is rejected and H1 is accepted, confirming a significant relationship between Smart People and Smart Government.

The positive coefficient (0.421) further indicates a unidirectional relationship, meaning that improvements in Smart People are likely to lead to corresponding improvements in Smart Government. This result reinforces the notion that an informed, educated, and technologically literate society contributes meaningfully to the effectiveness of digital governance. Local governments that prioritize enhancing citizens' knowledge and technological competencies are therefore more likely to succeed in implementing smart government principles.

Moreover, the t-statistic value of 5.610, which substantially exceeds the critical value of 1.96 at $\alpha = 0.05$, highlights the robustness of this relationship. These findings suggest that Smart People not only has a direct effect on Smart Government but also serves as a fundamental pillar within the smart city ecosystem, where active citizen engagement can accelerate the digital transformation of governance. The subsequent analysis further examines the effects of individual Smart People dimensions on Smart Government

Effects of Inclusion Dimensions on Smart Government

The Inclusion dimension exhibits a path coefficient of 0.259, with a t-statistic of 3.035 and a p-value of 0.002, indicating a statistically significant effect on Smart Government. This result suggests that higher levels of social engagement and inclusivity in civic and governmental activities are associated with more effective smart government implementation. Broad public participation enables decision-making processes to become more transparent, responsive, and aligned with citizens' needs.

Substantively, this finding confirms that smart governance does not rely solely on technological infrastructure but also depends on inclusive social participation. When citizens are actively involved, digital government initiatives are more readily accepted, leading to improved effectiveness, accountability, and public trust in government services.

p-ISSN: 2303-2332; e-ISSN: 2597-8020 DOI : doi.org/10.21009/jgg.151.05

Effect of the Education Dimension on Smart Government

The Education dimension demonstrates a significant effect on Smart Government, with a path coefficient of 0.272, a t-statistic of 3.124, and a p-value of 0.002. This indicates that education plays a critical role in enhancing smart government performance. Individuals with higher educational attainment tend to be better prepared to adapt to technology-based public services and to utilize digital governance systems effectively.

These results emphasize the importance of developing knowledgeable and technologically skilled human resources as a key driver of smart government success. Investment in education both formal and non-formal—serves as a strategic foundation for strengthening collaboration between citizens and government, ultimately fostering more efficient, transparent, and responsive governance.

Effect of the Creativity Dimension on Smart Government

The Creativity dimension shows a significant influence on Smart Government, with a path coefficient of 0.274, a t-statistic of 3.113, and a p-value of 0.002. This finding illustrates that citizens' creativity in addressing social challenges, generating digital innovations, and contributing to innovative public policy design plays a substantial role in improving smart government performance.

This result highlights that creativity extends beyond individual traits and represents a collective culture of innovation that should be nurtured by government institutions. By encouraging innovation and providing space for new ideas, governments can develop public service systems that are more adaptive, efficient, and responsive to the evolving needs of modern society.

CONCLUSION

This study demonstrates that Smart People has a positive and statistically significant effect on Smart Government, indicating that societal intelligence plays a crucial role in the successful implementation of digital governance. The findings confirm that higher levels of inclusion, education, and creativity among citizens are associated with more effective, transparent, and responsive smart government practices. These results highlight that technological advancement alone is insufficient to achieve smart

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governance outcomes without active public engagement and human capital development.

Furthermore, the dimension-level analysis reveals that Inclusion, Education, and Creativity contribute relatively equally to strengthening Smart Government, emphasizing the need for a holistic approach to smart city development. By investing in education, promoting inclusive participation, and fostering a culture of innovation, governments can enhance public trust, improve service efficiency, and accelerate sustainable digital transformation. Consequently, strengthening Smart People emerges as a strategic foundation for building participatory, adaptive, and sustainable smart government systems

REFERENCES

Aditiyawijaya, H. (n.d.). Konsep dan indikator smart economy. https://pm.citiasiainc.id/

Annisa, Y., Hidayat, R., & Universitas Riau. (2024). Pelatihan keterampilan digital sebagai instrumen peningkatan smart people dan smart living di wilayah pedesaan. Jurnal Kommunity Online, 5(2), 204–222. https://doi.org/10.15408/jko.v5i2.42053

Astutik, E. P., & Gunartin, G. (2019). Analisis Kota Jakarta sebagai smart city dan penggunaan teknologi informasi dan komunikasi menuju masyarakat madani. Inovasi, 6(2), 41. https://doi.org/10.32493/Inovasi.v6i2.p41-58.367

Azwar. (n.d.). Taksonomi Bloom dalam edukasi pelayanan publik di kalangan remaja. Ombudsman.go.id. https://ombudsman.go.id/artikel/r/artikel--taksonomi-bloom-dalam-edukasi-pelayanan-publik-di-kalangan-remaja

Badan Riset dan Inovasi Nasional (BRIN). (n.d.). Kepala BRIN: Edukasi publik di ruang digital penting untuk memahami dan memilah informasi. https://brin.go.id/news/111238/kepala-brin-edukasi-publik-di-ruang-digital-penting-untuk-memahami-dan-memilah-informasi

Barab, S. A., & Plucker, J. A. (2002). Smart people or smart contexts? Cognition, ability, and talent development in an age of situated approaches to knowing and learning. Educational Psychologist, 37(3), 165–182. https://doi.org/10.1207/S15326985EP3703_3

Borg, R. W., & Gall, M. D. (2007). Educational research: An introduction (8th ed.). Pearson Education, Inc.

