

LETTER FROM THE EXECUTIVE BOARD

Greetings Delegates!

It gives us immense pleasure to welcome you all to this simulation of United Nations Educational, Scientific and Cultural Organization, (UNESCO) at “**BLUE BELLS INTERNATIONAL MODEL UNITED NATIONS, 2026**”. For this year’s session , the committee would be discussing the following agenda:

“Preserving Cultural Heritage and Indigenous Knowledge Systems in the Age of AI and Digital Globalization.”

We look forward to an enriching and rewarding experience.

This background guide is by no means the end of the research. All the information given in this document is from an unbiased perspective. The research can be done from any source as such, but make sure you cross-check your statements and speeches to be on the safe side. We encourage delegates to refer to credible sources to ensure that the information provided in the committee is genuine.

Delegates are also strongly recommended to go through the entire articles cited and not just read the titles as it will help in your wholesome understanding. We would very much appreciate it if the Members are able to find new realms in the agenda and bring it forth to the committee. Such research combined with good argumentation and a solid representation of facts is what makes an excellent performance. In the committee sessions, the executive board will encourage you to speak as much as possible, as fluency, diction, or oratory skills are relatively less important as opposed to the content you deliver.

So just research and speak and you are bound to make sense. We hope that you put in wholehearted efforts to research and comprehensively grasp all important facets of the agenda. We expect constructive debate from you all in order to achieve the aim of the committee.

Good luck for the conference!

Regards,

Yash Gupta
Chairperson

Neel Brahma
Deputy-Chairperson

Kumar Nagarjun
Substantive Director

INTRODUCTION TO THE COMMITTEE

The United Nations Educational, Scientific and Cultural Organization (UNESCO) was formed on 16 November 1945. UNESCO has 195 Members and 8 Associate Members. UNESCO's mission is to contribute to the building of a culture of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information. UNESCO works to create the conditions for dialogue among civilizations, cultures and peoples, based upon respect for commonly shared values. It is through this dialogue that the world can achieve global visions of sustainable development encompassing observance of human rights, mutual respect and the alleviation of poverty, all of which are at the heart of UNESCO's mission and activities.

Its aim is to foster cultural diversity, intercultural dialogue and a culture of peace
Addressing emerging social and ethical challenges Mobilizing science knowledge and policy for sustainable development Building inclusive knowledge societies through information and communication to apply science to ensure human development and the rational management of natural resources

UNESCO's main objective is to contribute to peace and security in the world by promoting cooperation between nations through education, science, culture, and communication, to promote universal respect for justice, the rule of law and for human rights and fundamental freedoms affirmed for the peoples of the world, irrespective of race, sex, language or religion.

UNESCO builds capacities of States Parties and other stakeholders to manage climate change impacts on World Heritage effectively and sustainably. The main aim of these efforts is to increase the capacity of these properties to continue to convey their Outstanding Universal Value and support sustainable development.

UNESCO's Culture Sector protects and manages world heritage in all its forms. UNESCO defines heritage in six categories: cultural and natural; tangible and intangible; and movable and immovable.

TERMS TO KNOW/ GLOSSARY

1. **Indigenous Knowledge Systems (IKS):** Dynamic, holistic bodies of wisdom, practical innovations, spiritual traditions, and ecological sciences developed, sustained, and passed down intergenerationally by Indigenous peoples, deeply linked to customary lands and collective stewardship.
2. **Intangible Cultural Heritage (ICH):** Living traditions, oral expressions, performing arts, social practices, rituals, festive events, and knowledge regarding nature and the universe that communities recognize as essential to their cultural identity and continuity (as formalized under UNESCO's 2003 Convention).
3. **Traditional Knowledge (TK) & Traditional Cultural Expressions (TCEs):** Cumulative bodies of intellectual activity, practical insights, and artistic forms such as vocal traditions, designs, dances, patterns, and architectural motifs, sustained and developed by Indigenous or traditional communities across generations.
4. **Digital Biopiracy & Data Colonialism:** The unconsented extraction, mass scraping, algorithmic enclosure, or patenting/monetization of Indigenous biological, cultural, medicinal, or ecological knowledge by external corporations and platforms without equitable compensation or legal attribution.
5. **Indigenous Data Sovereignty (IDSov):** The inherent collective right of Indigenous nations and communities to govern the collection, ownership, curation, analysis, and reuse of data that relates to their peoples, cultures, ancestral territories, and knowledge systems.
6. **Free, Prior, and Informed Consent (FPIC):** A baseline human-rights standard articulated in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, Article 19) mandating that communities must give voluntary, fully informed authorization before any external entity records, extracts, digitizes, or commercializes their cultural, linguistic, or traditional assets.

