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RESEARCH

Employing AI-Driven Data Analytics as an Approach to Enhance Policy-making in a Sustainable Development Environment

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ABSTRACT

PURPOSE: The current study aimed to examine the role of artificial intelligence (AI-driven) data analytics in enhancing policy-making in a sustainable development environment.

DESIGN/METHODOLOGY/APPROACH: Quantitative methodology was adopted, and a questionnaire was self-administered by (154) individuals from digital marketing organisations in Jordan. Statistical Package for Social Sciences (SPSS) was used to deal with primary data.

FINDINGS: AI-driven data analytics are able to enhance policy-making in a sustainable development environment from perspective of digital marketing organisations.

ORIGINALITY/VALUE: This paper offers an innovative contribution by integrating analytics of AI with the governance for sustainability and sustainable outcomes.

RESEARCH LIMITATIONS: This research is limited to the inclusion of AI data studies. Results of study are limited to the study sample.

PRACTICAL IMPLICATIONS: The results indicate the importance for providing options for policymakers and organisations to access AI decision-support systems, predictive analytics, and digital monitoring tools in order to ensure transparency.

KEYWORDS: *AI-Driven Data Analytics; Policy-making; Sustainability; Artificial Intelligence.*

INTRODUCTION

The pursuit of sustainable development is now a key agenda in governments and institutions the world over, with governments trying to maintain a balance between economic growth, social equity, and environmental protection. Nonetheless, it is getting harder to make policy decisions in the context of sustainable development since the amount of data grows exponentially, socio-economic conditions continue to change rapidly, and the environmental, economic, and social systems are interconnected. Conventional policy analysis tools can be ineffective and insufficiently responsive to the sustainability challenges because they often cannot process large datasets or even respond in real time. Consequently, decision-makers need high-tech tools that can be used to convert abstract data into meaningful information.

Data analytics based on Artificial Intelligence (AI) has become one of the most potent methods of overcoming these issues. Artificial Intelligence (AI) can process large and heterogeneous datasets with the help of machine learning, predictive modelling,

and advanced data processing methods to determine patterns, predict trends, and assist in making evidence-based decisions. Such abilities allow policymakers to learn more about sustainability problems, assess the possible results of the policy, and create more versatile and informed strategies.

According to Vatn *et al.* (2024), making better policy for lasting growth is very important to ensure that society moves forward in a way that protects nature and is fair to everyone. As global problems get worse, like climate change, running out of resources, and inequality, it is more important than ever to have good policies that are based on facts.

According to Oguntibeju (2024), it is also significant that everyone participates in policy-making, not only locals but businesses as well. With various groups involved, policy will represent the requirements of every kind of individual, a factor that fosters fairness and credibility. Sustainable growth is dynamic and thus policy has to be dynamic.

Abir *et al.* (2024) looked into the role of artificial intelligence (AI) and machine learning (ML) in assisting with the development of the Brazil, Russia, India, China, and South Africa (BRICS) countries. Based on data analysis of macroeconomic data, the research determines tendencies and recommendations for policy development and intelligent plans. The findings demonstrate the role of AI and ML in assisting BRICS policymakers to make sound, data-driven decisions regarding development. In addition, natural language processing (NLP) is mentioned as a means of comprehending policy papers, news, and other data to enable decision-making.

According to Rimon *et al.* (2025), Artificial Intelligence (AI) and Business Intelligence (BI) are transforming how governance in smart cities works. This transformation is through data processing, real-time predictions, and forecasting.

Based on the above argument, this research study seeks to examine the role of employing AI-driven data analytics as an approach to enhance policy-making in a sustainable development environment from the perspective of governmental policymakers. Aspects taken into perspective include (Predictive Analytics for Resource Management, Real-Time Data Monitoring and Reporting, Scenario Modelling and Simulation, Natural Language Processing (NLP), Integrative Decision Support Systems and Environmental Risk Assessment).