Cahyono, B. (2011). Model pengelolaan lingkungan pada industri kecil menengah (IKM) di Kota Semarang. Jurnal Ekonomi dan Bisnis, 12(2), 122–137. https://doi.org/10.30659/ekobis.12.2.122-137

Dardak. (2022). Definisi smart city atau kota cerdas menurut para ahli.

Vol. 15 No. 1 June 2025
DOI : doi.org/10.21009/jgg.151.05

https://www.smartcityindo.com/2022/07/definisi-smart-city-atau-kota-cerdas.html

Darisman, D., Sari, E., & colleagues. (2025). Sustainable management of biological natural resources in the Freeport area, Papua. Journal of Environmental Management and Sustainability, 12(1), 45–58.

Farendy, M. F., & Akbar, R. N. (2024). Analisis strategi pemerintah provinsi dalam membangun konsep smart city: Studi kasus pemerintah provinsi DKI Jakarta. Jurnal Ilmiah Wahana Pendidikan, 10(13), 537–548. https://doi.org/10.5281/zenodo.12790038

Giffinger, R., Fertner, C., Kramar, H., & Meijers, E. (2007). City-ranking of European medium-sized cities. Centre of Regional Science, Vienna UT. https://www.smart-cities.com/download/city_ranking_final.pdf

Gil-Garcia, J. R., Zhang, J., & Puron-Cid, G. (2016). Conceptualizing smartness in government: An integrative and multi-dimensional view. Government Information Quarterly, 33(3), 524–534. https://doi.org/10.1016/j.giq.2016.03.002

Gracias, J. S., Parnell, G. S., Specking, E., & Pohl, E. A. (2023). Smart cities — A structured literature review. MDPI, 6, 1719–1743. https://www.mdpi.com/2624-6511/6/4/80

Gupta, S., Mustafa, S. Z., & Kumar, H. (2017). Smart people for smart cities: A behavioral framework for personality and roles. In Advances in smart cities (pp. 31–48). https://doi.org/10.1201/9781315156040-4

Hadi, S., Pramudya, B., Sutjahjo, S. H., & Hadi, S. (2016). Model pengendalian lingkungan dalam pembangunan kota baru berkelanjutan. Jurnal Teknologi Lingkungan, 13(1), 1. https://doi.org/10.29122/jtl.v13i1.1400

Hidayati, N., Rahmawati, R., & Putri, A. (2025). Organizational citizenship behavior for the environment (OCBE) and its impact on environmental performance: A literature study. Journal of Environmental Psychology and Management, 9(2), 101–112.

Joshi, S., Saxena, S., Godbole, T., & Shreya. (2016). Developing smart cities: An integrated framework. Procedia Computer Science, 93, 902–909. https://doi.org/10.1016/j.procs.2016.07.258

KSPPN Bappenas. (n.d.). Definisi smart city atau kota cerdas menurut para ahli. https://kepri.pikiran-rakyat.com/gaya-hidup/pr-2685104998/definisi-smart-city-atau-kota-cerdas-menurut-para-ahli?page=2

Kurniawan, H., Damaringtyas, C. P., Leryan, L. P. A., Melati, M. N. M., Nugraha, A. C., & Christiyanto, N. A. (2023). Edukasi sejarah publik melalui media sosial pada era 4.0 bagi siswa SMA di Yogyakarta. E-Dimas: Jurnal Pengabdian kepada Masyarakat, 14(1), 24–31.

Vol. 15 No. 1 June 2025
DOI : doi.org/10.21009/jgg.151.05

https://doi.org/10.26877/e-dimas.v14i1.5995

Lee, J., Babcock, J., Pham, T. S., Bui, T. H., & Kang, M. (2023). Smart city as a social transition towards inclusive development through technology: A tale of four smart cities. International Journal of Urban Sciences, 27(S1), 75–100. https://doi.org/10.1080/12265934.2022.2074076

Maulana, A., Rahman, F., & Sari, E. (2024). Adaptive leadership in the digital era: Challenges and opportunities for sustainable governance. International Journal of Leadership Studies, 15(3), 210–225.

