

Decolonising Digital Co-Creation: Epistemic Pluralism and Indigenous Knowledge in Extended Reality (XR) Co-Creation for Climate Resilience

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ABSTRACT

Indigenous groups are increasingly involved in digital climate innovation work, but their engagement with these new technologies can raise ethical and governance issues. This article explores the co-creation of extended reality (XR) prototypes for climate resilience with a Māori *hapū* (clan) in Hawkes Bay, New Zealand, focusing on how agency, cultural protocols, and data sovereignty were negotiated in participatory innovation processes. Drawing on the concepts of epistemic pluralism and responsible innovation, the study reveals problematic power imbalances, with external control over data limiting Indigenous decision-making. Discussions around the digitization of culturally sensitive knowledge further exposed tensions around cultural protocols, ownership, and long-term stewardship. While frameworks such as OCAP® and the CARE Principles informed the project, their implementation remained uncertain in practice. The article argues that ethical digital co-creation with Indigenous peoples requires structural change beyond participation, including the centering of Indigenous governance, the embedding of data sovereignty in digital systems, and commitments to long-term accountability.

Keywords: *Indigenous Knowledge; Extended Reality (XR); Co-Creation.*

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INTRODUCTION

As the world grapples with increasingly complex environmental challenges, Indigenous peoples and their knowledge systems have gained significant attention for their potential to guide sustainable futures (Lam, Hinz et al., 2020). Emerging technologies like Extended Reality (XR) offer new opportunities for bridging traditional Indigenous knowledge systems with cutting-edge digital solutions aimed at addressing urgent issues such as climate change, ecological stewardship, and biodiversity conservation (Barcham, 2026). Collaborative design processes, particularly co-creation, have become important tools in these efforts, enabling the engagement of Indigenous perspectives with these technological innovations. However, despite the promise of these co-creation models as being inclusive and participatory, there is a critical need to examine how they redistribute agency among stakeholders, address colonial legacies, and respect Indigenous governance frameworks. XR projects co-created with Indigenous communities, while often celebrated for their collaborative nature, raise important questions about the handling of cultural protocols and ethical stewardship in technology-driven collaborations (McMahon, Almond et al., 2019). Specifically, how are Indigenous knowledge systems represented and safeguarded, particularly regarding issues such as data sovereignty and the ongoing

utilisation of cultural protocols? This article seeks to explore these questions by critically examining how co-creation practices in an XR project with a specific Indigenous community in Hawkes Bay, New Zealand navigated the tensions between open, collaborative innovation and the operation of the cultural frameworks and knowledge practices of the community.

THEORETICAL BACKGROUND

With its roots in participatory design and open innovation models, the theory behind co-creation and collaborative innovation has from its very beginning emphasised collective input from diverse stakeholders to generate new ideas and solutions (Brown and Wyatt, 2010). However, while these frameworks provide a strong foundation for collaborative practices, they often assume a universalist approach that may overlook the complexities inherent in Indigenous knowledge systems and governance. The issue at hand is that Indigenous systems can be extraordinarily diverse and can prioritise selective visibility, opacity, and relational knowledge as systemic goods – approaches that can be at odds with the more open and inclusive assumptions of participatory design (Barcham, 2023) and open innovation models. Consequently, there is a need for a more nuanced approach to approaching the process of co-creation that



respects Indigenous ways of knowing and being if we want to position co-creation as a mechanism that brings together diverse perspectives and produces outcomes that are richer, more equitable, more just and potentially more sustainable.

Participatory approaches have, however, long been subject to critical scrutiny across multiple disciplines, with scholars repeatedly demonstrating that the rhetoric of participation does not necessarily translate into the redistribution of power. Arnstein's (1969) influential "Ladder of Citizen Participation" remains foundational in distinguishing between forms of participation that merely inform or consult participants and those that genuinely transfer decision-making authority. From this perspective, many participatory initiatives occupy the lower rungs of participation, offering inclusion without substantive control. Later critiques have extended this argument by showing how participatory processes can themselves become mechanisms through which existing institutional power is reproduced. Cooke and Kothari's (2001) influential critique of the "new tyranny" of participation argues that participatory methods may obscure unequal power relations by presenting consensus and inclusion as inherently democratic while leaving structural inequalities intact. Similar concerns have been raised within critical heritage and museum studies, where Onciul (2015) demonstrates that collaborative engagement with Indigenous communities can remain extractive when Indigenous peoples are invited to contribute knowledge but are not empowered to determine how that knowledge is interpreted, represented, or governed. Collectively, this interdisciplinary literature suggests that participation should not be evaluated solely by the presence of collaborative processes but by whether authority, accountability, and governance are substantively redistributed. These insights provide an important foundation for examining digital co-creation with Indigenous communities, where technological innovation introduces additional questions concerning data sovereignty, cultural protocols, and the governance of digital knowledge.

