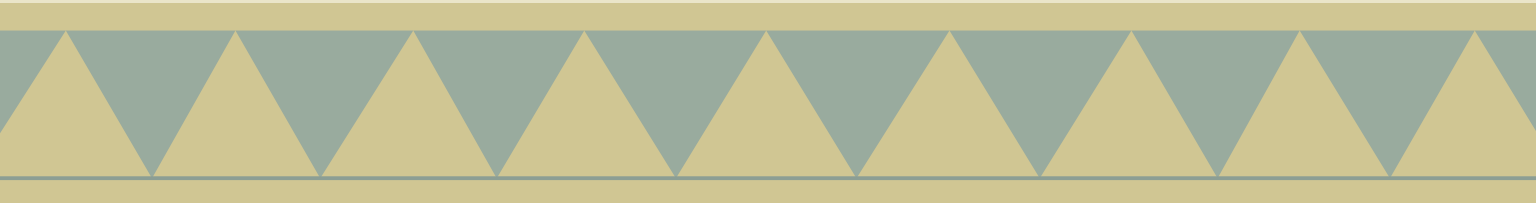
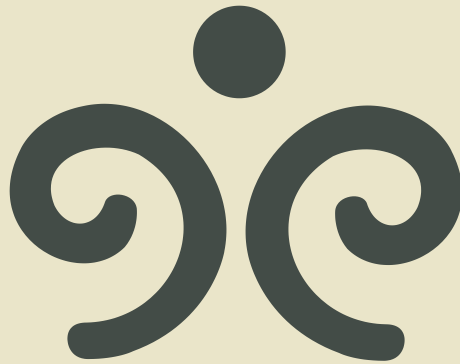




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DECOLONISING DATA AND DIGITAL SPACES: CENTRING INDIGENOUS RESEARCH METHODOLOGIES IN DIGITAL HUMANITIES

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ABSTRACT

Indigenous knowledge systems have long been marginalised by Western research paradigms that privilege objectivity, individual ownership and universalist conceptions of knowledge. This problem is particularly pronounced in Digital Humanities, where the technical infrastructure and the data practices repeatedly reproduce colonial power relations but so unassumingly. In this paper, I suggest that indigenous research methodologies (IRM), rooted in relationship (relationality), reciprocity, respect, and responsibility, provide a framework for decolonising digital humanities practice.

In conversation with Kaupapa Māori research, Linda Tuhiwai Smith's decolonising methodologies and the four Rs this paper demonstrates how the Indigenous epistemologies of Māori can unsettle predominant Western understandings about digital knowledge. It positions Indigenous Data Sovereignty frameworks, particularly OCAP and the CARE Principles, as central to Indigenous self-determination. I argue that meaningful decolonisation cannot be achieved without a redistribution of power, the return of control over data and cultural heritage to Indigenous communities, and sustained support for Indigenous-led digital futures. Decolonisation, as this paper emphasises, is not a finite intervention but an ongoing and accountable process.

Keywords: Indigenous Data Sovereignty, CARE Principles, OCAP Framework, Digital Humanities, Indigenous Methodologies.

INTRODUCTION

Lately, the connection between Indigenous ways of researching and Digital Humanities matters more than ever. Since computers help create, keep, and share information, it makes sense to wonder who really benefits from today's tech setups. Digital frameworks often reflect Western thinking, where truth is measured by observation and personal credit counts. Technology frequently conceals its prejudices and attempts to exert control through various duties, resulting in new inequalities that go unnoticed. Tools made by modern methods can have an unnoticeable burden. The modern system is only a shadow of the old system of control (Couldry and Mejias 2019). If we do not address this problem, it will persist even in the new system of digital space.

Research on indigenous methods is also trying to create new methods of research which are different from Western methods. Based on principles such as the four R's - respect, relevance, mutual give-and-take, and responsibility (Kirkenes and Bernhardt 1991) - they divert attention

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away from personal gain or distant systems. These new methodologies can change the way we look at data or digital memory. What matters most is not whether traditional methods fit into the digital humanities, but how those fields must change and how indigenous ways of knowing, their values and their control over information must be respected. Indigenous research is different, made up of unique ethics and understanding, not just another method.

