A Decade Later: Looking at the Past while Sketching the Future of ICH through the Tripartite Digitisation Model

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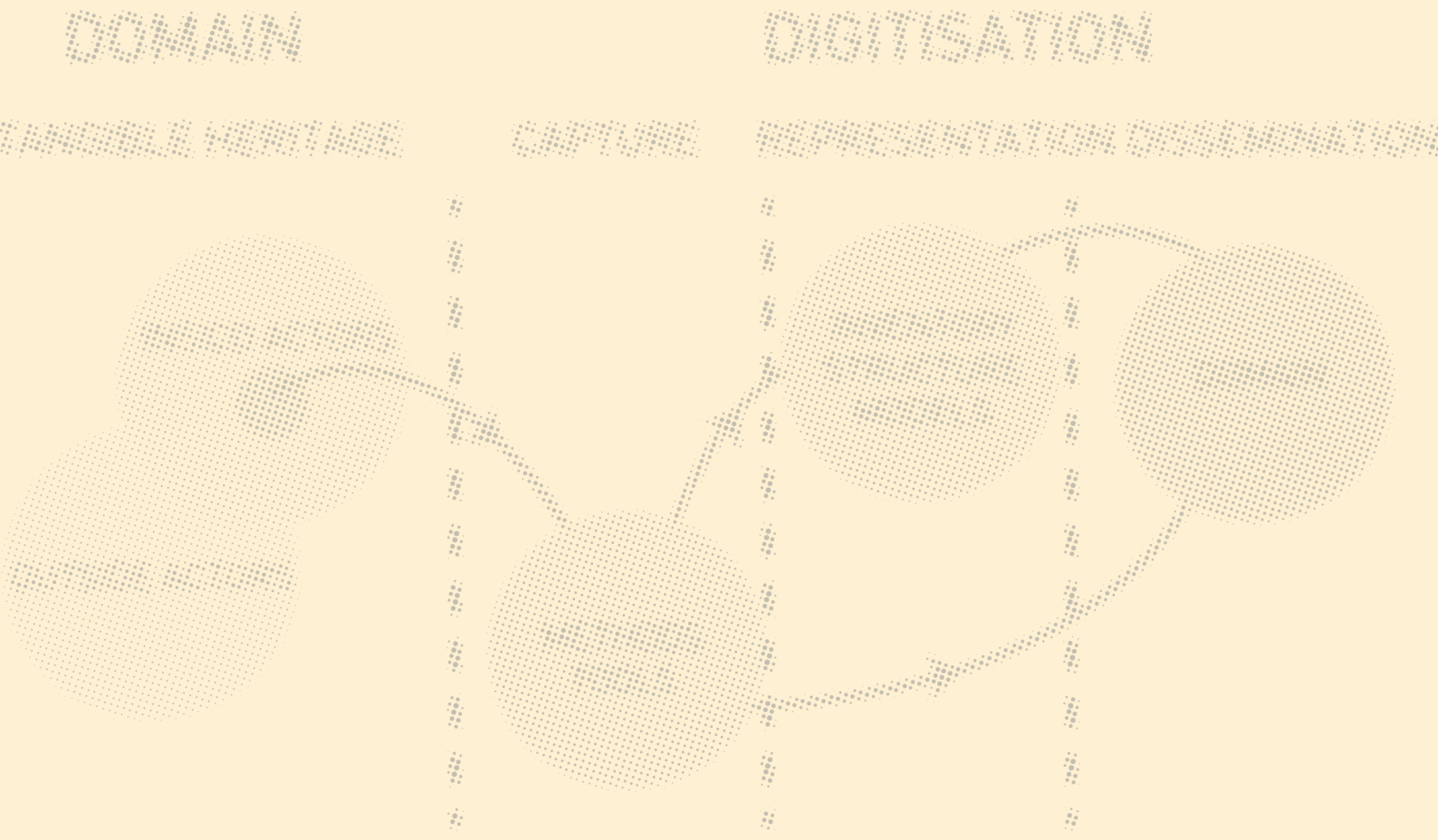

A Decade Later: Looking at the Past while Sketching the Future of ICH through the Tripartite Digitisation Model

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ABSTRACT

The article begins by presenting an overview of the contents of this journal that relate to the five Intangible Heritage domains identified by UNESCO. A model for digitising Intangible Heritage is presented (Tripartite Digitisation Model) and further explained by surveying and including articles from the *Journal*. Finally, the article discusses the implications and facilitation of digitisation with the participation of indigenous communities.