The following figure presents the conceptual framework for the study in order to develop its hypotheses:

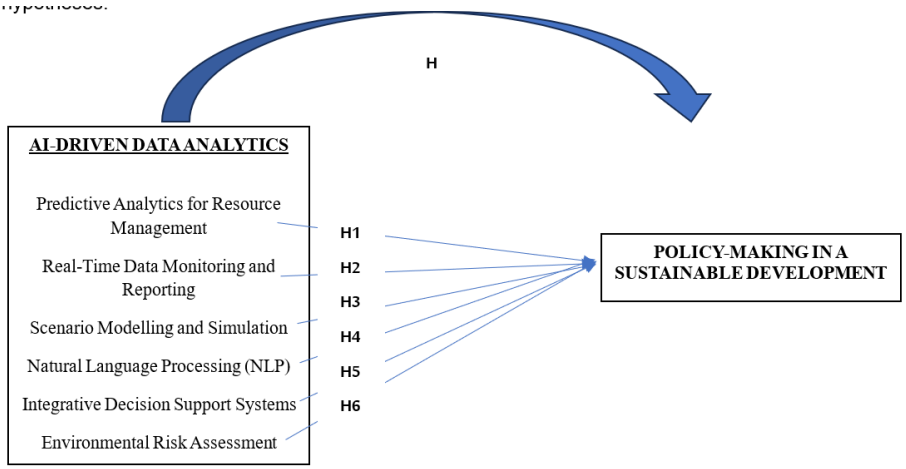

Figure 1: Conceptual Framework

Source: Gomes *et al.* (2025); Uddin (2024); Ekundayo (2024); Nwoke (2025); Zong and Guan (2024); Khatoon *et al.* (2024); Diameh *et al.* (2025)

From the above conceptual framework, we were able to reach the following hypotheses (H).

H: AI-driven data analytics are able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H1: Predictive Analytics for Resource Management are able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H2: Real-Time Data Monitoring and Reporting are able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H3: Scenario Modelling and Simulation are able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H4: Natural Language Processing (NLP) is able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H5: Integrative Decision Support Systems are able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

H6: Environmental Risk Assessment is able to enhance policy-making in a sustainable development environment from the perspective of digital marketing organisations in Jordan.

LITERATURE REVIEW

Policy-making Process

According to Ateş *et al.* (2024) and Pando (2025), the process of policy-making begins with the identification of the problem. This is where we first realise that something is wrong and requires the attention of the government. Data should be gathered and examined thoroughly to understand the problem. This section tends to consider financial issues, communication with the community, and the involvement of all parties in ensuring that various ideas are heard (Joulaei *et al.*, 2025). One of the stages of policy-making is making informed decisions; at this stage, policymakers choose the most appropriate option from all those that have been created. It depends on things such as what politicians desire, what the masses believe, and whether the concept is possible or not. In many cases, the people in power are required to negotiate and discuss with others in order to reach a consensus (Capraro *et al.*, 2024). According to Bressanelli *et al.* (2024), policymakers begin to implement decisions once they have chosen an idea. This is dependent on the complexity of the policy and the people involved. To achieve this, various groups and levels of government should collaborate, and they must have sufficient financial resources and commitment (Gu *et al.*, 2024). The final stage involves evaluating outcomes and determining whether the policy did what it was expected to do (Pasternak Taschner and Almeida, 2024).

Policy-making in a Sustainable Environment

Dai *et al.* (2024a) observe that sustainable policy-making is aimed at ensuring policies that expand the economy, safeguard the environment, and advance social equity. According to the Brundtland Commission (1987), sustainable development implies that we have to satisfy our needs today without damaging future generations (Naim *et al.*,2026). Dai *et al.* (2024b) also stated that utilising the UN Sustainable Development Goals (SDGs) is one of the major components of creating sustainable policies. The 17 goals are used to address such issues as poverty, inequality, climate change, and

environmental damage. A comprehensive plan should be employed by leaders to ensure that their policies are complementary (Adebayo *et al.*, 2024; Al-Zagheer *et al.*, 2025).

