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RESEARCH

From goals to pathways: shaping the future of sustainability after 2030 Agenda

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ABSTRACT

PURPOSE: This paper examines research on achieving the Sustainable Development Goals (SDGs) to propose strategies for advancing sustainability beyond 2030. It argues for a renewed global-local responsibility framework to ensure transformative, community-driven action.

DESIGN/METHODOLOGY: A conceptual, qualitative literature review identifies emerging priorities for sustainability beyond 2030.

FINDINGS: The future agenda should move beyond existing objectives towards an inclusive, participatory model informed by Voluntary National Reviews, higher education, and cross-sector partnerships. Three priorities are emphasised: adapting sustainability indicators to local contexts and indigenous knowledge, fostering collaboration among governments, academia, business, and civil society, and promoting resilience and ethical use of technology.

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ORIGINALITY/VALUE: The paper introduces the Adaptive Sustainability Triangle, highlighting context-specific pathways, collaborative governance, and ethical, resilient systems.

IMPLICATIONS: A shift towards practical strategies is essential to localise indicators, strengthen cross-sector collaboration, and ensure ethical technology application for sustainable development.

KEYWORDS: *Sustainable Development Goals; Post-2030 Agenda; Voluntary National Reviews; Indicators; Resilience; Adaptive Pathways; Collaboration; Ethics; Sustainability; Higher Education Partnerships.*

INTRODUCTION

The context of global sustainability efforts post-2030 requires a shift from rigid frameworks to adaptive strategies. This paper explores the importance of such adaptive frameworks and outlines the methodology and analytical lens used.

Over the subsequent decade, the SDGs have been associated with increased awareness and policy alignment across multiple levels. They have created a sense of collective responsibility through initiatives such as the Voluntary National Reviews (VNRs) that have provided opportunities for countries to report progress and share lessons. According to the studies conducted by Mitchell and Hoke (2025) and Sundarasen *et al.* (2025), universities, private companies, and local communities have integrated the objectives into curriculum, governance frameworks, and collaborative initiatives.

Despite this, it can be said that progress has been identified as uneven and fragmented. Several key global challenges have become worse, such as the increasing levels of inequality, democratic failures, technological inequity, and environmental degradation (Khammassi, 2025; Moallemi *et al.*, 2021). The most vulnerable communities, such as under-developed countries, small island developing states, and indigenous peoples, continue to face structural marginalisation that is intensified by climate change and global crises (Redvers *et al.*, 2023). It has been found that the focus on economic growth is considered as a limitation because structural inequalities have not been addressed sufficiently (Borim-de-Souza *et al.*, 2023; Cernev and Fenner, 2024).

As the 2030 deadline approaches, the international community is facing increasing demands for accountability. According to Moallemi *et al.* (2021) and Cernev and Fenner (2024), the plan after 2030 will need to be more adaptable, involve more people, be based on ethics, and be able to adapt to new risks and changing global situations.

The aim of this paper is to consider possible pathways for sustainability beyond Agenda 2030. It examines both achievements and shortcomings of the SDGs, with

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particular reference to the role of VNRs, cross-sectoral partnerships, education, and indigenous knowledge systems. The paper therefore contributes to the academic debate with the identification of potential elements for a post-2030 framework that could be context-specific and globally coherent. A future agenda will need to balance universal commitments with local agency and give priority to equity and resilience, together with the inclusion of mechanisms designed to sustain accountability.

BACKGROUND AND LITERATURE REVIEW

Insights are drawn from Voluntary National Reviews (VNRs), Prince Sultan University's (PSU) best practices, and higher education initiatives that integrate Sustainable Development Goals (SDGs). Existing models of cross-sectoral partnerships are also reviewed.

Achievements of the SDGs

The SDGs have been successful in part because they have helped raise consciousness and form a shared vision for sustainability. Unlike the Millennium Development Goals (MDGs), which largely focused on developing countries, the SDGs have emphasised universal participation from both developed and developing states (OECD, 2024). The change that occurs is linked to the call for more collaboration and improved participation from universities, businesses, and civil society groups (Mitchell, 2025).

At the national level, there are governments that have been reported to incorporate the SDGs into their policies and institutional regulations. A number of countries created co-ordinating bodies, decentralised governance systems, and mechanisms for involving a wide range of stakeholders. For example, the Italian government adopted the National Sustainable Development Strategy (NSDS) and established mechanisms that helped its government to develop locally aligned sustainable plans with the SDGs. It has been noted that institutionalisation has often been accompanied by innovations in monitoring, including the adoption of citizen-generated data (CGD) and artificial intelligence (AI).