7. **Biocultural Heritage Protocols (BHPs):** Formal community-drafted legal and social instruments that set explicit rules, customary access terms, and ethical requirements for external researchers, commercial tech developers, and archives engaging with a community's knowledge base.

INTRODUCTION TO THE AGENDA

FOUNDATIONS OF CULTURAL HERITAGE IN THE DIGITAL AGE

Cultural heritage is the legacy of physical artifacts, intangible attributes, practices, artistic expressions, and knowledge systems inherited from past generations, maintained in the present, and bestowed for the benefit of future generations. Under international law, this framework is anchored principally by the UNESCO 1972 World Heritage Convention (governing tangible cultural and natural heritage) and the UNESCO 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (ICH). Cultural heritage is not static; it is a living, evolving ecosystem through which communities construct identity, transmit historical memory, articulate worldview, and maintain social cohesion.

In an era defined by ubiquitous computing, digital globalization, and synthetic media, cultural heritage faces a profound ontological transformation. The widespread digitization of cultural property encompassing 3D photogrammetric architectural scans, high-resolution museum imaging, recorded oral histories, and linguistic corpora has decoupled cultural assets from their physical anchors and historical custodians. While digital platforms theoretically offer unprecedented democratization of access, cultural education, and historical preservation, they simultaneously expose cultural assets to unprecedented vulnerabilities:

1. **Decoupling from Custodianship:** Traditional protocols governing when, how, and by whom sacred practices are accessed are routinely stripped during ingestion into global databases.
2. **Algorithmic Disintermediation:** Cultural knowledge is transformed into raw, tradeable training data. Non-Western cultural materials are indexed, classified, and monetized within closed commercial platforms without the knowledge or oversight of the communities of origin.
3. **Erosion of Contextual Integrity:** Decontextualized artifacts, symbols, and languages are ingested by automated systems, flattening complex cultural hierarchies and sacred meanings into ambient decorative assets for global mass entertainment.

Therefore, the preservation of IKS in the digital age must address two interconnected objectives: preserving the knowledge itself and preserving the cultural authority and community processes through which that knowledge remains alive. UNESCO's discussion of Indigenous data sovereignty similarly emphasises Indigenous self-determination, control over cultural data, prior and informed consent, privacy and intellectual-property rights.

However, a digital record of a cultural practice does not necessarily constitute preservation of the living knowledge system itself. Once knowledge is converted into digital data, questions arise concerning its context, interpretation, ownership, accessibility and control. The literature specifically identifies concerns surrounding data sovereignty, intellectual-property rights, algorithmic bias, misrepresentation, appropriation and community consent.

This conceptual distinction becomes particularly important in the context of digitalisation and artificial intelligence. Digital technologies can document, organise and disseminate Indigenous knowledge through archives, multimedia repositories, language technologies, digital libraries and AI-supported systems. These tools can support the preservation of endangered languages, oral histories, traditional practices and ecological knowledge.

This distinction is significant because Indigenous knowledge is not simply something that is stored; it is produced, transmitted, practised and renewed within communities. Its preservation therefore involves maintaining not only the content of knowledge but also the social and cultural processes through which it remains meaningful.

Preserving cultural heritage today demands moving beyond passive digitization. The international community must establish enforceable governance frameworks ensuring that digital globalization does not replicate historical colonial extractive models through algorithmic platforms.