Adanma and Ogunbiyi (2024) added that proper policy-making requires collaboration between government, businesses, charities, and people. Engaging all parties promotes transparency, builds trust, and makes policies responsive to the needs of the people (Bashir *et al.*, 2024; Hashem *et al.*, 2026). The reason is that the environment is variable, and therefore leaders should be prepared to change their plans. They are expected to switch tactics when they receive new information or encounter unexpected issues. This assists in formulating policies that are able to address issues such as climate change (Caglar *et al.*, 2024; Joudeh *et al.*, 2024).

AI-Driven Data Analytics

According to Mrida *et al.* (2025), data analysis enabled by AI is altering the policy-making process, particularly in sustainable development. AI is able to handle large volumes of data in a short amount of time and provide valuable information for decision-making. This is increasingly becoming a necessity as governments and organisations are confronted with complex issues that require quick and data-driven solutions. According to the perspective of Zong and Guan (2024), AI predictive analysis is capable of predicting trends in resource use; hence, leaders can make better decisions regarding resource allocation and identify potential shortages or surpluses (Sanodia, 2024; Hashem *et al.*, 2024).

It is claimed that AI and the Internet of Things can work in tandem, making it possible to monitor the quality of air and water, energy consumption, and waste continuously. This provides leaders with up-to-date information to make decisions quickly and respond to crises more effectively (Mahabub *et al.*, 2024). AI tools allow leaders to experiment with various policy decisions and their potential outcomes before implementation. This assists in identifying the most suitable plans and making trade-offs that support better decision-making (Odionu and Ibeh, 2024). NLP can extract information contained in large volumes of text, such as policy documents, research, and public sentiment on social media. By analysing language patterns, leaders are able to understand public opinion, identify major issues, and refine policy concepts (Chowdhury, 2024).

This allows leaders to understand the interconnection between the economy, society, and the environment. Public opinion plays a crucial role in policy formulation

that drives sustainability and prevents unintended negative outcomes (Badmus *et al.*, 2024; Mohamad *et al.*, 2025). The sustainable development environment requires innovative instruments and strategies to effectively tackle the challenges associated with enhancing policy-making.

Predictive Analytics for Resource Management

Predictive analytics is a machine learning- and statistics-based method of comprehending previous and present data. This allows groups to anticipate future resource requirements. By identifying patterns in the utilisation of resources, leaders can determine how to distribute resources and promote sustainability. As an illustration, this analysis can be applied in water management to analyse weather, historical use, and population trends to forecast future water demand (Zong and Guan, 2024).

Real-time Data Monitoring and Reporting

This works with the help of devices and sensors to continuously obtain data about environmental and operational indicators. Data analytics generated using artificial intelligence processes incoming data in real time. This enables interested parties to have a swift grasp of such conditions as air and water quality, energy consumption, and waste generation. Real-time data monitoring is beneficial in that people can make fast decisions, allowing the authorities to respond promptly to environmental issues or suspicious activity (Abir *et al.*, 2024).

Scenario Modelling and Simulation

This entails the application of algorithms in order to develop models that determine the outcomes of various policy options in different scenarios. The approach allows leaders to model various situations, enabling them to understand the trade-offs associated with these options. As an example, this can be used by a government to observe the influence that various transportation regulations have on air quality in cities and traffic congestion (Khatoon *et al.*, 2024).

NLP Natural Language Processing

NLP is a subdivision of AI that allows computers to comprehend and use human language. NLP can be used to process large amounts of text-based data, such as policy papers, public comments, and social media posts, with the help of AI-aggregated data analytics. With NLP, leaders have the opportunity to identify the themes and emotions

expressed in public discourse, thereby allowing them to be aware of public opinion and the concerns people have regarding the policies they intend to implement (Uddin, 2024).

Integrative Decision Support Systems

These are artificial intelligence platforms that combine information from various domains, such as social, economic, and environmental data, to provide a complete picture of the impacts of policy decisions. These systems enable leaders to view the relationships between different factors by integrating various types of information (Hashem,2016). This assists them in making coherent and informed decisions. Indicatively, a system could examine the impact of a new industrial policy on local ecosystems, individual wellbeing, and economic development concurrently (Diameh *et al.*, 2025).