Universities have also been recognised as significant in bringing the SDGs into curriculum and research agendas, so as to encourage the emergence of new generations of sustainability leaders. For instance, Prince Sultan University (PSU) in Saudi Arabia has made sustainability a component of its curriculum, extracurricular activities, and relationships with businesses; this gives students a chance to put global commitments

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into action (Mitchell and Hoke, 2025). It is important to note that these kinds of attempts have been called "bridging theoretical knowledge with applied experience".

Cross-sector partnerships (CSPs) have been further recognised as an area where the SDGs have contributed. They have provided means of pooling resources and knowledge across governmental, private, and non-profit sectors. Despite the fact that some scholars have viewed them as contested (Borim-de-Souza *et al.*, 2023), these partnerships have been associated with innovative financing and novel models of implementation, which are consistent with SDG 17's emphasis on co-operation.

Shortcomings of the SDGs

One of the main shortcomings that have been noted for SDGs is that they often dilute the potential impact and create conflicts while also leading to unequal implementation (Cernev and Fenner, 2024; Moallemi *et al.*, 2021). It has been seen that some countries have been able to align their policies with the SDG objectives (Khammassi, 2025). However, other countries have experienced challenges to SDG implementation due to political instability or insufficient institutional capacity (Khammassi, 2025). It is outlined that putting too much focus on economic goals in the framework could undermine social and environmental goals and make structural inequities worse (Borim-de-Souza *et al.*, 2023; Purvis *et al.*, 2019). The challenges are also linked with cross-sector co-operation, where the focus is more on efficiency and financial results rather than inclusion and equality.

Environmental goals have seen slow progress, and indicators relating to biodiversity, sustainable consumption, and climate action have shown limited or even negative movement (Moallemi *et al.*, 2021; UN, 2024). It has been projected that the full achievement of all SDG targets by 2030 would be unlikely, thereby suggesting the need for longer-term strategies (Moallemi *et al.*, 2021). It has also been observed that SDG indicators do not have appropriate context sensitivity and have often failed to incorporate diverse knowledge systems. Traditional ecological knowledge has been neglected as an independent epistemology, despite indigenous communities' repeated calls for its use in adaptation and sustainability efforts (Ciocco *et al.*, 2024; Carrin, 2024; Redvers *et al.*, 2023).

Sustainability reporting has also been noted as problematic. While it has become increasingly widespread, it has often displayed a disconnect between disclosure and measurable outcomes. The literature claims that there are some firms that have engaged in greenwashing and have used the sustainability frameworks to improve their corporate image without actually making a real impact (Sundarasen *et al.*, 2025).

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Voluntary National Reviews (VNRs)

The VNRs have been viewed as a central mechanism for monitoring and reporting progress on the SDGs (UN, 2022). They have allowed countries to exchange lessons, identify challenges, and demonstrate openness. Civil society, academia, and local governments have increasingly taken part, which has been linked to stronger accountability. However, limitations such as a lack of data and disaggregated measures have made it hard to track, especially for groups that are already struggling. Because these mechanisms are voluntary, there is no sense of accountability and enforcement capacity is also limited. This situation has prompted debate on whether a post-2030 framework may require binding obligations or stronger monitoring mechanisms, as suggested by Cernev and Fenner (2024).

Post-2030 Agenda

There are several opinions on what the ideal post-2030 agenda should be. It is considered that there is a need for a more streamlined framework grounded in science and oriented towards environmental preservation (Cernev and Fenner, 2024; Moallemi *et al.*, 2021). Cernev and Fenner (2024) proposed an agenda organised around seven goals, complemented by regular risk assessments. In addition, Moallemi *et al.* (2021) proposed a sustainable development target space that has interrelated objectives rather than single-metric objectives.

On the other hand, researchers such as Carrin (2024) and Redvers *et al.* (2023) have outlined that it is vital to include indigenous knowledge systems, cultural regeneration, and self-determination into any future sustainability frameworks. Work on climate adaptation has indicated that incorporating indigenous knowledge requires long-term, trust-based relationships (Ciocco *et al.*, 2024). Financial and technological innovation has also been identified as an area of opportunity because it has been reported to mobilise capital for renewable energy and improve transparency in project financing (Saqib *et al.*, 2023). Universities and non-profit organisations are supporting sustainability leadership and strengthening the local agency despite financial limitations (Ba *et al.*, 2024; Mitchell, 2025).

