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CONCEPTUAL

Strategic AI Ecosystem for Global SDG Partnership: A Public–Private Collaboration Model for Sustainable Development Governance

Rasha Qawasmeh
Department of Business Administration, Al-Ahliyya Amman University, Amman, Jordan
Email: r.qawasmeh@ammanu.edu.jo
ORCID: 0000-0002-6246-907X

Musab A. M. Al-Tarawni
Department of Computer Science, Faculty of Information Technology, Middle East University, Amman, Jordan
Email: m.tarawni@meu.edu.jo
ORCID: 0000-0003-0488-8134

Saed Adnan Mustafa
Marketing Department, Faculty of Business, Applied Science Private University, Amman, Jordan
Email: s_mustafa@asu.edu.jo
ORCID: 0000-0002-3099-7230

Lana Yasin Al Aesa
Computer Science Department, Information Technology Faculty, Zarqa University, Zarqa, Jordan
Email: lalissa@zu.edu.jo
ORCID: 0009-0005-4519-2274

Hisham Ali Shatnawi
Faculty of Business, Ajloun National University, Ajloun, Jordan
Email: hisham.shtnaoui@anu.edu.jo
ORCID: 0009-0004-6898-1519

Amjad Abu Marouf
Marketing Department, Applied Science Private University, Amman, Jordan
Email: a_abumarouf@asu.edu.jo
ORCID: 0009-0000-1753-6096

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ABSTRACT

PURPOSE: This study develops a Strategic AI Ecosystem (SAE) framework to explain how artificial intelligence (AI) can enhance the effectiveness of public–private partnerships in achieving the Sustainable Development Goals (SDGs).

DESIGN/METHODOLOGY/APPROACH: A conceptual research design was employed, integrating the Resource-Based View, Dynamic Capabilities Theory, and Collaborative Governance Theory through structured literature synthesis and theoretical triangulation.

FINDINGS: The study identifies AI infrastructure readiness, strategic governance alignment, and trust and stakeholder engagement as antecedent conditions influencing SDG partnership effectiveness through the mediating mechanism of collaborative innovation capacity.

ORIGINALITY/VALUE: The paper reconceptualises AI as a governance ecosystem rather than a technological tool, offering the first integrated AI-enabled SDG partnership model.

RESEARCH LIMITATIONS/IMPLICATIONS: The framework is conceptual and requires empirical validation.

PRACTICAL IMPLICATIONS: Policymakers and industry leaders can use the SAE model to design coherent, trust-based, AI-enabled sustainability partnerships.

KEYWORDS: *Artificial Intelligence; Sustainable Development Goals; Public–Private Partnership; Digital Governance; AI Ecosystem; Sustainability Governance.*

INTRODUCTION

The rapid pace at which artificial intelligence (AI) has permeated governance is changing the way states, organisations, and global institutions seek to achieve the Sustainable Development Goals (SDGs). As the 2030 deadline for the Sustainable Development Goals (SDGs) draws closer, the world continues to represent an uneven global landscape, where policy coordination, institutional capacity and digital infrastructure remain fragmented (Schmidt-Traub *et al.*, 2017). Conventional models of governance that are characterised by top-down decision-making, fragmentation, and a lack of real-time accountability have not been sufficient to address the integrated economic, social, and environmental challenges embedded in the SDGs. In this regard, AI is increasingly being seen not merely as a technical tool but as a strategic mode of governance that can increase transparency, predictability, and adaptive policy learning (OECD, 2024; United Nations, 2025).

The current research emphasises that AI can be used to transform fields such as climate modelling, healthcare optimisation, poverty mapping, and sustainable finance (Brynjolfsson *et al.*, 2017; World Bank, 2024). However, the current literature pays greater attention to efficiency gains within individual sectors and less attention to

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the overall integration of governance systems. AI is often regarded as a working tool rather than as part of a broader institutional system that orchestrates multi-actor coordination. Meanwhile, PPPs, which are viewed by many as a means of mobilising complementary resources towards sustainability (World Economic Forum, 2024), tend to be transactional and project-oriented and often lack digital architectures that foster continual learning, shared intelligence, and accountability.

Although there is increased interest in digital governance and sustainability transitions, there is limited research on incorporating AI infrastructure preparedness, governance considerations, and stakeholder trust into a single ecosystem framework explaining the effectiveness of SDG partnerships. This conceptual discontinuity limits our knowledge of how AI-powered systems could transform collaborative governance at scale. To fill this gap, it is critical to reconceptualise AI not as a specific technological capability but as a strategic ecosystem that enables connections between infrastructure, institutional design, and relational capital.