Keywords

International Journal of Intangible Heritage, digitisation, categorisation, Tripartite Digitisation Model, participatory design, indigenous communities, intangible heritage domains, capture/representation/dissemination, multimodal data capture, movement analysis

Introduction

The *International Journal of Intangible Heritage* has been published since 2006. In the light of having reached a decade's worth of articles within this publication, and having recently passed a decade since the adoption of the UNESCO *Convention* (UNESCO: 2003) we believe the time is ripe for looking back and presenting an outlook as well. This article has several interconnected aims. Firstly, using the five domains articulated by UNESCO as being representative, non-exclusive categories for Intangible Cultural Heritage (ICH), we identify papers from this journal that represent these different domains. Apart from surveying the balance of domains included in these papers throughout the years, the survey will also enable readers of this journal to get an overview and will provide them with inspiration from these publications. Secondly, we introduce a Tripartite Digitisation Model (TDM) for looking at ICH through three digital lenses (capture, representation and dissemination). Thirdly, by using the TDM we again survey the full set of papers with a total overview followed by using several sample papers to present the model in the context of the domains. The intention is both to discuss the necessity of holistic digital preservation approaches as well as to provide

newcomers with informative case studies regarding methods for capture, approaches for representing material of an intangible nature and inspiring projects targeted at dissemination. Lastly, we discuss the impact and facilitation of digitisation technologies with indigenous communities.

Papers that are referenced directly in the text can be found in the reference section of this article. All other papers, i.e. those occurring in the tables summarising the survey, can be found in the complete index of all volumes of the *Journal* which is accompanying this anniversary volume.

Survey of domain-related articles

1. *Motivation for the survey*

We use the UNESCO *Convention*'s approach to organising ICH (UNESCO: 2003) as a baseline for the five domains (A,B,C,D and E).

A. Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage
B. Performing arts
C. Social practices, rituals and festive events
D. Knowledge and practices concerning nature and the universe
E. Traditional craftsmanship

The five listed categories from the *Convention*'s definitions are not meant as an exclusive categorisation of what intangible heritage is or is not, but they provide a framework to investigate whether the published materials in this community concentrate under certain themes. In turn, this selection provides readers and newcomers with information on published works that relate to their own. Some of the papers indeed cover more than one domain and are positioned accordingly. The discussion of whether the actual UNESCO descriptions of these domains are precise and meaningful for research in such an intertwined and diverse domain as ICH is one we will return to another time. After all, they provide one way of looking at the cultural content. With some other papers it is more complicated to determine domain relationships. These are typically discourses on policy making, the role of museums in relation to intangible material, inventorying practices, etc.. While these publications are valuable contributions to the field, the scope of the current exercise is to present an overview of the nature of published ICH in this journal in relation to the five domains as defined by UNESCO.

2. *Categorisation strategy*

In going through the *IJIH* papers the priority was that the nature of the ICH presented was the criterion for sorting. Practically, it means that if authors describe research on preserving oral traditions that transmit indigenous knowledge about local craftsmanship, that paper would be placed in both domains A and E, thus allowing for duplication.

All the papers were placed into six folders (five individual domain folders and one folder for papers not conforming to the ICH domains). The authors first sorted the 88 existing papers individually with no internal correspondence of choices, afterwards discrepancies were settled by dialogue and a careful second round of reading through. Similarly, papers that were sorted into the 'non-conformist' category were also subjected to another individual sorting followed by a discussion and a decision on where to place them.

3. *Results*

Initially the full content of all the nine volumes since 2006 were included, but papers that were reviews, forewords or biographies were ultimately excluded. In the volumes a total of 88 research papers were identified (2006: 8; 2007:14; 2008:11; 2009: 11; 2010: 7; 2011: 8; 2012: 8; 2013: 11; 2014: 10).

We identified a total of 59 individual papers that belong to at least one domain and 29 papers were identified as not obviously belonging to any of the domains[1]. They were placed as follows:

