

Research Article

Green Management and Operational Performance: Uncovering The Mediating and Moderating Role of Artificial Intelligence in a Department of Police Establishment

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Abstract:

In recent times, government and law enforcement organisations have been increasingly pressured to improve operational performance by delivering improved environmental security, justice, and sustainability. The Operational Performance (OP) of the Criminal Investigation Department (CID) of the Sierra Leone Police is challenged by current realities. Green Management (GM), encompassing waste reduction, energy conservation, sustainable procurement, and environmental compliance, has evolved from a corporate priority to an institutional necessity across all sectors. Extant studies have established GM in developed economies; however, there is limited knowledge on how GM and Artificial Intelligence (AI) affect OP specifically in resource-constrained settings such as Sierra Leone. This study, therefore, examined the effect of GM on OP of SLP, with AI considered as both a moderator and mediator.

Keywords: Artificial Intelligence, Criminal Investigation Department, Green Management, Operational Performance, Sierra Leone Police, Survey Research.

Introduction

Over the past few years, the government and law enforcement agencies have become increasingly strained to provide security and justice in a sustainable way concerning the environment ¹. Green management (GM), which incorporates waste reduction, energy conservation, sustainable procurement and environmental compliance, among others, is no longer a corporate agenda but a mandatory requirement for all forms of organisations, including criminal justice agencies ². Meanwhile, artificial Intelligence (AI) is advancing at a breakneck pace to enable operational enhancement, predictive analytics, and automation in across industries. However, the connections among AI, green management practices, and operational performance in criminal investigation departments remain poorly explored.

Artificial Intelligence (AI) in organisational operations is transforming the structure of operations in various fields including law enforcement ³. In this case, in front of the Criminal Investigation Department (CID) of a medium-sized police organisation, there is a two-sided task to increase its operational efficiency in clearing crimes and, at the same time, satisfy the growing governmental and societal needs in the introduction of sustainable, environmentally friendly practices, so-called Green Management (GM). The operational performance of a CID was traditionally evaluated by means of such indicators as the rate of case clearance, productivity of the investigating system, and use of resources ⁴.

Whereas GM involves performing practices that reduce environmental footprints, such as paperless activities, energy-efficient facilities, and eco-friendly procurement ⁵. The key problem is that the direct relationship between implementing green management practices and better operating performance in a law enforcement agency context is not straightforward ⁶.

GM programs entail significant upfront investment and procedural change, which may be perceived as a diversion of scarce resources from core investigative functions ⁷. This creates a dilemma for CID managers who manage financial and operational performance. Consequently, most medium-sized CIDs will view GM as a compliance imperative rather than a strategic asset, and take-up will be grudging or superficial. This hesitation is compounded by a lack of empirical studies on how the potential synergies or trade-offs between these two objectives can be best managed. Artificial Intelligence emerges as a key variable that can transform this equation.

AI technologies, including predictive policing algorithms, natural language processing for analysing reports, and machine learning for linking evidence, are being adopted to enhance operational performance

⁸. Simultaneously, AI can directly assist GM goals by directing patrols to be fuel-efficient, automating administrative tasks to reduce paper use, and managing energy use within police facilities ⁹. This two-fold ability demonstrates that AI is not a tool of maximising a single field but can also serve as an essential intervening tool ¹⁰. The problem that is critical and needs to be addressed by this research is the ambiguity of this mechanism. Does AI mediate the benefits of Green Management, being satisfied and translated into operational benefits? Or is it a moderator by which GM strengthens the positive relationship between its presence and operational performance? The difference is imperative to strategic planning. A gap in the current literature exists in the closer analyses of this three-way relationship in the particular resource-limited context of a medium-sized CID.

The relationship among the identified variables in this study could further be explained by Sociotechnical systems (STS) theory. STS which emerged from the work of Eric and other scholars which provided insight into understanding and developing organisations that emphasises the interconnection of social and technological systems. Viewing an organisation as a unified, cohesive system in which the design of its social aspects such as culture, people, and structure along side the technical elements such as technology, tasks, and processes must be considered simultaneously in order to achieve maximum performance.

Meanwhile, the absence of a clear model explaining AI's impact on the relationship between GM and operational performance exposes police managers to the risk of ill-informed investments in technology by not utilising the potential of AI or by implementing it in a way that will not bring about any synergies. Thus, the urgent need to study and analyse AI's moderating and mediating impacts predetermines this study. This study will offer an evidence-based model on how medium-sized CIDs can use technology to achieve both, and frequently conflicting, goals of environmental stewardship and operational excellence because it will clarify the exact role of AI.