Paper develops a Strategic AI Ecosystem (SAE) model to describe the ways in which AI can enhance SDG partnerships globally. Drawing on the Resource-Based View, Dynamic Capabilities Theory, and Collaborative Governance Theory, the framework identifies the antecedent conditions of AI Infrastructure Readiness, Strategic Governance Alignment, and Trust and Stakeholder Engagement as necessary conditions for increasing SDG partnership effectiveness through the mediating variable of collaborative innovation capacity. The research question that the paper aims to answer is given below:

How can AI ecosystems help improve the performance of public–private partnerships in achieving the Sustainable Development Goals?

This conceptual study integrates strategic management theory with sustainability governance and presents a theoretically based, policy-relevant model that contributes to advancing knowledge of AI-based collaborative governance and serves as a basis for future empirical validation.

LITERATURE REVIEW

Sustainable Development Governance and Digital Transformation

Sustainable development governance can be defined as institutional, regulatory, and collaborative processes whereby economic, environmental, and social goals interact at various levels of authority. The introduction of the SDGs in 2015 created a universal normative framework that aims to facilitate coherent cross-sectoral alignment in

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policy. However, in spite of the SDGs' ambition, their implementation remains disproportionate and uneven across countries and institutional systems (Schmidt-Traub *et al.*, 2017).

Weak inter-organisational coordination, policy silos, asymmetrical digital capacity, bureaucratic inertia, and structural constraints remain major impediments to systemic progress.

Modern governance studies have been moving away from centralised command-and-control forms of governance to networked and collaborative forms of governance whereby the creation of public value occurs through co-production by the state, businesses, and civil society (Ansell and Gash, 2008; Emerson *et al.*, 2012). These models focus on legitimacy, inclusivity, and deliberative engagement.

Nevertheless, although collaborative governance enhances stakeholder alignment, it is not always equipped with the digital infrastructure that would facilitate predictive analytics, real-time monitoring, and cross-sector integration of intelligence.

Consequently, most SDG projects remain reactive and are based on periodic reporting schedules, as opposed to continuous data-driven adaptation. Digital transformation is one of the measures that has been suggested to counter the fragmentation of governance.

However, in the majority of digital governance studies, the emphasis is on e-government efficiency or the automation of administrative systems rather than on the systemic integration of sustainability. As a result, there remains a structural gap between the discourse of digital transformation and the scholarship of sustainable development governance. This gap is particularly important today, as AI is increasingly anticipated to be the domain in which computer-based systems can reshape the ways in which governance actors anticipate, organise, and respond to the pace of complex sustainability challenges.

Artificial Intelligence and Sustainable Development

AI has proven to represent a paradigm shift, functioning as a general-purpose technology that can improve forecasting accuracy, streamline bureaucratic processes, integrate heterogeneous data, and maximise the efficiency of resource utilisation in policy processes (OECD, 2024; United Nations, 2025).

There is empirical evidence demonstrating how AI can be used in climate-risk modelling, monitoring public health, mapping poverty, and analytics in sustainable finance systems (Brynjolfsson *et al.*, 2017; World Bank, 2024; Mustafa and Shehada,

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2025). These examples demonstrate the technical capacity of AI to enhance the efficiency and quality of decision-making.

Nonetheless, the available literature is largely application-based. AI research is often sectoral (e.g., healthcare AI, climate AI, financial AI), even though there is limited focus on how algorithmic systems operate within multi-actor governance systems. Additionally, the emerging literature on AI ethics and regulation, including normative frameworks developed by United Nations Educational, Scientific and Cultural Organisation (UNESCO), focuses on the principles of transparency, fairness, and accountability (UNESCO, 2022; Ghazal *et al.*, 2025) but does not specifically address how AI infrastructures reorganise collaborative governance structures.

In addition, disparities in digital infrastructure preparedness generate unequal AI implementation capacities across regions, which increases asymmetries in governance and restricts regional cooperation. Research on AI capability remains technologically deterministic, with an emphasis on performance metrics rather than institutional integration. Consequently, the connection between AI preparedness and sustainable governance outcomes remains largely theoretical.

Research Gap 1: There is a lack of integration between AI capability research and sustainable governance theory, particularly at the ecosystem level where interdependent actors orchestrate SDG actions.

Public–Private Partnerships (PPP) and Ecosystem Logic

The concept of Public–Private Partnerships (PPP) is becoming a key instrument for mobilising complementary resources in sustainable development efforts (World Economic Forum, 2024). PPPs combine government authority, the innovative capacity of the private sector, and the involvement of civil society in addressing complex societal issues. However, according to partnership research, there remain several obstacles, such as incompatible incentives, coordination failures, information asymmetry, and a lack of trust (OECD, 2024).