The Emergence of Decolonising Research

This book *Decolonising Methodologies* by Linda Tuhiwai Smith made many people think differently about the research on the Indigenous communities. She starts with the very basic but impactful fact that the very notion of research is a threat to many Indigenous people. This is not due to their opposition to knowledge, but because research has been the root of actual harm. In the distant past, research was understood as outsiders who came in, got information, distorted communities, and went away without responsibility. The majority of Western scholars analysed the Indigenous societies in a colonial mentality. The indigenous people were looked at like subjects to observe as opposed to thinkers and holders of knowledge. Their concepts, narratives and activities were out of context and applied to the good of the universities, museums and researchers, rather than the communities themselves (Kovach 2009). Due to such a history, there is a high level of distrust towards research. Smith does not simply criticise isolated researchers. She is challenging the whole Western body of knowledge. Through the Edward Said concept of Orientalism, she reveals how the colonial authority conceptualized what is considered to be real knowledge. The knowledge of the West was being advanced as objective, scientific and universal. On the other hand, native knowledge was considered to be emotional, backward, or unscientific (Said 1978; Smith 2012). These sentiments did not go away with colonialism. They continue to influence the funding methods, dissemination and review of research to date (Harding 2011; Quijano 2000). The decolonising methodology states that Indigenous communities need to do, with and research. This implies that communities determine what is studied, how it is studied as well as the application of the knowledge. It is no minor adjustment. It is a deep shift in thinking.

Kaupapa Māori and Indigenous Epistemological Frameworks

Kaupapa Māori research has been developed in Aotearoa, New Zealand. It is an example of Indigenous research. This research project puts Māori language, culture, values, and traditions at the centre of research (Smith 2004). Graham Smith explains that Kaupapa Māori research is based on six key principles (Smith 2004). These are self-determination (Tino Rangatiratanga), respect for cultural heritage (Taonga tuku iho), teaching and learning based on Māori practices (ako), addressing social and economic challenges (Kia piki ake i nga raruraru o te kāinga), the importance of extended family (whānau), and a shared collective philosophy (kaupapa). These principles help to reflect Māori worldviews. It serves Māori communities. This research is conducted through the ethical guidelines they have created for communities. Whanaungatanga emphasises building strong relationships grounded in mutual respect and a sense of family (Metge 1976). Manaakitanga highlights sharing and generosity, with knowledge understood as something that should move in both directions between researchers and participants (Mead 2003). 'Aroha' means love and respect. It requires researchers to allow communities to decide how meetings are organised, how information is shared, and how long research processes take. In this way, research practice is guided by Māori values and directed toward community benefit, rather than the extraction of knowledge for external use.

The Four Rs and Six Rs: Ethical Principles for Indigenous Research

Vernon Kirkness and Ray Barnhardt (1991) introduced the Four Rs—respect, relevance, reciprocity, and responsibility. It has shaped ethical approaches to Indigenous research. Respect involves valuing Indigenous peoples. Their knowledge systems, their relationships to land, and their established ways of sharing knowledge. It recognises that Indigenous knowledge cannot be separated from place, community, and relationships. Relevance shows that the indigenous community is important in the dimension of their research. Everyone should understand that the themes, methods and outcomes of their research should align with the priorities of the community rather than external interests. These main challenges challenge academic practices, in which research agendas are often dictated by funding needs, career advancement, or thematic trends, often at the expense of community benefits. Exchange of knowledge is essential in indigenous research. It prevents one-way communication.

If researchers acquire knowledge from an indigenous community, they should also provide support to the community. This support could be in the form of resources, training, or useful information. Research should benefit not only the researcher but also the community. Responsibility means that researchers are accountable to the community for their work. They should respect the community's culture, traditions, and rights. They should work with the community's interests in mind.

This responsibility extends to current people as well as to ancestors, future generations, and the land. Later, some scholars added two new principles to the 4R principles, making them 6R. These two new principles are Relationship and Representation. Relationship means that there should be a strong relationship between the researcher and the community, based on trust and respect. These relationships should last not just for the duration of the research, but for the long term. Representation means that Indigenous communities themselves decide how their identity and knowledge should be presented. In this way, the 6R principles make research more ethical, respectful, and community-centred.

Relationality as Epistemological Foundation

Relationality lies at the heart of Indigenous ways of knowing and distinguishes them from Western traditions that emphasise individualism. Within Indigenous worldviews, relationships extend beyond human beings alone to include animals, land, objects, ancestors, and spiritual entities. Shawn Wilson describes Indigenous knowledge as relational, noting that it comes into being through relationships with the environment and all forms of life (Wilson 2003). This knowledge changes the manner in which research is undertaken and conducted. Margaret Kovach emphasises that research methods are not simply technical devices but are intrinsically related to some beliefs about knowledge and reality. It is based on this reason that Indigenous research methodology cannot be isolated from Ethical practice, based on indigenous worldviews and relationships in the creation of knowledge. Kovach 2009).