This study seeks to discover how Green management affects police operational performance in Sierra Leone, and how Artificial Intelligence moderates and mediate the relationship between Green management and Operational Performance of the same police establishment .

Methodology

Data were collected through a cross-sectional survey from 196 Criminal Investigation Department police officers of the Sierra Leone Police; a total enumeration sampling technique was employed due to the small sample size of the employees. A six-point rated Likert scale questionnaire of 47 items was developed to obtain socio-demographic information, Green Management (waste reduction, energy conservation, sustainable procurement, and environmental compliance), Artificial Intelligence (predictive policing, facial recognition, AI-based forensic analysis, AI-based dispatch, and digital evidence management systems), and operational performance metrics (response rate, completion rate, accuracy and reliability, effectiveness, timing, and timeliness). Following institutional approval, questionnaires were administered over an 8–10-week period with assurances of voluntary response and confidentiality. Ethical safeguards like informed consent and anonymity were observed during the data collection to ensure the study was carried out responsibly.

Study Area

The study was carried out at the Criminal Investigation Department (CID) of the Sierra Leone Police with the total assigned personnel of 196. The population comprised all personnel assigned to the CID, encompassing specialist sections, such as the Forensic Unit, Cybercrime/Digital Forensics Unit, Major Investigation Unit and CID administrative and support staff.

Sampling Technique

The study employed a total enumeration technique because it is more successful for smaller populations and is employed when the goal is a comprehensive while providing error-free representation of the group. Meanwhile, it also help to avoids bias by analysing the complete population, resulting in a full grasp of the group's features. Responses were obtained from 181 personnel out of the 196 from the Criminal Investigation Department as the sample unit, which is about a 92% response rate. Responses obtained were from all cadres, roles and functional units within the department, All eligible personnel who expressed willingness to participate were given an equal opportunity, ensuring an unbiased selection process.

Method of Data Collection

The data collection procedure employed was a standardised self-administered questionnaire. Researchers designed the study aims and literature review format, and gave questions to be answered by ticking the appropriate. The questionnaire has forty-seven (47) questions in two (2) sections: Socio-demographic

characteristics, and a section for the variable: predictive policing, facial recognition, AI-based forensic analysis, AI-based dispatch, digital evidence management systems, operational performance metrics and Green Management Metrics. The questions include both positive and negative feedback and closed-ended and open-ended questions. Aside from the socio-demographic element, every one of the components was scored on a six-point scale from Very Untrue (1) to Very True (6).

Administration of Questionnaire

The researchers administered the questionnaires after due clearance from the necessary authorities. Participation was voluntary; officers were encouraged but not compelled to take part, and ethical compliance was ensured. Data were gathered 8 to 10 weeks after the questionnaires were administered and every effort was made to respect participants' time and privacy, and a reasonable response rate (92%) was obtained.

Ethical Consideration

In order to ensure respondent anonymity, informed consent was initially requested before administering the questionnaire. Furthermore, all personally identifiable information, like names and addresses, was deleted from the survey tool to ensure that participants were not inadvertently identifiable.

Technique of Data Analysis

SmartPLS version 4.1.1.5 was used to analyse the data using a two-stage analysis process. The measurement model was first checked to establish the validity and reliability of the constructs. Then, the structural model was analysed to investigate hypothesised relationships regarding direct, indirect, and interaction effects. The indirect influence of AI on the green management-operational performance relationship was empirically tested using indirect path significance, while moderation was tested by creating an interaction term (green management*AI) and examining the influence on operational performance.

Results

The PLS-SEM results for testing the hypothesis showing artificial Intelligence's moderation and mediation effect on green management and operational performance are presented here. The measurement model was first analysed to assess the suitability of the model for the study. The results revealed average variance extracted (AVE) values greater than 0.5, thus confirming the validity with factor loadings greater than 0.7.

In addition, the Cronbach's alpha coefficient of 0.7 and above confirmed good internal consistency and reliability and that the items in the scale measured the same underlying construct.

The structural model was used first used to estimate the effect of green management on operational performance, the moderating effect of artificial Intelligence on the linkage between green management and operational performance, and the mediating effect that artificial Intelligence plays in this linkage. Figure 1 shows the direct impact of green management on operational performance, while Figure 2 shows how this effect is moderated by artificial Intelligence.