Governance considerations have remained prominent. OECD (2024) points to the importance of stronger policy coherence and local government empowerment, together with broader financing. However, as demonstrated in Tunisia, political upheavals and democratic regression have the potential to stop or reverse the progress made in the process of development (Khammassi, 2025). Future frameworks need to create

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a balance between universality and contextual adaptation; they also need to contain mechanisms that allow accountability and flexibility.

METHODOLOGY

This study employs a conceptual and qualitative literature review methodology to identify emerging themes for sustainable development beyond 2030. The review focused on peer-reviewed articles, policy reports, and synthesis documents related to the Sustainable Development Goals (SDGs) (UN, 2024), Voluntary National Reviews (VNRs), cross-sector partnerships, and indigenous knowledge systems. The literature was collected and then analysed thematically to extract insights on achievements, shortcomings, and future pathways based on the results of the collected articles. Particular attention was paid to frameworks that emphasise adaptability, collaboration, and ethical technology use. The Adaptive Sustainability Triangle was developed as a conceptual model based on recurring themes in the literature, integrating context-sensitive indicators, collaborative governance, and digital equity. The study emphasises the role of universities, civil society, and technology in shaping resilient futures, and proposes a new contract of responsibility linking global aspirations with local realities.

This study employs a conceptual and qualitative literature review methodology to identify emerging themes for sustainable development beyond 2030. This approach is well-suited for synthesising diverse insights across disciplines and sectors, especially in complex and evolving fields such as sustainability (Snyder, 2024). It enables the integration of theoretical constructs with practical observations, facilitating the development of new conceptual models and frameworks.

The review focused on peer-reviewed articles, policy reports, and synthesis documents related to the Sustainable Development Goals (SDGs), Voluntary National Reviews (VNRs), cross-sector partnerships, and indigenous knowledge systems. After collecting the literature, a thematic analysis was used to extract insights on achievements, shortcomings, and future pathways (Braun and Clarke, 2023). This method takes into account the identification of patterns and themes within qualitative data, allowing for flexibility and depth in deciphering complex social and environmental phenomena (Mortazavi *et al.*, 2025).

Justification of Approach

The approach of conceptual and qualitative review was selected for several reasons:

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- it allows for interdisciplinary synthesis of fragmented knowledge across policy, academia, and practice (Snyder, 2024);
- it supports the development of conceptual models, such as the Adaptive Sustainability Triangle proposed in this study;
- it is particularly effective for policy-relevant synthesis, especially when primary data collection is impractical or when the goal is to inform future frameworks (Onwuegbuzie *et al.*, 2012);
- it enables contextualisation of global goals within local realities, which is essential for post-2030 sustainability planning.

Adaptive Frameworks Referenced

Several adaptive frameworks were reviewed and informed the development of the Adaptive Sustainability Triangle, which integrates:

- context-sensitive indicators (e.g., resilience, equity, cultural well-being);
- collaborative governance across sectors;
- digital equity and ethical innovation.

Examples of adaptive frameworks include:

- **Ecosystem-based Adaptation (EbA):** This is a nature-based strategy that builds resilience by integrating biodiversity and ecosystem services into climate adaptation efforts (IUCN, 2024).
- **Collaborative Adaptive Network Governance (CANG):** This is a model that combines network, collaborative, and adaptive governance principles to address sustainability challenges through inter-organisational co-operation (van der Waldt, 2025).
- **Triple A Governance (Anticipatory, Agile, Adaptive):** This governance model is designed to respond to complex crises with foresight, agility, and inclusivity (ESCAP, 2023).
- **Adaptive Sustainability Frameworks:** These are iterative models developed to guide organisations and communities in adjusting their strategies based on real-world feedback and evolving conditions (CSD, 2025).

These frameworks and the literature collected are the basis for the conceptual development of the Adaptive Sustainability Triangle mentioned in the findings and

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discussion section. This emphasises the dynamic interaction between local knowledge, institutional collaboration, and ethical technology use.