A: 15
B: 14
C: 22
D: 11
E: 16
Total: 78
Non-domain-specific: 29

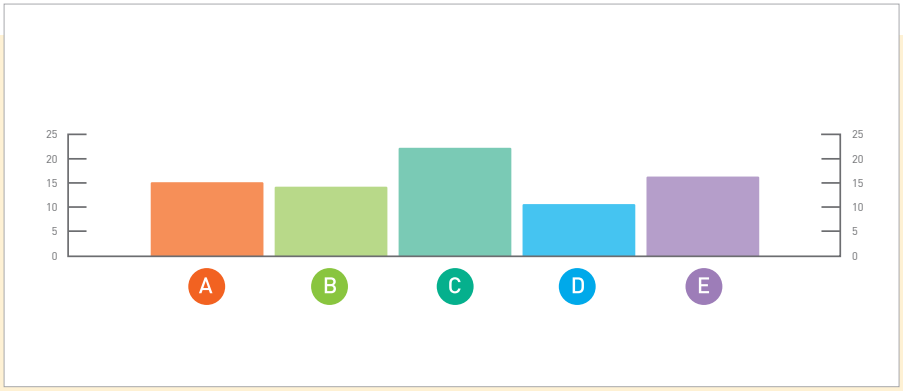

Figure 1
The process of paper categorisation according to the five ICH Domains

Table 1 .
Categorisation of Papers according to the five ICH Domains

Domain	Published Articles
A	Robertson (2006); Vlachaki (2007); Burden (2007); Minho (2007); Lanier and Reid (2007); Solanilla (2008); Boonstra (2009); McLaren (2010); Grant (2010); Kunwook (2012); Woonho et al. (2012); Morris (2013); Howell (2013); el-Aswad (2014); Marschall (2014);
B	Uafā Māhina-Tuai (2006); Moelants et al.(2007); Lanier and Reid (2007); Mataga (2008); Agaku (2008); Hyeonjeong (2008); Boonstra (2009); Musinguzi and Kibirige (2009); Grant (2010); Bhattacharya (2011); Junko (2011); Margolies (2011); Tomioka (2012); Burrowes (2013);
C	Yerkovich (2006); Cang (2007); Achanzar (2007); Cang (2008); Hyeonjeong (2008); Jongsung (2009); Thinh (2009); Aldred (2011); Brandão and Silva (2011); Junko (2011); Margolies (2011); Hickey (2012); Soma (2012); Božanić and Buljubašić (2012); Galang Jr. (2012); Florido-Corral (2013); Burrowes (2013); Howell (2013); Soma and Sukhee (2014); Marschall (2014); Yuan (2014); Taha (2014);
D	Borges and Botelho (2008); Labi (2009); Soma (2012); Carbonell (2012); Morris (2013); Cumberbatch and Hinds (2013); Florido-Corral (2013); Rudolff and alZekri (2014); Soma and Sukhee (2014); Hang (2014); Taha (2014);
E	Van Huy (2006); Achanzar (2007); Ioan Bucur (2007); Minho (2007); Svensson (2008); Keitumetse and Nthoi (2009); Labi (2009); Musinguzi and Kibirige (2009); Hoekstra (2010); Song-Yong (2010); Tranter (2010); Kennedy (2010); Cabral (2011); Horjan (2011); Moon (2013); Sarashima (2013);

4. Survey conclusion

Ten years of publications in the *Journal* shows a substantial coverage across the domains identified by UNESCO. We believe that the vast volume presented here will enable new readers of the *Journal* to find related projects and publications that could both inspire and aid in the positioning of their own work.

A Tripartite Digitisation Model (capture, representation, dissemination)

1. Motivation for the tripartite model

In contrast to most articles in the *Journal*, we have a decidedly technological perspective on ICH, coming from the field of ICT and having worked for the past several years on indigenous knowledge technologies with rural communities in Africa (e.g. Rodil et al.: 2014b). We claim that more inclusion of technology-related research would greatly benefit the safeguarding of intangible cultural heritage and thus we would like to advocate for an interdisciplinary approach including more modern ICT solutions in the endeavour. To give just one example where we could see a beneficial cross-fertilisation, there is the area of culturally aware tutoring systems which focuses on training cultural skills (mainly intangible cultural knowledge). Prominent examples include *The tactical language and culture training tool* (e.g. Johnson: 2010) or *The eCute traveller system* (e.g. Degens et al.:

2013). Those systems are not targeting indigenous peoples but aim at increasing the intercultural awareness of, for example, soldiers or students going abroad. But the methods and models developed in these projects could be very beneficial for dissemination purposes in the ICH domain. These systems specifically encourage interaction with, and experience of intangible cultural content that go way beyond retrieving data from an archival webpage.

When we look at the field of ICH with this ICT perspective, intangible cultural heritage boils down to a question of which aspects of intangible cultural heritage can actually be captured by such technological tools, i.e. which kinds of data about intangible cultural heritage can be collected and processed. Thus, in relation to the UNESCO *Convention*, our aim is to develop technological tools and methods for safeguarding ICH. To do so nowadays means to represent specific intangible heritage in a digital form. Again, from such a technological point of view, ICH can be described as multimodal data without specifically spelling out what kind of data, as this might vary from case to case and be intended for various purposes.

In order to exemplify our point, consider the work presented in Soma (2012). The article examines and describes falconry in Western Mongolia as a facet of intangible cultural heritage. In order to safeguard and later to disseminate such an element of ICH, the first step always has to be to capture data about this element. We are agnostic towards the question of what kind of data is collected (e.g. eye-witness accounts vs. motion data of a falcon hunt) but will discuss some of the issues below. The question then arises - what happens to the data? A strong case can be made for archiving data on intangible cultural heritage and then using the material in the archive directly for dissemination (e.g. a collection of videos concerning different techniques for hunting with falcons). But the use of digital data opens up a number of other possibilities for work with the data for extended dissemination purposes. For example, analysing and modelling the content of the data might make it possible to derive a deeper conceptual representation of the phenomenon, which in turn could be used to interact directly with the data, e.g. in a game where the user has to learn how to hunt with a falcon. The following figure illustrates this approach.