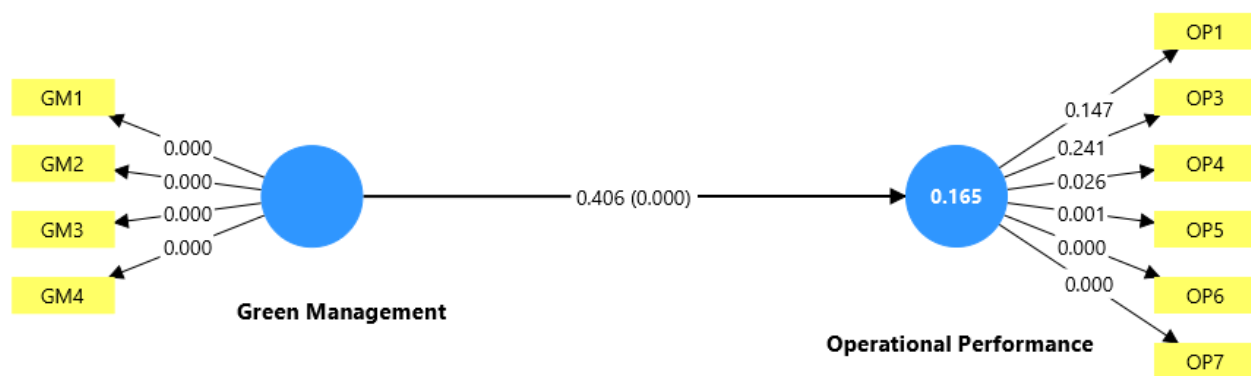


Figure I: PLS-SEM Path Model for the Effect of Green Management on Operational Performance

Source: Researchers' Output (2025)

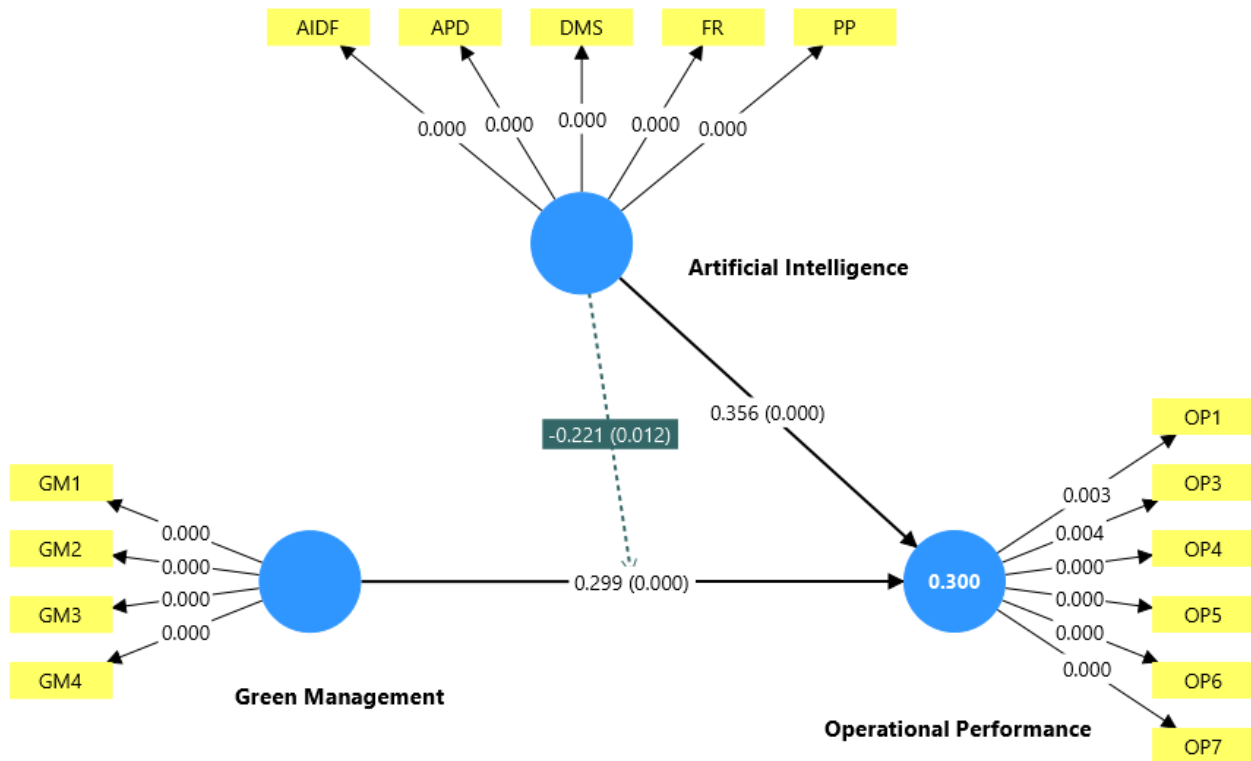


Figure II: PLS-SEM Path Model for the Effect of Green Management on Operational Performance as Moderated by Artificial Intelligence

Source: Researchers' Output (2025)

