

LEARNING FROM INDIA’S TKDL: DIGITIZATION AS A TOOL TO PROTECT CULTURAL PROPERTY AND AN ARGUMENT FOR DOING IT YOURSELF

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I. INTRODUCTION

Digitization of traditional knowledge (TK) and traditional cultural expressions (TCE) can be a powerful means to many noble ends. For example, archiving herbal medicines or traditional performance art by recording it in writing or video can prevent those cultural pieces from being lost as a result of death of living memory, natural disaster, or conflict.¹ Additionally, by digitizing TK and TCE, the communities that create them may be able to combat misappropriation by outsiders. By demonstrating ownership and existence of the TK or TCE in question as “prior art,” or evidence of unoriginality or lack of authorship, communities can deal fatal blows to third-party patent or copyright claims.² Finally, digitization can increase accessibility to TK and TCE and allow a greater number of people to view and learn from them by removing barriers to enjoyment, such as geographical or financial constraints. Using India’s Traditional Knowledge Digital Library as a case study, this Note argues that the legal and moral utility of digitization is greatest when it is a tool wielded by the communities who own and create the TK and TCE being digitized.

Part II provides an overview of what constitutes “traditional knowledge” or “traditional cultural expressions,” as well as examples of TK and TCE from different cultures and geographies. Part III discusses techniques for digitizing TK and TCE and their intellectual property implications. Part IV first introduces memory institutions, such as libraries, museums, and galleries, as the primary “digitizers” of TK and TCE throughout history, and then offers a critical perspective on the role of memory institutions as digitizers. It then explores the growing push by advocacy groups for communities to digitize and archive their own TK and TCE, in an effort to retain, assert, or enforce intellectual property rights. Part V discusses rampant biopiracy as the impetus for India’s government-led digitization initiative that resulted in the creation of the Traditional Knowledge Digital Library (TKDL). It examines the government’s tactics in creating the TKDL; reviews the TKDL’s successes to date in keeping patents for Indian TK and TCE out of the hands of third-party appropriators; juxtaposes the TKDL with digitization of TK and TCE by memory institutions; and identifies areas for improvement. Part VI provides examples of community-driven digitization initiatives as alternative models to the TKDL. Part VII addresses potential obstacles to community-driven

¹ See *Recommendation Concerning the Preservation of, and Access to, Documentary Heritage Including in Digital Form*, UNESCO (Nov. 17, 2015), http://portal.unesco.org/en/ev.phpURL_ID=49358&URL_DO=DO_TOPIC&URL_SECTION=201.html [https://perma.cc/A2GQ-AT78].

² See 35 U.S.C. § 100 *et seq.*; 17 U.S.C. § 101 *et seq.*

digitization and proposes best practices for furthering both preservation and legal protection of TK and TCE.

II. AN OVERVIEW OF TRADITIONAL KNOWLEDGE AND TRADITIONAL CULTURAL EXPRESSIONS

Definitions and concepts of “traditional knowledge” and “traditional cultural expressions” are far from uncontested.³ Some scholars criticize distinguishing between TK and TCE at all, pointing out that for some indigenous communities, “cultural expressions are inseparable from the social and natural environment in which they are produced.”⁴ Nevertheless, this Note adopts the flexible definitions and understanding of TK and TCE put forth by the World Intellectual Property Organization (WIPO). As a leader in the movement to protect TK and TCE, WIPO continues to acknowledge the evolving nature of cultural property and does not seek to definitionally limit the diverse understanding of TK and TCE as they exist for different communities.⁵ According to WIPO, “traditional knowledge” or TK includes:

knowledge, know how, skills, innovations or practices; that are passed between generations; in a traditional context; and that form part of the traditional lifestyle of indigenous and local communities who act as their guardian or custodian. [Traditional knowledge] can be, for example, agricultural, environmental or medicinal knowledge, or knowledge associated with genetic resources. Examples include, among thousands of others: knowledge about traditional medicines; traditional hunting or fishing techniques; knowledge about animal migration patterns; knowledge about water management.⁶

According to WIPO, “traditional cultural expressions” or TCE “may be considered as the forms in which traditional culture is expressed; form part of the identity and heritage of a traditional or indigenous community; [and] are passed down from generation to generation. They can be:

³ TRADITIONAL KNOWLEDGE, TRADITIONAL CULTURAL EXPRESSIONS AND INTELLECTUAL PROPERTY LAW IN THE ASIA-PACIFIC REGION 1 (Christoph Antons ed., 2009).

⁴ *Id.* at 4.

⁵ *See id.* at 2.

⁶ *Frequently Asked Questions*, WORLD INTELLECTUAL PROP. ORG., <https://www.wipo.int/tk/en/resources/faqs.html#a2> (last visited Nov. 23, 2020) [<https://perma.cc/8XZG-8D4C>].

- Dances
- Songs
- Handicraft
- Designs
- Ceremonies
- Tales
- Or many other artistic or cultural expressions.”⁷

Although TCE are often distinguished from TK in an intellectual property context, they are also sometimes considered to be a subset or form of TK.⁸ This Note will use the term “cultural property” to encompass both TK and TCE. Importantly, as law professor Jay Erstling points out, cultural property “need not be old, static, or lacking in a scientific or technical basis. The knowledge is traditional only in the sense that it is part of the customs and cultural traditions of the community that has developed and maintains it.”⁹ TK and TCE alike represent the cultural values of a community and are thus generally held collectively rather than by individuals; however, their use or knowledge may be restricted to certain members.¹⁰

One example of a TCE is the sacred myth of the origin of Earth, as passed down for generations by the indigenous Mansi people of Russia.¹¹ While non-sacred stories could be told to people of any age or sex, the full origin myth may only be heard and told by Mansi men:

They were told only rarely and only by men. These stories were performed in accordance with a set ritual and in the absence of outsiders, and particularly members of other ethnic groups...Women were allowed to listen to the first half of the sacred myth about the origin of the Earth, after which they were politely asked to leave ... Without fuss they quietly would get up and go out, taking any younger girls with them...Small children were not allowed into such evening performances.¹²

⁷ *Id.*

⁸ *See id.*; TRADITIONAL KNOWLEDGE, TRADITIONAL CULTURAL EXPRESSIONS AND INTELLECTUAL PROPERTY LAW IN THE ASIA-PACIFIC REGION, *supra* note 3 at 2–3.

⁹ *See* Jay Erstling, *Using Patents to Protect Traditional Knowledge*, 15 TEX. WESLEYAN L. REV. 295, 296 (2009).

¹⁰ Daniel Gervais, *Traditional Knowledge & Intellectual Property: A Trips-Compatible Approach*, 2005 MICH. ST. L. REV. 137, 140–41 (2005).

¹¹ Michael Newcity, *Protecting the Traditional Knowledge and Cultural Expressions of Russia's "Numerically-Small" Indigenous Peoples: What Has Been Done, What Remains to Be Done*, 15 TEX. WESLEYAN L. REV. 357, 391 (2009).

¹² *Id.*

One example of TK is the medicinal use of the plant *quassia amara*, or bitterroot, as a treatment for malaria. Indigenous people in Brazil, French Guiana, and elsewhere have used bitterroot to treat malaria for generations.¹³ Intrigued by the high malaria infection rate but low death rate in French Guiana,¹⁴ French researchers interviewed members of its indigenous communities about their herbal medicine and identified bitterroot as having strong antimalarial properties.¹⁵ Ten years later, the researchers obtained patents in the United States and European Union for a compound extracted from the plant.¹⁶

The latter example illustrates the vulnerability of TK and TCE to biopiracy and other forms of misappropriation by people and entities that are not part of the communities who own them. As discussed further in Part IV, community-driven digitization is one way that indigenous people can protect their cultural property. However, digitization by *other* parties can do more harm to these communities than good.