2. *The Tripartite Digitisation Model*

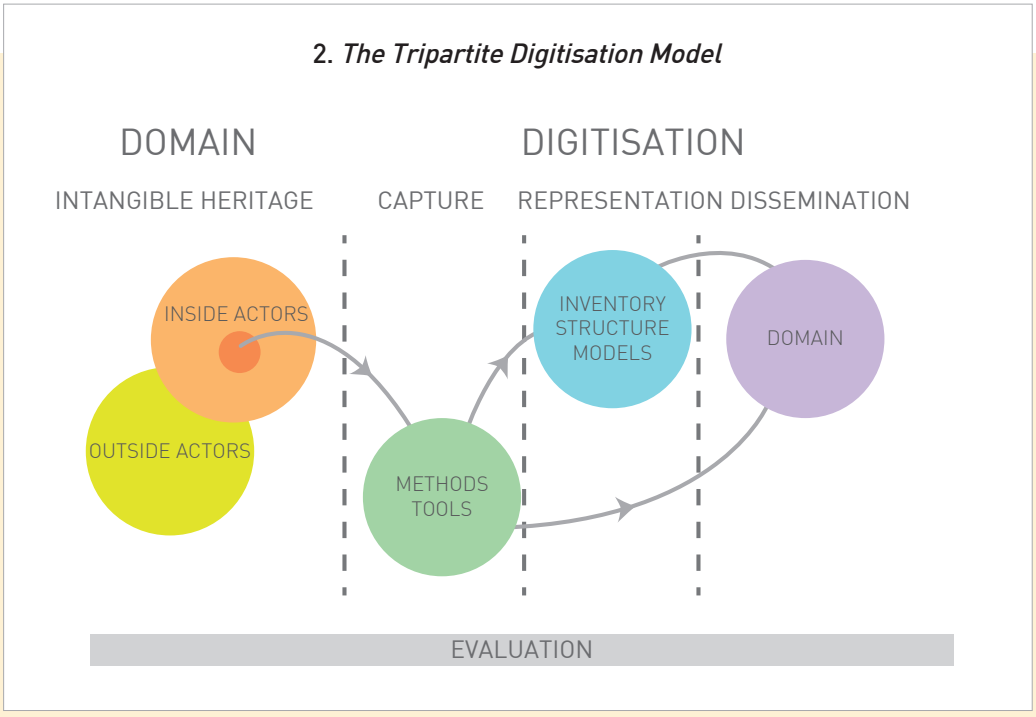

Figure 2
Tripartite Digitisation Model showing the interplay of capturing data, representing data, disseminating data and its domain of origin together with the need for continuous evaluation.

3. *Capture*

In order to create technological tools that support this endeavour, we have to identify (i) the data sources, (ii) the type of the data, and (iii) methods and technologies for collecting the data. Data sources could be as diverse as written texts, audio/video recordings or Kinect movement data. This of course is entirely dependent on the purpose of the data collection, as each of such data types will allow the capture of different aspects of the phenomenon under investigation. Again, we are not claiming that any of these kinds of data is more valuable than the others. Coming back to the previous example of falconry in Western Mongolia, the article exemplifies the difficulty of safeguarding intangible cultural heritage when it will always be tightly related to contextual factors like, in that case, the environment, as well as the relationship between animals and humans. Thus, any data capture will necessarily be incomplete, focusing on a specific aspect. For example, an ethnographic account might reveal the intricate nature of the relationship between animal and human, whereas the capturing motion data during a hunt might give insights into the actual practice.

Apart from the data source, it is also necessary to distinguish the data types. The distinction between data source and data type is necessary because it will largely influence how the data can be analysed. To give two examples, a written text (data source) could be an eye witness account or an ethnographic field report. A video recording (data type) could be TV news or a recording of a traditional dance.

Lastly, it is necessary to come up with, and agree upon methods and methodologies for data collection. These should inform how sources and technology are selected, e.g. what kind of technology is used in relation to the goal of data collection (e.g. a video camera vs motion tracking vs a search in the Vatican library). Also we need to keep in mind that there are limitations to what can be captured. The experience of a Sami shamanic ritual can, for instance, only be conveyed by actually experiencing it. What we can capture are more or less accurate descriptions by the involved parties.

4. *Representation*

Having collected data the question is - what happens to it next? From our - again technical - standpoint there is a continuum of possibilities, all depending on the intended use of the data. As a minimal requirement for archiving the data, the collection has to be searchable and thus needs to be structured in some way or other. At the other end of this continuum we envision interactive dissemination strategies like immersive narratives with AI agents, which require an in-depth analysis of the data and a semantic/conceptual representation that aims to identify constituting features and relationships among the data. Ontologies present one suitable representational format in that case, allowing for qualitative reasoning on the structure of the data.