Lauren Tynan explains relationality at three levels (Tynan 2023, 1-20). First, it is a shared feature across Indigenous communities globally. Second, it is shaped by the specific traditions and practices of individual Indigenous nations. Third, it exists through relationships between different Indigenous groups. This approach allows researchers to recognise shared values while respecting cultural differences. An example of Indigenous relational thinking is *Wahkohtowin*, a concept from the Cree Nation, often translated as kinship. Traditionally, it referred to relationships among all of creation, including humans, nature, ancestors, and the spirit world. Wahkohtowin guided behaviour by setting clear expectations, responsibilities, and ethical boundaries (Wilson 2013, 41-54; Cole 2009, 1-50). It shows how Indigenous relationality provides practical rules for

living and researching in a respectful and ethical way.

DIGITAL HUMANITIES TOOLS AND PRACTICES: TENSIONS AND OPPORTUNITIES

The Colonial Legacy of Digital Infrastructure

Digital Humanities developed from earlier computer-based approaches in the humanities that focused on numbers, data analysis, and the automated processing of texts and cultural materials (Berry and Fagerjord 2017). Although newer approaches in Digital Humanities now incorporate critical and interpretive methods, the field remains largely shaped by Western ways of thinking and Western technologies (Burdick et al. 2012). These digital systems are not neutral (Christen and Anderson 2016, 179-192). They reflect specific cultural values, power structures, and ideas about how knowledge should be created and organised.

The majority of the digital tools are constructed with Western modes of thinking. The data is subdivided into categories, hierarchies and fixed labels (Drucker 2005). This is conflicting with the Indigenous ways of knowing, which are relational and connected. There is no such thing as knowledge of land, people, time, and responsibility. Algorithms are fast, efficient and large-scale. These principles are appropriate to capitalism but tend to contradict each other. Care, reciprocity and responsibility, which are native values. Another problem is metadata systems. They rely on Western classification methods that cannot capture Indigenous meanings and relationships, and often erase them altogether (Christen 2016).

The majority of the digital platforms are developed in the Global North and operate primarily in English. Their design reflects the Western beliefs about the way knowledge ought to be structured and distributed (Livingstone et al. 2020). When these tools are used by indigenous communities and their knowledge has been simplified or categorized in ways that do not make sense to them. It does not represent itself, but rather becomes remodelled to suit Western systems (Couldry and Mejias 2019).

Text Mining and Natural Language Processing: Algorithmic Violence

Text mining and natural language processing (NLP) are widely used methods for analyzing large amounts of text in the digital humanities, examples of which include tools such as RapidMiner, Gephi (network visualization) and NVivo (qualitative research) and Mallet (topic modeling). These tools identify patterns, frequency of words, and connections in the text, helping researchers study the material from a distance instead of reading it up close. However, many indigenous knowledge systems do not fit well into this method. Indigenous knowledge is often shared through oral traditions, stories, and life experiences that cannot be easily reduced to numbers or data points (NARF 2021, 1-20). One of the main concerns associated with NLP is algorithmic bias. Most digital language tools are trained using English language data based on Western culture. As a result, indigenous languages, accents and forms of expression are often misunderstood or ignored. Buolamwini and Gebre 2018; 2018). For example, voice-recognition systems may fail to recognize indigenous accents, translation tools may distort indigenous concepts, and other digital systems may misrepresent non-Western identities. O'Neill 2016). These problems are not uncommon; These reflect the colonial assumptions built into digital technology (Noble 2018).

Another concern is that text mining often treats text as something that can be freely taken and analyzed. This approach ignores indigenous rules that dictate who can access what kind of information and how that information should be used. Content that is limited to sacred

knowledge, gender-specific teachings, seasonal information, or community can be analyzed without permission. The concept of “data mining” itself shows the colonial ways of thinking, in which knowledge is extracted from communities, processed elsewhere, and converted into value that benefits outsiders rather than those with knowledge.

GIS Mapping and Spatial Analysis: Contested Cartographies

GIS (Geographic Information System) is a digital technology used to map land and resources. Many indigenous communities use it to register their land rights. It also helps protect their cultural heritage and important sites. GIS can also help understand environmental changes. This allows indigenous communities to strengthen their legal rights. However, GIS originated from Western mapping traditions that were associated with colonial rule (Harley 1988; Harris 2004). Many maps in the past ignored indigenous peoples' identities and their lands, so it is important to respect their culture and perspectives when using GIS.