III. DIGITIZATION GENERALLY AND INTELLECTUAL PROPERTY IMPLICATIONS

In offering guidelines to developing countries for digitizing their own cultural property, the United Nations Educational, Scientific and Cultural Organization (UNESCO) defines “digitization” as:

The creation of digital objects from *physical, analogue originals* by means of a scanner, camera or other electronic device, undertaken as part of a multi-step process beginning with selection, assessment, and prioritization of the property to be digitized, and concluding with metadata collection, creation of data collections, and submission of the digital resources to repositories.¹⁷

¹³ William Fisher, *Toward Global Protection for Traditional Knowledge*, CIGI PAPERS NO. 198, 3 (2018), <https://www.cigionline.org/sites/default/files/documents/Paper%20no.198.pdf> [<https://perma.cc/6BR3-8KR8>].

¹⁴ *Id.*

¹⁵ Sam Halabi, *Viral Sovereignty, Intellectual Property, and the Changing Global System for Sharing Pathogens for Infectious Disease Research*, 28 ANNALS HEALTH L. & LIFE SCI. 101, 108 (2019).

¹⁶ *Id.*; Fisher, *supra* note 13, at 4.

¹⁷ *Fundamental Principles of Digitization of Documentary Heritage*, UNITED NATIONS EDUC. SCI. & CULTURAL ORG. (UNESCO), http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf (last visited Dec. 15, 2019) [<https://perma.cc/KTX3-HZJM>].

UNESCO also notes that the process of digitization “is accompanied along the way by management, including intellectual property rights management and quality control, and evaluation at the end.”¹⁸ Further, intangible property can also be digitized. For example, researchers often use audio or visual recording to digitize TCE witnessed during their expeditions, such as live performances or storytelling.¹⁹ Where consent is given for this form of digitization, it is often quite informal and given warmly by people who may not have considered the potential consequences.²⁰

As WIPO Director General Francis Gurry notes, “many of the benefits and risks [of digitization] concern intellectual property.”²¹ While digitization can be a strong defensive tool for indigenous communities wishing to prevent misappropriation of their cultural property, “a poorly conceived documentation project may jeopardize the protection of secret TK or even give third parties intellectual property rights in the documented TK.”²² For example, copyright protection attaches at the stage of fixation, or the actual recording of TK or TCE by scanning, videotaping, photographing, or a number of other means of digitization.²³ Under the United States Copyright Act, a work must be 1) a work of authorship that is 2) original, and 3) fixed in a tangible medium of expression in order to be eligible for copyright protection.²⁴ Similar elements are required for copyright protection abroad.²⁵ Under this framework, a person or entity that records or translates TK – even if they are not a member of the community in which that TK originated – may be entitled to copyright protections in the way that they put the TK into words, or in the translation itself.²⁶ At the same time, communities can avoid this risk and retain copyright protections by being the “fixators” of their own cultural property.

Digitization similarly has implications on patent law protections. Under the United States Patent Act, any person who invents a “process, machine, manufacture, or composition of matter” that is useful, novel, and

¹⁸ *Id.*

¹⁹ See *Cultural Heritage Digitization and Related Intellectual Property Issues*, 34 J. CULTURAL HERITAGE 145, 146–47 (2018).

²⁰ *Id.* at 147.

²¹ Begoña Venero Aguirre et al., *Documenting Traditional Knowledge – A Toolkit*, WORLD INTELLECTUAL PROP. ORG., at 5 (2017),

https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1049.pdf [<https://perma.cc/5SD7-G2Z5>].

²² *Id.*

²³ *Id.* at 12.

²⁴ See 17 U.S.C. § 102 (2020).

²⁵ See *Copyright: What is Copyright?*, WORLD INTELLECTUAL PROP. ORG., <https://www.wipo.int/copyright/en/> (last visited Dec. 15, 2019) [<https://perma.cc/8C5G-2LTH>].

²⁶ Aguirre et al., *supra* note 21, at 12.

nonobvious may obtain a patent as long as the application describes the invention in sufficient detail.²⁷ A patent holder is able to prevent the commercial exploitation of its invention by third parties.²⁸ The specific requirements for patent protection can vary globally, but in general, the invention in question must be new and genuinely inventive.²⁹ Thus, the existence of “prior art”—everything pertaining to the invention that was known, disclosed, or made public anywhere in the world before the patent application is filed—can prevent a patent from being awarded to the applicant.³⁰ As a result, a digital archive or recording of TK or TCE can evidence prior art, thus protecting the cultural property from being patented and exploited by third parties.

IV. WHO SHOULD DIGITIZE? THE HISTORICAL ROLE OF MEMORY INSTITUTIONS AND THE NEED FOR CHANGE

Memory institutions are institutions that curate and preserve public cultural knowledge and collective cultural memory in knowledge repositories. These institutions include libraries, archives, and museums.³¹ For decades, memory institutions have been leveraging technology to further their responsibility to preserve the world’s heritage³² through digitization techniques.³³ Adopted in 2011 by UNESCO, the Universal Declaration on Archives indicates that memory institutions “play an essential role in the development of societies by safeguarding and contributing to individual and community memory.”³⁴

At best, memory institutions play an important preservation role; they record the world’s shared heritage and history to keep it alive and accessible. At worst, they take TK and TCE from unwilling creators and harm their communities. By removing TK and TCE from their cultural contexts, memory

²⁷ See 35 U.S.C. § 101 *et seq.* (2020).

²⁸ See *Patents: What is a Patent?*, WORLD INTELLECTUAL PROP. ORG., <https://www.wipo.int/patents/en/> (last visited Dec. 15 2019) [<https://perma.cc/SU2D-BKQK>].

²⁹ Aguirre et al., *supra* note 21, at 14.

³⁰ *Id.*

³¹ Chern Li Liew & Ferne Cheetham, *Participatory Culture in Memory Institutions: of Diversity, Ethics and Trust?*, D-LIB MAGAZINE (July/Aug. 2016), <http://www.dlib.org/dlib/july16/liew/07liew.print.html> [<https://perma.cc/6G29-D7ES>].

³² See *id.*

³³ Zinaida Manzuch, *Ethical Issues in Digitization of Cultural Heritage*, 4 J. CONTEMP. ARCHIVAL STUDIES 1, 1 (2017).

³⁴ *Universal Declaration on Archives*, UNESCO (Nov. 10, 2011), https://www.ica.org/sites/default/files/20190510_ica_declarationuniverselle_en_0.pdf [<https://perma.cc/QQB3-NMUE>].

institutions may ignorantly or intentionally co-opt community narratives, present inauthentic interpretations, and erase marginalized voices. Additionally, while they theoretically promote greater public access, memory institutions—even public ones—can occupy elite spaces and act as cultural gatekeepers. A growing push for communities to digitize their *own* TK and TCE seeks to address these issues.

A. Memory Institutions' Use of Digitization to Preserve Cultural Property

Memory institutions have indeed played an important role in cultural property preservation throughout history. One example of this is the success of the Monuments, Fine Arts, and Archives (MFAA) Section of the Civil Affairs and Military Government Divisions of the Allied Armies, created in response to the looting and destruction of cultural property by the Nazi regime during World War II.³⁵ A coalition of approximately 400 army personnel and civilian experts in art history and curation, referred to as “Monuments Men,” was formed and dispatched to Europe to locate stolen art.³⁶ The Monuments Men ultimately identified 1,400 repositories of stolen artifacts and recovered more than 15 million stolen items, thus “enabl[ing] past, present, and future generations to enjoy the many irreplaceable cultural treasures of Europe.”³⁷ Many of the Monuments Men became prominent leaders in American memory institutions,³⁸ and American museums such as the Smithsonian’s Archives of American Art became home to many of the artifacts they recovered during the war.³⁹ Today, the Smithsonian continues to work with the U.S. military to train the “next generation” of Monuments Men to safeguard works of art and other cultural property during times of conflict.⁴⁰

Efforts such as those of the original Monuments Men and the Smithsonian today illustrate the true good that memory institutions can do in their capacity to preserve world heritage. However, they also illustrate that when memory institutions are *preserving* heritage that is not their own,

³⁵ JULIA C. FISCHER, RAIDERS OF THE LOST ART: THE MONUMENTS MEN AND THEIR LEGACY 4 (2016), https://www.lamar.edu/faculty-senate/_files/documents/distinguished-faculty-lecture/2016/Raiders-of-the-Lost-Art-paper.pdf [<https://perma.cc/GVW6-FWHN>].

