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Editorial: Smart sustainable development: exploring innovative solutions and sustainable practices for a resilient future

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Editorial on the Research Topic

[Smart sustainable development: exploring innovative solutions and sustainable practices for a resilient future](#)

This Research Topic of Frontiers in Sustainability presents a diverse array of articles that collectively contribute to the multifaceted discourse on sustainability. The majority of these articles were presented at an annual international conference and project showcase, Smart Sustainable Development (SSD) 2024, for a community of sustainability practitioners to share research with a focus on innovation.

By grouping the articles produced by subject matter, we can better appreciate how they address common challenges and opportunities from different perspectives. This editorial highlights the commonalities within each group and explores how their findings complement each other in advancing sustainability, all framed within the context of the United Nations' Sustainable Development Goals (SDGs).

Education and inclusivity

Four articles focus on education, emphasising its critical role in fostering sustainable practises and inclusivity:

- AI and student assessment in human centred education ([Balducci](#)).
- Quality education for all: a case study of success for a neurodivergent learner ([Ker and van Gorp](#)).
- The significance of global nature-based education to ensure a sustainable world: an urgent need for change ([Du Plessis and Postlewaigh](#)).
- Embedding Te Whare Ako and Te Hono o Te Kahurangi to achieving SDG-4 in Tertiary Education in Aotearoa New Zealand ([Shadbolt et al.](#)).

These articles converge on the theme of enhancing educational frameworks to promote sustainability and inclusivity. They address the need for innovative assessment methods that leverage AI to create equitable learning environments, highlight strategies to support neurodivergent learners, and advocate for the integration of Indigenous knowledge systems into tertiary education. Together, they underscore the importance of accessible and culturally relevant education as a foundation for sustainable development.

When these contributions are framed within **SDG 4: Quality Education**, it becomes evident that achieving inclusive and equitable quality education is essential to fostering sustainable development.

Moreover, these educational initiatives contribute to **SDG 10: Reduced Inequalities** by addressing disparities in educational access and outcomes among diverse populations. These articles advocate for a more equitable approach to education that empowers all individuals by promoting tailored educational strategies that consider different learning needs and cultural backgrounds.

Sustainable practises in agriculture and construction

A second group of articles examines sustainability in specific industries, particularly agriculture and construction:

- Addressing barriers and unveiling opportunities for plastic waste recycling in the New Zealand construction industry (Thomson et al.).
- Tomato disease detection with lightweight recurrent and convolutional deep learning models for sustainable and smart agriculture (Le et al.).

These contributions highlight the significance of adopting sustainable practises in their respective sectors. The construction article identifies barriers to effective recycling of plastic waste and proposes practical solutions to enhance recycling rates and reduce contributions to landfills. In parallel, the agriculture article showcases technological innovations that improve disease detection in crops, thereby increasing efficiency and sustainability. Both articles emphasise the need for industry-specific strategies that not only address waste management but also enhance resource efficiency, ultimately contributing to a circular economy. This aligns with **SDG 12: Responsible Consumption and Production** but the focus on sustainable agriculture practises also links to **SDG 2: Zero Hunger**, as improving agricultural efficiency directly impacts food security.

Motivations and behaviour change

Two articles delve into understanding the motivations that drive sustainable behaviour:

- Exploring the motivation of sustainable commuting: a case study of international students in Otago Polytechnic Auckland International Campus (Petrisia et al.).
- Action learning for change management in digital transformation (Ruhland and Jung).

The commuting article investigates the factors influencing international students' choices regarding sustainable transportation options, providing insights into how personal motivations can lead to broader environmental benefits. The change management article discusses strategies for fostering organisational commitment to sustainability during digital transformations. Together, they illustrate how understanding motivation—whether individual or organisational—can catalyze significant shifts toward more sustainable practises.

This exploration is closely tied to **SDG 11: Sustainable Cities and Communities**, which emphasises the need for inclusive, safe, resilient, and sustainable urbanisation. By understanding what motivates individuals to adopt sustainable commuting habits, cities can develop targeted policies that promote public transport use, cycling, and walking—thereby reducing traffic congestion and lowering greenhouse gas emissions. Additionally, these articles relate to **SDG 13: Climate Action**, as promoting sustainable commuting directly contributes to reducing greenhouse gas emissions associated with transportation, thereby fostering healthier urban environments.

Frameworks for sustainable development

The final group of contributions includes articles that propose transformative frameworks aimed at redefining value dynamics in contemporary contexts:

- Understanding the future of carbon neutrality in the culinary arts through non-representational theory, practise theory, and design (Lynch).
- Sustainable digital rent: a transformative framework for value dynamics in the digital age (Özdilek).

These contributions emphasise the need for innovative frameworks that can guide industries toward sustainability. The culinary arts article explores how carbon neutrality can be achieved through thoughtful design and practise, while the digital rent article introduces a framework for creating sustainable value in digital economies. Both studies advocate for a rethinking of traditional approaches to value creation, suggesting that transformative frameworks are essential to address contemporary sustainability challenges.

These discussions resonate with **SDG 9: Industry, Innovation, and Infrastructure**, which calls for building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation.

These frameworks also align with **SDG 8: Decent Work and Economic Growth** by promoting sustainable economic growth through innovative practises. By redefining value creation in

industries such as the culinary arts and the digital economy, these articles illustrate how businesses can thrive while adhering to principles of sustainability.

Conclusion

This Research Topic encapsulates a rich tapestry of international research that collectively advances our understanding of sustainability across multiple domains. By addressing common challenges from multiple angles—education, industry practises, behaviour change, and innovative frameworks—these articles provide valuable insights into how we can collectively navigate the complexities of sustainability.

As we face an increasingly urgent global context marked by environmental degradation and social inequities, these diverse perspectives offer pathways to a more sustainable future grounded in collaboration, innovation, inclusivity, and resilience.

Through continued dialogue between researchers, practitioners, policymakers, and communities worldwide, we can cultivate a resilient society that is equipped to thrive sustainably in the midst of change. This collective effort will be essential as we strive to fulfil our commitments under the SDGs while ensuring a just transition to sustainability for all.

Author contributions

T-AB: Project administration, Writing – review & editing. JB: Writing – original draft. LM-E: Writing – review & editing. FO: Writing – review & editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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