Today's modern GIS tools often perpetuate this same thinking, as they place a strong emphasis on fixed boundaries, land ownership, and two-dimensional (2D) maps. However, Indigenous communities' understanding of land is much broader. For them, land is not simply defined by boundaries, but is also linked to people's relationships, seasonal activities, folklore, spiritual significance, and kinship ties. Furthermore, local place names contain hidden historical, cultural, and environmental information that cannot be fully captured within typical GIS categories. Some places are sacred and should not be publicly mapped or shared (Winnie 2009), which goes against the usual idea that GIS data should be open and accessible.

Indigenous communities face a difficult choice because if they want to be politically and legally on the same ground, it is mandatory to use the GIS system created through western lens (Cruikshank 2001, 377-393). If they do use GIS, their knowledge and land relationships may be misrepresented or exposed to misuse. Ethical use of GIS, therefore, requires adapting mapping tools to Indigenous values. This includes respecting cultural protocols, using Indigenous languages, and ensuring that Indigenous communities retain control over their data and maps.

Archival Digitisation: Questions of Access, Ownership, and Control

Digitisation projects aim to preserve cultural materials, improve access, and support new forms of study. For Indigenous communities, digitisation can be helpful because it allows access to cultural materials that are scattered across museums and archives around the world. Digital copies can support language revival, cultural education, and reconnect communities with their heritage (Flinn 2007, 113-126; Caswell 2021, 1-50). Technologies such as digital scans, 3D models, and online archives are especially useful for community members who cannot travel to distant institutions.

However, digitisation also reflects long-standing power imbalances in archives. Many Indigenous cultural materials were collected during colonial times through force, unfair trade, or theft. These materials are usually controlled by Western institutions that claim legal ownership and decide who can access them. While digitisation may increase access, it does not solve deeper issues related to ownership, control, and Indigenous sovereignty over cultural heritage.

Kimberly Christen uses the term *digital repatriation* to describe the return of access through digital copies (Christen and Anderson 2016, 179-192). While this allows communities to view and use materials, it does not replace the physical return of original objects. Scholars warn that digitisation can sometimes allow institutions to appear decolonising without giving up real control. Simply providing online access does not mean Indigenous communities regain authority

over their heritage.

Generally, Digitization decisions are made by institutions. There is limited participation from Indigenous communities. Institutions decide content to digitise and where it will be shared. These decisions are often based on funding, copyright rules, and institutional policies. As a result, the wishes and needs of communities are not properly considered. Non-Indigenous archivists often prepare descriptions of materials. The terms they use may be mistaken, unsuitable, or offensive to the community. Some cultural meanings and traditions are not properly understood. They can miss important historical and cultural context. Besides, digital search systems are often based on Western classification methods.

These methods do not always align with the ways Indigenous communities understand and organise their knowledge. Ethical digitisation requires culturally respectful approaches that place Indigenous communities at the centre. Indigenous communities should be involved in all decisions about digitisation. Their own languages and correct cultural terms should be used. Cultural rules should decide who can access the information. Communities should have ownership and control over their digital materials and data.

3D Technologies and Indigenous Cultural Heritage

Three-dimensional (3D) scanning, modelling, and virtual or augmented reality technologies are increasingly used by museums and archives to engage with cultural heritage (Witcomb 2010, 195-214; Donahue et al. 2020, 161-176). These tools allow objects and sites to be viewed in detailed and interactive ways. Indigenous communities have used 3D technologies to document cultural objects for repatriation claims, create replicas for teaching and learning, and preserve knowledge about how objects are made and used.

The partnership between the Tlingit and the Smithsonian Institution is one example. The museum, with authorisation, produced a 3D printed replica of a ceremonial killer whale hat to retain as an educational resource when a hat had been repatriated into the community. In other instances, the original item had been returned to the community. That's important. It honoured Indigenous ownership, but museums were allowed to continue to educate people with the aid of digital versions. The same projects with the Sámi have assisted communities to get back in contact with cultural objects which remain physically contained in distant institutions. And we must also take care of 3D technologies also. Electronic copies do not resemble the original objects. They lack the materiality, spiritual signification, or experience of the relationship that many Indigenous communities have with such objects. Cultural objects are not always things to Indigenous people: they are living entities, and they have spiritual merits.

The 3D scan is capable of capturing shape and appearance, but it is not capable of capturing these deeper meanings. Positive threat of abuse is also high. Three-dimensional files of high quality can be copied, shared, or even printed without authorization. This may easily result in loss of control by the community. Virtual exhibitions can display objects that lack a clear cultural context or disregard regulations regarding who has the right to view or access them. Additionally, the current copyright legislation tends to fail in safeguarding the Indigenous cultural knowledge.