Ecosystem theory provides a valuable analytical lens for understanding these challenges. Rather than addressing dyadic contracts, ecosystem logic theorises value creation as the result of networked interdependent actors whose efforts are structurally compatible (Adner, 2017; Jacobides *et al.*, 2018). However, ecosystem studies have mainly focused on platform competition, innovation networks, and business strategy, with little focus on sustainable development governance.

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Similarly, Dynamic Capabilities Theory describes how organisations identify opportunities, mobilise resources, and reorganise assets in environments characterised by uncertainty (Teece, 2018). This perspective has been widely used in digital transformation within firms, but there has been limited application to governance systems. The adaptive pressures experienced by private firms can also apply to public institutions, especially within the rapidly evolving sphere of digital technologies. However, dynamic capabilities have rarely been operationalised within multi-actor governance ecosystems through empirical research.

The absence of integration between ecosystem theory, dynamic capabilities, and collaborative governance creates a knowledge gap in understanding how AI-enabled partnerships are embedded in systemic sustainability outcomes.

Research Gap 2: A single framework integrating ecosystem theory, strategic management perspectives, and collaborative governance has not been identified to explain how AI infrastructure can optimise SDG partnerships.

Theoretical Integration

This study addresses these gaps by synthesising three complementary theoretical perspectives within a single analytical model.

The conceptualisation of infrastructure, data assets, and algorithmic capabilities as strategic resources is grounded in the Resource-Based View (RBV) (Barney, 1991). However, in contrast to classic RBV applications focused on firm-level competitive advantage, this study applies the RBV concept to inter-organisational governance ecosystems, where shared digital infrastructure represents a collective capability.

Dynamic Capabilities Theory (Teece, 2018) offers a mechanism through which governance systems adapt AI infrastructures in response to evolving sustainability challenges. When AI readiness is present, institutions must continuously restructure policies, standards, and coordination mechanisms to align them with SDG priorities (Hashem *et al.*, 2024).

Collaborative Governance theory (Ansell and Gash, 2008; Emerson *et al.*, 2012) emphasises trust, legitimacy, and stakeholder involvement as conditions for long-term cooperation. The use of AI in ecosystems characterised by algorithmic opacity and ethical uncertainty makes trust a key factor enabling data exchange and co-innovation (Freihat *et al.*, 2023).

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This theoretical synthesis reconceptualises AI as a governance ecosystem rather than a technological tool in isolation, consisting of structural, institutional, and relational dimensions.

Strategic AI Ecosystem (SAE) Framework

Based on the unified theoretical background, the present paper proposes the SAE. The model proposes five interrelated constructs.

1. The first construct is AI Infrastructure Readiness, which refers to digital interoperability, computational capacity, cybersecurity measures, and data governance standards that ensure scalable and ethical AI implementation.
2. Strategic Governance Alignment refers to regulatory coherence, institutional alignment, and policy coherence that direct the adoption of AI in alignment with national and global SDGs.
3. Trust and Stakeholder Engagement capture relational capital, transparency mechanisms, ethical oversight, and participatory cooperation between ecosystem actors.
4. Collaborative Innovation Capacity is a capacity of an ecosystem to co-create, experiment, learn, and scale AI-enabled solutions to sustainability through iterative feedback loops.
5. SDG Partnership Effectiveness is an indicator of a visible contribution to enhanced sustainability achieved through structured partnerships between government and the business sector, such as adaptive resource mobilisation and improved accountability.

Structural Relationships and Analytical Propositions

The SAE framework suggests that AI Infrastructure Readiness, Strategic Governance Alignment, and Trust and Stakeholder Engagement act as antecedent conditions that influence SDG Partnership Effectiveness through Collaborative Innovation Capacity. Systemic impact cannot be achieved by infrastructure alone without governance coherence and relational trust. Similarly, governance alignment that lacks technological preparedness limits adaptive capacity. Trust facilitates data exchange and collaborative experimentation, thereby converting digital possibilities into long-term outcomes. In line with this, the research develops the following propositions:

Proposition 1: AI Infrastructure Readiness positively influences Collaborative Innovation Capacity.

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Proposition 2: Strategic Governance Alignment positively influences Collaborative Innovation Capacity.

Proposition 3: Trust and Stakeholder Engagement positively influence Collaborative Innovation Capacity.

Proposition 4: Collaborative Innovation Capacity positively influences SDG Partnership Effectiveness.

Proposition 5: Collaborative Innovation Capacity mediates the relationship between AI ecosystem antecedents and SDG Partnership Effectiveness.