Table 1: Summary of PLS-SEM Path Analysis on the Effect of Green Management on Operational Performance as Moderated by Artificial Intelligence

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Green Management -> Operational Performance	0.299	0.300	0.074	4.021	0.000
Artificial Intelligence -> Operational Performance	0.356	0.369	0.088	4.054	0.000
Artificial Intelligence x Green Management -> Operational Performance	-0.221	-0.212	0.088	2.517	0.012

Source: Researchers' Output (2025)

Table 1 shows the moderating effect of artificial Intelligence on the relationship between green management and operational performance. The results show that green management ($\beta = 0.299$, $t = 4.021$, $p = 0.000$) significantly affects operational performance. This indicates that green management positively enhances operational performance such that an increase in green management yields a corresponding 0.299 unit increase in operational performance. Further, the moderating term (artificial Intelligence) ($\beta = 0.356$, $t = 4.054$, $p = 0.000$) also positively affected operational performance, such that a unit increase in artificial Intelligence will yield a corresponding 0.356 increase in operational performance. Including the interaction term (Green Management * Artificial Intelligence) ($\beta = -0.221$, $t = 2.517$, $p = 0.012$) revealed a negative and statistically significant effect on the green management and operational performance linkage. This implies that moderating exists; however, the negative beta value (-0.221) shows that Artificial Intelligence weakens the positive relationship between green management and operational performance, such that when Artificial Intelligence is being considered, the effect of green management on operational performance is reduced by 0.221 units. This outcome could however due to the size of the population, type of the organisation and as well the country (Sierra Leone) being a developing economy.

It can also be observed that the R^2 – coefficient of determination, for the effect of green management on operational performance, increases from 0.165 to 0.300 when this interaction is moderated by AI, indicating that operational performance changes primarily when AI is introduced.

