

Abstract

As technology advances, so does our understanding of the world. Technology can act as that great disruptor which facilitates, (or hinders) access to cultural knowledge. Towards a National Collection (TaNC) is a 22m euro UK investment that aims to identify the pathways into such sustainable socio-technical infrastructures where all levels of knowledge and representation can be produced and used by diverse groups with different cultural needs of information, and therefore tools to make use of it.

The *Museo Integrado* calls for museums to “take part in bringing awareness into the societies to which it serves”. However, this can become challenging due to the alienation generated by Western and Anglo-centric epistemologies, cosmivision and technologic impositions. How are museums meant to represent knowledge when the systems used to describe such knowledge do not engage with the perspective of the communities they are meant to serve? How do we overcome the large digital divide within cultural institutions, their staff, and especially among communities, not only in the context of the Global South, but also evident within the UK. The Digital Humanities have provided a paradigm shift in how knowledge production can sustain (and disrupt) novel research methods in the historical and cultural sector. TaNC research aims to identify such novel methods and integrate them within a sustainable model accessible for the wide range of users and non-direct users of cultural heritage.

Introduction

The Digital Humanities have provided a paradigm shift in how knowledge production can sustain (and disrupt) novel research methods in the historical and cultural sector. Towards a National Collection (TaNC) makes use of trans and interdisciplinary methodologies with the objective of identifying the ways of dissolving barriers between collections and establishing new cross-collection lines of research. Our programmes involves research and community engagement projects, as well as commissioned research, that helps us identify current socio-technical challenges such as digital and information literacy that hinders engagement from different subaltern and socio-economic groups. In addition, we are helping to contextualise current policy and infrastructure issues such as copy-right, open access and user engagement. These further bring to light current challenges and opportunities of how digital collections, tools and methods from the digital humanities, computer science, and cultural heritage, will hinder or support bottom-up as well as top-down implementation from both communities and institutions.



Towards a National Collection Socio-Technical Infrastructure Challenges

Decolonisation and Colonial Legacies

Decolonisation calls for the re-existence of the mechanisms of racialisation, exclusion, and marginalisation, thus confronting biopolitics of power that creates the commodification of nature and human capital and education (Albán and Rosero, 2016, Mignolo and Walsh, 2018). Decolonisation has focused on shifting the power to subaltern groups. Museums and the cultural sector have highlighted their role in regard to ownership, control and power. Issues of restitution are increasingly foregrounded. This ownership and hegemonic impositions can be translated to digital infrastructures of knowledge production and heritage management. We have to consider how structures of power related to knowledge production as well as the policies that facilitate critical theory can be used to design a platform for decolonisation (Bergeron and Rivet, 2019). TaNC projects such as *Provisional Semantics* highlight the need to devise research projects which make use of lived experience in order to augment the impact and sensitivities shaped through the research questions, methods, and research design.

OS TC Ud AK PS

Knowledge Automation

Digital collections on the Web aligned with Artificial Intelligence (AI) can help in providing access to knowledge held in a vast number of collections, arguably even if the metadata behind them is limited. AI tools can help generate content, describe existing cultural artefacts, aid with image reconstruction, and produce alternative storytelling methods for engagement (Díaz-Rodríguez and Pisoni, 2020). It should be acknowledged that there might be a lack of representation behind the AI models, methods and social structures; these learning processes should be continuous, where humans and machines collaborate together through ‘continual learning’ (Lesort et al., 2020). Furthermore, diverse AI methodologies and processes such as Explainable AI (XAI) can help enhance access to users with different cognitive and physical abilities, as well as other minorities (Díaz-Rodríguez and Pisoni, 2020). XAI can help collection users to manage and understand how AI tools are producing their outputs. TaNC research such as the *Deep Discoveries* project noted that users will still need written information, that further contextualises specific needs within their exploration, that can include location, provenance and copyright, among others. This process of contextualising XAI to users is arguably in its infancy. The novelty of AI and XAI methods still remain to be contextualised as an impact production tool that needs to be fully integrated within a wide range of user interaction paradigms (e.g. Tangible User Interfaces vs. Graphical User Interfaces), as well as visual communication methods (e.g. Data Visualisation and Infographics) to facilitate its engagement for the users. It is very likely that XAI and AI have an important role to play in GLAMs. For example, our *Visitor Interaction and Machine Curation* project provides an argument to introduce computer science knowledge, instead of just facilitating a set of technologies or tools.