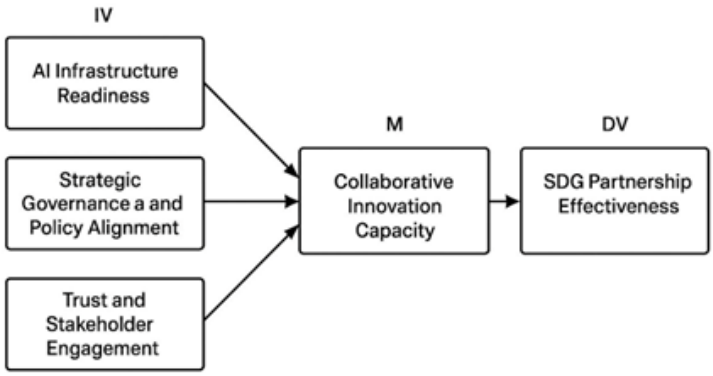

Figure 1: Strategic AI Ecosystem (SAE) Framework

Source: Constructed by authors

RESEARCH METHODOLOGY

The proposed research uses a conceptual research design because it seeks to build and theoretically justify a SAE framework to increase the effectiveness of SDG partnerships. Conceptual research is especially suitable in cases of emerging interdisciplinary fields where evidence is scattered and theoretical integration is scarce (Snyder, 2019). In this regard, structured conceptual synthesis allows the clarification of constructs, the definition of relationships, and the formulation of theoretically based propositions (Tranfield *et al.*, 2003). Since current AI-powered governance ecosystems are dynamic, a theory-building methodology offers a systematic basis for the incorporation of strategic management, collaborative governance, and perspectives on digital transformation into a coherent analytical framework.

An organised literature review was conducted covering the years 2015–2025, corresponding to the post-SDG adoption period. The review followed evidence-based

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conceptual research principles (Tranfield *et al.*, 2003). Peer-reviewed journal articles were searched in Scopus and Web of Science. Policy documents from the OECD AI Policy Observatory, United Nations SDG and AI governance reports, World Bank digital development reports, and World Economic Forum sustainability partnership analyses were also considered as sources. The search was conducted using keywords such as AI governance, digital ecosystem, SDG partnership, collaborative innovation, and public–private collaboration. The inclusion criteria focused on theoretical contributions and ecosystem models, governance structures, and studies that incorporate AI in sustainability settings to ensure analytical coverage and conceptual rigour (Snyder, 2019).

Thematic analysis was conducted through construct identification and theoretical mapping. Thematic analysis methods (Braun and Clarke, 2006) were used to extract relevant constructs, which were categorised into structural (AI infrastructure readiness, governance alignment), relational (trust and stakeholder engagement), and dynamic (collaborative innovation capacity) dimensions. To prevent theoretical fragmentation, these constructs were organised to ensure consistency with the RBV (Barney, 1991), Dynamic Capabilities Theory (Teece, 2018), and Collaborative Governance Theory (Ansell and Gash, 2008; Emerson *et al.*, 2012). Integrative reasoning and cross-theory triangulation were used to derive logical relationships between constructs, which correspond to standards of theory development.

Although no statistical tests were conducted, internal conceptual validation was achieved through cross-literature consistency checks and theoretical triangulation, which contribute to the robustness of non-empirical research designs (Tranfield *et al.*, 2003). The resulting framework is analytically grounded and is intended to be tested empirically in the future through Structural Equation Modelling or multi-case comparative designs. The study is based solely on secondary and publicly available materials; no human subjects or confidential information were used; hence, formal ethical approval was not necessary. This paper fits the criteria of a journal article and therefore qualifies as a conceptual research article.

RESULTS

The conceptual findings of this analytical study are achieved by integrating and synthesising theories in a structured manner and, as a result, answer the primary research question: How can AI ecosystems improve the effectiveness of partnerships between the public and private sectors in achieving the SDGs? Instead of presenting empirical statistics, the results are derived through logically developed relationships

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based on the RBV, Dynamic Capabilities Theory, Ecosystem Theory, and Collaborative Governance Theory. This synthesising approach allows the identification of systemic processes through which AI-enabled governance can achieve sustainable partnership outcomes.

The results of the analysis demonstrate that AI Infrastructure Readiness is a necessary but not sufficient factor for SDG Partnership Effectiveness. Digital infrastructure, interoperable data architecture, and algorithmic capability represent strategic assets that can create value when they are scarce, inimitable, and well-coordinated (Barney, 1991; AlZghoul *et al.*, 2024). However, by extending RBV beyond firm-level advantage as the primary unit of analysis, the present research demonstrates that value creation within AI-based governance ecosystems is contingent on inter-organisational coordination rather than independent technological ownership (Areiqat *et al.*, 2021).