Thus, it is not 3D technology itself that is the solution. Its worth is all in the manner of its governance. These tools should adhere to cultural standards, honor the Indigenous values, and enable communities make their own decisions regarding the representation of their heritage (Sheffield 2017; Christen and Anderson 2016). Cultural heritage cannot be decolonised by technology. Decolonisation in reality implies transforming power dynamics and moving

Indigenous power to a central position of all decision-making (Caswell 2021; Tuck and Yang 2012).

Sovereign data indigenous data Sovereignty and the CARE Principles

Indigenous Data Sovereignty, or IDSov, is, therefore, a very simple concept. It implies that Indigenous people can regulate information about their communities, their territory, their resources and their knowledge. And the right is applicable even regardless of the location of data storage: a government office, a university record or a corporate database (Aneris et al. 2019). This concept has a close relation with the United Nations Declaration on the Rights of Indigenous Peoples, or UNDRIP. UNDRIP acknowledges the right of Indigenous people to self-determination, cultural heritage and ownership of their traditional knowledge (United Nations 2007). So Indigenous Data Sovereignty simply represents an application of these broader rights to data.

This control is not only in possession of data files as explained by scholars such as Stephanie Carroll. It is also relevant in terms of data collection, usage, sharing and destiny in the future. That is, there is control throughout the data life cycle. This notion is so significant because of the history. Highly personal information has long been gathered by governments, researchers, and businesses on the Indigenous people: population data, health data, genetic data, knowledge of the land, cultural activities, etc., often without their real consent. This information was applied in a manner that was detrimental to the Indigenous communities. It championed destructive policies, legitimized extractive actions of land and resources, and even produced commercial goods and services, which were not beneficial to the Indigenous peoples. So Indigenous Data Sovereignty emerges as a response to this history. It is about stopping extraction in data form and restoring **authority, consent, and control** to Indigenous communities themselves. Indigenous data includes more than numbers and statistics. It also includes photographs, audio and video recordings. Their written documents, cultural objects, and knowledge which is connected to specific places. Any information created by them, with them, or about them can be considered Indigenous data. Because this data takes many forms, it requires systems of control that respect community rules, values, and cultural protocols.

Indigenous Data Sovereignty is not only about privacy or data protection. It is about power and self-determination. Because those who control data also control Indigenous identities, histories, and experiences, and their representation and who benefits from Indigenous knowledge (Love 2018, 1-20). For this reason, data sovereignty is connected to political freedom and the survival of Indigenous cultures.

OCAP®: First Nations Principles of Data Governance

The OCAP® principles—Ownership, Control, Access, and Possession—are important rules for Indigenous data governance. It was developed by First Nations in Canada (First Nations Information Governance Centre 2019, 1-50). These principles were created in 1998 and are now protected by the First Nations Information Governance Centre (FNIGC). OCAP® states that First Nations collectively own their data in the same way individuals own their personal information. Ownership means that data and knowledge about a community belong to that community (Moriello 2023, 1-20). This idea goes beyond individual privacy and recognises collective rights. It also includes cultural responsibility, meaning communities have a duty to protect knowledge for ancestors and future generations.

Control implies that First Nations can control all the steps of research involving them. This

involves determining the subject of the research, sanctioning the procedures, analyzing the findings and determining how the findings are posted (Bennett and Blackstock 2002). This throws direct opposition to the way the research used to be completed in older times, where external researchers made all decisions and communities were not consulted at all. Next is Access. Access implies that the First Nations need access to data concerning them, regardless of whether this data has been stored at government offices, universities, or other institutions (Moriello 2023). OCAP® ensures clarity in that communities have to determine who gains access to their data and under what conditions. The access is founded on the values and priorities in the community, rather than the convenience of the institutions. Then there is Possession. Possession is the act of holding the data physically. When data is retained locally in the care of communities, i.e. on their own servers, in their own archives, they can better guard it against abuse. Ownership becomes a reality and practical, and not merely symbolic. Nowadays, OCAP is the generally accepted ethical standard in research with First Nations. It influences research ethics guidelines, funding requirements and institutional policies. First Nations have established their research review frameworks, negotiated equitable agreements on data sharing and have developed community archives, which safeguard knowledge and yet permit relevant access, through OCAP. The most important thing to keep in mind is the following OCAP. It shifts the power away and back to the hands of the First Nations.

The CARE Principles for Indigenous Data Governance

The CARE Principles—Collective Benefit, Authority to Control, Responsibility, and Ethics—were developed as a framework to support Indigenous Data Sovereignty (Carroll et al. 2020, 43; Carroll et al. 2021a, 108). They were articulated in response to the widely used FAIR principles (Findable, Accessible, Interoperable, Reusable), which largely focus on the technical dimensions of data sharing. While FAIR is concerned with how data functions, CARE centres on people, purpose, and Indigenous rights.