5. *Dissemination*

Again, we are not proposing any delimitation in this article. Instead we would like to give an overview of the huge variation of dissemination attempts, ranging from 'traditional' museum exhibitions to interactive role-play in virtual environments. What is apparent though, is the strong connection between capturing and modelling the data and the possible ways dissemination can occur. For instance, an exhibition in a museum might need specific examples of ICH in order to engage the visitor, whereas an interactive role-play might instead need a generalisation about several samples of the same aspect in order to recreate the behaviour of characters in the game.

A first attempt at categorisation could be to look at static, dynamic, and interactive dissemination strategies. An example of static dissemination could be a text about an aspect of ICH (like some of the articles published in the *Journal*), it could also be a video recording. For a dynamic dissemination it would be necessary to search and combine sources, e.g. in a browse-able web archive that allows the user to collect several samples of a specific element. Interactive approaches would be ones that allow people to actually experience aspects of the ICH in some way, for instance by being taught a specific craft in the classroom or by playing an educational game about how to behave in a given culture.

Survey: using the Tripartite Digitisation Model

1. *Motivation*

The purpose of this survey is to present newcomers

and fellow colleagues with an overview of published works that can be organised using the 'Tripartite Digitisation Model'.

2. *Categorisation strategy*

Using the first domain survey as a baseline, we conducted an individual sorting round categorising papers into 'capture', 'representation' and 'dissemination'. Following this, another round of dialogue and careful reading through was conducted to settle any discrepancies in the nature of the selection. It was again a priority to allow a paper to be placed in more than one category.

3. *Survey results*

In all, eighteen distinct papers were identified as belonging in 'Capture', eighteen distinct papers were identified as belonging in 'Representation', and sixteen distinct papers were identified as belonging in 'Dissemination'. Of these papers, some are related to more than one domain. In the table below, these papers are then presented in each domain and thus the entries in the different columns come to more than the above-mentioned numbers.

4. *Presentation of sample papers for the three lenses*

In the pages following we present some sample articles from the table below that have been selected because they each highlight a specific aspect of capture, representation, or dissemination.

Table 2
Segregation of papers according to Tripartite Digitisation Model (TDM) (capture, representation and dissemination)

Domain	Capture	Representation	Dissemination
A	El-Aswad (2014); Marschall (2014); Woonho, Hyun-Jo, and Juwon (2012); Lanier and Reid (2007); Vlachaki (2007)	Marschall (2014); Woonho, Hyun-Jo, and Juwon (2012); Vlachaki (2007)	Marschall (2014); Woonho, Hyun-Jo, and Juwon (2012); Solanilla (2008); Burden (2007); Lanier and Reid (2007); Vlachaki (2007); Robertson (2006)
B	Tomioka (2012); Lanier and Reid (2007)	Tomioka (2012); Moelants et al. (2007); Uafā Māhina-Tuai (2006)	Junko (2011); Musinguzi and Kibirige (2009); Lanier and Reid (2007)
C	Marschall (2014); Soma (2012); Aldred (2011); Thinh (2009); Yerkovich (2006)	Marschall (2014); Soma and Sukhee (2014); Florido-Corral (2013); Aldred (2011); Jongsung (2009); Thinh (2009)	Marschall (2014); Aldred (2011); Junko (2011); Yerkovich (2006)
D	Carbonell (2012); Soma (2012)	Soma and Sukhee (2014); Florido-Corral (2013); Carbonell (2012)	Borges and Botelho (2008)
E	Cabral (2011); Horjan (2011); Hoekstra (2010); Van Huy (2006)	Horjan (2011); Hoekstra (2010); Song-Yong (2010)	Horjan (2011); Hoekstra (2010); Musinguzi and Kibirige (2009); Van Huy (2006)
Non-domain-specific	Hickey (2012); Shankar (2010); Golding (2006)	Park (2014); Howell and Chilcott (2013); Hickey (2012)	Goesswald (2007)

Capture

In this subsection we present different examples of how and what kind of data is captured. A very technical approach is presented by Woonho, Hyun-Jo, and Juwon (2012) who aim to create a digital multimedia archive for endangered languages. The data sources are video recordings where informants speak single words from different categories, e.g. 'sun' (category: astronomy). The article describes a very structured approach to data capture but misses putting words in the context of language use. As described above, Soma (2012) reports on falconry in Western Mongolia and presents a mix of

different methods for data capture including observation and interviews as well as training for the practices under observation. Unfortunately, the data sources used for the different methods are not clarified thus it is unclear if, for example, observation led to written protocols or video recordings. Carbonell (2012) investigates Catalan fishermen's knowledge about the weather which has been captured by interviews with, and observations by fishermen. Based on this data, the author then structures and classifies the data, making it easily accessible to the reader. As before, the data sources are unclear as the author only mentions observations and interviews. The final example is Thinh (2009) who presents an eyewitness account of a shamanic ritual in Vietnam. As such, the article itself becomes the data, where the data source is the written text of the eyewitness (the author) who recounts in detail what happened throughout the ritual.