UNDERSTANDING INDIGENOUS KNOWLEDGE SYSTEMS

Indigenous knowledge (IK) is local knowledge that is unique to a given culture or society. Such knowledge is passed down from generation to generation, in many societies by word of mouth. Indigenous knowledge has value not only for the culture in which it evolves a large body of technical knowledge based on careful observation and use of its natural resources. Every society also has mechanisms through which indigenous knowledge provides the basis for group decision-making and the generation of new knowledge and technologies when current problems and how to cope with them are discussed. And every society has ways to disseminate new information and technologies, whether generated within the society or outside of it. **(World Bank Discussion Paper 127)**

Indigenous Knowledge Systems (IKS) encompass the cumulative, holistic bodies of knowledge, practical innovations, spiritual cosmologies, environmental wisdom, and cultural practices developed and sustained by Indigenous peoples across millennia. Unlike Western positivist scientific systems, which routinely prioritize reductionism, mechanistic analysis, and commercial exploitation, IKS are distinguished by fundamental structural and epistemological principles:

1. **Relational Epistemology & Stewardship:** Knowledge is intimately bound to ancestral lands, waterways, non-human kin, and cyclical ecological balances. It is governed through custodial responsibility and environmental reciprocity rather than transactional ownership.
2. **Collective and Intergenerational Custodianship:** Knowledge is collectively owned, stewarded through kinship networks, and passed down through oral tradition, elder teachings, customary rituals, and embodied practice. No single individual possesses unilateral alienation rights.
3. **Stratified Cultural Protocols:** Access to specific layers of knowledge is strictly governed by customary laws based on lineage, clan affiliation, gender, spiritual maturity, and seasonal cycles. Certain sacred ceremonies or medicinal formulas are intrinsically non-public and taboo for general dissemination.

The rapid rise of Generative AI, natural language processing (NLP), and large-scale digital scraping presents an acute existential challenge to IKS. Because standard commercial machine learning models depend on massive datasets scraped undifferentiated from the public internet, they ingest sacred tribal stories, traditional medicinal uses of flora and fauna, sacred motifs, and endangered Indigenous idioms. This data is converted into statistical weights and proprietary commercial algorithms.

Consequently, digital globalization creates a modern paradox: it risks executing total algorithmic erasure on the one hand (by neglecting low-resource Indigenous languages in favour of global dominant tongues) while practicing aggressive data colonialism on the other (extracting community knowledge without attribution, compensation, or consent). Protecting IKS requires an international consensus that revolves around Indigenous self-determination, recognizing that Indigenous people must possess sovereign control over their knowledge assets in both the physical and digital spheres.

SUB-TOPICS FOR DISCUSSION

1. ALGORITHMIC ERASURE, DIGITAL HOMOGENIZATION, AND LANGUAGE EXTINCTION

- **Corpus Underrepresentation:** Modern foundational Large Language Models (LLMs) are disproportionately trained on high-resource languages (predominantly English, Mandarin, and European tongues), leaving thousands of Indigenous and low-resource languages entirely absent from digital infrastructure. The problem begins with the limited availability of digitised linguistic resources for Indigenous languages. Where sufficient textual, audio or linguistic datasets do not exist, AI systems have fewer materials through which to learn and represent these languages, creating a structural disadvantage for already under-resourced linguistic communities.
- **Epistemic Flattening:** When dominant commercial systems process non-Western historical accounts or Indigenous worldviews, they run them through semantic representations conditioned on dominant Western corpora. This flattens multifaceted oral histories, nuance, and kinship concepts into generic caricatures. This risk is intensified when Indigenous knowledge is classified, translated and organised through externally designed metadata systems, taxonomies or knowledge structures. Such processes can make complex and context-dependent knowledge easier to retrieve while simultaneously separating it from the relationships, cultural protocols and community contexts in which it acquires meaning. The literature therefore stresses culturally aware AI, community participation and Indigenous control over how knowledge is interpreted and represented.
- **Stereotyping & Hallucination:** Automated systems, lacking culturally calibrated contextual guardrails, frequently hallucinate, misinterpret, or misattribute sacred traditions, conflating distinct regional Indigenous tribes and diluting their unique cultural identities.