Environmental Risk Assessment

This evaluation involves the use of AI-based data analytics to identify, evaluate, and manage potential environmental risks and their impacts on human health and ecosystems. As an example, it can be utilised to simulate the impact of climate change on coastal communities, where areas are at risk of overtopping or erosion. This evaluation allows leaders to focus on actions, allocate resources, and develop plans that enhance resilience in the face of environmental stressors and promote long-term sustainability (Gomes *et al.*, 2025).

RESEARCH METHODOLOGY

The research was carried out based on quantitative analysis. A questionnaire was developed and distributed to a sample of 154 individuals from digital marketing organisations in Jordan. SPSS was employed to analyse primary data collected from the questionnaire. This included frequencies and percentages, multiple and linear regression, in addition to Cronbach's alpha to test the reliability of the study tool (see Table 1). Statistical Package for the Social Sciences (SPSS) tools were used to analyse data from 154 respondents. The mean (m) and standard deviation (s) were used to describe responses.

The questionnaire was tested in terms of its reliability with the help of Cronbach's alpha using the SPSS program. Multiple linear regression was used to test the hypotheses:

$$Y = b0 + b1X1 + b2X2 + ... + b6X6 + e.$$

Table 1: Alpha Value (α)

Variable	α
Predictive Analytics for Resource Management	0.944
Real-Time Data Monitoring and Reporting	0.929
Scenario Modelling and Simulation	0.939
Natural Language Processing (NLP)	0.923
Integrative Decision Support Systems	0.94
Environmental Risk Assessment	0.93
Policy-making in a Sustainable Development	0.938

Source: Measured by authors using SPSS

ANALYSIS

Demographics

Calculations were conducted of respondents in terms of gender, experience, and qualification. Results indicated that the sample population was mainly male, with 61% identifying as male and 39% as female. This imbalance might introduce gender biases into the study's findings and their interpretation. Regarding educational background, 84.4% of those involved had a bachelor's degree. The experience levels of the respondents showed that those who had experience of 6–11 years formed 33.1%.

Questionnaire Analysis

Mean (μ) and standard deviation (σ) were calculated for each statement. Results indicated that respondents had positive attitudes towards the variables of the study, as all statements scored a mean that was higher than the mean of the scale, 3.00. This aligns with expert validation results regarding the validity of the questionnaire items. The variables studied were viewed positively by the respondents. The statistical analysis of all parameters in this study yielded results that exceeded the mean value of 3.00 (See Table 2).

Table 2: Study Tool Analysis

Sub-variable	μ	σ
Predictive Analytics for Resource Management	4.122	.928
Real-Time Data Monitoring and Reporting	4.245	.884
Scenario Modelling and Simulation	4.158	.922
Natural Language Processing (NLP)	4.243	.893

Sub-variable	μ	σ
Integrative Decision Support Systems	4.090	.887
Environmental Risk Assessment	4.275	.964
Policy-making In A Sustainable Development	4.253	1.002

Source: Measured by authors using SPSS

Hypotheses Testing

Multiple regression is utilised to assess the presented hypothesis, with an R value of 0.937 signifying a strong connection between the independent and dependent variables. The independent variables account for 87.7% of the variance in the dependent variable. The F value is statistically significant at the 0.05 level, indicating that AI-driven data analytics are able to enhance policy-making in a sustainable development environment from the perspective of government policymakers (see Table 3).