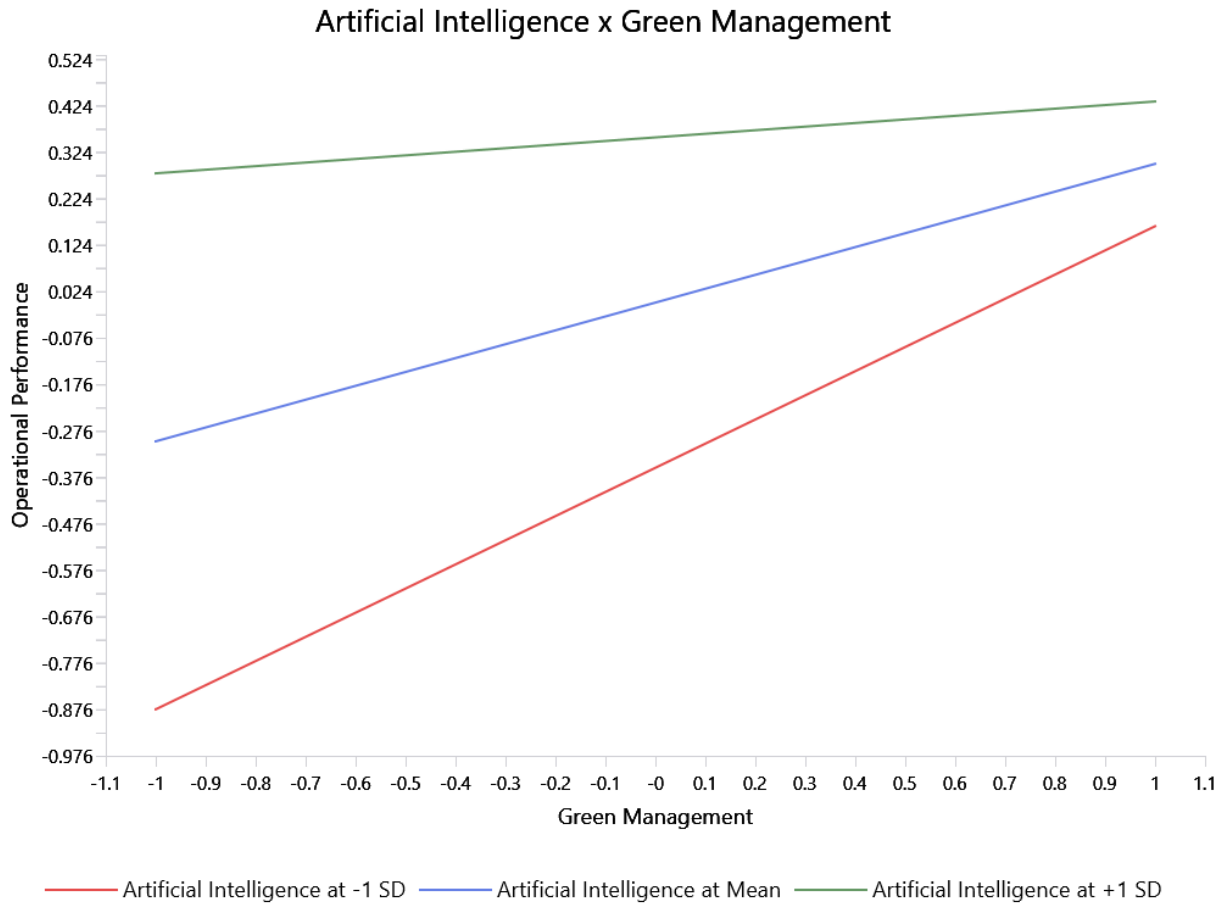


Figure III: Simple Slope Curve for the Effect of Green Management on Operational Performance as Moderated by Artificial Intelligence

Source: Researchers' Output (2025)

The simple slope curve output from the PLS-SEM moderation path analysis shown in Figure III further revealed the moderating effect of AI on the linkage between green management and operational performance. The simple slope represents Green Management on the X-axis, the predictor variable, and Operational Performance on the Y-axis, the outcome variable. The lines represent the levels of Artificial Intelligence (moderator), with the red line showing a low level of AI (-1 SD), the blue line showing an average level of AI integration, while the green line reveals the interaction of green management and operational performance at a high level of AI ($+1$ SD). It can be observed that all lines have positive slope, meaning that Green management influences performance at all levels of AI adoption, indicating that organisations embracing such practices tend to perform better. This means that firms adopting more green management practices generally perform better operationally. However, it can further be observed that there are differences in the slopes (indicating moderating pattern). The red line (low AI) is the steepest,

suggesting that green management's positive effect on operational performance is weaker when AI adoption is considered.

These findings imply that, while green management enhances operational performance, this effect diminishes as firms implement more AI. Practically, this finding suggests that firms that adopt substantial AI-driven systems could overshadow or disrupt the benefits of green management practices, possibly due to integration challenges, cost implications, or focus shifts from environmental to efficiency objectives.

Discussion of Findings

The study's findings indicated that Artificial Intelligence (AI) played a significant role in moderating the relationship between green management and operational performance, with an adverse interaction effect ($\beta = -0.221$, $t = 2.517$, $p = 0.012$). This suggests that while green management enhances operational performance, its positive effect diminishes when AI adoption levels are high. In practical terms, organisations that depend mainly on AI might not be able to reap the full performance gains from their green management practices. This could happen due to AI-heavy management shifting the focus to technologically supported or data-backed objectives, which might not prioritise environmental issues, or because the time and skills needed for AI integration might temporarily limit the operational advancements from sustainability programs. The outcome concurs with studies that digital transformation does not always uniformly bolster environmental initiatives; rather, the effect of AI is dependent on its strategic alignment with sustainability aspirations^{12,13}. Similarly, AI-enabled process optimisation, but misaligning digital and green strategies could create conflicting operational outcomes¹⁴. Consequently, this research offers further proof to the already emerging consensus that AI is a conditional capability, and its effect on performance depends on whether it can complement green management practices rather than being a competitor. Thus, managers are advised to apply AI funds to sustainability areas where ecological goals will be met while increasing operational efficiency.