³⁶ Molly Bompane, *The Art of War and the War of Art*, U.S. ARMY (June 16, 2010), https://www.army.mil/article/40945/the_art_of_war_and_the_war_of_art [<https://perma.cc/L79H-8WDX>].

³⁷ *Id.*

³⁸ *Id.*

³⁹ Jefferson Wolfe, *Army, Smithsonian to Train Next Generation of ‘Monuments Men’*, U.S. ARMY (Oct. 22, 2019), https://www.army.mil/article/228842/usacapoc_smithsonian_to_train_the_next_generation_of_monuments_men. [<https://perma.cc/8Z9J-XW9A>].

⁴⁰ *Id.*

protection of that cultural property from misappropriation can fall by the wayside. For example, while European art looted during World War II may have been found, it nevertheless was removed from its cultural context and later displayed in the United States.⁴¹ The issue of cultural property being displayed out of context becomes exacerbated when it is digitized and held by memory institutions that are part of a dominant culture that marginalizes the true owners and creators.⁴²

Curator and digital library expert Michele Pickover explains that memory institutions, as collectors of digital documentary heritage, wield immense power over our understanding of the past; they are not merely “inert recipients, keepers and custodians” of TK and TCE, but are “gatekeepers to silences and competing narratives and interpretations” of world heritage and history.⁴³ She further explains that digitization of cultural property does more than create an aggregate of documents in cyberspace.⁴⁴ The selection of what is digitized and the interpretations put forth by the digitizers can oppress minority voices and amplify the dominant narrative of powerful social groups.⁴⁵ For example, Pickover argues that these biases can be seen in the digitization of African heritage, especially when the digital archives are held abroad.⁴⁶ This issue of selection bias can be influenced by financial considerations, and value judgments are made by memory institutions when deciding what TK or TCE *deserves* the monetary investment necessary to be digitized and preserved. Sometimes, parties even further removed than memory institutions make these judgments, as the expense associated with digitization often requires memory institutions to look to private donors, whose personal preferences and interests can dictate what is digitized.⁴⁷ Oftentimes, this too results in the further marginalization of already oppressed groups. For example, one study found that the Smithsonian was only digitizing Civil War era diaries written by men because no one had funded the digitization of women’s diaries.⁴⁸

Additionally, the potential for memory institutions to assert intellectual property rights over digitized TK and TCE is another way in which their role

⁴¹ *Id.*

⁴² Manzuch, *supra* note 33, at 4.

⁴³ MICHELE PICKOVER, PATRIMONY, POWER AND POLITICS: SELECTING, CONSTRUCTING AND PRESERVING DIGITAL HERITAGE CONTENT IN SOUTH AFRICA AND AFRICA 1 (2014), <http://library.ifla.org/1023/1/138-pickover-en.pdf> [<https://perma.cc/6QZM-5QLU>].

⁴⁴ *Id.* at 9.

⁴⁵ Manzuch, *supra* note 33, at 4.

⁴⁶ *Id.*

⁴⁷ *Id.* at 6–7.

⁴⁸ Robert Leopold, *Articulating Culturally Sensitive Knowledge Online: A Cherokee Case Study*, 7 MUSEUM ANTHROPOLOGY REV. 83, 88 (2013).

in this space can be exploitative of the true owners and creators.⁴⁹ Even where the digitized property (cultural or not) in question is in the public domain, memory institutions may be able to bring action against anyone who tries to copy or distribute their digitized reproductions.

For example, Britain's National Portrait Gallery challenged unauthorized reproduction of its collection in 2009.⁵⁰ The National Portrait Gallery boasts the world's most extensive collection of portraits in the world,⁵¹ containing more than 4,000 paintings and 6,800 paper works, including photographs and prints.⁵² Like many other memory institutions, the National Portrait Gallery has taken advantage of digitization technology, and invested £1 million GBP (\$1.61 million USD in 2009) in digitally reproducing tens of thousands of their collected works for free online viewing.⁵³ At the time of the dispute, the National Portrait Gallery website offered viewers two options for digital viewing: lower quality image files of complete works, or multiple high-resolution tiles that together make up a complete work.⁵⁴ Viewers could not access a complete work in a single, high-resolution file.⁵⁵ The use of tiles served as both a way to save technological bandwidth, as well as a "rudimentary form of protection against the images being copied in their maximum resolution."⁵⁶ However, a graduate student at the University of California, Berkeley found a way around this by writing a script that allowed him to download the high-resolution tiles for thousands of images, and reassemble them into complete, high quality image files.⁵⁷ He then uploaded these files to Wikimedia Commons,⁵⁸ a collective, online repository for public

⁴⁹ See *supra* Part III.

⁵⁰ Maev Kennedy, *Legal Row Over National Portrait Gallery Images Placed on Wikipedia*, THE GUARDIAN (July 14, 2019), <https://www.theguardian.com/technology/2009/jul/14/national-portrait-gallery-wikipedia-row> [<https://perma.cc/C4YZ-KNMW>].

⁵¹ Home, NAT'L PORTRAIT GALLERY, <https://www.npg.org.uk/> (last visited Dec. 15, 2019) [<https://perma.cc/8VNH-JTNE>].

⁵² Grischka Petri, *The Public Domain vs. the Museum: The Limits of Copyright and Reproductions of Two-Dimensional Works of Art*, 12 J. CONSERVATION & MUSEUM STUDIES, 2014, at 1.

⁵³ *National Portrait Gallery v. Coetzee*, DIGITAL MEDIA L. PROJECT (Aug. 11, 2009), <http://www.dmlp.org/threats/national-portrait-gallery-v-coetzee> [<https://perma.cc/2UER-SZ5B>]; US Dollar Exchange Rates for 31/12/2009 (Dec. 31, 2009), Exchange Rates https://www.exchangerates.org.uk/historical/USD/31_12_2009 [<https://perma.cc/V7TM-QXVD>].

⁵⁴ Petri, *supra* note 52, at 1.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ DIGITAL MEDIA L. PROJECT, *supra* note 53.

domain and free-use content.⁵⁹ In response, the National Portrait Gallery sent the student a sternly worded cease and desist letter alleging copyright infringement, database rights infringement, breach of contract, and other claims under both U.S. and UK law.⁶⁰ The student sent a response disputing every claim, asserting that U.S. law explicitly does not provide copyright protection for photographs of public domain paintings, and suggesting that UK law fails to speak on the issue.⁶¹ In the end, the matter was resolved without litigation when the National Portrait Gallery dropped its case and changed its policies regarding high-resolution file downloads.⁶²

Although ultimately unsuccessful (though arguably by choice) at asserting intellectual property rights over digital recordings of collected artwork, the National Portrait Gallery case highlights how memory institutions may attempt to claim ownership of the property they digitize. This, along with the several ways in which digitization by memory institutions fosters bias and offers inauthentic cultural and historical accounts, demonstrates the risk that these institutions pose of distorting reality and marginalizing creators of TK and TCE. In light of these and other concerns, there has been an increasing push for communities to digitize their own property.