Similarly, while the language of participation has increasingly been accompanied by calls to "decolonise" research and innovation, decolonization itself is a contested concept that extends well beyond improving inclusion within existing institutional arrangements. Foundational decolonial scholars argue that colonialism should be understood not only as a historical event but as an enduring structure that continues to shape knowledge, institutions, and relations of power (Quijano, 2007; Mignolo and Walsh, 2018). From this perspective, decolonization involves challenging the coloniality of knowledge by questioning whose knowledge is recognised as legitimate, who exercises authority over its production and circulation, and whose interests technological and institutional systems ultimately serve. Within Indigenous scholarship, however, there has also

been an important insistence that decolonization should not become a metaphor for general institutional reform. Tuck and Yang (2012) argue that decolonization requires the restoration of Indigenous self-determination and cannot be reduced to just more inclusive participation or symbolic recognition within existing colonial structures. In the context of digital innovation, this distinction is particularly significant. A project may employ participatory methods while nevertheless reproducing colonial relations if governance, ownership, and decision-making authority remain concentrated within external institutions. In this article, therefore, decolonizing digital co-creation refers not simply to increasing Indigenous participation in technological development but to restructuring innovation processes so that Indigenous communities exercise meaningful authority over the governance of knowledge, data, and technological futures. This understanding aligns with the broader emphasis in Indigenous research methodologies on relational accountability, self-determination, and the recognition of Indigenous peoples as knowledge authorities rather than stakeholders within externally defined innovation systems (Smith, 1999).

A useful way to approach these ideas is through the lens of epistemic pluralism, which is the view that there are multiple valid ways of knowing and justifying knowledge in the world rather than a single universal method (Coliva and Jang Lee Linding Pedersen, 2017). A key insight from epistemic pluralism is that knowledge is inherently diverse and context-dependent (Tengö, Brondizio et al., 2014). In this view, the engagement of Indigenous knowledge systems with digital co-creation projects, such as the use of XR technologies in extending climate change adaptation systems, should not aim to subsume these practices within Western scientific frameworks. Rather, it should foster mutual learning, allowing Indigenous knowledge to be recognised on its own terms. This dynamic exchange between Indigenous and Western knowledge systems challenges the assumption that scientific knowledge is the sole valid form, offering the opportunity to shed light on blind spots within both systems. By recognizing Indigenous knowledge as a legitimate and robust resource of knowledge we can more effectively address global challenges through co-creation processes without reinforcing colonial structures of domination and control.

Central to these concerns are concepts such as data sovereignty, which refers to the right of Indigenous communities to control the collection, management, and use of their own data (Kukutai & Taylor, 2016). This is particularly crucial in XR projects, where the potential for data exploitation, especially in digital and immersive environments, can undermine cultural ownership and perpetuate colonial continuities. The tension between cultural protocols and technological infrastructures presents a significant challenge as XR projects can sometimes be built out on platforms, based on a fully

open distribution of data, that may not respect the ethical imperatives of Indigenous knowledge governance systems (Pierucci, 2025). This transition from local, community-based contexts to larger, institutionalised networks can heighten the ethical concerns surrounding authorship, ownership, and accountability. It is important that these issues are addressed carefully to help ensure that co-created outcomes are just, sustainable, and aligned with the values of all of the various communities involved.

In this context, the work of responsible innovation (RI) and the various frameworks around the reimagining of responsible research and innovation (RRI) become highly relevant. Traditionally, RRI frameworks, especially those emerging from the European context, have focused more heavily on human-centric design and societal acceptability (Stilgoe, Owen et al., 2013). However, there is an increasing recognition of the need to adapt these frameworks to Indigenous contexts, incorporating Indigenous worldviews, relational knowledge, and related knowledge governance systems (Ludwig and Macnaghten 2020). In making these ideas concrete, scholars like Lewis, and Whaanga et al. (2025) argue that Indigenous knowledge systems must be engaged with innovation processes at multiple levels including through the use of relational ethics, mutual respect, and adherence to Indigenous protocols. These types of shifts can help move the focus on innovation through co-creation away from anthropocentric views of technology, rooted in colonial histories, and towards more inclusive, decolonised innovation practices.