The literature identifies a related risk of AI systems perpetuating existing biases and stereotypes, leading to the misrepresentation or misinterpretation of Indigenous knowledge. This concern is particularly significant where models are built from datasets that inadequately represent non-Western cultures and narratives. Responsible preservation therefore requires culturally appropriate safeguards, transparent

methodologies and meaningful participation by the communities whose knowledge is being represented.

The use of artificial intelligence for the preservation of Indigenous Knowledge Systems introduces risks that extend beyond conventional concerns of data loss or archival inaccuracy. Once Indigenous knowledge is digitised and incorporated into AI systems, it may be classified, translated, synthesised and reproduced through computational processes that do not necessarily reflect the cultural context in which the knowledge originated. Existing literature identifies several interconnected risks, including the perpetuation of bias and stereotypes, the misrepresentation of Indigenous narratives, insufficient representation of Indigenous languages, appropriation of cultural knowledge, and the transfer of control over cultural data to external actors.

These risks become particularly significant with generative AI and large language models because such systems do not merely store information but can generate new interpretations and representations from patterns contained within their training data. Consequently, an AI-generated representation of Indigenous knowledge may reproduce omissions or dominant external interpretations while presenting the resulting output as coherent and authoritative. The central concern is therefore not that AI necessarily alters Indigenous knowledge intentionally, but that the transformation of living cultural knowledge into machine-readable datasets can create new forms of distortion, de-contextualization and loss of community control. Responsible AI-based preservation consequently requires Indigenous data sovereignty, free, prior and informed consent, community participation, transparent methodologies, culturally appropriate data governance and meaningful authority for knowledge holders over how their knowledge is collected, interpreted and used.

2. DATA EXPLOITATION, WEB SCRAPING, AND INTELLECTUAL PROPERTY VULNERABILITIES

- **Mismatch of IP Frameworks:** Conventional Western Intellectual Property (IP) regimes require identifiable individual authors, explicit inventive novelty, and strictly finite periods of protection before content falls into the "public domain." Conversely, Indigenous cultural assets are collective, cumulative, cross-generational, and held in perpetuity.
- **Public Domain Vulnerability:** Once oral histories, botanical usages, or art forms are documented and placed online, standard copyright doctrine treats them as free public domain material. Automated scrapers can legally ingest

them to train proprietary, money-making AI models.

This, however, raises a further question concerning the protection of the digital footprint created through such preservation: **How can Indigenous cultural data, digitised knowledge and digital representations be protected from unauthorised access, appropriation, manipulation, misrepresentation or inappropriate reuse?**

The literature identifies data sovereignty, intellectual-property protection, community consent, algorithmic bias and control over digital knowledge as central concerns. AI systems may reproduce biases or misrepresent Indigenous narratives, while the digitisation of knowledge can create opportunities for exploitation when communities do not retain meaningful control over their data and its subsequent use. Responsible preservation therefore requires not only technological safeguards, but also Indigenous data sovereignty, free, prior and informed consent, transparent data governance, culturally appropriate protocols and continued community authority over digital representations of their heritage.

- **Synthesizing Traditional Art & Designs:** Generative text-to-image engines digest high-resolution photographs of authentic ancestral weavings, beadwork, and sacred masks, allowing third-party users to generate and sell mass-market derivative knock-offs within seconds, bypassing local artisans.

3. DIGITAL REPATRIATION VS. ALGORITHMIC ENCLOSURE

- **The "Digital Substitution" Trap:** Western museums and global archives often point to high-resolution 3D photogrammetry and "virtual galleries" as sufficient restitution for historical plunder, offering digital access copies while refusing to return the physical ancestral remains and sacred objects. Digital reproduction can expand access and create a durable record of vulnerable heritage, but it should not be treated as equivalent to restoring the original object's cultural relationship, ownership or meaning. The heritage literature also identifies repatriation and competing claims over cultural ownership as part of the wider politics of preservation.

Digital technologies can effectively safeguard Indigenous Knowledge Systems (IKS) and cultural heritage only when they are integrated with meaningful, community-led participation. Technology should serve the continuity, transmission and "liveness" of heritage rather than reduce living knowledge systems to static digital records.