What is apparent from the above examples is that only a few have ventured to use technological tools for data capture and none go beyond 'traditional' media like video or audio recording. With current progress in multimodal data capture (e.g. Scherer et al.: 2012) and social signal processing (Vinciarelli, Pantic, and Bourlard: 2009), we assert that the collection of data on intangible cultural heritage could greatly benefit from involving such technologies. Also, only a few of the works presented in the *Journal* attempt to actively involve the indigenous groups themselves in the data collection endeavour (see Shankar: 2010 for an exception).

Representation

One of the few technical papers, Park (2014) presents ICHPEDIA, a database project that aims to collect and structure ICH inventories. In order to allow for searching across inventories, ontology is under development for ICH elements that will allow users to link ICH elements on the basis of their underlying conceptual structure. Tomioka (2012) gives an account of traditional dances at the Javanese court and how dissemination approaches in the 1970s caused the original versions to vanish. Data capture was done by the author through actually learning the original versions of the dances. In the article she then presents a notation system for representing this knowledge about the dances that includes the musical structures, the structures of the dances as well as choreographic information (formation) for one sample dance. It would be interesting to see if the choreographic information could also be expressed by a notation system like Laban's for movement analysis (1980). In order to capture and represent the process of traditional pottery, Song-Yong (2010) makes use of operational sequence analysis. Thus, data capture is driven by this method and the resulting representation (here in the form of a written text) details the steps in creating pottery, taking into account the interrelation between materials and the social context in which the process takes place. Moelants et al. (2007) describe work that tries to identify the defining features of musical pieces from an audio archive. This will result in a content-based representation of the pieces and can be used to classify and identify pieces of music based on these features. The paper explores whether the techniques for music information retrieval, which have mainly been developed for Western style music, will be equally applicable to African music.

The examples presented here are actually theory- or application-driven examples of representing data (which also influence how the data is captured). What is apparent when looking at the whole set of articles is the often *ad hoc* nature of both the data that is captured, and also the way it is represented. This makes it difficult to understand the importance, validity and reliability of the data presented in the articles.

Dissemination

Marschall (2014) reports on the eNanda project that aims to establish a bilingual website for disseminating knowledge about Zulu cultural heritage. The project aims to activate the local community into producing content for this website. The project seems to be agnostic towards the actual data that is used, and lists audio and video recordings as well as pictures and written texts as possible content. Internet technology is also envisioned as a new way of disseminating intangible cultural heritage by Solanilla (2008). She investigates the potential of multimodal interactive experiences for exploring autobiographical information.

An interactive dissemination approach is presented by Van Huy (2006) who reports on a dissemination attempt by the Vietnamese Museum of Ethnology. In order to raise interest in traditional crafts the museum organises pottery classes for children. This allows the children to directly experience part of their intangible

cultural heritage. Lanier and Reid (2007) highlight a different strategy that focuses on reviving old traditions and using modern communication channels for dissemination purposes. In their article, they present the musical tradition of whalers on a Caribbean island. They also present a local group of musicians who re-interpret the old shanties and perform on numerous occasions and at international festivals.

Although the first two make use of, or reference internet technology, they again present fairly standard ways of dissemination through web pages.

Participatory actions in capturing, representing and disseminating ICH in partnership with indigenous communities

1. ***Domain***

It is hardly a surprise that the material being targeted with a view to safeguarding is often local and inter-generationally inherited by indigenous communities. The ambition to capture ICH can stem from outsiders superimposing their own research agendas on to others. And in other cases the ambition comes from communities which are interested in the digital portrayal of their own cultural practices, etc. and engage in collaboration with outside researchers (see a distinction in Smith: 2012). Article 31 in the UN *Declaration on the rights of indigenous peoples* (2008: p.11) reads:

Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.

While the above quotation is centred on specific rights, not much is mentioned about the methodology to actually implement participation in a heritage preserving process. Kurin (2007, p.7) provides a more nuanced explanation of involvement:

... members of the relevant communities can and should be encouraged to do participatory self-research and documentation, work with civil scholars in devising and carrying out inventory activities, work with museums, performing arts centres, publishing houses, universities and the like on the presentation of their ICH, work with journalists, television and radio reporters on the promotion of their ICH, work with teachers, education officials and curriculum planners on how their ICH is taught within the school system, and work with government planners, officials and bureaucrats in formulating plans that introduce ICH into social and economic development programmes.