METHOD AND DATA

In attending to these issues, this study explores the co-creation of extended reality (XR) prototypes aimed at enhancing climate resilience with a specific Māori *hapū* (clan) in Hawke's Bay, New Zealand (Barcham, 2026). Māori are the Indigenous peoples of New Zealand. The research employed a participatory approach operationalised through a series of workshops, which brought together a diverse range of participants, including *kaumātua* (elders), youth, local government representatives, and environmental experts. The central methodological framework was iterative co-design, in which participants collaboratively developed and refined XR prototypes representing various climate futures. These XR prototypes were designed to simulate potential environmental challenges and explore adaptive solutions, with an emphasis on local stewardship and climate change adaptation. The co-design process allowed for the integration of multiple perspectives, ensuring that the prototypes accurately reflected the diverse needs and concerns of the community. Data collection methods were varied to capture the breadth of insights from participants. These included scenario modeling, reflection circles, and feedback tools such as

digital annotations and walkthroughs with the prototypes. Additionally, behavior mapping exercises enabled participants to visualise and plan future actions for environmental stewardship in the context of changing climate conditions. The data analysis around the operation of this project was primarily qualitative, with a focus on several key aspects. First, the cultural relevance of the XR experiences was critically examined, ensuring that the technology remained grounded in the values and traditions of the Indigenous community. Second, the study explored the negotiation of agency between various stakeholders, particularly in how decision-making power and influence were distributed during the co-design process. Lastly, ethical considerations regarding intellectual property and data sovereignty were explored, highlighting the importance of maintaining control over the digital representations and data generated through the workshops. In terms of my positionality as a researcher and the author of this article it is important to note that this is my own home community and as such this research was undertaken as an insider and someone with deep knowledge of the language and customs of my people and our traditional territory.

RESULTS

The co-design process involving XR prototypes for climate resilience revealed several critical themes around the redistribution of agency, the negotiation of cultural protocols, and ethical engagement within participatory XR initiatives. These themes highlight both the opportunities and challenges of engaging Indigenous knowledge systems with technological innovations.

Redistribution of Agency and Epistemic Justice

A central finding from the study was the imbalance in the distribution of agency between external stakeholders, such as government bodies and the local Indigenous community. While the co-design process sought to distribute decision-making more equitably, participants voiced concerns about the disproportionate power held by external entities in shaping the final outcomes of the XR prototypes. The involvement of local stakeholders, particularly *hapū* (clan) members, was indispensable in the development of the prototypes. However, despite their integral role, the ultimate decision-making power often rested with external institutions in terms of access to the climate data and resources required to build out optimal XR environments. This asymmetry in power was not only reflective of broader concerns about institutional influence on Indigenous-centered projects but also underscores an issue of epistemic injustice. As Fricker (2007) argues, epistemic injustice occurs when knowledge is marginalised or undermined in favor of

dominant paradigms. In this case, while local Indigenous knowledge was an important aspect to the co-creation process, participants felt that their knowledge was often subjected to external governance constraints, reducing their agency in the final technological outcomes. This raises critical questions about the true scope of participation by Indigenous groups in such projects and the need for actively creating spaces for increased epistemic inclusion, where Indigenous voices are not tokenistically consulted, but instead genuinely integrated into decision-making processes.