The process that converts technological potential into action is identified as Strategic Governance Alignment. In accordance with Dynamic Capabilities Theory, governance systems must sense emerging sustainability threats, seize the opportunities enabled by AI, and reconfigure institutional structures (Teece, 2018; Alslaibi *et al.*, 2025). Without regulatory alignment, policy harmonisation, and ethical oversight, AI applications risk duplication, fragmentation, and a loss of legitimacy. This observation aligns with ecosystem scholarship emphasising structural interdependence among actors (Adner, 2017; Abdullah and Qawasmeh, 2025) but extends this perspective by incorporating AI governance as a coordination infrastructure.

Trust and Stakeholder Engagement represent relational capital within the ecosystem. Based on Collaborative Governance Theory (Ansell and Gash, 2008; Emerson *et al.*, 2012), accountability mechanisms, participatory inclusion, and transparency reduce transaction costs and improve the willingness to share data and co-invest in innovation. Trust, as a prerequisite for experimentation and long-term cooperation, is a necessary condition in AI-enabled systems characterised by limited transparency in algorithmic systems and ethical ambiguity (Floridi *et al.*, 2020).

The key analytical contribution of this paper is the identification of Collaborative Innovation Capacity as an intermediary between structural preparedness, relational trust, and SDG Partnership Effectiveness. Infrastructure preparedness, governance alignment, and trust do not directly generate sustainability outcomes; rather, they operate through iterative learning, co-experimentation, and cross-sector collaboration. This mediation logic extends previous PPP studies, which frequently assume direct

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linear relationships between collaboration and outcomes (World Economic Forum, 2024), by incorporating a dynamic capability pathway (Alhanatleh *et al.*, 2024).

SDG Partnership Effectiveness is therefore conceptualised as a systemic governance outcome resulting from ecosystem coherence rather than from the isolated implementation of technologies. Successful AI-enabled partnerships demonstrate cross-sectoral integration, adaptive resource mobilisation, increased transparency, and measurable social or environmental change aligned with global development goals (United Nations, 2025; Shehadeh *et al.*, 2023; Khalifa *et al.*, 2025; Mahafdhah *et al.*, 2025).

These findings theoretically contribute in three ways. First, they contextualise RBV by situating AI resources within an inter-organisational ecosystem rather than within firm-level competitive advantage. Second, they theorise Dynamic Capabilities at the governance system level, demonstrating how AI infrastructures can be adapted by public institutions to support sustainability transitions. Third, they extend Collaborative Governance Theory by incorporating digital infrastructure as a structural facilitator of legitimacy, transparency, and adaptive coordination. Overall, the SAE framework presents a new explanation of AI-enabled sustainable development governance within an ecosystem.

PRACTICAL AND RESEARCH IMPLICATIONS

The results of this research produce valuable implications for policymakers, public institutions, business executives, and future researchers interested in AI-based sustainable development.

In terms of policy, the Strategic AI Ecosystem (SAE) model suggests that investment in Artificial Intelligence infrastructure should be viewed as a collective governance resource rather than as an isolated technological initiative. Digital public infrastructure and interoperable data systems are increasingly recognised as primary drivers of institutional effectiveness and inclusive development (OECD, 2024; World Bank, 2024).

Regulatory coherence, ethical AI standards, and policy alignment across sectors are therefore essential priorities for governmental bodies seeking to accelerate SDG implementation. Disjointed governance systems undermine ecosystem performance; therefore, harmonised data-sharing policies and coordinated AI oversight systems are required to strengthen adaptive governance capacity (Teece, 2018; United Nations, 2025). The adoption of AI monitors in SDG dashboards can also be beneficial, as

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it increases transparency and accountability while supporting the principles of collaborative governance (Ansell and Gash, 2008).

In the case of public–private partnerships, the findings show that technological preparedness alone is not a sufficient condition for partnership success. The key determinants of ecosystem performance are relational capital and collaborative innovation capacity. Stakeholder engagement, transparency, and trust reduce transaction costs and create opportunities for long-term cooperation (Emerson *et al.*, 2012). To ensure legitimacy and responsible innovation, AI ethics, explainability, and sustainability metrics should be incorporated into Environmental, Social, and Governance (ESG) reporting frameworks by private sector actors (Floridi *et al.*, 2020). By moving towards ecosystem-based collaboration rather than transactional arrangements, partnerships can translate AI capabilities into scalable social and environmental outcomes.

The framework also serves as a diagnostic tool from a managerial perspective to assess ecosystem readiness. Once organisational platforms based on AI infrastructure have been established, organisations can assess their level of maturity, governance alignment, and stakeholder willingness before initiating large-scale sustainability programmes. Creating joint innovation platforms, regulatory sandboxes, and collaborative experimentation environments can further strengthen dynamic capability development within governance systems (Barney, 1991; Teece, 2018).