When engaged in digitisation for inventorying and dissemination, the constructed bits and bytes become manifestations of ICH in a domain governed by very different conceptual ways of structuring and representing than those of the original sources.

Whether or not a researcher's standpoint is (post-) positivist or constructivist, it is crucial how ICH data, representation and dissemination is reflected upon and evaluated. Evaluation in this case does not mean outsiders evaluating the 'validity' of material expressed by communities. Rather it means evaluating the process of digitising the content and the methodologies used to conduct this. The need for local evaluation of which kinds of data are permitted to be, and can be captured, as well as how they are documented, is both a tenet for many researchers in this field and directed by UNESCO: *Safeguarding measures must always be developed and applied with the consent and involvement of the community itself.* (web)

History is full of examples of exploitation (see Cochran et al.: 2008), distortion of heritage and knowledge, and violation of trust. David et al. (2013) explain:

...communities are the ones that know best their own life context, and are therefore the most entitled to contribute to expanding knowledge for the implementing agencies. Local knowledge is thought to be fundamental for the success of an initiative especially for initiatives concerned with local knowledge production and communication.

Thus when looking at the domain in which the socio-cultural material resides, one must make clear what is the ethical and moral point of departure for the research project. In this sense 'evaluation' can mean both the inclusion of indigenous peoples in articulating the project, their roles in decision-making (consultative versus authoritative) and their involvement in a long term scope. For the local stakeholders it is important that the researcher is a reliable partner for handling, digitising and representing the ICH outside of the domain of origin.

2. *Capture, Representation and Dissemination*

We have deliberately chosen the verb 'capture' in the model since we want to convey that the meaning of a capturing action is both *Cause (data) to be stored in a computer* and *Take into one's possession or control by force* (Oxford English Dictionary's definitions of 'capture'). Naturally the data capture relates to identifying and inventorying particular fragments of ICH. The emphasis we wish to place on this is - who decides how and what to capture? And - what is actually captured? Technological advances usually have their origin in dominant societies and might frame data capture, representation and (naturally) dissemination in ways that are unaligned with the ontological nature of the subject. As Truna and Bidwell (2007) explain: *Here the artifact or object of interaction is designed as a reality space, a context in and of itself – it is both a window and a mirror or a reflection of the cultural context of its construction.*

And while communities have been maintaining and curating their traditional heritage there is always a threat that digitisation might rip it from their hands and disseminate it into a world where they can no longer curate it.

How the data is captured and what is being chosen for capture change the material from an often complex form of oral tradition, practices etc. or a mix of these modalities, into a form that is governed by the focal point provided by the researcher and/or community partners and the chosen capturing technology. For the researcher, it is important that any data captured is reliable in the sense that it represents a source that can be trusted. Hypothetically, capturing arm movement data to record Mongolian falconry techniques might differ according to whether the movements were those of experienced falconers or untrained ones (as reported in Soma and Sukhee: 2014), but probably only knowledgeable falconers would be able to pick up the nuances and the differences. The purpose might be to capture both experienced falconers and novices applying hunting techniques - or not - engaging in dialogue and involving communities can clarify the purpose of the capturing. What the actual capture consists of can also range from descriptive textual accounts to motion tracking technologies of bodily gestures. Textual descriptions and video recordings are inherently easier to evaluate with participants than points in a 3D space, on the other hand, it might be more precise and possible to recreate complex movements and secondary motions in a more physically accurate way. Where video recordings can present difficulties is with occlusion and textual descriptions. The manifestations (for example virtual characters) created from these points are those that should be evaluated. A good example of a digitisation process is published by Stavrakis et al. (2012), where they record the movements of traditional Cypriot dancing by motion capture, and use these captures for a video game to teach traditional dancing.

While some projects focus on specific actions, others are faced with more complex scenarios of cultural practices and rituals where many forms of performance and the spatiality of the people involved are intertwined in conceptually rich scenarios.

Rodil et al. (2014a) have reported on the challenge of digitising all the nuances of a Herero wedding in Namibia, and document how vital information essential for a fuller understanding is filtered out when choosing audio recording, video recording, narration etc. as the data source. They report on conceptual misunderstandings which easily occur when outsiders describe cultural practices, advocate bringing together a variety of sources and modalities for a more nuanced capture, and promote a holistic approach rather than an atomistic one to the capture of intangible heritage data. They advocate that the active participation of local communities throughout the process is pivotal for decoding meaning in a diversity of multimedia used for the capture and evaluation of these manifestations.