Cultural Protocols and Ethical Engagement

The negotiation of cultural protocols around the co-creation work emerged as one of the most contentious and ethically complex aspects of the co-design process. Although the co-design model aimed to honor and incorporate local cultural practices, the digital transformation of sensitive cultural knowledge into XR formats led to significant ethical challenges. Many participants expressed concerns about the accessibility and potential misuse of sacred or restricted knowledge once digitised. In some cases, cultural knowledge was requested to be treated with greater opacity to preserve its sanctity and protect it from inadvertent misuse. This aligns with the findings from Stahl's (2025) work, which emphasises the importance of value-sensitive design in respecting the ethical boundaries of different knowledge systems. The inclusion of culturally sensitive knowledge in XR platforms, without the use of the appropriate knowledge access protocols raised concerns about the risk of knowledge being widely disseminated without adequate safeguards, potentially breaching the cultural protocols that govern its sharing (Csoba DeHass, Collins et al., 2025). Despite mechanisms for community feedback, the digital nature of the prototypes posed significant challenges in protecting this knowledge, underscoring the tension between the need for open access in climate resilience efforts and the desire to protect the integrity of Indigenous knowledge content and systems. This tension reflects broader ethical considerations about the governance and stewardship of Indigenous knowledge in the digital age (Liew and Lipscombe, 2024), suggesting that cultural protocols must not only be respected but be embedded at the core of these forms of co-creation processes.

Negotiation of Ownership, Accountability, and Epistemic Sovereignty

The issue of ownership and accountability in the co-created XR artifacts emerged as another critical theme, particularly regarding the intellectual property rights and long-term stewardship of the technologies developed (Doukianou and Laloti, 2024). Participants voiced concerns about the potential for future exploitation or misrepresentation of their cultural knowledge. While external actors, such as technologists and government

representatives, were seen as key stakeholders in the stewardship of the prototypes, the question of who retained control over the resulting artifacts remains unresolved. These concerns highlight broader issues of data sovereignty and the need for Indigenous communities to maintain control over not only the knowledge used in the creation of these XR prototypes but also the resulting technologies (Ferreira, Young et al., 2024). This is particularly critical in the context of climate resilience, where the commercialization and dissemination of various climate-related technologies could potentially undermine the ethical and cultural integrity of Indigenous knowledge systems. The tensions around ownership in the co-creation process reflect the broader need for epistemic justice frameworks, as discussed by Santos (2018), which ensure that Indigenous knowledge is not only included but also respected and protected in its unique cultural context. In this regard, the development of robust governance structures that prioritize Indigenous data sovereignty and long-term community engagement is essential to safeguard both the ethical and intellectual integrity of these forms of co-creation project.

The project findings discussed here underscore the importance of integrating frameworks of epistemic justice, cultural respect, and data sovereignty into the design and implementation of these forms of co-creation processes when working with Indigenous communities. This is particularly important moving forward, as climate change continues to present global challenges, so there is a need to ensure that Indigenous voices are listened to in the development of adaptive technologies for the regions where these groups have held stewardship roles over their traditional lands and waters for many generations.

DISCUSSION AND CONCLUSIONS

The findings of this study illuminate both the transformative potential and the inherent ethical tensions within XR-based co-creation and co-design processes with Indigenous communities. These tensions, which revolve around issues such as agency redistribution, the ethical handling of cultural knowledge, and ownership rights, require careful navigation to avoid reinforcing colonial power dynamics and to ensure Indigenous communities' data sovereignty and self-determination in these types of co-creation projects. More broadly, these findings reinforce longstanding critiques of participatory practice across fields including planning, development, heritage, and museum studies. As Arnstein (1969), Cooke and Kothari (2001), and Onciul (2015) each argue in different ways, participatory methods cannot be assumed to redistribute power simply because they involve collaborative processes. Rather, meaningful participation depends upon changes to underlying governance arrangements and decision-making authority. The challenges identified in this study

therefore reflect not only the ethical complexities of XR technologies but also the broader tensions between participatory ideals and institutional realities.

A critical issue highlighted by this study is the persistence of power asymmetries in the redistribution of agency within these types of co-creation projects (Egliston, Carter et al., 2025). Although the development of XR technologies through these forms of co-creation processes provide opportunities for Indigenous communities to engage in the design and decision-making process, external institutions, particularly government organizations which control various data sources and companies that own the underlying technologies retain significant influence on both the processes undertaken as well as the eventual project outputs which can undermine the intended participatory nature of these projects. This situation raises a key challenge in the broader context of decolonization and responsible innovation: how to balance the interests of external stakeholders with the epistemic autonomy and data sovereignty of Indigenous communities. The study underscores that external stakeholders often seek to maintain control, even when their involvement is framed as collaborative. This reflects a deeper issue within the domain of innovation, where despite efforts at inclusivity, external institutions continue to dominate decision-making processes (Vivona, Demircioglu et al., 2023). This is doubly unfortunate as the role of these entities often mirrors the colonial structures that originally marginalised Indigenous peoples' voices, highlighting the need for a critical examination of how collaborative innovation is structured (Reijers, Wright et al., 2018). It is important then to put into place ethical structures to ensure that these types of co-creation projects move beyond tokenistic involvement and ensure that Indigenous communities are not just consulted but empowered, with their voices being positioned centrally within leadership and governance frameworks. External stakeholders should be positioned as fellow participants, not sole decision-makers, creating space for Indigenous communities to support the development of the trajectory of these types of projects on their own terms. Furthermore, mutual learning processes, where power imbalances are acknowledged and addressed through equitable partnerships, are essential to disrupting ongoing colonial hierarchies and ensuring meaningful participation.