This study opens several avenues for future research. The proposed propositions can be empirically tested through Structural Equation Modelling to examine the mediating relationships across sectors or countries. Comparative case studies may also be conducted to investigate how variations in digital preparedness and governance maturity influence SDG performance. Longitudinal studies may further evaluate the dynamic capabilities of AI ecosystems in response to institutional change and technological evolution. In addition, researchers can operationalise and test measurement scales for collaborative innovation capacity within digital governance systems and extend ecosystem theory within sustainability studies (Adner, 2017).

Overall, these implications support the argument that AI-enabled sustainable governance requires systemic integration of technological, institutional, and relational dimensions rather than isolated technological adoption.

CONCLUSION

In this paper, the authors formulate a SAE model to demonstrate how AI can make PPP more effective in achieving the SDGs. To address persistent fragmentation in sustainable

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development governance, the study reconceptualises AI not as a technological object but as a systemic governance ecosystem comprising infrastructure preparedness, policy alignment, and stakeholder trust.

The analysis demonstrates that AI Infrastructure Readiness, Strategic Governance Alignment, and Trust and Stakeholder Engagement operate as interdependent antecedents influencing SDG Partnership Effectiveness through the mediating mechanism of Collaborative Innovation Capacity. These findings advance existing literature by extending the RBV beyond firm-level advantage to inter-organisational digital ecosystems, operationalising Dynamic Capabilities Theory within governance systems, and enriching Collaborative Governance Theory by integrating digital infrastructure as a structural enabler of adaptive coordination.

By synthesising these theoretical perspectives, the study responds to the research question of how AI ecosystems can strengthen sustainable development partnerships. It provides a unified conceptual model that bridges strategic management theory and sustainability governance research, two domains that have largely evolved in parallel. The framework clarifies that technological deployment alone is insufficient; measurable SDG impact emerges only when infrastructure, governance coherence, and relational capital interact dynamically within collaborative innovation processes.

The practical significance of the model lies in its systemic orientation. Governments and industry leaders are encouraged to treat AI infrastructure as public governance capital, embed ethical standards into regulatory architectures, and prioritise trust-building mechanisms within partnerships. Ecosystem coherence, rather than isolated innovation, determines long-term sustainability outcomes.

This study is conceptual and therefore invites empirical validation. Future research may test the proposed propositions across national contexts or sectors, examine the mediating strength of collaborative innovation capacity, and explore how digital governance maturity influences SDG performance over time.

In conclusion, achieving the SDGs in an era of rapid digital transformation requires more than technological adoption; it demands strategically aligned, trust-based AI ecosystems capable of translating digital capacity into inclusive and sustainable global development.

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REFERENCES

Adner, R. (2017): Ecosystem as structure: An actionable construct for strategy. Journal of Management, 43(1), 39–58. Available at: https://doi.org/10.1177/0149206316678451

Alhanatleh, H., Khaddam, A., Abudabaseh, F., Alghizzawi, M. and Alzghoul, A. (2024): Enhancing the public value of mobile fintech services through cybersecurity awareness antecedents. Investment Management and Financial Innovations, 21(1), 417–430. Available at: https://doi.org/10.21511/imfi.21(1).2024.32

Alslaibi, N.A., Qawasmeh, R., Samara, H. and Abualrob, R.M. (2025): Key drivers of bank financial performance: Insights from the Arab Levant region. *Banks and Bank Systems*, *20*(2), p.143. Available at: https://doi.org/10.21511/bbs.20(2).2025.12

Alzghoul, A., Alhanatleh, H., Alnajdawi, S., Alghizzawi, M. and Al Htibat, A. M. (2024): Actual role of cybersecurity awareness and knowledge to drive digital technology adoption for enhancing sustainable development: Engineering industry setting. In *2024 International Conference on Decision Aid Sciences and Applications (DASA)* (pp. 1–5). IEEE. Available at: https://doi.org/10.1109/DASA63652.2024.10836494

Ansell, C. and Gash, A. (2008): Collaborative governance in theory and practice. Journal of Public Administration Research and Theory, 18(4), 543–571. Available at: https://doi.org/10.1093/jopart/mum032

Areiqat, A. Y., Alheet, A. F., Qawasmeh, R. A. A. and Zamil, A. M. (2021): Artificial intelligence and its drastic impact on e-commerce progress. *Academy of Strategic Management Journal, 20*(Special Issue 2), 1–11. Available at: https://www.abacademies.org/articles/artificial-intelligence-and-its-drastic-impact-on-ecommerce-progress-10675.html