B. The Push for Communities to Digitize Their Own TK and TCE

The growing accessibility of increasingly inexpensive digitization tools and technology provides communities with the opportunity to digitize their own cultural property, so that memory institutions are no longer the only players in this space.⁶³ The idea of digitizing one's own cultural property as a defensive stance against misappropriation originated in India,⁶⁴ and soon caught the attention of advocacy groups and intergovernmental organizations

⁵⁹ *Commons: Welcome*, WIKIMEDIA, <https://commons.wikimedia.org/wiki/Commons:Welcome> (last visited Dec. 15, 2019) [<https://perma.cc/3JHM-TFKU>].

⁶⁰ *User: Dcoetzee/NPG legal threat*, WIKIMEDIA, https://commons.wikimedia.org/wiki/User:Dcoetzee/NPG_legal_threat (last visited Dec. 15, 2019) [<https://perma.cc/EZ89-DZLD>].

⁶¹ Letter from Fred von Lohmann, Senior Staff Attorney, Electronic Frontier Foundation, to Peter Wien & Anthony Misquitta, Farrer & Co. (July 20, 2009), <http://www.dmlp.org/sites/citmedialaw.org/files/2009-07-18-Letter%20to%20NPG.pdf> [<https://perma.cc/W2V5-DA6D>] (citing Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340 (1991) and *The Bridgeman Art Library, Ltd. v. Corel Corp.*, 25 F. Supp. 2d 421 (1998)).

⁶² Petri, *supra* note 52, at 2.

⁶³ See generally Liew & Cheetham, *supra* note 31 (discussing how growing accessibility to computers, Internet, and social technologies allows for more diverse participation in community-led archiving initiatives).

⁶⁴ See *infra* Part V.

such as WIPO⁶⁵ and UNESCO.⁶⁶ In 2003, UNESCO adopted the Convention for the Safeguarding of the Intangible Cultural Heritage, which urges protection of TK and TCE at national and international levels.⁶⁷ At the national level, State Parties are to create and maintain inventories of the intangible cultural heritage present in its territory.⁶⁸ In doing so, the Convention requires that State Parties “endeavor to ensure the widest possible participation of communities, groups, and, where appropriate, individuals that create, maintain and transmit such heritage, and to involve them actively in its management.”⁶⁹

WIPO echoes the need for community participation in TK and TCE documentation efforts, but also makes clear that initiatives do not need to be state-led. For example, it has advocated for indigenous communities to digitize their TCE, including songs, dances, and rituals.⁷⁰ Further, it created the Cultural Documentation and IP Management Training Program, targeted towards indigenous communities themselves, rather than nation states.⁷¹ WIPO states:

[t]he primary goal of the [Cultural Documentation and IP Management Training] program is to provide such communities with the practical skills and technical knowledge needed – in the fields of cultural documentation, archiving and intellectual property (IP) management – for them to record, archive and manage access to their own cultural heritage.⁷²

⁶⁵ Chidi Oguamanam, *Documentation and Digitization of Traditional Knowledge and Intangible Cultural Knowledge: Challenges and Prospects*, in *INTANGIBLE CULTURAL HERITAGE AND INTELLECTUAL PROPERTY: COMMUNITIES, CULTURAL DIVERSITY AND SUSTAINABLE DEVELOPMENT* 368 (Toshiyuki Kono ed., 2009), <https://pdfs.semanticscholar.org/daee/65a952567c978451e4f74a697c9d66d7622f.pdf> [<https://perma.cc/67UF-NU73>].

⁶⁶ See *Text of the Convention for the Safeguarding of the Intangible Cultural Heritage*, UNESCO (including in Article 15 endeavors to “ensure the widest possible participation of communities, groups, [and individuals].”), <https://ich.unesco.org/en/convention> (last visited Dec. 15, 2019) [<https://perma.cc/56GY-BRHV>].

⁶⁷ See *id.*

⁶⁸ *Id.*

⁶⁹ *Id.* at Art. 15.

⁷⁰ Manzuch, *supra* note 33, at 3.

⁷¹ *Digitizing Traditional Culture*, WORLD INTELLECTUAL PROP. ORG., https://www.wipo.int/tk/en/folklore/digitizing_traditional_culture.html (last visited Dec. 15, 2019) [<https://perma.cc/883E-6V83>].

⁷² *Id.*

Finally, many grassroots initiatives have sprung up around the world, seeking to digitize the cultural property of underrepresented communities.⁷³ As a result, a variety of independent community archives, participatory archives, collective archives, and other models provide avenues for communities and individuals to preserve their identities and histories without influence from the dominant culture.⁷⁴

V. INDIA'S TRADITIONAL KNOWLEDGE DIGITAL LIBRARY

While decades of biopiracy of Indian TK ultimately led to government action,⁷⁵ one case is often considered to have been the ultimate impetus for the creation of the Traditional Knowledge Digital Library (TKDL).⁷⁶ In December of 1993, the University of Mississippi Medical Center submitted a patent application to the United States Patent and Trademark Office for the topical and oral use of turmeric powder as a wound-healing agent.⁷⁷ The patent application detailed clinical trial cases where turmeric was successfully used to treat leg ulcers, experiments conducted on rats and human umbilical cord cells, and a list of claims asserting the conclusions drawn regarding turmeric's healing powers.⁷⁸ In 1995, the patent was granted.⁷⁹ One year later, the Indian Council for Scientific and Industrial Research (CSIR) challenged the patent, alleging that it did not satisfy the novelty requirement of the Patent Act because turmeric has been used to treat wounds in India for generations.⁸⁰ Over the course of the following year, the CSIR undertook the "Herculean task" of finding published information regarding the use of turmeric for wound healing.⁸¹ Despite its widespread use over centuries by Indians and other communities around the world, turmeric as a medicinal remedy has primarily

⁷³ Andrew Flinn et al., *Whose Memories Whose Archives? Independent Community Archives, Autonomy and the Mainstream*, 9 ARCHIVAL SCI. 71 (2009).

⁷⁴ *Id.*

⁷⁵ Saikat Sen & Raja Chakraborty, *Traditional Knowledge Digital Library: A Distinctive Approach to Protect and Promote Indian Indigenous Medicinal Treasure*, 106 CURRENT SCI. 1340, 1341 (2004).

⁷⁶ See Nicola Twilley, *Who Owns the Patent on Nutmeg?*, NEW YORKER (Oct. 26, 2015), <https://www.newyorker.com/tech/annals-of-technology/who-owns-the-patent-on-nutmeg> [<https://perma.cc/QYD9-29YL>].

⁷⁷ Sanjay Kumar, *India Wins Battle with USA Over Turmeric Patent*, 350 LANCET 724 (1997).

⁷⁸ See U.S. Patent No. 5,401,504 (filed Mar. 28, 1995).

⁷⁹ *Id.*

⁸⁰ Kumar, *supra* note 77.