Placing tangible heritage objects in museums without contextualising them disconnects them from their

intangible practices, thus when analysing the physical object we can only speculate on the intangible practices that have previously surrounded them. Similarly, focusing only on one facet of intangible practice data will possibly at some point require the restoration of missing elements to create the full picture. Fensted et al. (2002, p. 4) explain in their report that:

> *...practices may have latent meanings that may only be revealed through a fuller understanding of the culture as a whole. In general, by isolating elements from a worldview that interweaves empirical, spiritual, social and other components, as TK (traditional knowledge) does, one tends to misrepresent both the elements and the whole.*

It seems unrealistic to preserve/capture a complete practice, often intertwined with physical objects, and often the performative nature of these practices can differ locally.

We suggest that any technological approach includes participatory actions and careful evaluation of the concepts used in the process of capture. In the cross-field of technological development, digitisation and different knowledge systems, Participatory Design (PD) offers a methodology and a set of fundamental values and principles to guide a research project that includes local communities in technology design (see for instance, Merritt and Stolterman: 2012; Puri et al.: 2004; Kensing and Blomberg: 1998). Some of the main tenets of PD are that any advances should be democratic and that all participants should have the power to make decisions. The participants are all equipped with a set of skills from which they bring knowledge into the collaboration, and these skills are often rooted in different domains. The voices of indigenous communities should be heard, not only about questions of the legal ownership of ICH, but because they have unique insights into the aspects of intangible knowledge that are to be digitised. Similarly, researchers/designers/developers have unique insights into the production of new technology and digitisation. Since collaboration between communities and researchers also often implies collaboration between differing epistemological communities (Gegeo and Watson-Gegeo: 2001, p.4) and world views, it is vital to seek consensus with regard to all outcomes of a collaboration. As Mutema (2003, p.5) explains:

> *Understanding is made possible through dialogue, conversation and communication between the researcher and the actors. The intersubjective nature of the research process allows for the researcher's interpretations to be checked, reinterpreted and evaluated by the actors. In this way, the researched are 'active' participants in the practice and activity of the interpretation.*

Thus mutual learning (Nielsen et al.: 2003) is pivotal in projects where the intention is the technological preservation of ICH in collaboration with indigenous communities. Researchers learn about the subject and re-evaluate their own concepts, and local participants learn about technology so they can be critical of technological approaches that could distort or misrepresent their ICH.

Conclusion

This article set out to review research in intangible cultural heritage that has been published in the *International Journal of Intangible Heritage* in the decade after the establishment of UNESCO's *Convention for the safeguarding intangible cultural heritage*. As a starting point, we took the UNESCO domains of intangible heritage as the foundation and made a survey of whether the published research actually covers these categories. The results indicate that this is the case, but there were also a number of papers that were not domain specific.

Based on our previous work which had a strong technological component in order to create tools for the digitisation of indigenous knowledge, we developed a tripartite model that was focused on the practical questions of what kind of data can be collected for capturing aspects of intangible cultural heritage, how this data can be represented, and in what way it can inform and enable the dissemination of intangible cultural heritage. We used this model for a more in-depth analysis of the research previously presented. Although many of the research papers address one or more of these practical issues, we were surprised at the low level of inclusion of modern ICT tools to support the work presented. We have presented some of the current trends in signal processing which could be beneficial for

data capture, and intelligent tutoring systems which could be beneficial for dissemination processes. One of our main conclusions therefore is that it seems to be time to initiate a cross-disciplinary dialogue with more technical disciplines to create new ways of capturing intangible cultural heritage.

Many research projects seem to be driven by one or two dedicated researchers who present their field work, often in the form of observations and interviews, in the *Journal*. While this is usually excellent work, it is also one-dimensional, focusing on a specific aspect of ICH and making use of one method to capture it. We claim that to really make an impact on safeguarding intangible cultural heritage, a multi-dimensional approach is necessary that combines several methods of data capture in order to allow for analysing the phenomenon under investigation from as many perspectives as possible.

Last but not least, it was surprising to see that in only a few of the published research papers the aim was to actively involve the indigenous communities in the safeguarding measures indicated. Often, projects are initiated by external parties, or papers summarise the field work of a researcher in the communities, thus representing an external interpretation of the observed ICH phenomenon. In the last part of this article we strongly argue for the beneficial effect of a participatory approach.

(1) Assuming the UNESCO categorisation to be inclusive, the survey shows that articles in the *Journal* cover all categories evenly.
(2) A more in-depth analysis reveals that work presented in the *Journal* in most cases does not embrace the opportunities offered by modern ICT for digitising intangible cultural heritage.
(3) We suggest a tripartite model for handling data about aspects of ICH and suggest a cross-disciplinary approach that includes engineers in ICH research projects.
(4) We also claim that in order to safeguard intangible cultural heritage, multiple methods have to be employed to ensure that more than one aspect of the particular phenomenon under investigation is captured.
(5) We argue for a strong participatory approach that allows for mutual learning of and about cultural practices, both on the part of the researcher and on that of the community.

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