Table 3: Main Hypothesis Testing

H: AI-driven data analytics are able to enhance policy-making in a sustainable development environment from perspective of government policymakers								
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	R	R2
		B	Std. Error	Beta				
1	(Constant)	-.561	.164		-3.424	.001	.937	.877
	Predictive Analytics for Resource Management	.147	.070	.136	2.109	.037		
	Real-Time Data Monitoring and Reporting	.140	.053	.124	2.665	.009		
	Scenario Modelling and Simulation	.361	.094	.332	3.853	.000		
	Natural Language Processing (NLP)	.206	.063	.184	3.259	.001		
	Integrative Decision Support Systems	.191	.057	.169	3.357	.001		
	Environmental Risk Assessment	.106	.041	.102	2.566	.011		

Source: Measured by authors using SPSS

DISCUSSION

The current study reached the conclusion that AI-driven data analytics are able to enhance policy-making in a sustainable development environment, explaining 87.7% of the variance in the dependent variable. Regarding sub-variables, it appeared that they are all influential in enhancing policy-making in a sustainable development environment, with Scenario Modelling and Simulation being the most influential.

AI can create models to show what could happen if different policies are implemented. By trying out different plans under different situations, officials can see the advantages and disadvantages of each choice. This makes decision-making easier by providing a clearer view of what might happen, which helps in choosing the best ways to promote sustainability. The results agreed with Khatoon *et al.* (2024).

In second place came NLP. Natural Language Processing (NLP) has the ability to analyse large amounts of text based on public comments, social media, studies, and policy papers. It extracts valuable data concerning public opinion and emerging trends. Having an idea of what people think and care about will help leaders provide better proposals that suit the needs and wants of the community. NLP can also identify key points and significant items within public discourse, which can be used in developing more targeted communication strategies (Uddin, 2024).

The third ranking was Integrative Decision Support Systems. DSS combines information on aspects such as health, environment, and economics to provide a full picture of what various policies accomplish. These systems enable leaders to see the consequences of their decisions by examining interrelationships and interdependencies. Diameh *et al.* (2025) arrived at the same conclusion but added that such a system could examine the impact of a transportation policy on air quality, health, and the economy simultaneously. This ensures that policies do not go to waste but rather complement one another. This holistic approach to thinking can be used to develop most aspects of sustainability simultaneously.

Predictive Analytics received the fourth rank. Predictive analytics involves the use of previous and present data to predict the future availability of resources such as water, energy, and food. Through trend analysis, leaders are able to identify potential shortfalls or surpluses in advance. This assists them in the management of resources to avoid issues and ensure sustainability. This is consistent with Zong and Guan (2024), as cities can save water during periods of drought using predicted usage, reducing waste and promoting conservation.

Real-Time Data Monitoring and Reporting was ranked fifth. In real-time data systems, devices and sensors constantly update information on topics such as air and water quality, deforestation, and ecosystem health. When pollution becomes excessive, they can take action to reduce the damage. Abir *et al.* (2024) agreed that this rapid information would enable them to adjust plans when required and make policies more flexible and supportive of long-term sustainability.

Environmental Risk Assessment had the least impact, ranking sixth. Artificial intelligence can scan environmental hazards and how they impact humans and ecosystems. These tools identify vulnerable areas and populations by examining previous data and making projections about possible future risks. This allows leaders to focus on reducing risks from climate change, pollution, and natural disasters. As an illustration, risk assessments would lead city planning to avoid areas that are likely to be flooded, which saves money and protects people. Gomes *et al.* (2025) also stated that sustainable development is strengthened when data is used to manage risks.

RECOMMENDATIONS

The research advises businesses and policymakers to incorporate AI-powered analytics into decision-making, which could enhance transparency, predictive ability, as well as sustainability. Institutions should invest in digital infrastructure, predictive modelling, real-time monitoring, and natural language processing for evidence-based policy-making. Training and capacity-building initiatives are critical to improving managers' and analysts' ability to leverage AI ethically. There should also be better coordination and planning if cross-sector data-sharing and governance frameworks are developed. It thus remains a subject for future research to investigate, with the help of time-trend and comparative designs, how AI contributes to policy effectiveness and sustainable development over time.