⁸¹ Saipriya Balasubramanian, *India: Traditional Knowledge and Patent Issues: An Overview of Turmeric, Basmati, Neem Cases*, SINGH & ASSOCS. (Apr. 18, 2017), <http://www.mondaq.com/india/x/586384/Patent/Traditional+Knowledge+And+Patent+Issue+s+An+Overview+Of+Turmeric+Basmati+Neem+Cases> [<https://perma.cc/5L98-6SS8>].

been passed down informally as traditional knowledge, rather than in science textbooks or first aid literature.⁸² Ultimately, the efforts paid off and the CSIR was able to identify thirty-two references to turmeric as a wound healing agent, published in various regional Indian languages including Sanskrit, Urdu, and Hindi.⁸³ When the patent was revoked in 1997, then-director of the CSIR Ragnath Mashelkar explained that India challenged the turmeric patent not for financial reasons, but to “uphold national pride” and dispel fears that India’s TK was vulnerable to misappropriation.⁸⁴

By 2001, with Dr. V.K. Gupta at the helm as chief architect, the CSIR and other Indian agencies, including the Ministry of Science and Technology, the Department of Ayurveda, Yoga and Naturpathy, Unani, Siddha and Homeopathy (AYUSH), and the Ministry of Health and Family Welfare, had initiated the creation of the TKDL, a digital knowledge repository currently containing over thirty-four million pages of recorded Indian TK.⁸⁵ The TKDL consists of TK that has been translated and digitized based off of 150 books on the six traditional Indian systems of medicine—Ayurveda, Siddha, Unani, Yoga, Naturopathy, and Homoeopathy.⁸⁶ Although all of these books are available in the public domain, they are published only in regional and ancient Indian languages and often exist in formats that are inaccessible and incomprehensible by foreigners. The TKDL aims to act as a bridge between Indian TK in its original state and patent officers around the globe.⁸⁷ In doing so, it aims to defensively protect India’s TK from misappropriation by third parties seeking to patent “inventions” that are, and have been, in wide use for a long time.⁸⁸ The TKDL contains 250,000 medicinal formulations and information regarding 291 plant species that are traditionally used to treat 186 different diseases,⁸⁹ and is currently available in English, French, German,

⁸² See Kumar, *supra* note 77.

⁸³ Balasubramanian, *supra* note 81.

⁸⁴ K. S. Jayaraman, *US Patent Office Withdraws Patent on Indian Herb*, 389 NATURE 6 (1997), <https://www.nature.com/articles/37838> [<https://perma.cc/F2HH-EHZM>].

⁸⁵ About the Traditional Knowledge Digital Library, WORLD INTEL. PROP. ORG., https://www.wipo.int/meetings/en/2011/wipo_tkdl_del_11/about_tkdl.html (last visited Dec. 15, 2019) [<https://perma.cc/2PFC-UH7W>].

⁸⁶ Sen & Chakraborty, *supra* note 75; see generally Basavaiah Ravishankar & Vinay J. Shukla, *Indian Systems of Medicine: A Brief Profile*, AFRICAN J. TRADITIONAL, COMPLEMENTARY & ALTERNATIVE MEDICINES (2007) (providing a history and overview of the six recognized systems of traditional Indian medicine—Ayurveda, Siddha, Unani, Yoga, Naturopathy, and Homoeopathy).

⁸⁷ Seemantani Sharma, *Traditional Knowledge Digital Library: “A Silver Bullet” in the War against Biopiracy?*, 17 J. MARSHALL REV. INTEL. PROP. L. 214, 216 (2017); Sen & Chakraborty, *supra* note 86.

⁸⁸ Sharma, *supra* note 87.

⁸⁹ *Id.*

Spanish, and Japanese.⁹⁰ To date, seven patent offices have been granted access to the TKDL for purposes of cross-checking patent applications with recorded prior art, including the European Patent Office, United States Patent and Trademark Office, and the United Kingdom Intellectual Property Office.⁹¹

The TKDL has been a success despite the difficulty and expenses required to challenge novelty. On average, it takes five to seven years and \$200,000–600,000 to successfully challenge a patent that has already been granted.⁹² However, with the TKDL in existence, patent applications can be challenged at a much earlier stage, before they are ever approved.⁹³ The turmeric case and others like it demonstrate that even where prior art does exist in the native languages of the people who own the TK, without translations or ready accessibility by decision-makers, protecting TK from misappropriation is impracticable.⁹⁴ Additionally, with thousands of formulations already documented in an easily accessible, digitized format, the Indian government no longer needs to spend the vast time and financial resources previously required to find and prove prior art.⁹⁵

Additionally, in the past decade alone, the TKDL played a role in blocking hundreds of patents for inventions containing Indian TK, including 132 cases in Europe where applications were withdrawn, canceled, terminated, amended, or rejected by the European Patent Office on the basis of prior TKDL submissions.⁹⁶ There were twenty-six such cases in the United States, and thirty-six in Canada.⁹⁷ Further, though working to block new or pending patent applications can be an efficient strategy, Dr. Gupta and the TKDL team have also used the TKDL retrospectively to review patents that have already been granted. They estimate that more than 2,000 patents for “inventions” that misappropriate Indian TK were being granted annually.⁹⁸ Two such patents were submitted to the European Patent Office by American multinational

⁹⁰ *About TKDL*, TRADITIONAL KNOWLEDGE DIGIT. LIBR., <http://www.tkdil.res.in/tkdil/langdefault/common/Abouttkdl.asp?GL=Eng> (last visited Nov. 8, 2020) [https://perma.cc/EL5Y-JHD7].

⁹¹ WORLD INTELL. PROP. ORG., *supra* note 85.

⁹² Sen & Chakraborty, *supra* note 75, at 1342.

⁹³ *Id.*

⁹⁴ Jayaraman, *supra* note 84 (detailing how CSIR hired a U.S. patent attorney and spent \$15,000 on the case).

⁹⁵ *Id.*

⁹⁶ *TKDL Outcomes against Bio-Piracy*, TRADITIONAL KNOWLEDGE DIGITAL LIBR., <http://www.tkdil.res.in/tkdil/LangDefault/Common/outcomemain.asp?GL=Eng> (last visited Dec. 16, 2019) [https://perma.cc/PS4B-9QLZ].

⁹⁷ *Id.*

⁹⁸ *Protecting India's Traditional Knowledge*, WIPO MAG. (June 2011), https://www.wipo.int/wipo_magazine/en/2011/03/article_0002.html [https://perma.cc/8JUG-SBMS].

consumer products company Colgate-Palmolive for a nutmeg-based mouthwash and herbal toothpaste.⁹⁹ In 2015, both patents were withdrawn on the grounds that their alleged inventions had been used in India for thousands of years, and any changes made by Colgate-Palmolive were immaterial.¹⁰⁰

Despite these apparent successes, the TKDL has not been immune from criticism. First, despite Dr. Gupta and the Indian government touting the database as a “silver bullet” in the crusade against biopiracy,¹⁰¹ intellectual property scholar Seemantani Sharma notes that the TKDL records only particular types of Indian TK, namely medicinal formulations. A considerable majority of Indian cultural property remains unrecorded, and thus vulnerable to appropriation.¹⁰²

Another common criticism of the TKDL is actually described as an important attribute by Dr. Gupta: its closed-access model. “We created the library to prevent misappropriations, not to support misappropriations,” Dr. Gupta offers as an explanation for limiting access to the TKDL to only patent offices.¹⁰³ If the TKDL were accessible by the public, he argues, multinationals such as Colgate-Palmolive would be free to steal all the TK recorded.¹⁰⁴ However, even Indians themselves, including the religious leaders and practitioners of traditional medicine who own or regularly practice the TK digitized, do not have access to the database.¹⁰⁵ This fact distinguishes the Indian model from other national databases. For example, the Korean Traditional Knowledge Portal, a publicly available online database of Korean traditional knowledge compiled between 2005 and 2007, specifically states:

[t]he reasons for making the database publicly accessible through the KTKP are as follows:

- (1) To lay the foundation for international protection of Korean traditional knowledge, thereby preventing unauthorized use of patents inside and outside the country.

⁹⁹ *TKDL Outcomes against Bio-Piracy*, *supra* note 96; Patent EP2689806, European Patent Register, <https://register.epo.org/application?number=EP13189942> [<https://perma.cc/BEA6-FMQ2>]; Patent EP2192910, European Patent Register, <https://register.epo.org/application?number=EP08835291&tab=main> [<https://perma.cc/F552-CUTS>].

¹⁰⁰ Twilley, *supra* note 76 (noting that the only change Colgate made was to make the toothpaste less abrasive).

¹⁰¹ Sharma, *supra* note 87, at 215.

¹⁰² *Id.* at 226 (discussing how the TKDL only archives and protects certain traditional medicinal formulas).