The CARE Principles emerged from global discussions led by Indigenous scholars, community representatives, and the Research Data Alliance International Indigenous Data Sovereignty Interest Group. Released in 2019, CARE provides guidance for using data in ways that respect Indigenous values and governance systems across diverse regions and contexts. Collective Benefit means that data systems should directly support Indigenous communities. Data should enable Indigenous participation, strengthen self-determination and governance, and ensure that benefits return to communities rather than primarily serving governments, researchers, or corporations. Authority to Control recognises that Indigenous peoples have the right to make decisions about data related to their communities, lands, and resources. This includes the right to give free, prior, and informed consent for data use, to use data in support of self-governance, and to establish Indigenous-led rules for managing and protecting data.

Responsibility places obligations on researchers and institutions that use Indigenous data. These responsibilities include respecting Indigenous values, supporting Indigenous skills and data expertise, and encouraging the use of Indigenous languages and worldviews in data creation. Responsibility also involves caring for data over time in ways that align with community rules and expectations. Ethics requires that Indigenous rights, dignity, and well-being remain central at every stage of data collection and use. Ethical data governance is grounded in Indigenous values and seeks to support the long-term well-being and flourishing of Indigenous communities.

Operationalising CARE: Challenges and Practical Steps

The CARE Principles promise to give data rights but it's a long journey. Many Indigenous communities does not have funding. They don't have technical resources and expertise, which is preventing them from fully controlling their data. Due to outdated academic regulations and funding requirements, many researchers and institutions support the CARE Principles but struggle to implement them in practice.

Researchers have called this the "paradox of scarcity and excess" (Carroll et al. 2021a, 108; Kirleis et al. 2021, 45-78). This means that Indigenous communities have very little data under their control. The governments and institutions possess vast amounts of data about them. The problem is that communities often lack control over this data. Data is often not properly classified and is difficult to obtain. There is need of massive change in attitude of

First, Indigenous communities must have full authority and control over their data. They must be empowered to create their own rules and policies. They must decide how data is collected, where it is stored, and who can access it. To this end, communities can establish their own research boards, privacy rules, and research guidelines. This will help external researchers understand community needs and priorities. Institutions that already possess Indigenous data should change their working methods. Where possible, they should return digital materials to communities. They should use terms and descriptions that are acceptable to the community. Access to certain information should be limited in accordance with the community's cultural norms. Institutions should not only consult but also share decision-making power with communities. Researchers should receive specialized training in Indigenous culture, data management, and local traditions. This understanding only develops through long-term work with communities. Funding agencies and research journals should mandate adherence to the CARE Principles. Digital technologies and platforms must also be transformed to respect the culture and rights of communities. The goal should be for technology to protect the needs, values, and knowledge of indigenous communities, rather than forcing them into old frameworks.

EMERGING ALTERNATIVE METHODOLOGIES: SYNTHESIS AND TRANSFORMATION

Digital Accountability Relationally

Indigenous Research Methodologies stress such a notion as relational accountability. This is in the sense that researchers not only have a responsibility to the people they will interview, but also to all relationships, such as ancestors, future generations, land, animals, and spiritual worlds. Research by Shaun Wilson argues that Indigenous research is primarily based on relationships and the responsibility of relationships (Wilson 2003). When this concept is implemented to computer research, the perception of technology becomes different. The question is no longer whether this tool is fast or efficient. Rather, we enquire: Does it not honor cultural regulations? Does it enhance relationships? Is it an advocate of community control and self-determination? (Christen and Anderson 2016). Technology is not only judged on the technical aspect but also on the ethical aspect. This approach is well exemplified by Mukurtu. It was created with the help of Kimberly Christen and the Warumungu community in Australia. Mukurtu is therefore a commodity, an open-source digital platform, but the difference is the reason why it was constructed. It was created with a specific purpose of adhering to the Indigenous cultural regulations.

Even the name is important here- Mukurtu, is a word of Warumungu, signifying a place to be safe. That, in itself, speaks volumes about the purpose: this platform is not about sharing all the knowledge, but about its safe storage. The key idea is control. Societies determine the right

to see. Access is not open by default. With the help of a system known as cultural protocols, a community may make the statement: this material must be used only by women, or only by the elders, or only by people of a certain community, or only during a given season. So there is sharing of knowledge but in community terms. The next significant property is that digital items may have a number of stories within it. There is no single official description of it, and various community members may place their own interpretations. This is the way knowledge operates in Indigenous societies- knowledge is not a singular and definite thing.