CONCLUSIONS

The strengths that AI techniques such as predictive analytics, real-time monitoring, scenario modelling, NLP, integrative decision support systems, and environmental risk assessments offer individually can be leveraged to enhance policy-making in addressing sustainable development. Through these tools, policymakers are able to make better decisions with higher responsiveness and a more positive impact on communities and ecosystems. The study suggests providing training to policymakers on how to use AI data analysis, especially scenario modelling and NLP. Future research ought to explore

the dynamics of time in situations where AI data analysis is employed in policy-making. It should examine how these tools transform and contribute to sustainable growth over the long term.

REFERENCES

Abir, S. I., Sarwer, M. H., Hasan, M., Sultana, N., Dolon, M. S. A., Arefeen, S. S. and Saha, T. R. (2024): Accelerating BRICS economic growth: AI-driven data analytics for informed policy and decision making. *Journal of Economics, Finance and Accounting Studies*, *6*(6), 102-115. Available at: https://doi.org/10.32996/jefas.2024.6.6.8

Adanma, U. M. and Ogunbiyi, E. O. (2024): A comparative review of global environmental policies for promoting sustainable development and economic growth. *International Journal of Applied Research in Social Sciences*, *6*(5), 954-977. Available at: https://doi.org/10.51594/ijarss.v6i5.1147

Adebayo, T. S., Özkan, O. and Eweade, B. S. (2024): Do energy efficiency R&D investments and information and communication technologies promote environmental sustainability in Sweden? A quantile-on-quantile KRLS investigation. *Journal of Cleaner Production*, *440*, 140832. Available at: https://doi.org/10.1016/j.jclepro.2024.140832

Al-Zagheer, H., Hashem, T. N., Kilani, Q. and Badrakhan, S. S. (2025): Examining the artificial intelligence role in Enhancing Sustainable Marketing Strategies. *Advances in Science, Technology & Innovation*, 3–12. Available at: https://doi.org/10.1007/978-3-031-84889-6_1

Ateş, A., Rogge, K. S. and Lovell, K. (2024): Governance in multi-system transitions: A new methodological approach for actor involvement in policy making processes. *Energy Policy*, *195*, 114313. Available at: https://doi.org/10.1016/j.enpol.2024.114313

Badmus, O., Rajput, S., Arogundade, J. and Williams, M. (2024): AI-driven business analytics and decision making. *World Journal of Advanced Research and Reviews*, *24*(1), 616-633. Available at: https://doi.org/10.30574/wjarr.2024.24.1.3093

Bashir, M. F., Sharif, A., Staniewski, M. W., Ma, B. and Zhao, W. (2024): Environmental taxes, energy transition and sustainable environmental technologies: A comparative OECD region climate change analysis. *Journal of environmental management*, *370*, 122304. Available at: https://doi.org/10.1016/j.jenvman.2024.122304

Bressanelli, E., Ceron, M. and Christiansen, T. (2024): Much ado about nothing? Assessing the impact of the Spitzenkandidaten process on EU policy-making. In *The politicisation of the European Commission's presidency: Spitzenkandidaten and beyond* (pp. 289-312). Cham: Springer Nature Switzerland. Available at: https://doi.org/10.1007/978-3-031-48173-4_13

Caglar, A. E., Destek, M. A. and Manga, M. (2024): Analysing the load capacity curve hypothesis for the Turkiye: a perspective for the sustainable environment. *Journal of Cleaner Production*, *444*, 141232. Available at: https://doi.org/10.1016/j.jclepro.2024.141232

Capraro, V., Lentsch, A., Acemoglu, D., Akgun, S., Akhmedova, A., Bilancini, E., Bonnefon, J.-F., Brañas-Garza, P., Butera, L., Douglas, K. M., Everett, J. A., Gigerenzer, G., Greenhow, C., Hashimoto, D. A., Holt-Lunstad, J., Jetten, J., Johnson, S., Kunz, W. H., Longoni, C. and Viale, R. (2024): The impact of generative artificial intelligence on Socioeconomic Inequalities and policy making. *PNAS Nexus*, *3*(6). Available at: https://doi.org/10.1093/pnasnexus/pgae191