¹⁰³ Twilley, *supra* note 76.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 222.

(2) To provide an abundance of information on traditional knowledge and related research, thereby expediting the development of related studies and industries.

(3) To provide essential information for patent examinations, thereby enhancing the quality of intellectual property applications for traditional knowledge.¹⁰⁶

Further amplifying this general problem of exclusion is the fact that it was the Indian government, not the indigenous communities themselves, who initiated the digitization of TK.¹⁰⁷ While consensus is unlikely to be possible with regard to collectively-held cultural property, total exclusion of the participation of the people who own, create, and practice the TK that is recorded in the TKDL is in clear conflict with international best practices.¹⁰⁸ The issue of participation points to larger questions of ownership of cultural property: does the Indian government own the TK that originated in India? Or is TK owned by the specific indigenous groups that created and practice it? In trying to prevent misappropriation of Indian TK by foreign entities, did the Indian government itself become the exploiter of indigenous cultural property by digitizing it without their permission? Alternative models of digitization offer solutions to some of these problems.

VI. EXAMPLES OF DIGITIZATION OF TK AND TCEs: ALTERNATIVES TO INDIA'S TKDL

One example of a community-driven digitization effort that sits in stark contrast with India's TKDL is the partnership between WIPO and the Maasai people of East Africa.¹⁰⁹ Importantly, the partnership came about after a direct request for assistance with digitization of TK and TCE from the Maasai community.¹¹⁰ In response to the request, WIPO launched a pilot program in 2008 to train the Maasai community "to document their own cultural traditions, archive this heritage for future generations, and safeguard their

¹⁰⁶ *Korean Traditional Knowledge Portal*, KOREAN INTELL. PROP. OFF., http://www.koreantk.com/en/m_about/about_01.jsp?about=1 (last visited Dec. 15, 2019) [<https://perma.cc/A5SE-JCHV>].

¹⁰⁷ Sharma, *supra* note 87, at 224.

¹⁰⁸ *Id.*

¹⁰⁹ WORLD INTELL. PROP. ORG, *supra* note 71.

¹¹⁰ *WIPO to Launch Pilot Training Program for Indigenous Communities*, WORLD INTELL. PROP. ORG. (May 20, 2008), https://www.wipo.int/pressroom/en/articles/2008/article_0027.html [<https://perma.cc/YC5C-VC96>].

interest in authorizing use of their recordings and traditions by third parties.”¹¹¹ In practice, this meant that WIPO, in collaboration with other entities such as the National Museums of Kenya and the United States Copyright Office, would provide hands-on intellectual property and technological training to two Maasai leaders.¹¹² The training would provide them with a basic toolkit of digitization equipment, including computers and software, to document, preserve, and protect the community’s cultural property.¹¹³ These two leaders would then bring their training back to their community. Central to the partnership is the idea for Maasai people to shift from being *objects* of study by researchers, curators, and memory institutions, to the *producers and owners* of their own cultural property through digitization.¹¹⁴ As a result of the program, by 2016, the Maasai community had already digitally captured approximately 150 video recordings and 200 photographs worth of TK and TCE, and it has plans to grow its archive and explore sharing and licensing schemes.¹¹⁵

Another alternative approach to digitizing TK and TCE can be found in the participatory-archive model that has been used in Australia to create a digital repository of TK and TCE, including photos, videos, and audio files belonging to indigenous groups. The participatory-archive model acknowledges that multiple individuals or parties may have rights and responsibilities in the cultural property archived, and provides a “negotiated space” where community members can contribute multiple, sometimes competing narratives while respecting community values and beliefs.¹¹⁶ In one example of a participatory archive, the Mukurtu Wumpurrarni-kari indigenous people of Australia worked with anthropologist Kimberly Christen to create an archive called Mukurtu CMS that is open-access, grassroots, and

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Wend Wendland, *Managing Rights in Digitized Indigenous Music*, WIPO MAG., Oct. 2016, at 12, https://www.wipo.int/wipo_magazine/en/2016/05/article_0003.html [<https://perma.cc/DS4J-GKXY>].

¹¹⁵ *Id.* (discussing creation of a music library to host and sell music online, “like iTunes”). See generally Guha Shankar, *From Subject to Producer: Reframing the Indigenous Heritage Through Cultural Documentation Training*, 5 INT’L J. OF INTANGIBLE HERITAGE 14 at 23 (2010), https://www.loc.gov/folklife/edresources/edcenter_files/IJIH_Article_small.pdf (“There has been some preliminary discussion about producing and making music available as fee-based downloads from commercial sites. The preliminary assessment, then, is that in Maasai land at least, digital technology and archival artefacts are in a cozy embrace with folklore, traditional lifestyles and the ways of commerce.”) [<https://perma.cc/N5QQ-47J3>].

¹¹⁶ Anne J. Gilliland & Sue McKemmish, *The Role of Participatory Archives in Furthering Human Rights, Reconciliation and Recovery*, 24 ATLANTI 79, 82 (2014), <https://escholarship.org/uc/item/346521tf> [<https://perma.cc/583G-WDZW>].

community-driven.¹¹⁷ Mukurtu CMS allows for what it calls “Community Records,” or a space for members of the Mukurtu community to add one or more records of perspective, history, or interpretation to any digital reproduction of cultural property available in the archive.¹¹⁸ Speaking directly to the participatory nature of Mukurtu CMS, its website notes: “[c]ommunity records provide space for multiple cultural narratives, traditional knowledge, and diverse sets of protocols, ensuring that you can tell your stories and your history, your way.”¹¹⁹

Although Mukurtu CMS is available online and open to the public, when accessing its content, viewers are asked to provide identifying information such as age, sex, and community standing.¹²⁰ This allows for viewing requests to be cross-referenced with the internal metadata that is attached to the TK and TCE archived in order to allow or restrict access based on community beliefs or values.¹²¹ For example, if the Mukurtu community, like the Mansi people of Russia, has stories, ceremonies, or other TK or TCE that only certain members of the community may view based on age, sex, or some other status, it can still digitize and protect that cultural property without sacrificing all exclusivity or secrecy.¹²²

The differences between these alternative models and India’s TKDL are notable. They focus on centering community voices and participation, even when they collaborate with private, national, or international actors. The models are open-access in nature, thus allowing for greater access to the TK and TCE for the community itself as well as the general public. They also offer opportunities for greater control and exclusion rights over the cultural property by the true owners and creators, guided by indigenous belief and value systems, in contrast to removed and authoritative oversight by the government motivated by national pride. These and other key attributes can guide best practices for communities and states alike that seek to protect and preserve TK and TCE through digitization, as discussed in the following and concluding section.

¹¹⁷ *About*, MUKURTU CMS, <https://mukurtu.org/about/> (last visited Dec. 15, 2019) [<https://perma.cc/34YB-QAG5>].

¹¹⁸ *See Learn*, MUKURTU CMS, <https://mukurtu.org/learn/> (last visited Dec. 15, 2019) [<https://perma.cc/L6JS-E68G>].

¹¹⁹ *Id.*

¹²⁰ Mira Burri, *Digital Technologies and Traditional Cultural Expressions: A Positive Look at a Difficult Relationship*, 17 INT’L J. OF CULTURAL PROP. 33, 42 (2010).

¹²¹ MUKURTU CMS, *supra* note 118.

¹²² *See supra* Part II (discussing Mansi people and Earth origin story).

VII. OBSTACLES, POTENTIAL SOLUTIONS, AND PROPOSED BEST PRACTICES FOR DIGITIZATION OF TK AND TCE

Based on the successes and shortcomings of India's TKDL, assessment of alternative archive models, and guidance from international advocacy organizations such as WIPO, the following three best practices offer states and indigenous communities hopeful prospects for the protection and preservation of TK and TCE through digitization. First, any digitization effort should be as community-driven as possible. Second, digitized TK and TCE should be open and accessible. Third, technology should be tailored to the specific needs of the community to help reconcile Western intellectual property frameworks with indigenous cultural property.