FINDINGS AND DISCUSSION

The literature review revealed several key findings that were found to be interesting. First, while the SDGs have increased global awareness and institutional engagement, it is still showing that progress remains uneven due to structural inequalities and limited contextual adaptation. Second, voluntary mechanisms such as VNRs have fostered transparency but lack enforcement capacity. Third, indigenous knowledge systems are under-utilised despite their relevance to climate adaptation. Fourth, the data from the literature revealed that cross-sector partnerships have enabled innovation but require stronger equity frameworks. Finally, ethical technology use and digital equity are emerging priorities for future sustainability agendas as we continue to move forward into the digital era.

Data Obtained from the Literature

Theme 1: Context-sensitive indicators and indigenous knowledge

This theme explores how local indigenous knowledge strengthens sustainability assessments. Research shows that global development models must adapt to local contexts. The growing shift towards community-led sustainability planning, with indigenous ways of understanding the environment. As Table 1 shows, sustainable strategies that are rooted in local context and culture are most effective.

Table 1: Literature on Context-sensitive indicators and indigenous knowledge

Author(s) and year	Key findings/arguments	Methodology	Relevance to research
Carrin (2024)	Values the importance of decentralisation and localising adaptation and integration of traditional knowledge into national development models.	Synthesis of 36 country VNRs and policy reviews	Very High
Carrin (2024)	Raises the significance of native epistemologies in sustainability science and recommends that they be included in the models of development of the world.	Qualitative anthropological analysis	Very High

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Author(s) and year	Key findings/arguments	Methodology	Relevance to research
Ciocco *et al.* (2024)	Elaborates on the climate that the indigenous knowledge assists in climate adaptation, founded on collaborative methods and trust.	Mixed methods case study of community-led projects	High
Redvers *et al.* (2023)	Illustrates connections between climate-resilient strategies of health and well-being and conventional knowledge systems.	Literature synthesis and comparative analysis	High
Moallemi *et al.* (2021)	Understands that context-specific indicators and multi-pathway models are necessary to evaluate sustainability trade-offs.	Quantitative pathway modelling and systems analysis	High

Source: Compiled from Carrin (2024), Ciocco *et al.* (2024), Redvers *et al.* (2023), and Moallemi *et al.* (2021); adapted by the researcher.

Theme 2: Cross-sector partnerships and collaborative governance

This theme examines how collaboration between governments, community organisations, universities, researchers, and companies can achieve better sustainability outcomes. Research identifies key tools like coordination platforms and shared accountability that help align different initiatives. These partnerships are essential for dealing with complex challenges that need diverse expertise. Table 2 highlights how cross-sector collaboration strengthens governance and make sustainability efforts more inclusive.

Table 2: Literature on Cross-sector partnerships and collaborative governance

Author(s) and year	Key findings/arguments	Methodology	Relevance to research
OECD (2024)	Highlights the increased engagement of civil society, academia, and local governments; emphasises the importance of collaborative accountability mechanisms.	Synthesis of global VNR submissions and comparative policy review	Very High
Ba *et al.* (2024)	Finds that non-profit and academic institutions play a mediating role in achieving sustainability transitions through multi-actor partnerships.	Empirical quantitative and policy-based analysis	High
Borim-de-Sou-za *et al.* (2023)	Looks at power imbalances and over-optimism in cross-sector partnerships with a critical eye and calls for better control structures.	Critical review and cross-case analysis	High
Van Tulder *et al.* (2015)	Suggests ways to make relationship management, responsibility, and measuring effects better across all fields.	Conceptual and comparative model analysis	High
OECD (2024)	Recommends multi-level co-ordination mechanisms and inclusive policy coherence between public, private, and community actors.	Policy synthesis and institutional case analysis	Very High

Source: Compiled from Ba *et al.* (2024), Borim-de-Sou-za *et al.* (2023), Van Tulder *et al.* (2016), and OECD (2024); adapted by the researcher.

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Theme 3: Ethical Technology, Digital Equity, and Resiliencee

This part focuses on how digital technology, ethical governance, and sustainability intersect. Studies show that technology can drive real progress in supporting green solutions, and transparency in creating a fair sustainability transition. Digital inclusion matters just as much as technology itself. Table 3 captures how technology can either advance or undermine sustainability goals, emphasising the importance of ensuring digital access and responsible innovation.