IKS encompasses not only documented information, but also knowledge

holders, oral traditions, practices, systems of transmission, cultural protocols and community-based knowledge management. Therefore, the preservation of IKS through digital archives and AI must retain its cultural context and ensure that Indigenous communities remain involved in determining how their knowledge is documented, interpreted, accessed and used.

- **Digital Enclosure:** Institutions and tech companies frequently hold proprietary copyrights or licensing rights over the raw 3D scans, high-resolution scans, and metadata meshes of these cultural objects, creating a synthetic digital common that the original creator communities cannot legally access, modify, or restrict. The digitisation of heritage therefore creates a second question of ownership: even where the cultural object is physically preserved, control over its digital representation may remain with external institutions. Research on Indigenous Knowledge specifically identifies ownership and control over digitised heritage, intellectual-property protection and data sovereignty as central concerns, warning that communities may become sources of cultural data without retaining meaningful control over its subsequent representation and use.
- **Breaching Customary Taboos:** Universal open-access models neglect the fact that some knowledge and visual depictions are intrinsically restricted (e.g., gender-specific knowledge, funeral rites, or clan-restricted materials) and should never be viewed outside of explicit cultural rituals. Consequently, preservation cannot be based on universal accessibility alone. Indigenous data governance requires communities to retain authority over how cultural knowledge is collected, interpreted, accessed and shared, with cultural protocols and consent determining the appropriate degree of accessibility. The objective of digitisation should therefore be controlled preservation rather than unrestricted exposure.

4. AI AS AN ARCHIVAL TOOL: OPPORTUNITIES, GOVERNANCE, AND DUAL USE

Artificial intelligence plays a supportive and increasingly significant role in the preservation of Indigenous Knowledge Systems by enabling the documentation, organisation, analysis, revitalisation and transmission of knowledge that may otherwise be vulnerable to loss.

AI technologies such as natural language processing, speech recognition, machine translation, knowledge-management systems, digital archives, 3D modelling and data

analytics can be used to record Indigenous languages, oral histories, traditional stories, ecological knowledge, cultural practices and material heritage. These technologies can improve the discoverability and accessibility of Indigenous knowledge while creating new opportunities for language revitalisation, cultural education and intergenerational transmission.

AI can also assist in monitoring Indigenous ecological environments and organising large bodies of traditional knowledge through metadata, knowledge graphs and digital repositories. However, the role of AI should not be understood as replacing the living knowledge systems or the communities that sustain them.

The transformation of Indigenous knowledge into digital data introduces questions of representation, authenticity, ownership, privacy, algorithmic bias and cultural sovereignty. Therefore, AI should function as a tool within a community-centred preservation framework in which Indigenous knowledge holders retain meaningful authority over the collection, interpretation, management, access and use of their knowledge.

- **Community-Led Language Revitalization:** Properly harnessed, self-hosted Natural Language Processing (NLP) models, acoustic recognition, and speech-to-text systems provide communities with dynamic tools to translate historical audio tapes, produce school curricula, and assist declining numbers of fluent elders.
- **Autonomous Cultural Mapping:** Machine learning and satellite computer vision assist in monitoring uncatalogued heritage sites across vulnerable, expansive, or conflict-affected regions, detecting early signs of illegal excavation, looting, or climate decay. AI-based mapping can also extend preservation beyond individual artefacts by connecting cultural heritage to its surrounding landscapes, territories and ecological systems. GIS, spatial analytics, satellite imagery and AI-driven mapping can assist in documenting Indigenous territories, traditional knowledge landscapes, biodiversity and resource-management areas. This is significant because Indigenous knowledge is frequently place-based, particularly in relation to land, ecological management, traditional harvesting and environmental stewardship. At the same time, the mapping of Indigenous territories and culturally significant places raises a question of controlled visibility. Digitisation may increase the discoverability of previously undocumented heritage, but the same visibility may expose culturally sensitive information to actors who are not authorised to access or use it. This makes cultural mapping not only a technical exercise but also a question of data governance: communities must have meaningful authority over what is mapped, what remains restricted, and under what conditions geographical and cultural data can be accessed or shared.