A. All digitization should be community-driven.

The first best practice is to ensure that any digitization effort should be as community-driven as possible. One key criticism of India's Traditional Knowledge Digital Library is that it was created by way of government initiative and that indigenous TK and TCE were archived without the prior informed consent of their true owners.¹²³ As Sharma points out, this goes against legal scholarship and international best practices, as both indicate that indigenous communities ought to play a participatory role.¹²⁴ Even where a state government or other public or private entity is leading, funding, or otherwise participating in a digitization effort, indigenous communities, along with their interests, beliefs, and values, should guide the effort.¹²⁵ For example, in 2015, when ISIS fighters rampaged through Iraq's Mosul Museum and destroyed hundreds of ancient artifacts and other collections,¹²⁶ two Europe-based archeologists launched an international, crowd-sourced digital library called Project Mosul in an effort to preserve the collective memory of the cultural property lost.¹²⁷ Project Mosul encourages all people who have digital records of what was destroyed (i.e., experts with high quality records

¹²³ Sharma, *supra* note 87, at 224.

¹²⁴ *Id.*

¹²⁵ See WORLD INTELLECTUAL PROP. ORG., *supra* note 110 (discussing WIPO pilot program with the Maasai community).

¹²⁶ Andrew Curry, *Here Are the Ancient Sites ISIS Has Damaged and Destroyed*, NAT'L GEOGRAPHIC (Sep. 1, 2015), <https://www.nationalgeographic.com/news/2015/09/150901-isis-destruction-looting-ancient-sites-iraq-syria-archaeology/#close> [<https://perma.cc/8NPQ-63JN>].

¹²⁷ *Project Mosul*, ARCHAEOLOGICAL LEGACY INST., <https://www.archaeologychannel.org/tac-events/international-film-festival/222-archived-festival-pages/tac-fest-2019-pages/2019-film-pages/2813-projectmosul> (last visited Dec. 15, 2019) [<https://perma.cc/N7AP-LP8G>].

or tourists with personal photographs) to upload them to the archive.¹²⁸ Project Mosul then uses photogrammetric technology to create three-dimensional recreations of the cultural property that can be publicly accessed.¹²⁹ Despite being led by experts who are not members of the communities to whom the original cultural property belonged, Project Mosul's participatory-archive model protects against gatekeeping by spreading the responsibility of determining what is digitized to a large number of actors who all have different interests in the shared preservation goal.¹³⁰ Like the similarly designed Mukurtu CMS, this helps to create a negotiated space where no third party can oppress minority community voices.¹³¹

However, while community-driven digitization efforts protect against many of the harms that result from dominant and removed actors such as memory institutions and state governments leading this work, they are still an imperfect starting point. TK and TCE are collectively owned by communities,¹³² which makes consensus-based decision-making with regard to digitization efforts impracticable if not impossible. As a result, community members in leadership positions, or who are otherwise more powerful, would likely play the largest roles. Kenan Malik identifies this sort of intra-community gatekeeping and a distinct type of harm:

Every society has its gatekeepers, whose role is to protect certain institutions, maintain the privileges of particular groups and cordon off some beliefs from challenge. Such gatekeepers protect not the marginalized but the powerful...[i]n minority communities, the gatekeepers are usually self-appointed guardians whose power rests on their ability to define what is acceptable and what is beyond the bounds.¹³³

¹²⁸ See *About Rekrei*, REKREI, <https://projectmosul.org/about> (last visited Dec. 15, 2019) [<https://perma.cc/B4YV-3U3X>].

¹²⁹ *Id.*

¹³⁰ See *id.*

¹³¹ See Gilliland & McKemmish, *supra* note 116, at 82.

¹³² See generally *Introduction*, CONVENTION ON BIOLOGICAL DIVERSITY (Oct. 6, 2011), <https://www.cbd.int/traditional/intro.shtml> [<https://perma.cc/DF4V-AH2Y>] (“[Traditional knowledge] tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds.”).

¹³³ Kenan Malik, *Kenan Malik on Cultural Appropriation*, ARTREVIEW (Dec. 1, 2017), https://artreview.com/features/ar_december_2017_feature_cultural_appropriation_kenan_malik/ [<https://perma.cc/C4Y9-Z9F3>].

As Malik describes, gatekeepers exist in *every society* and do not pose a problem unique to indigenous communities.¹³⁴ Thus, despite acknowledging the issue, this Note nonetheless maintains that communities are best equipped to deal with their own power dynamics, and that the protection, preservation, and self-determination benefits of community-driven digitization of TK and TCE outweigh these concerns.¹³⁵

B. Digitized TK and TCE should be open and accessible.

At the very least, digital TK and TCE archives should be open to the communities who own the cultural property digitized—this is another oft-cited shortcoming of India’s TKDL.¹³⁶ As Sharma notes, the TKDL “merely aggregated and codified TK which was already in the public domain,”¹³⁷ namely the 150 books on traditional medicine. Additionally, a closed-access model can hinder scientific inquiry and advancement, which harms all people, including indigenous inventors and innovators.¹³⁸

Still, proponents of the TKDL’s closed-access model, including its chief architect, argue that making the database publicly available would be like unlocking a treasure trove of knowledge and asking for it to be stolen.¹³⁹ Others have articulated the concern that a public database would allow potential appropriators and patent lawyers to figure out exactly how to tweak an invention based on prior art recorded in the TKDL in order to get around novelty requirements.¹⁴⁰ However, as Sharma points out, the TKDL’s current

¹³⁴ *See id.*

¹³⁵ *See infra* Part VII.C for further discussion on intra-community gatekeeping and cultural dissenters.

¹³⁶ Sharma, *supra* note 87, at 222.

¹³⁷ *Id.* at 222–23.

¹³⁸ *See generally id.* at 224 (“describing how a closed TKDL restricts researchers and pharmaceutical companies from accessing Indian TK for beneficial purposes, including conducting further research or entering into benefit sharing agreements”).

¹³⁹ Twilley, *supra* note 76.

¹⁴⁰ Sumathi Chandrasekharan, *Lawyers Prevent Open Access to the TKDL*, SPICY IP (Apr. 5, 2011),

<https://spicyip.com/2011/04/lawyers-prevent-open-access-to-tkdl.html>

[<https://perma.cc/VY5Z-9G9D>]

(“Clearly, the TKDL is worried that the moment information from the database becomes available, lawyers will eventually work around the existing information to meet the requirements of inventive step for obtaining a patent grant.”); *see also* Warner-Jenkinson Company, Inc. v. Hilton Davis Chemical Co., 520 U.S. 17 (1997) (articulating the test for infringement under the doctrine of equivalents).

model has not been wholly successful at preventing this sort of workaround by third-party inventors building upon or directly copying archived TK.¹⁴¹

Additionally, benefit-sharing schemes can and should be used to address these problems—even Dr. Gupta is amenable to this solution.¹⁴² For example, fashion brands have appropriated the red textiles and beadwork of the Maasai people for years.¹⁴³ Recently, the community has been working with lawyers and nonprofit partners to encourage companies to enter into licensing agreements with them that would charge companies a fee in return for permission to use the Maasai brand to sell or market products.¹⁴⁴ The Maasai community has already successfully struck at least one such deal with Koy Clothing,¹⁴⁵ a retail company that markets its products as “classic British style inspired by Africa.”¹⁴⁶

Of course, private companies would need to be incentivized to enter into benefit-sharing agreements. Law professor William Fisher suggests that enforceable, multilateral treaty provisions can put pressure on private companies to enter into reasonable agreements with indigenous communities.¹⁴⁷ For example, he suggests amending an intellectual property treaty such as the Agreement on Trade-Related Aspects of Intellectual Property Rights to include provisions that would sanction a company for using TK or TCE without permission from their indigenous creators by revoking their intellectual property rights over the misappropriated property.¹⁴⁸ Additionally, consumers and their spending habits are increasingly persuaded by brand ethics,¹⁴⁹ and as public awareness and sensitivity to cultural

¹⁴¹ Sharma, *supra* note 87, at 223, n.68 (discussing how a US patent for aloe vera as a treatment for dry eyes was granted even though the treatment was recorded in the TKDL—the only novelty added was that the patent application called for the use of chlorinated water instead of the “clean water” as indicated in the original Ayurvedic formulation) (citing Ranjit Devraj, *India's Digital Library Aids Biopirates—Activists*, LOBBYWATCH.ORG (July 4, 2002), <http://www.lobbywatch.org/archive2.asp?arcid=1088> [<https://perma.cc/X52V-QK5H>]).