Meijer, A. J., & Bolívar, M. P. R. (2016). Governing the smart city: A review of the literature on smart urban governance. International Review of Administrative Sciences, 82(2), 392–408. https://doi.org/10.1177/0020852314564308

Mohanty, S. P., Choppali, U., & Kougianos, E. (2016). Everything you wanted to know about smart cities. IEEE Consumer Electronics Magazine, 5(3), 60–70. https://doi.org/10.1109/MCE.2016.2556879

Mun Chye, C., Fahmy-Abdullah, M., Sufahani, S. F., & Bin Ali, M. K. (2022). A study of smart people toward smart cities development (pp. 257–271). https://doi.org/10.1007/978-981-16-7597-3_21

Muntadliroh. (2020). Model komunikasi untuk edukasi publik pada masa pandemi COVID-19 di Kebun Raya Bali (Studi kasus implementasi protokol adaptasi kebiasaan baru bagi pengunjung pasca reopening Kebun Raya Bali). In Prosiding Seminar Nasional Penalaran dan Penelitian Nusantara (pp. 46–66). https://proceeding.unpkediri.ac.id/index.php/ppn/article/view/341/484

Nam, T., & Pardo, T. A. (2011). Conceptualizing smart city with dimensions of technology, people, and institutions. In Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times (pp. 282–291). ACM. https://doi.org/10.1145/2037556.2037602

Nasir, M., Fatkhurohman, & Muqorobin, A. (2011). Problem manajemen lingkungan dan isu industrialisasi. Prosiding Seminar Nasional dan Internasional, 1(1), 163–172. https://jurnal.unimus.ac.id/index.php/psn12012010/article/view/420

Pekerjaan Umum dan Perumahan Rakyat (PUPR). (2015). Kajian pengembangan smart city di Indonesia. Direktorat Jenderal Penataan Ruang Kementerian Pekerjaan Umum. https://simantu.pu.go.id/personal/img-post/autocover/b05c3e845a595b61d80bfe832e20b26b.pdf

Pertiwi, D., Kusuma, A., & Anindhita, R. (2025). Effective leadership in the digital age: Implications for smart and sustainable cities. Journal of Smart City Governance, 7(1), 33–47.

Vol. 15 No. 1 June 2025
DOI : doi.org/10.21009/jgg.151.05

Rakhmat, A. (2023). Pembangunan kota berkelanjutan. Amanah News Cetak. https://www.scribd.com/document/802101170/MANAJEMEN-LINGKUNGAN-PERKOTAAN

Safarudin, A., et al. (2022). Urban governance dan smart city: Teori dan praksis analisis (No. April). https://www.researchgate.net/publication/362103735_URBAN_GOVERNANCE_DAN_SMART_CITY_TEORI_DAN_PRAKSIS_ANALISIS

Salwa, N. D. K. (n.d.). 7 kota di Indonesia yang terapkan smart city & dampak positifnya. Cloudcomputing.id. https://www.cloudcomputing.id/pengetahuan-dasar/7-smart-city-di-indonesia

Sari, E. (2019). Environmental management in education: Theory and practice for sustainable development. Jakarta: Prenadamedia Group

Safitri, L., Sari, E., & Supadi, S. (2025). The transformational role of teachers in enhancing students' biodiversity awareness through education for sustainable development (ESD). Sustainability Education Journal, 10(2), 88–102.

Sari, E., Supadi, S., & Nursofah, N. (2019). How could management of school environment improve organizational citizenship behaviors for the environment? Journal of Educational Management and Sustainability, 8(1), 15–27.

Sari, C. F. (2024). Tata kelola perkotaan kolaboratif untuk peningkatan manajemen lingkungan di kawasan industri Kota Batam. Repository.upbatam.ac.id. http://repository.upbatam.ac.id/6321/

Singh, T., Solanki, A., Sharma, S. K., Nayyar, A., & Paul, A. (2022). A decade review on smart cities: Paradigms, challenges and opportunities. IEEE Access, 10, 68319–68364. https://doi.org/10.1109/ACCESS.2022.3184710

Suhartono, H. I., Zulkarnain, I., & Haryantini. (2019). Analisis smart people in smart city (analisis perilaku masyarakat Tangerang Selatan dalam mewujudkan kota yang cerdas). Jenius: Jurnal Ilmiah Manajemen Sumber Daya Manusia, 2(2), 315–322. https://openjournal.unpam.ac.id/index.php/JJSDM/article/view/2236

Vivanti, D., Pratama, Y., & Sari, E. (2025). Understanding education for sustainable development (ESD) in the context of environmental sustainability. International Journal of Sustainability in Education, 11(1), 1–14

Wicaksono, B., Asta, R., & Rafi, M. (2021). Comparative study: Dimension policy of smart people in metropolitan city of Bandung, Jakarta, and Pekanbaru. Jurnal Bina Praja, 13, 93–103. https://doi.org/10.21787/jpb.13.2021.93-103

Zakaria, D. (2023). Praktik kewargaan digital sebagai edukasi publik: Kajian aktivisme digital di Indonesia. Jurnal Komunikasi Profesional, 6(6), 631–644. https://ejournal.unitomo.ac.id/index.php/jkp/article/view/5293/2849

Vol. 15 No. 1 June 2025
DOI : doi.org/10.21009/jgg.151.05

Zhao, F., Fashola, O. I., Olarewaju, T. I., & Onwumere, I. (2021). Smart city research: A holistic and state-of-the-art literature review. Cities, 119, 103406. https://doi.org/10.1016/j.cities.2021.103406 .