MEDIATION ANALYSIS OF AI ON GM AND OP

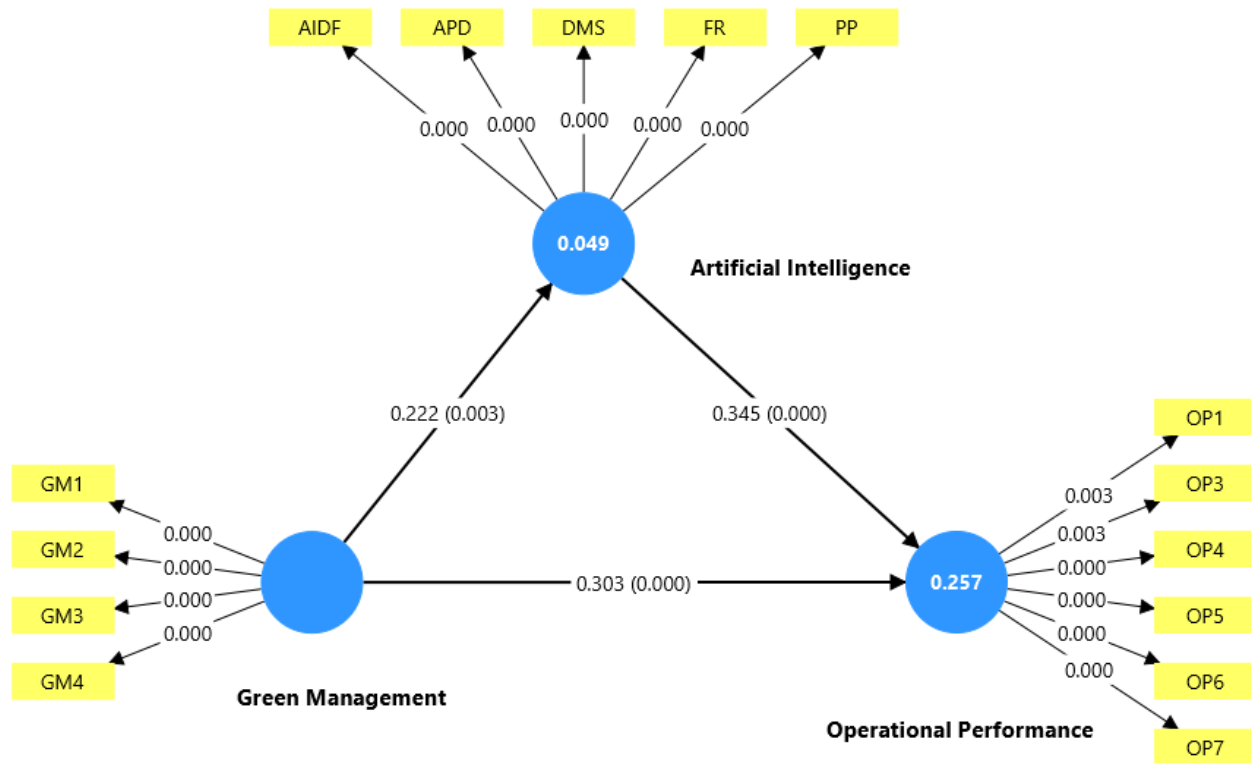


Figure IV: Path Analysis for the Effect of Green Management on Operational Performance as Mediated by Artificial Intelligence

Source: Researchers' Output (2025)

The mediation analysis was performed as shown in Figure IV to understand this interaction further. The mediation path analysis revealed the direct, indirect, and total effects.

Direct Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Artificial Intelligence -> Operational Performance	0.345	0.360	0.085	4.077	0.000
Green Management -> Artificial Intelligence	0.222	0.249	0.075	2.956	0.003
Green Management -> Operational Performance	0.303	0.307	0.086	3.505	0.000

Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
Green Management -> Operational Performance	0.077	0.088	0.030	2.586	0.010

Total Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
Artificial Intelligence -> Operational Performance	0.345	0.360	0.085	4.077	0.000
Green Management -> Artificial Intelligence	0.222	0.249	0.075	2.956	0.003
Green Management -> Operational Performance	0.379	0.395	0.083	4.575	0.000

Source: Researchers' Output (2025)

Table II showed the path analysis results for Artificial Intelligence's mediation effect on the relationship between green management and operational performance. Mediation analysis was used to explain how green management affects operational performance through AI. The results show that the total effect of green management on operational performance was significant ($\beta = 0.379$, $t = 4.575$, $p = 0.000$). With the inclusion of the mediator (AI), the impact of green management on organisational performance was still significant ($\beta = 0.303$, $t = 3.505$, $p = 0.000$). The indirect effect of green management on operational performance through AI was significant ($\beta = 0.077$, $t = 2.586$, $p = 0.010$). This shows that AI partially mediates the relationship between green management and operational performance. This means that the mediating variable (AI) accounts for some, but not all, of the relationship between green management and operational performance. Therefore, AI has a partial mediating effect on the relationship between green management and operational performance. Partial mediation means that AI explains part, but not all, of how green management improves operational performance. This means that some benefits of green management on operational performance come directly from reducing waste, improving compliance, and increasing efficiency. However, other benefits of green management for operational performance come indirectly through AI implementations, as AI enhances how effectively green management practices and their optimisation.

Discussion of Findings

The situation where Artificial Intelligence (AI) partially mediates between Green Management and Operational Performance is consistent with the emerging empirical studies in sustainability and operations literature. Digital technologies, especially AI, have been reported by various researchers to facilitate the collection of real-time data, maintenance prediction, and process optimisation, which in turn help the environmental management systems to be more effective^{15,16}. In addition, it was found that the sustainability activities powered by AI lead to increased operational agility and reduced waste¹⁷. In the same way, ¹⁸ pointed out that AI creates and strengthens firms' environmental and operational interaction by letting them make data-informed decisions that align with both the efficiency and the ecological goals. However, in line with the partial mediation seen in this study, prior research results indicate that AI, though it facilitates the adoption of green management practices, the organisational culture, leadership, and resource capability continue to influence the performance outcomes independently¹⁹. This supports the notion that AI is a facilitating resource rather than a total replacement for the traditional green management practices in the pursuit of operational excellence.