¹⁴² Twilley, *supra* note 76 (“Eventually, Gupta allowed, the library could become a tool for wider research—but only if Western corporations agree to strict benefit- and I.P.-sharing agreements with the Indian government.”).

¹⁴³ David Pilling, *Warrior Tribe Enlists Lawyers in Battle for Maasai 'Brand'*, FIN. TIMES (Jan. 19, 2018).

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ See *Koy Clothing*, KOY CLOTHING, <https://koyclothing.com/> (last visited Dec. 15, 2019) [<https://perma.cc/7ELY-2H6B>].

¹⁴⁷ Fisher, *supra* note 13, at 1.

¹⁴⁸ *Id.* at 13.

¹⁴⁹ *From Me to We: The Rise of the Purpose-Led Brand*, ACCENTURE (Dec. 5, 2018), https://www.accenture.com/_acnmedia/thought-leadership-assets/pdf/accenture-competitiveagility-gcpr-pov.pdf [<https://perma.cc/N36R-AHNN>].

appropriation grows, the reputational and resulting financial risks associated with misappropriation of cultural property may also encourage companies to collaborate with indigenous communities.

In addition to addressing the concern that an open-access digital database model will result in increased misappropriation of TK and TCE, benefit-sharing agreements could also help fund indigenous community-driven digitization efforts. Digitization can be expensive, especially for indigenous communities, which are disproportionately more likely to live in poverty across the globe.¹⁵⁰ Memory institutions tend to apply business approaches to fund their digitization efforts, including charging access fees, securing sponsorships, and entering into public-private collaborations.¹⁵¹ By applying similar strategies and seeking their own fees, sponsorships, and collaborations with private companies, indigenous communities can not only fund and sustain digitization efforts, but also potentially profit from them.

- C. Technology should be tailored to the specific needs of the indigenous community to help reconcile western intellectual property frameworks with indigenous cultural property.

Finally, indigenous communities can use different digitization technologies to promote their needs and traditional values, even if they exist or choose to participate in “Western” intellectual property regimes. For example, a software called “Dreamcatcher” provides Canada’s First Nation communities with interactive mapping tools, social networks, and geospatial consultation services so that they can map their traditional and ancestral lands, record oral stories meant to be told within the context of specific geographies, and archive other traditional cultural and ecological knowledge.¹⁵² Project Mosul allows communities whose cultural property was destroyed during conflict to be digitally reconstructed and reproduced through photogrammetric mapping.¹⁵³ Mukurtu CMS uses metadata—perhaps the most versatile tool for indigenous communities to digitize while respecting traditional values—to tag

¹⁵⁰ See Jackie Mead, *The Connections Between Indigenous People and Poverty*, THE BORGES PROJECT (Apr. 25, 2019), <https://borgenproject.org/the-connections-between-indigenous-people-and-poverty/> [https://perma.cc/72DU-EUXW].

¹⁵¹ Manzuch, *supra* note 33, at 6.

¹⁵² See generally Donald Cowan et al., *Dreamcatcher: IT to Support Indigenous People*, 14 IEEE IT PROFESSIONAL 39 (2012) (describing Dreamcatcher as a web-based, interactive information system that helps indigenous communities retain their traditional knowledge, and explaining its system components, including its mapping technology, social media, and security).

¹⁵³ See REKREI, *supra* note 128.

all cultural property archived, and then filter based on the identity of the person seeking access.¹⁵⁴

Local Contexts, a project that was co-founded by one of the anthropologists behind Mukurtu CMS, further facilitates the use of metadata in tagging and filtering digital repositories of TK and TCE.¹⁵⁵ There are thirteen labels currently available through Local Contexts, which, as WIPO explains,

convey important information about the meaning and status of cultural materials to potential users. By labeling their materials, communities can suggest rules of access and use which are often based on customary laws and practices, giving users of the materials a clear idea what is expected of them in terms of how they use and attribute the material.¹⁵⁶

For example, one label reads “Traditional Knowledge Community Use Only,” signifying that the digital record in question is generally not intended for members of the public outside of that indigenous community, and includes a request for the person seeking access to that record to thoughtfully reconsider.¹⁵⁷ In a Western intellectual property system, most, if not all, of the cultural property recorded in a digital database is considered to be part of the public domain and is therefore free for members of the public to use and consume as they wish.¹⁵⁸ But by attaching Local Contexts labels, indigenous communities can make their preferences regarding specific pieces of cultural property known, and viewers are encouraged to respect their traditional values and beliefs. Even though they are not foolproof or binding, these labels provide exactly what the project’s name suggests: *local contexts*, which are typically lost when cultural property is consumed through memory institutions or in the public domain.

In fact, the fallibility of this sort of technology may in itself serve an important purpose by combatting intra-community gatekeeping and protecting cultural dissenters. As law professor Madhavi Sunder notes, “cultures now more than ever are characterized by *cultural dissent*: challenges by individuals within a community to modernize, or broaden, the traditional terms of cultural membership.”¹⁵⁹ In advocating for a new legal approach that recognizes plurality within culture, Sunder describes how the current legal approach to

¹⁵⁴ See MUKURTU CMS, *supra* note 117.

¹⁵⁵ Wendland, *supra* note 114, at 14.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ See *id.*

¹⁵⁹ Madhavi Sunder, *Cultural Dissent*, 54 STAN. L. REV. 495, 498 (2001).

cultural conflicts, what she calls a “cultural survival approach,” reinforces the dominant norms within a culture that may be discriminatory or oppressive, and blocks internal reform efforts by cultural dissenters.¹⁶⁰ Minorities within indigenous communities may not agree with traditional rules restricting access to TK and TCE based on factors such as gender or community status.¹⁶¹ By using Local Contexts to tag digitized cultural property, the dominant traditional ideas of a community can be recognized and afforded some level of respect through an access-limiting label.¹⁶² At the same time, cultural dissent is also respected because a community member who disagrees is not bound in any way to adhere to the traditional ideas presented by such a label. Thus, technology, if wielded correctly, can be a viable tool in acknowledging and promoting cultural plurality.

Truly learning from India’s TKDL and other digitization efforts requires more than merely utilizing and developing the newest digitization technologies. As this Note has described, intellectual property scholars, international advocacy organizations, and indigenous communities have increasingly approached a consensus: when combined with a community-driven approach and an open-access framework, digitization efforts can gap-fill where the current legal landscape falls short, and provide opportunities for indigenous communities to protect and preserve what is rightfully theirs.

¹⁶⁰ *Id.* at 500.

¹⁶¹ *See, e.g.*, Karen Peterson, *Exiles in Their Own Land*, SANTA FE NEW MEXICAN, May 11, 1997, at A1 (describing how children with Santa Clara Pueblo mothers and non-tribal fathers reject the traditional idea that children of “mixed marriages” should be denied tribal membership and associated privileges).

¹⁶² *See* Wendland, *supra* note 114.