Another key area of concern highlighted in this project was the ethical engagement of Indigenous communities, particularly regarding the stewardship of cultural knowledge. The digital representation of traditional ecological knowledge within XR systems introduces several ethical dilemmas, especially when sacred or restricted knowledge is involved. In undertaking the project, several Indigenous participants emphasised the need for cultural protocols to be respected, with digital systems needing to be modified to prevent the misuse or unauthorised sharing of sensitive

information. This aligns with the broader calls within Indigenous research, such as those articulated by Lewis et.al. (2025) for the integration of Indigenous cultural protocols into technological platforms. Co-creation of technological systems with Indigenous peoples must be developed with careful consideration of these types of protocols, ensuring that knowledge transmission respects traditional boundaries and avoids exploitation. One possible solution is to design technological systems with varying levels of opacity and control, enabling Indigenous communities to retain control over how their knowledge is represented, shared, and accessed. These systems could allow communities to dictate the terms under which their knowledge is used, ensuring the protection of sacred and sensitive information. Furthermore, returning to the concrete aspects of the focal project for this article, the concept of data sovereignty is crucial in the context of XR technologies (Barcham, 2025). XR projects must embed mechanisms that respect and uphold this type of sovereignty, in order to ensure that communities maintain agency over their digital representations and the long-term stewardship of the knowledge they contain.

The issue of ownership and intellectual property also emerged as a central theme in this study. While the technology in this project was co-created in collaboration with the Indigenous community, questions around the ownership of the technology and its outputs remained unresolved. This study highlights the need for governance models that ensure Indigenous communities retain control not only over their knowledge but also over the technologies developed to represent and transmit it (Bawack, Roderick et al., 2025). While a number of frameworks already exist to support data being managed according to Indigenous Data Sovereignty principles, particularly OCAP® (Ownership, Control, Access, and Possession) (FNIGC 2014) and the CARE Principles (Collective Benefit, Authority to Control, Responsibility, and Ethics) (Carroll, Garba et al., 2020) more work is required to understand how best to enact these frameworks in practice. Even though both of these frameworks were used in the project described in this article there still existed a high degree of uncertainty amongst participants in the project about what the implementation of these two frameworks would look like in practice – particularly given that the approach the two frameworks proposed differed markedly from the approaches that the non-Indigenous participant organizations had traditionally used in their digital work.

Importantly though, the uncertainty surrounding implementation did not arise because participants questioned the value of OCAP® or the CARE Principles themselves. Rather, it reflected the practical difficulties of translating principles developed to guide Indigenous governance into a collaborative digital innovation environment involving multiple institutions with differing legal obligations, technical infrastructures, and understandings of ownership. Throughout the project,

tensions repeatedly emerged between governance aspirations and operational realities. For example, while participants agreed that the *hapū* should retain authority over culturally significant knowledge, many of the climate datasets, software platforms, and digital infrastructures used to develop the XR prototypes remained under the control of government agencies or external technology providers. This created situations in which authority over Indigenous knowledge could not easily be separated from authority over the technical systems through which that knowledge was represented and experienced. A similar tension arose around questions of access and cultural protocol. OCAP® and the CARE Principles emphasise Indigenous authority over decisions concerning access to and use of community knowledge. However, XR technologies are frequently designed around assumptions of interoperability, reproducibility, and relatively open circulation of digital content. Participants therefore encountered difficult questions concerning whether culturally sensitive narratives should be incorporated into the prototypes at all, whether different users should experience different versions of the same virtual environment, and who would retain the authority to modify or remove cultural content as technologies evolved over time. While these questions were openly discussed throughout the co-design process, neither the technological platforms nor the institutional governance arrangements provided straightforward mechanisms for implementing such differentiated forms of cultural authority.