Chowdhury, R. H. (2024): AI-driven business analytics for operational efficiency. *World Journal of Advanced Engineering Technology and Sciences*, *12*(2), 535-543. Available at: https://doi.org/10.30574/wjaets.2024.12.2.0329

Dai, J., Hiung, E. Y. T., Destek, M. A. and Ahmed, Z. (2024 a): Green policy-making in top emitters: assessing the consequences of external conflicts, trade globalisation, and mineral resources on sustainable development. *International Journal of Sustainable Development & World Ecology*, *31*(6), 653-667. Available at: https://doi.org/10.1080/13504509.2024.2319136

Dai, J., Ahmed, Z., Alvarado, R. and Ahmad, M. (2024b): Assessing the nexus between human capital, green energy, and load capacity factor: policy-making for achieving sustainable development goals. *Gondwana Research*, *129*, 452-464. Available at: https://doi.org/10.1016/j.gr.2023.04.009

Diameh, J. T., Oluwatobi, B. T., Daniels, C., Ekaette, O., Sunday, N., Azumah, C. and Mariama, Q. (2025): Integrating AI-driven predictive analytics in project risk management to optimise decision-making and performance efficiency. *Int. J. Eng. Technol. Res. Manag*, *9*, 373-389. IJETRM (http://ijetrm.com/)

Ekundayo, F. (2024): Leveraging AI-Driven Decision Intelligence for Complex Systems Engineering. *International Journal of Research Publication and Reviews*, *5*(11), 5489–5499. Available at: https://doi.org/10.55248/gengpi.5.1124.3343

Gomes, A., Islam, N. M. and Karim, M. R. (2025): Data-driven environmental risk management and sustainability analytics. *Journal of Computer Science and Technology Studies*, *7*(3), 812-825. Available at: https://doi.org/10.32996/jcsts.2025.7.3.89

Gu, T., Xu, W., Liang, H., He, Q. and Zheng, N. (2024): School bus transport service strategies' policy-making mechanism–An evolutionary game approach. *Transportation research part A: policy and practice*, *182*, 104014. Available at: https://doi.org/10.1016/j.tra.2024.104014

Hashem, T. (2016): The impact of social media on customers' image for mobiles. *Journal of Advances in Humanities and Social Sciences*, *2*(5), 269-277. Available at: https://doi.org/10.20474/jahss-2.5.3

Hashem, T. N., Almahairah, M. S., El-Taher, S., Beyari, H. and Al-Romeedy, B. S. (2026): Applying Green Digital Marketing initiatives as an approach to driving sustainable consumer behaviour. *Advances in Science, Technology & Innovation*, 283–290. Available at: https://doi.org/10.1007/978-3-032-00590-8_36

Hashem, T. N., Albattat, A., Valeri, M. and Sharma, A. (Eds.). (2024): *Marketing and big data analytics in tourism and events*. IGI Global. Available at: https://doi.org/10.4018/979-8-3693-3310-5

Joudeh, A. H. M., Alroud, S. F., Al-Sayyed, S. M., Al-Shurafa, A. J., Salameh, R. S. and Joudeh, J. M. (2024): The Impact of Disclosing Sustainability on the Value Added from the Stakeholders' Perspective of Industrial Companies Listed on the Amman Stock Exchange. *Calitatea*, *25*(201), 54-64. Available at: https://doi.org/10.47750/qas/25.201.07

Joulaei, H., Morshed-Behbahani, B., Ghadimi, P., Nadimi Parashkouhi, S. and Mansoori, Y. (2025): Contentious population policy-making and its consequences: A health policy analysis. *International Journal for Equity in Health*, *24*(1). Available at: https://doi.org/10.1186/s12939-025-02469-4

Khatoon, A., Ullah, A. and Qureshi, K. N. (2024): AI models and Data Analytics. *Next Generation AI Language Models in Research*, 45–85. Available at: https://doi.org/10.1201/9781032667911-3