The direct positive effect of green management on operational performance implies that CID managers shouldn't neglect basic sustainability practices (like resource optimisation or pollution reduction) even if they have limited digital capacity. Green management practices still matter independently in enhancing their operational performance level. In addition, the positive impact of AI on operational performance showed that organisations should build digital competencies and data infrastructure to exploit their sustainability strategies fully. Therefore, CID managers of the Police force should entrench AI technologies into green management initiatives to achieve greater operational gains. This is evident in the mediation analysis's positive direct and indirect effects, suggesting that the Police force should ensure that the specific AI adopted aligns with the environmental objectives, and not just focus on operational or profit goals, to maximise long-term performance objectives.

Conclusion.

This study examined how Green management impacted the operational performance of a Medium-Sized Criminal Investigation Department in the Sierra Leone Police, with much consideration given to the moderation and mediation effect of Artificial Intelligence. The findings revealed that adopting Green Management alone would increase operational performance for the police, but the strength of this

beneficial effect is less evident at high levels of AI deployment. Meanwhile, AI partially mediates the relationship between green management and operational performance, which means AI explains some, but not all, of the mediation.

In the meantime, the study offers insights into how GM will improve policing's operational performance. It emphasised the strategic value of GM variables and their effects on operational performance, providing evidence that increased investment in adoption and implementation could increase the likelihood of improved operational performance through Artificial Intelligence. Additionally, the study adds to the policy implications that clarify how GM might improve policing's operational performance, particularly in Sierra Leone. The findings will shape the regulatory framework to facilitate the efficient implementation and expansion of GM and AI to improve operational performance. This indicates that the study bridges the gap between policymaking and real-world implementation in the Sierra Leone Police Establishment.

The study, therefore, recommends that the Government and the management of Sierra Leone Police deliberately invest, properly implement policies and monitor the incorporation of waste reduction, energy conservation, sustainable procurement, environmental compliance and the like to aid and boost the operational performance of the policing in the country. Meanwhile, introduction and the usage of Artificial Intelligence tools (Predictive Policing, Facial Recognition, AI-Driven Forensic, AI Power Dispatch, and Digital Evidence Management System) will evidently contribute to the general operational performance of the Sierra Leone Police establishment and specifically bring them up to speed in meeting the demand for the global practices, establish crime patterns, timely delivery and electronic protection of findings and evidence, combat the crime rate in the first century and increase the public confidence in the establishment. However, leaders of medium-sized organisations should not treat AI as a universal amplifier of GM's benefits.

The study was limited to the Criminal Investigation Department of the Sierra Leone Police; hence, further research could consider the entire establishment while exploring the long-term impact of GM adoption on policing performance, alongside the challenges and barriers other security outfits in the country face to becoming Green Management compliant. Future research, however, could consider a longitudinal study increase the number of participants to further substantiate the outcome of this study further.

End Notes

- ¹ Ariyo, Nwone, And Joshua, "Gender equality and performance: empirical evidences from Nigerian police.," *International Journal of Police Science* 4, no. 2 SE-Research Articles (November 3, 2025), <https://doi.org/10.56331/ijps.v4i2.10647>; Nguyen, Grote, Neubacher, Rahut, Do, and Paudel. "Security risks from climate change and environmental degradation: implications for sustainable land use transformation in the Global South. *Current Opinion in Environmental Sustainability*" [Internet]., 2023 Aug 1;63. Available from: <https://www.sciencedirect.com/science/article/pii/S1877343523000696>
- ² Nazir S, Zhaolei L, Mehmood S, Nazir Z. "Impact of Green Supply Chain Management Practices on the Environmental Performance of Manufacturing Firms Considering Institutional Pressure as a Moderator Sustainability" [Internet]., 2024 Jan 1;16(6):2278. Available from: <https://www.mdpi.com/2071-1050/16/6/2278>
- ³ Ariyo, Adejumo, and Joshua, "Artificial Intelligence and Competitive Advantage within Access Bank," *Journal of AI, Robotics & Workplace Automation* 4, no. 1 (2025).; Haley, and Norman."Integrating Artificial Intelligence into Law Enforcement: Socioeconomic and Ethical Challenges"., 2025 SocioEconomic Challenges. 4;9(2):60–77.
- ⁴ Leipold AD. "The Puzzle of Clearance Rates, and What They Can Tell Us About Crime, Police Reform, and Criminal Justice" [Internet]., 2021 Ssrn.com. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3863404
- ⁵ Haleem A, Javaid M, Singh RP, Suman R, Qadri MA. "A pervasive study on Green Manufacturing towards attaining sustainability. *Green Technologies and Sustainability*" [Internet]., 2023 May;1(2):100018. Available from: <https://www.sciencedirect.com/science/article/pii/S2949736123000118>
- ⁶ Adjei WO, Aaworb-Nang J, Asabi J, Okomfo Okonah. "Effects and Challenges with Implementation of Green Management in Public Sector Institutions in the Bono Region of Ghana"., 2024 Texila international journal of academic research. Jul 30;11(3).
- ⁷ Prasetyo ML, Peranginangin RA, Martinovic N, Ichsan M, Wicaksono H. "Artificial intelligence in open innovation project management: A systematic literature review on technologies, applications, and integration requirements"., 2024, *Journal of Open Innovation: Technology, Market, and Complexity* [Internet]. Nov 30;11(1):100445. Available from: <https://www.sciencedirect.com/science/article/pii/S2199853124002397>
- ⁸ Kassa and Worku. "The Impact of Artificial Intelligence on Organizational Performance: The Mediating Role of Employee Productivity"., 2025 *Journal of Open Innovation: Technology, Market, and Complexity*. Jan;11(1):100474.; Ariyo, Ojo, and Joshua, "Knowledge management and organisational performance in