- **Dual-Use Risks and Structural Gaps:** The same tools that catalog sacred heritage sites can expose sensitive geographical coordinates to illicit looters. Furthermore, high infrastructure barriers, such as scarce cloud access, severe computational costs, and spotty electricity, impede Indigenous communities from running their own local compute stacks, leaving them reliant on extractive commercial cloud architectures.

GLOBAL SCENARIO/ CASE STUDIES

1. TE HIKU MEDIA & MĀORI DATA SOVEREIGNTY (AOTEAROA / NEW ZEALAND)

- **Context:** A charitable media organization representing Māori tribes (*iwi*) collected thousands of hours of historical audio archives spoken by native *te reo Māori* speakers. Global tech conglomerates offered to purchase this audio to build commercial speech engines.
- **Intervention:** Te Hiku Media rejected corporate buyouts, recognizing that selling their linguistic heritage risked digital enclosure and loss of sovereignty. Instead, they raised independent funding, learned machine learning engineering, and developed **Papa Reo**, a community-owned, sovereign multilingual speech-to-text platform built under the Māori Data Sovereignty principles established by *Te Mana Raraunga*.
- **Impact:** They proved that Indigenous organizations can lead technical AI innovation while establishing strict customary data licensing that forbids external commercial exploitation without explicit community permission.

2. THE CARE PRINCIPLES FOR INDIGENOUS DATA GOVERNANCE (GLOBAL)

- **Context:** Open science and digital research repositories heavily rely on the **FAIR Principles** (Findable, Accessible, Interoperable, Reusable), an operational architecture that prioritizes making data as easily discoverable and shareable as possible.
- **Friction:** The FAIR model contains no ethical safeguards addressing historical power imbalances, resulting in the unconsented scientific exploitation of Indigenous genetic and cultural materials.
- **Intervention:** The Global Indigenous Data Alliance (GIDA) formulated the **CARE Principles** to function alongside FAIR:
 - **Collective Benefit:** Data ecosystems must be designed to serve Indigenous wellbeing and equity.
 - **Authority to Control:** Indigenous communities must have the recognized authority to control and govern their data lifecycles.

- **Responsibility:** External researchers and developers bear a positive duty to support Indigenous language and cultural goals.
- **Ethics:** Indigenous rights, frameworks, and cosmologies must direct data collection and use.

3. TRADITIONAL KNOWLEDGE (TK) & BIOCULTURAL LABELS (LOCAL CONTEXTS)

- **Context:** Millions of items of cultural heritage reside within digital archives, research universities, and public museums without accurate provenance, missing crucial community context and customary access guidance.
- **Intervention:** The *Local Contexts* initiative engineered digital metadata tags, specifically **TK Labels** (Traditional Knowledge) and **BC Labels** (Biocultural), that institutions, libraries, and communities append directly into digital archive records.
- **Function:** These machine-readable labels indicate cultural provenance and outline community protocols:
 - *TK Seasonal (TK S):* Information that should only be accessed or sung during particular seasons.
 - *TK Men/Women Restricted (TK M/W):* Knowledge reserved exclusively for specific genders.
 - *TK Attribution (TK A):* Requires proper tribal acknowledgment across downstream commercial or research citations.

4. 3D SCANNING AND DIGITAL TWIN OWNERSHIP OF ARTIFACTS (BENIN BRONZES)

- **Context:** The Benin Bronzes, thousands of ceremonial brass, bronze, and ivory sculptures plundered by British forces in 1897 from the Kingdom of Benin (modern-day Nigeria), are distributed across European and North American museums. As pressure for their physical return mounted, Western institutions created ultra-high-resolution 3D digital scans.
- **Controversy:** Institutions asserted independent proprietary rights over the resulting 3D models and point-cloud assets, charging commercial licensing fees for their use in digital media and VR experiences while denying the Nigerian National Commission for Museums and Monuments (NCMM) legal authority over the digital assets.

- **Precedent:** This dynamic highlights the urgency of tying digital property rights directly to physical repatriation, preventing museums from retaining lucrative "digital twins" while relinquishing the physical objects.