Traditional Knowledge labels, or TK labels, are also used by Mukurtu. Such labels lead to the utilisation of the material in a manner that it is intended to be utilised, credited, or comprehended, despite the fact that the legal right to have the copyright of the material is possessed by a museum or an archive. There are still communities which impose moral and cultural control over their knowledge. As opposed to the majority of digital platforms, Mukurtu does not attempt to subject Indigenous knowledge to Western categories. Societies produce their own methods of structuring information. Nothing is necessarily communal. All this is based on community choices (Christen and Anderson 2015). Although the content travels to the museums and communities, it does not lose its cultural sense and norms. Nowadays, Indigenous people utilize Mukurtu in Alaska, Australia and Canada as well as in Latin America. And this is significant as it demonstrates one major fact, the digital technology need not continue the Western conventions. It can be restructured in accordance with the values of the Indigenous, relationships and authority.

Engaging and Community-based Digital Projects

Engagement and Participation in Digital Processes and Indigenous Power. In participatory research, the concept behind it is extremely straightforward: it attempts to transform the power structure of research. The Aboriginal peoples are not being used as objects or sources of data collection. They are also identified as proprietors and custodians of their knowledge, and they have the right to make decisions. This method has a confrontation with the previous pattern of extractive research, where researchers entered the area, gathered their data, published, and moved out. Participatory research says: no, goals, methods and results of research are supposed to be developed with the community as opposed to being imposed on them.

The Sami Heritage Archive project is a good example of one such. Historically, the Sami cultural objects used to be located in the museums and archives distributed throughout Europe due to colonial collecting. The people of the Sami community collaborated with the museum personnel and technical professionals in this project to develop a common digital catalogue. However, digitisation is not the main point. It was the actual intention to state the obvious: Sami heritage is of Sami communities. Sami people should choose what should be digitised, what should be described, and what type of knowledge is better to be kept secret. Digitisation demand cultural sovereignty, rather than conserving objects. Participatory research is not a fast project. It relies on long-term relationships and trust (Kovach 2009).

This is evident in the efforts of the American Philosophical Society, which has been undertaking long-term digital repatriation with a number of Indigenous communities. Over time, the emphasis was on enhancing access to the community, fixing archival descriptions with the help of Indigenous knowledge, and assisting communities in developing their own digital skills (Douglas 2019; Douglas et al. 2021). However, this type of work also compels the researchers to modify their behaviours. Researchers need to be tolerant and adaptable. Project schedules ought to take into account community cycles, cultural patterns and decision-making, rather than university deadlines. That is, the research method ought to correspond to the existing practices within the

community of sharing and exchange of knowledge. Participatory work can be facilitated with the help of digital tools, yet they do not necessarily make it fair. In collaborative projects, control over funding, platforms, and publication rights is usual in universities and institutions. Real participation is only possible when Indigenous communities are in a position to drive projects, say no and pull out consent at any time they desire (Kovach 2010).

Technology Transfer and Capacity Building

When we talk about **decolonising digital work**, it's not enough to just give communities access to data. The bigger issue is **skills and control**. Who knows how to use the technology? Who controls it? Capacity building means training community members, supporting Indigenous technologists, and making sure communities can actually run and maintain their own digital systems, not depend on outsiders forever (Carroll et al. 2021). Language projects make this very clear. Take platforms like **First Voices** or **SIKU**. These are not just tools given to communities. They are controlled *by* Indigenous communities. The communities decide what language material is shared, who can access it, and how it is used for teaching and learning. That control is the key point.

The Penan e-Toro project is a good example of this(APNIC Foundation, 2026). This app is operated by the Penan community itself. It preserves traditional knowledge related to the Penan language and plants. It helps pass this knowledge from elders to new generations. Here, technology serves the community, not just researchers. But not every community wants to preserve its information digitally. Some knowledge is sacred and cannot be made public. If communities become dependent on outside companies and software, their control may diminish. This is called digital colonialism. Therefore, technology should be adopted that is simple, affordable, and tailored to local needs and respects the community's culture and values.

Reimagining Knowledge Production: Indigenous Digital Scholarship

If we look at indigenous research methods with the digital humanities, the first thing that comes to mind is what is considered knowledge and how to share it among themselves. Western educational systems give importance to journal writings or fixed research methods. whereas indigenous knowledge of the Aborigines often focuses on oral culture, ceremonies, and living practices. Digital Platform projects can create and hold audio or video recordings of oral histories, maps connecting stories, and Western academic writing that has come into play, making this culturally meaningful and enabling it (Douglas et al. 2021, 1–16; Caswell 2021, 1–50).