the season of 'japa': a case of selected deposit money banks," *Redeemer's University Journal of Management and Social Sciences* 7, no. 2 (2025); Ariyo, "Perceived Organisational Support and Performance of Small and Medium Scale Enterprises in Nigeria," *International Journal of Research in Finance and Management*, 2023.

⁹ Algburi S, Sabeeh Abed Al Kareem S, Sapaev IB, Mukhitdinov O, Hassan Q, Khalaf DH, et al. "The role of artificial intelligence in accelerating renewable energy adoption for global energy transformation." 2025, *Unconventional Resources*. Oct;8:100229.

¹⁰ Li F, Wei X, Wang C, Zhang C, Yu G, Yang Y, et al. "How do users perceive AI? A dual-process perspective on enhancement and replacement." 2025, *Telematics and Informatics Reports* [Internet]. Jun 21;19:100227. Available from: <https://www.sciencedirect.com/science/article/pii/S2772503025000416>

¹¹ Asika, N. "Research Methodology in the Behavioral Sciences." 1991, Scirp.org. Longman Publisher, Ibadan, Nigeria. <https://www.scirp.org/reference/ReferencesPapers?ReferenceID=1717946>

¹² Kulkov, I., Kulkova, J., Rohrbeck, R., Menvielle, L., Kaartemo, V., & Makkonen, H., "Artificial intelligence-driven sustainable development: Examining organisational, technical, and processing approaches to achieving global goals". 2024, *Sustainable Development*, 32(3), 2253-2267. <https://doi.org/10.1002/sd.2773>

¹³ Rohit, N., Mike, K., Jacqueline, C., "Artificial intelligence for sustainability: Challenges, opportunities, and a research agenda"., 2020, *International Journal of Information Management*, 53, 102104. <https://doi.org/10.1016/j.ijinfomgt.2020.102104>.

¹⁴ Makhdoom, Q., Junejo, I., Sohu, J. M., Shah, S. M. M., Alwadi, B. M., Ejaz, F., & Hossain, M. B. "Impact of green supply chain management on sustainable performance: A dual mediated-moderated analysis of green technology innovation and big data analytics capability powered by artificial intelligence.", 2025, *F1000Research*, 13, 1140. Doi 10.12688/f1000research.154615.2

¹⁵ Dhamija, P., & Bag, S., "Role of artificial intelligence in operations environment: a review and bibliometric analysis"., 2020, *The TQM Journal*, 32(4), 869-896. <https://doi.org/10.1108/TQM-10-2019-0243>

¹⁶ Kulkov, Kulkova, Rohrbeck, Menvielle, Kaartemo, & Makkonen, 2024.

¹⁷ Fosso Wamba, S., Queiroz, M. M., Pappas, I. O., & Sullivan, Y., "Artificial intelligence capability and firm performance: a sustainable development perspective by the mediating role of data-driven culture"., 2024, *Information Systems Frontiers*, 26(6), 2189-2203.

¹⁸ Rohit, Mike, Jacqueline, 2020.

¹⁹ Romualdo, A. Q., & Robles, A. C. M. O., "Towards a sustainable green policing: A Delphi-based forecast of sustainability indicators for law enforcers.", . 2023, *Global Sustainability Research*, 2(3), 52-59.
doi: <https://doi.org/10.56556/gssr.v2i3.556>

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