The insider position of the researcher also illuminated the limits of participatory design as a mechanism for resolving these tensions. Familiarity with local *tikanga* (customs), relationships of trust, and longstanding community connections undoubtedly strengthened dialogue and enabled concerns regarding ownership and cultural protocol to be articulated more openly than might otherwise have been possible. However, insider status could not by itself alter the broader institutional conditions within which the project operated. Decisions concerning software infrastructure, funding requirements, data licensing, and organizational accountability continued to be shaped by external partners operating within established administrative and technical frameworks. Consequently, although the co-design process succeeded in identifying where governance tensions existed, it did not always possess the institutional authority required to resolve them. These experiences suggest that frameworks such as OCAP® and the CARE Principles should be understood not simply as ethical guidelines to be acknowledged during project design, but as governance commitments that require corresponding institutional and technical infrastructures. Without mechanisms that enable Indigenous communities to exercise continuing authority over digital assets, platform governance, data access, and future technological development, even well-intentioned

participatory projects risk reproducing the very asymmetries that these frameworks seek to overcome. The central lesson from this project is therefore not that OCAP® or CARE are insufficient, but that their implementation depends upon redistributing authority beyond consultation and embedding Indigenous governance throughout the entire technological lifecycle.

The study suggests that such frameworks can be adapted to ensure Indigenous communities retain ownership and control over the knowledge embedded in XR prototypes, thus preventing the exploitation of their intellectual property, but more work is required to understand how to do this equitably for all participants. Specifically, these findings demonstrate that digital co-creation with Indigenous communities is not merely a technical or methodological challenge, but a fundamentally political and ethical one. Viewed through a decolonial lens, the persistence of power asymmetries, unresolved questions of ownership and accountability, and tensions surrounding the digitization of culturally sensitive knowledge illustrate how participatory processes alone are insufficient to transform colonial relations of knowledge production. Decolonizing digital innovation therefore requires more than expanding participation; it requires the redistribution of governance authority, recognition of Indigenous epistemic sovereignty, and institutional commitments that enable Indigenous communities to determine how their knowledge, data, and technological futures are governed. While participatory design and responsible innovation frameworks offer important starting points, this study shows that they remain insufficient when Indigenous governance, epistemic authority, and data sovereignty are not structurally embedded within technological systems and institutional arrangements. The persistence of power asymmetries, unresolved questions of ownership and accountability, and tensions around the digitization of culturally sensitive knowledge suggest that participation alone cannot redress colonial continuities in digital innovation. Instead, ethical co-creation in XR contexts requires a reorientation of innovation practices away from extractive and universalist assumptions and toward models that recognise Indigenous communities as enduring stewards, decision-makers, and knowledge authorities.

This article has shown that while digital co-creation projects might be framed as being inclusive and transformative due to co-creation's roots in participatory design and open innovation models, they do not automatically produce equitable or ethical outcomes when working with Indigenous communities. Drawing on a co-creation project utilizing extended reality (XR) prototypes for climate resilience with a Māori *hapū* (clan) in Hawke's Bay, New Zealand, the study explored how co-creation can even unintentionally reproduce colonial power dynamics if issues of agency, governance, and epistemic difference are not addressed properly. Using epistemic pluralism as an analytical lens,

the findings highlight the possible tensions that can arise between open, participatory innovation models and Indigenous knowledge systems that are relational, context-specific, and governed by local cultural protocols. Although Indigenous knowledge shaped the XR prototypes in meaningful ways, decision-making power remained uneven due to external control over data, platforms, and institutional resources. This imbalance constrained Indigenous epistemic agency and raised concerns about ownership, accountability, and long-term stewardship. The study also underscores how co-creation around digital technologies can intensify ethical challenges around data sovereignty and the protection of sensitive cultural knowledge. While frameworks such as OCAP® and the CARE Principles offer important guidance, the project revealed uncertainty in their practical implementation, pointing to a gap between ethical aspiration and operational practice. Overall, the article argues that ethical digital co-creation projects with Indigenous communities requires more than just participation. It requires structural shifts that center Indigenous governance, embed data sovereignty into technological systems, and commit to long-term accountability. Only through such changes can these forms of co-creation projects contribute in ways that are just, culturally grounded, and genuinely empowering for Indigenous communities.

CONFLICTS OF INTEREST

None to declare.

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