Table 3: Literature on Ethical Technology, Digital Equity, and Resilience

Author(s) and year	Key findings/arguments	Methodology	Relevance to research
Saqib *et al.* (2023)	Develops a data-driven framework showing how digital technologies can accelerate the green transition and improve sustainability outcomes.	Quantile-based econometric modelling	Very High
Cernev and Fenner (2024)	Argues for systemic reform in sustainability frameworks and governance to integrate ethics, technology, and climate resilience post-2030.	Scenario modelling and policy synthesis	High
Sundarasen *et al.* (2025)	Identifies sustainability reporting as a governance tool that enhances accountability through digital transparency.	Bibliometric and content analysis	High
OECD (2024)	Describes how digital inclusion, ethical technology use, and global policy consistency are all important for a strong government.	Policy report synthesis	Very High
Mitchell (2025)	Explores the role of digital ethics and sustainability practices in higher education as part of institutional resilience.	Qualitative institutional analysis	Moderate–High

Source: Compiled from Saqib *et al.* (2023), Cernev and Fenner (2024), Sundarasen *et al.* (2025), OECD (2024), and Mitchell and Hoke (2025); adapted by the researcher.

Redefining Sustainability Indicators

The criticism of the existing SDG indicators does not imply that they are irrelevant, rather that, due to standardisation and top- down approaches, they are usually not effective or even counter-productive at the local level (Lella *et al.*, 2024). According to Moallemi *et al.* (2021), the first weakness is the so-called one-size-fits-all approach; this does not adequately reflect the reality of the diverse communities, especially the Global South, indigenous populations, and marginalised groups. An example is that a universal indicator of the quality of water might ignore local cultural practices and traditional water management practices that are critical to long-term resilience but are not measured with standardised measures. The resulting disconnection may result in

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policies that, even though well-intended, destabilise the current sustainable practices and epistemic justice.

To overcome this, context-sensitive metrics that will be used in the post-2030 agenda should promote global standards alongside locally set priorities (Wilts, 2024). The paper suggests a shift to such indicators that measure resilience (the ability of a community to adjust to shocks and stresses), equity (the equal distribution of benefits and burdens of sustainability), and cultural well-being (the health of indigenous languages, knowledge systems, and cultural practices). Just as Carrin (2024) and Redvers *et al.* (2023) point out, indigenous epistemologies can provide elaborate, time-honoured approaches to ecological balance and the health of the community.

Strengthening Collaboration

Although cross-sector partnerships (CSPs) have become a foundation of SDG 17, their application has demonstrated a big gap, specifically with regard to power imbalances and accountability. As has been stated by the literature such as Borim-de-Souza *et al.* (2023), most CSPs are corporate or even state-dominated organisations that focus on efficiency and financial gains rather than on actual inclusion and equity. This will result in partnership washing where the semblance of co-operation covers business-as-usual practices, which propagate structural inequalities. The problem thus lies in how they can be redesigned to be based on fair governance (Øjvind Nielsen, *et al.*, 2024).

Universities have a unique potential to play the role of catalysts in this reconfigured landscape, as critical hubs or as honest brokers between research, policy, and practice. Academia can also turn theoretical knowledge into applied solutions, drive the inter-sectoral discussion, and allow controversial issues to be discussed on an equal footing, as seen in the initiatives at Prince Sultan University (Mitchell and Hoke, 2025). More than this, it is through universities that the leaders of sustainability in the future will develop interdisciplinary and ethical training to work collaboratively in complex manners. At the same time, civil society organisations (CSOs) are also essential in keeping people accountable. An institutionalisation of their involvement in a post-2030 framework should transfer the token consultation to shared decision-making. This necessitates well-developed governance frameworks, informed by models such as Collaborative Adaptive Network Governance (van der Waldt, 2025; Vázquez-Brust *et al.*, 2020), where roles, responsibilities, and conflict management strategies are well spelt out so that collaborations are transparent, accountable, and focused on a collective public-good purpose as opposed to selfish institutional concerns.

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Technology, Resilience, and Ethics

The potential of emerging technology, whether AI and big data, renewables or biotechnology, is a tremendous contributor to the acceleration of sustainable development. Digital technologies can maximise the utilisation of available resources, open access to information, and increase the transparency of sustainability reporting (Saqib *et al.*, 2023; Sundarasen *et al.*, 2025). This potential is, however, limited by the continued existence of the digital divide, restricting access to innovation to the most vulnerable groups in the world, further contributing to the impact of existing inequities. Moreover, the fast introduction of technologies such as AI poses serious threats, such as bias in algorithms, infringement of data privacy and unemployment that can threaten social cohesion and equity unless regulated.