MC OS Ud SL TC CE LC HC DD

Location

Geographic Information Systems (GIS) have presented new ways of connecting and analysing vast sets of data on the Web. However, geospatial ontologies can be tied to colonisation and impose hegemonic ownership over indigenous systems (Pearce et al., 2009, Pickles, 2012). Current technologies present the opportunity to include indigenous narratives through the re-existence of the technologies around mapping and the processes of how these are carried out (Murrieta-Flores et al., 2021). This paradigm change can help generate maps of defiance, which shift the hegemonic and epistemologies towards the Global South (Pearce and Louis, 2008, Louis et al., 2012, Reid and Sieber, 2020). Our research projects such as *Unpath'd Waters* and *Locating a National Collection* make evident the relationship of knowledge and place, whilst linking it to community representation and integration within the research methodology (e.g. crowdsourcing). Location aids the contextualisation of content and build towards the sense of identity and place. TaNC research projects have also demonstrated the ability to connect metadata to improve digital search and cataloguing tools for collections, whilst opening further public access and engagement to the community.

DF OS Ud CE LC DD

Knowledge Co-creation

The Web as a socio-technical platform can facilitate engagement with alternative epistemic narratives. Co-creation through Citizen Science has been paving the way for diverse areas in the humanities, geography, biology and medicine among others (Kullenberg and Kasperowski, 2016), and has proven to take advantage of the cultural diversity of the participants and providing access to outsider epistemologies (Hecker et al., 2018). Digital GLAM on the Web can witness a reduction of geographic and cultural barriers by producing engagement tools for the community that owns and lives such cultural knowledge. Knowledge co-creation remains paramount in many of the methodologies of the TaNC research projects, where it is important to highlight that such community generated knowledge can benefit from a wide range of -knowledge- automation tools for data acquisition, processing, aggregation, and analysis and use. However, it is important to consider how community knowledge and co-production will be included within the research methodologies and automations for aggregation, knowledge or ontological development and deployment.

AK FR MC DF SL CE TC OS Ud LC HC EC BO



ACHIEVING REPRESENTATION IN SUSTAINABLE SOCIO-TECHNICAL INFRASTRUCTURES

Towards a National Collection

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FOUNDATION PROJECTS

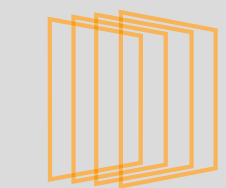
Locating a National Collection	LC
Heritage Connector	HC
Deep Discoveries	DD
Engaging Crowds	EC
Provisional Semantics	PS
Practical Applications of IIF	IIF
Persistent Identifiers	PID
Born Digital & Hybrid Objects	BO

These projects have the purpose of identifying current and possible future challenges that could be faced when developing a UK virtual collection. These projects also highlight key socio-technical infrastructure needs for GLAMs.

URGENCY PROJECTS

Digital Footprints and Search Pathways	DF
Making it FAIR	FR
Visitor Interaction & Machine Curation	MC

These projects provide a snapshot in time of the first COVID-19 pandemic lockdown and its impact on how people access digital collections, challenges behind digital access and digital readiness.



TOWARDS A NATIONAL COLLECTION

DISCOVERY PROJECTS

Our Heritage Our Stories	OS
The Sloane Lab	SL
Transforming Collections	TC
Unpath'd Waters	Ud
Congruence Engine	CE

These large projects focus on how bringing together substantial and diverse collections and datasets can be deployed across the wide range of communities in the UK and beyond.

COMMISSIONED RESEARCH

Copyright & Open Access	CC
Digital Collections Audit	DC
Policy & Research Analysis	PR
ArtUK: Opening Up Access to UK Art	AK
Online User Research	UX
International Benchmarking	IB



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Towards a National Collection full reports can be found in our Zenodo Community Repository: <https://zenodo.org/communities/tanc/>



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