Community-based digital archives, such as those created using Mukurtu, also serve as indigenous scholarship. These include careful selection of materials, cultural interpretation, and controlled access based on community rules. Although this work takes a great deal of intellectual effort, it is often incorrectly regarded as merely a “technical” work, and not as a scholarly contribution. Writing together is another key feature of indigenous research. Knowledge is created collectively, and the credit is shared between researchers and members of the community. It challenges the academic systems that reward individual achievement and the one who writes alone. As a result, scholars working in indigenous ways may face difficulties in the traditional promotion and evaluation system.

In response, indigenous scholars are creating their own spaces to share knowledge. Journals, community research centers, and conferences run by Indigenous peoples allow scholarship to be evaluated according to Indigenous values rather than Western academic standards. Digital Humanities provides useful tools for this alternative scholarship, although their use requires

careful consideration. Open-access publishing can increase access, but it can also allow indigenous knowledge to go unpermitted. Social media can amplify indigenous voices but also expose them to abuse and surveillance. Digital preservation can protect knowledge, yet some indigenous traditions believe that some knowledge should change, remain restricted, or not be preserved indefinitely.

The central challenge lies in using digital technologies in ways that support Indigenous control, respect cultural rules, and avoid turning Indigenous knowledge into extractive data. When used with care and accountability, digital tools can support Indigenous self-determination while expanding how scholarship is understood and valued.

Toward Digital Justice: Confronting Power and Creating Alternatives

Ultimately, decolonising Digital Humanities means directly challenging the power systems that shape technology, data control, and knowledge production. **Digital colonialism** refers to the continued extraction and control of data, digital infrastructure, and knowledge by powerful institutions and corporations, mostly based in the Global North. These systems limit Indigenous control over their data and reproduce older colonial inequalities in new digital forms.

Digital colonialism works in several ways. First, **data extraction** treats information about Indigenous peoples, lands, and environments as resources to be taken and used without fair benefit to communities. Second, **infrastructure dependency** forces communities to rely on external platforms, cloud services, and software owned by large corporations. Third, **algorithmic bias** builds Western assumptions into digital systems such as artificial intelligence, often leading to discrimination against Indigenous peoples. Finally, **epistemic domination** occurs when Western knowledge systems are prioritised in databases and digital platforms, while Indigenous ways of knowing are ignored or undervalued.

Facing such issues, some researchers suggest new approaches. Shared data spaces help communities manage information, putting public value above business gain. User-run online platforms challenge big corporations by giving people control over their own networks (Linebaugh 2008, 1-50). Working together across Native groups, indigenous data networks build cooperation while protecting self-governance over information. Instead of waiting, some turn to decolonial computing - building tech straight from Indigenous views, speech, and traditions. Designs might include interfaces in native tongues, tools shaped by community-driven data rules, along with decision structures giving local people power over the creation and deployment of systems. Shifts in laws and rules matter just as much when putting these plans into motion. What matters now is seeing who actually owns shared Indigenous knowledge and data - it needs a clear agreement before any gathering happens. People affected must understand what takes place and decide freely each time records are collected. Self-determination goes further when communities craft rules about their own information management through locally made legal tools.

International agreements such as the United Nations Declaration on the Rights of Indigenous Peoples influence concepts but achieve little without leaders taking action and carrying them out. Technology alone won't bridge the colonial digital divides. Justice in society will only come when power returns to marginalised people and communities. Mere talk isn't enough. Their land, cultural objects, and digital resources must also be returned to them. Their control over institutions like schools, hospitals, and data systems must also be increased. Financial assistance shouldn't be a one-time donation. Communities should receive ongoing support so they can make their own decisions. Research shouldn't be solely about making money. It should aim to

understand truth, respect people, and meet community needs. Digital humanities also needs to change.

CONCLUSION

Indigenous knowledge should not be understood solely through Western methods. Both Western and Indigenous perspectives should be given equal importance. Indigenous communities should have full ownership of their knowledge, stories, and data. Their data belongs to them and they should have control over it. Models like the 4R Principles, CARE Principles, OCAP Framework, and Mukurtu provide guidance in this direction. But merely creating rules does not bring about real change. Real change must occur in people's behavior and ways of working. Indigenous traditions value relationships, responsibility, and collaboration. Their goal is not simply to make a profit or do things quickly. They prioritize the collective good and the interests of the community. Yet, digital technology is not completely secure. It poses the risk of surveillance, data theft, and misuse of information. These problems cannot be solved by technology alone. The participation and leadership of Indigenous communities is essential. The primary objective of digital humanities should be to protect and strengthen indigenous knowledge and culture.

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