Barney, J. (1991): Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. Available at: https://doi.org/10.1177/014920639101700108

Braun, V. and Clarke, V. (2006): Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. Available at: https://doi.org/10.1191/1478088706qp063oa

Brynjolfsson, E., Rock, D. and Syverson, C. (2017): Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics (NBER Working Paper No. 24001). National Bureau of Economic Research. Available at: https://doi.org/10.3386/w24001

Emerson, K., Nabatchi, T. and Balogh, S. (2012): An integrative framework for collaborative governance. Journal of Public Administration Research and Theory, 22(1), 1–29. Available at: https://doi.org/10.1093/jopart/mur011

 © 2026 World Association for Sustainable Development (WASD)

Floridi, L., Cowls, J., King, T.C. and Taddeo, M. (2021): How to design AI for social good: Seven essential factors. In *Ethics, governance, and policies in artificial intelligence* (pp. 125-151). Cham: Springer International Publishing. Available at: https://doi.org/10.1007/s11948-020-00213-5

Freihat, S. M. S., Hashem, T. N., Homsi, D. M. A. and Haikal, E. K. (2023): Analysis of Jordanian commercial banks' business intelligence systems and their emphasis on entrepreneurship. Quality – Access to Success, 24(196), 124–132. Available at: https://doi.org/10.47750/QAS/24.196.17

Ghazal, T. M., Abu-Shareha, A., Mustafa, S. A., Ibrahim, A. and Ahmed, S. M. (2025): Privacy-preserving transformer-based meta-learning algorithm for zero-day intrusion detection in IoT-enabled smart grids. Journal of Internet Services and Information Security, 15(4), 271–282. Available at: https://doi.org/10.58346/JISIS.2025.I4.006

Hashem, T. N. (2024): Examining marketing cyber-security in the digital age: Evidence from marketing platforms. International Journal of Data and Network Science, 8(2), 1141–1150. Available at: https://doi.org/10.5267/j.ijdns.2023.11.020

Jacobides, M. G., Cennamo, C. and Gawer, A. (2018): Towards a theory of ecosystems. Strategic Management Journal, 39(8), 2255–2276. Available at: https://doi.org/10.1002/smj.2904

Khaled Abdullah, S. and Qawasmeh, R. (2025): Navigating the ethical and legal risks of AI marketing in Jordanian SMEs. *EDPACS*, pp.1-16. Available at: https://doi.org/10.1080/07366981.2025.2600205

Khalifa, M., Abdeldayem, M. M., Aldulaimi, S. H., AlSondos, I. A. A., Mokdad, S. S. E. and Alnajjar, I. A. (2025): Leveraging e-Government Platforms to Drive Business Innovation and Collaboration. In Artificial Intelligence in the Digital Era: Economic, Legislative and Media Perspectives (pp. 1619-1630). Cham: Springer Nature Switzerland. Available at; https://doi.org/10.1007/978-3-031-89771-9

Mahafdhah, A.R.M., Melhem, W.A.A., Alghizzawi, M., AlFraihat, S.F., Abu-AlSondos, I.A. and Yaseen, S.G. (2025): The Role of Artificial Intelligence in Generating Effective Marketing Campaigns. In *Applied Artificial Intelligence in Business: Systems, Tools and Techniques* (pp. 137-146). Cham: Springer Nature Switzerland. Available at: https://doi.org/10.1007/978-3-031-90271-0_11

Mustafa, S.A. and Shehada, F.M. (2025): Financial Fraud Detection based Predictive Analytics in High-Frequency Digital Payment Channels. In *2025 3rd International Conference on Cyber Resilience (ICCR)* (pp. 1-7). IEEE. Available at: https://doi.org/10.1109/ICCR67387.2025.11291756

 © 2026 World Association for Sustainable Development (WASD)

Organisation for Economic Co-operation and Development (OECD). (2024): Using AI in the workplace: Opportunities, risks and policy responses. OECD Artificial Intelligence Papers, No. 11. OECD Publishing. Available at: https://doi.org/10.1787/73d417f9-en

Schmidt-Traub, G., Kroll, C., Teksoz, K., Durand-Delacre, D. and Sachs, J. D. (2017): National baselines for the Sustainable Development Goals assessed in the SDG Index and Dashboards. Nature Geoscience, 10(8), 547–555. Available at: https://doi.org/10.1038/ngeo2985

Shehadeh, M., Almohtaseb, A., Aldehayyat, J. and Abu-AlSondos, I. A. (2023): Digital transformation and competitive advantage in the service sector: a moderated-mediation model. Sustainability, 15(3), 2077. Available at: https://doi.org/10.3390/su15032077