The post-2030 era has to shift the current trends of techno-optimism and proactively incorporate ethics and resilience as central features of technological innovation. This comes in a two-pronged approach. First, it needs a concerted international campaign to close the digital divide by investing in infrastructure, digital literacy initiatives and providing affordable access to ensure the benefits of technology are universally distributed. Second, and more fundamentally, it requires the creation and implementation of powerful technology governance ethical systems. It implies the creation of AI systems that are open, just and responsible, fostering circular economy principles within tech production to become more environmentally resilient and making sure that any breakthrough in the biotech industry is guided by the principles of equity and justice. Technology should be a means of empowerment and not marginalisation, as Cerner and Fenner (2024) contend.

PATHWAYS BEYOND 2030

A shift from fixed targets to adaptive pathways is proposed. These pathways allow flexibility while maintaining shared global principles. A "new contract of responsibility" is introduced, linking global aspirations with local practices and emphasising inclusivity, justice, dignity, and fairness (Mun *et al.*, 2023). A comprehensive approach to post-2030 sustainable development that integrates context-sensitive measurement, collaborative governance, and ethical technology deployment is needed. Based on the findings from the literature, the following framework was created.

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The Adaptive Sustainability Triangle Framework

The Adaptive Sustainability Triangle framework (Figure 1) offers a model of post-2030 sustainability that revolves around three relationships: context-specific pathways that incorporate local knowledge and indicators to make it relevant and culturally competent; collaborative governance that organises multi-stakeholder relationships in a way that is equitable and accountable, and ethical, resilient systems that mediate the digital divide and institute justice into technological innovation. The framework does not adhere to the strict, top-down goals, and instead adopts a dynamic and responsive one, where the ongoing process of interaction between locally based action, fair relationships and responsibly used technology forms a synergistic basis of truly transformative and sustainable development.

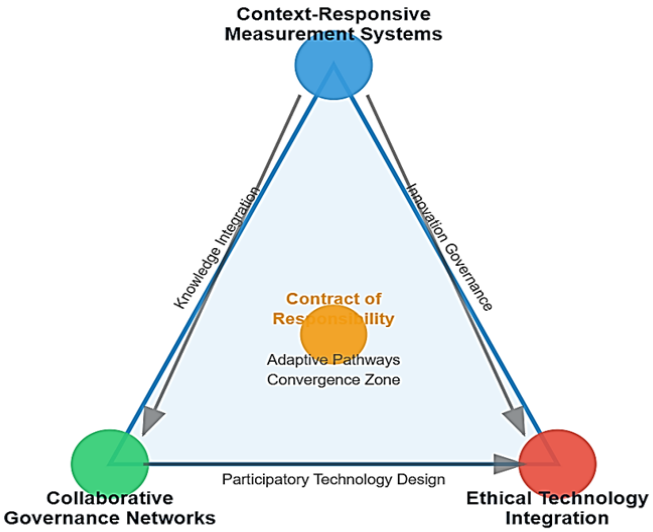


Figure 1: The Adaptive Sustainability Triangle
Source: Developed by authors

CONCLUSIONS

As the 2030 deadline approaches, it has become more apparent that there is a need to rethink global sustainability frameworks. The Adaptive Sustainability Triangle offers a pathway that balances universal goals with local agency, emphasising collaboration, ethical responsibility, and resilience. Future agendas must move beyond rigid targets and embrace adaptive pathways that are responsive to evolving challenges. By

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integrating diverse knowledge systems and empowering communities, sustainable development beyond 2030 can be both transformative and inclusive. Sustainable development after 2030 must be practical, transformative, and inclusive.

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Dr Connie Mitchell is a seasoned educator and academic leader with over 28 years of experience in university-level teaching, curriculum innovation, and institutional development. She currently serves as Director of the Teaching and Learning Centre and the Writing and Tutoring Centre at Prince Sultan University, where she has also held roles as Vice Dean of the Deanship of Quality Assurance and Development, Vice Dean of the College of Humanities and Sciences, and Chair of the English Department. Dr Mitchell is a Higher Education Academy Principal Fellow and recipient of Education First's Teaching Excellence Award (2020). She chairs the Arab Consortium of Teaching Learning Centres (ACTLC) Board and serves on the Board of Directors for the Ministry of Culture's Literature, Publishing, and Translation Commission. Her research interests include academic writing, faculty development, and sustainable education practices. She received a Sustainability Champion Award in 2023 and has also achieved Carbon Literacy Certification.



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