5. COMMERCIAL EXPLOITATION OF INDIGENOUS MOTIFS BY GENERATIVE AI

- **Context:** Highly specialized textile patterns, such as the handmade Otomí-Teprehua embroidery (Tenango) of Mexico and ancestral Navajo woven blanket designs, are recognized cultural identities and vital income streams for rural artisan cooperatives.
- **Exploitation:** Generative image engines trained on scrapes of these patterns enable global print-on-demand marketplaces, fast-fashion brands, and interior design firms to churn out indistinguishable digital knock-offs with zero artisan compensation, zero attribution, and zero community oversight.
- **Outcome:** This algorithmic saturation depresses the economic value of authentic handmade crafts and breaks the generational transmission of weaving traditions.

POSSIBLE RECOMMENDATIONS/ SOLUTIONS

1. GLOBAL GOVERNANCE, FPIC ENFORCEMENT, AND WIPO-UNESCO ALIGNMENT

- **Harmonize Binding Protocols:** Align UNESCO's *Recommendation on the Ethics of Artificial Intelligence* (2021) with the World Intellectual Property Organization (WIPO) Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge adopted in May 2024.
- **Mandate FPIC Compliance in Training Corpora:** Introduce international standards requiring commercial artificial intelligence developers to prove that cultural, linguistic, and sacred Indigenous datasets were gathered under verified Free, Prior, and Informed Consent (FPIC) before being incorporated into production models.
- **Establish National Cultural IP Ombudsman Offices:** Support member states in creating legal advisory and enforcement mechanisms tasked with investigating digital biopiracy and defending community intellectual property rights in cross-border disputes.

2. COMMUNITY-CONTROLLED EDGE INFRASTRUCTURE & SOVEREIGN DATA TRUSTS

- **Fund Local Computing Networks:** Establish a targeted UNESCO Digital Equity Window to finance local edge-computing infrastructure, off-grid server systems, and on-premise compute nodes for Indigenous communities. This allows groups to run language restoration models locally without transferring data to proprietary commercial clouds.
- **Incorporate Sovereign Data Trusts:** Create legally independent data trusts governed entirely by local tribal councils, elders, and community representatives. These trusts retain strict custodial control over cultural datasets and negotiate external research and commercial access exclusively on community terms.
- **Decouple Preservation from Public Exploitation:** Formulate policy standards that validate non-open, closed-access community digital archives, recognizing that cultural preservation does not require worldwide public

accessibility.

3. MACHINE-READABLE PROVENANCE PROTOCOLS AND "DO NOT TRAIN" METADATA FLAGS

- **Universalize Metadata Tagging:** Require all state-sponsored academic libraries, public museums, and digital heritage repositories to adopt Local Contexts TK/BC Labels into their foundational Dublin Core, MARC, and JSON-LD metadata schemas.
- **Standardize Machine-Readable Opt-Out Protocols:** Draft and mandate an international digital provenance standard (e.g., an automated AI-Cultural-Exclusion or Do Not Train token). Web crawlers, scrapers, and data brokers must respect these tags, backed by civil and administrative liabilities for companies that crawl tagged cultural repositories without explicit permission.
- **Cryptographic Watermarking for Restitution:** Apply non-destructive, cryptographic watermarking and verified hash identifiers to digital twins of cultural artifacts, verifying that primary ownership remains linked to the source community regardless of where the file is downloaded or rendered.

4. MANDATORY BENEFIT-SHARING FRAMEWORKS AND ARCHIVAL CAPACITY BUILDING

- **Commercial Royalty Levies:** Implement statutory benefit-sharing mechanisms requiring global technology platforms that generate commercial revenue from cultural, linguistic, or indigenous-derived synthetic outputs to pay a set royalty into a community-administered preservation fund.
- **Intergenerational Capacity Building:** Organize regional tech incubation hubs that train Indigenous youth in software architecture, prompt engineering, audio curation, and local archival techniques, ensuring technical literacy remains rooted in community stewardship.
- **Equitable Research Partnerships:** Condition all international scientific and UNESCO-funded documentation grants on co-designed projects where the source community holds primary ownership over all recorded data, transcripts, translations, and downstream research deliverables.

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