Snyder, H. (2019): Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. Available at: https://doi.org/10.1016/j.jbusres.2019.07.039

Teece, D. J. (2018): Business models and dynamic capabilities. Long Range Planning, 51(1), 40–49. Available at: https://doi.org/10.1016/j.lrp.2017.06.007

Tranfield, D., Denyer, D. and Smart, P. (2003): Towards a methodology for developing evidence-informed management knowledge. British Journal of Management, 14(3), 207–222. Available at: https://doi.org/10.1111/1467-8551.00375

United Nations Educational, Scientific and Cultural Organisation (UNESCO). (2022): Recommendation on the ethics of artificial intelligence. UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000381137

United Nations. (2025): The Sustainable Development Goals report 2025. United Nations. Available at: https://unstats.un.org/sdgs/report/2025/

World Economic Forum. (2024): Public–private collaboration for sustainable development. World Economic Forum. Available at: https://www.weforum.org

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BIOGRAPHY

Dr Rasha Qawasmeh is an Associate Professor of Business Management. She holds a PhD in Business Management from Girne American University and an MBA in International Business from the New York Institute of Technology. Her research focuses on strategic management, organisational studies, and contemporary business practices, with particular interests in performance improvement, innovation, and sustainable organisational development. She has contributed to several academic publications and participates actively in research projects addressing emerging challenges in business and management. In addition to her research activities, she is committed to teaching and academic supervision, supporting student development and contributing to the advancement of higher education and scholarly research.

Musab A. M. Al-Tarawni is an academic and industry professional with more than 15 years of experience in teaching, research, engineering, and IT consulting across Europe, Southeast Asia, and the Middle East. His research interests include cybersecurity, artificial intelligence, 5G and 6G wireless technologies, photonic communications, and secure network infrastructures. He has contributed to several scholarly studies focusing on AI-driven threat detection, security operations centre (SOC) integration, and advanced communication security. His work emphasises practical and innovative solutions that bridge academic research with real-world technological applications, supporting the development of secure and intelligent digital systems across academic and industry contexts.

Dr Saed Adnan Mustafa is an Associate Professor of Marketing and Management with over 12 years of experience in higher education, research, and academic leadership. He has served in senior roles, including Head of Department, and has contributed extensively to curriculum development, quality assurance, and accreditation processes. His research focuses on digital transformation, artificial intelligence, FinTech, RegTech, cybersecurity, and sustainable business practices in alignment with the Sustainable Development Goals (SDGs). Dr Mustafa has published widely in Scopus- and Q1-ranked journals and international book chapters and actively supervises postgraduate research. He is the originator of the SAED-Tech conceptual framework for AI-enabled organisational innovation.

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Dr Lana Yasin Ahmad El-Issa is an Assistant Professor at Zarqa University, Jordan. She holds a PhD in Information and Communication Technology (Mobile Applications) from Al-Madinah International University, Malaysia, a Master's degree in Software Engineering from the University of Malaya, and a Bachelor's degree in Computer Science from Mutah University, Jordan. Dr El-Issa has extensive teaching and research experience in Jordan and Malaysia. Her expertise includes mobile applications, software engineering, and e-learning technologies. She has published in IEEE conferences and international journals, with research interests focusing on mobile learning adoption, mobile commerce, digital education, artificial intelligence , the SDGs, and technology-enhanced learning innovation.

Dr Hisham Ali Shatnawi is an Associate Professor of Business Administration at Ajloun National University, Jordan. He received his PhD in Business Administration from Jinan University, Lebanon, in 2012. Dr. Shatnawi has over 25 years of academic and administrative experience in higher education institutions. His research interests include knowledge management, management information systems, digital marketing, sustainable organisational performance, artificial intelligence, the Sustainable Development Goals, and human resource management. He has published numerous research articles in peer-reviewed international journals and actively participates in academic committees and quality assurance initiatives. Dr Shatnawi teaches undergraduate and postgraduate courses in management, marketing, strategic management, and business administration.

Dr Amjad Abu Marouf is a marketing scholar specialising in Green Marketing, Pricing Policies, Marketing Research, and Marketing Information Systems. He holds a PhD in Marketing and has more than six years of university teaching experience in higher education. His research focuses on sustainable marketing strategies, ethical pricing practices, and eco-friendly consumer behaviour in contemporary markets. Dr Abu Marouf has contributed to several academic studies addressing sustainability, AI, the SDGs, and responsible marketing practices. He is committed to integrating sustainability principles, digital transformation, and outcome-based education into modern marketing teaching and research to enhance both academic knowledge and practical business applications.

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