Mahabub, S., Das, B. C. and Hossain, M. R. (2024): Advancing Healthcare Transformation: Ai-driven precision medicine and scalable innovations through Data Analytics. *Edelweiss Applied Science and Technology*, *8*(6), 8322–8332. Available at: https://doi.org/10.55214/25768484.v8i6.3794

Mohamad, M., Naim, A., Magd, H., Malik, P. K., Shaheen, A. Y., Kumar, A. and Hashem, T. N. (2025): Applications of AI in sustainable retail in enhancing green marketing in B2B in Middle East. *Advances in Computational Intelligence and Robotics*, 123–148. Available at: https://doi.org/10.4018/979-8-3373-3017-4.ch005

Mrida, M. S. H., Rahman, M. A. and Alam, M. S. (2025): AI-driven data analytics and automation: A systematic literature review of Industry Applications. *Strategic Data Management and Innovation*, *2*(01), 21–40. Available at: https://doi.org/10.71292/sdmi.v2i01.9

Nwoke, J. (2025): Harnessing predictive analytics, machine learning, and scenario modelling to enhance enterprise-wide strategic decision-making. *International Journal of Computer Applications Technology and Research.14*(4),123-136. Available at: https://doi.org/ 10.7753/IJCATR1404.1010

Naim, A., Mohamad, M., Alnfiai, M.M. and Ayedee, N. (2026): Digital Shopping Behavior Model (DSBM): Exploring the Role of Personalisation, Reviews, and Purchase Intent on Amazon. *International Journal of Consumer Studies*, *50*(1), p. e70162. Available at: https://doi.org/10.1111/ijcs.70162

Odionu, C. S. and Ibeh, C. V. (2024): The role of data analytics in enhancing Geriatric Care: A review of AI-Driven Solutions. *International Journal of Multidisciplinary Research and Growth Evaluation*, *5*(1), 1131–1138. Available at: https://doi.org/10.54660/.ijmrge.2024.5.1.1131-1138

Oguntibeju, O. O. (2024): Mitigating artificial intelligence bias in financial systems: A comparative analysis of debiasing techniques. *Asian Journal of Research in Computer Science*, *17*(12), 165–178. Available at: https://doi.org/10.9734/ajrcos/2024/v17i12536

Pando, D. (2025): Public policy-making process in Argentina. *Handbook of Public Policy in Latin America*, 442–457. Available at: https://doi.org/10.4337/9781035310197.00037

Pasternak Taschner, N. and Almeida, P. (2024): Teaching scientific evidence and Critical Thinking for policy making. *Biology Methods and Protocols*, *9*(1). Available at: https://doi.org/10.1093/biomethods/bpae023

Rimon, S. T., Sufian, M. A., Guria, Z. M., Morshed, N., Mosaddeque, A. I. and Ahamed, A. (2025): Impact of AI-powered business intelligence on Smart City policy-making and data-driven governance. *IET Conference Proceedings*, *2024*(30), 475–481. Available at: https://doi.org/10.1049/icp.2025.0295

Sanodia, G. (2024): Enhancing CRM systems with AI-driven data analytics for financial services. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *15*(2), 247–265. Available at: https://doi.org/10.61841/turcomat.v15i2.14751

Uddin, M. K. (2024): A review of utilising natural language processing and AI for advanced data visualisation in real-time analytics. *Global Mainstream Journal*, *1*(4), 34–49. Available at: https://doi.org/10.62304/ijmisds.v1i04.185

Vatn, A., Pascual, U., Chaplin-Kramer, R., Termansen, M., Arias-Arévalo, P., Balvanera, P., Athayde, S., Hahn, T. and Lazos, E. (2024): Incorporating diverse values of nature in decision-making—theory and practice. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *379*(1903). Available at: https://doi.org/10.1098/rstb.2022.0315

Zong, Z. and Guan, Y. (2024): AI-Driven Intelligent Data Analytics and predictive analysis in Industry 4.0: Transforming Knowledge, innovation, and efficiency. *Journal of the Knowledge Economy*, *16*(1), 864–903. Available at: https://doi.org/10.1007/s13132-024-02001-z

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