How can Active Hope be the central axis for social and environmental change within museum digital policy?

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Introduction

The magnitude of climate change is paralysing. We are stuck on the trajectory of 'business as usual', safe in the certainty of short-term gains and long-term inhabitability, rather than turning down an alternative path of uncertainty. I believe the key to transforming our paralysis into action lies in transforming how we perceive uncertainty; through the stories we tell and by challenging the limits of our imagination. Indigenous knowledge illustrates that our imagination is formed through stories.[1] Our shared stories are codified in our cultural institutions, whose spaces – extending beyond their gallery walls – hold our collective history and are core in educating and inspiring. Therefore, museum and heritage institutions have a key role in collaboratively envisioning what regeneration may look like and in healing the relationship between the human and non-human world.[2] As these spaces are built on the exclusive and elite history of colonial legacy,[3] there also exists further opportunity to not only change the stories shaping our society, but also the boundaries that define the collective who can participate in creating those stories.

Central to this transformation is the philosophy of Active Hope,[4] as change cannot occur without action and vision. Museums and cultural institutions can lead the way in changing the stories that shape our society, to help us collectively imagine uncertainty to create a positive and hopeful future. As museum collections are

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[1] Kimmerer, Robin Wall. "Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants", Minneapolis: Milkweed Editions, 2013, pg. 341-348

[2] Cameron, Fiona R. 'From Sustainable Development to Sustaining Practices for Human, More-than and Other-than Human Worlds'. *Museum International* 75, no. 1–4 (2 January 2023): 214–21.

[3] Rudiak-Gould, Peter. "'Peoples Who Still Live": The Role of Museums in Address Climate Change in the Pacific'. In *Curating the Future: Museums, Communities and Climate Change*, edited by Jennifer Newell, Libby Robin, and Kirsten Wehner, 70. London: Routledge, 2016.

[4] As understood in Macy, Joanna, and Chris Johnstone. Active hope: How to face the mess we're in without going crazy. New World Library, 2012.

increasingly digitised, these narratives are created and engaged with online. The digital space is typically perceived as a universal solution of accessibility and sustainability, reducing travel carbon footprint while reaching wider audiences.[5] Whilst it can be a positive progression, digital practice currently also encompasses a tale of social and environmental violence and colonialism.[6] Thus, the question is refined to how can Active Hope be the central axis for social and environmental change within museum digital policy?

This paper begins by examining the truer picture of digital technology's footprint to highlight why change needs to occur within the wider IT sector by exploring the digital life cycle, before expanding into how our museums can embrace Active Hope to become change makers.

The Digital Lifecycle

Improper, unmanaged use of the Digital Life Cycle is causing extreme climate damage.[7] The Digital Life Cycle consists of three core stages: Procurement and Manufacture, Usage, and Electronic Waste (E-waste).[8] Given the constraints of this paper, I have chosen to explore the real impact of and illustrate the opportunities across the digital space by focusing on Usage.

[5] Hughes, Lorna. "Why Digitise? The Costs and Benefits of Digitisation." In *Digitising Collections: Strategic Issues for the Information Manager*, pg.4-20. London: Facet, 2003

[6] Schwarzer, Stefan, and Pascal Peduzzi. 'UN Environment Programme Foresight Brief 027: The Growing Footprint of Digitalisation'. UN Foresight Brief, November 2021, pg.2-7.

[7] Hodgkinson, Ian and Jackson, Tom. 'Is There a Role for Knowledge Management in Saving the Planet from Too Much Data?' *Knowledge Management Research & Practice* 21, no. 3 (4 May 2023): pg.427.

[8] Pendergrass, Keith L., Walker Sampson, Tessa Walsh, and Laura Alagna. 'Toward Environmentally Sustainable Digital Preservation'. *The American Archivist* 82, no. 1 (1 March 2019): pg.172.

Our digital usage (from our connection on the internet to the storage of data) is enabled through data centres. Traditionally, data centres are energy and water intensive systems that require high volumes of cooling refrigerants.[9] This means that every webpage that is loaded, every email that is sent, and every file that is downloaded has a consequential carbon emission, and environmental impact.[10]

To drive meaningful change, we need to be consciously aware of how our digital usage is part of this impact. The gases released during the combustion of non-renewable energy sources contribute to the Greenhouse effect whereby atmospheric particles influence the absorption and reflection of incoming solar radiation and increase global temperatures. The use of refrigerants, known as Hydrofluorocarbons (HFCs), exacerbates this warming effect as the particles have a very high global warming potential – with some types being 14,800 times more potent than carbon dioxide.[11] Increasing global temperatures raise sea-levels and disrupt weather patterns, triggering extreme weather events. For instance, prolonged drought causes water scarcity, leading to crop failure, disease, and famine - devastating communities. In turn, conflict can arise in resource stressed areas, impacting vulnerable populations (primarily women and children), or populations may also be forced to migrate as their land becomes uninhabitable, becoming climate refugees. Further, as climate change has a disproportionate effect on poorer communities, global inequality increases.

The most damaging digital activities (i.e. those with higher energy requirements) are our data storage behaviours, use of higher resolutions images and, more topically,

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[9] International Telecommunication Union, and World Bank. "Green Data Centres: Towards a Sustainable Digital Transformation-A Practitioner's Guide." (2023), pp.8.
[10] Czuba, Amy. 'Digital | Environmental Policies Must Include Digital'. Museums Association.
[11] Climate and Clean Air Coalition. "Hydrofluorocarbons (HFCs)", Accessed on July 3, 2024.

Artificial Intelligence.[12] In 2020, data centres consumed 1-2% of all global electricity.[13] This consumption of electricity, primarily sourced from dirty grids of unrenewable coal, oil and natural gas sources,[14] meant that data centres consequentially generated 4% of total global greenhouse gas emissions.[15] This is simply a baseline figure as it excludes individual usage.[16] Further, a 'one megawatt' data centre using traditional cooling methods can use an average 26 million litres of water annually.[17] Thus, traditional operation and cooling mechanisms employed in data centres contribute significantly to global climate change.

Despite increasing demand - for digital devices, the internet, storage space and thus for data centres - there are pathways for sustainable change.[18] New research demonstrates that the environmental and social footprint of these new data centres can be mitigated by constructing them in cooler locations, reducing the high demand for refrigerants and water.[19] Locating data centres in cooler locations reduces the possibility that centres may compete with local communities for scarce resources, e.g. water supplies.[20] Another decision that can be controlled is locating data centres within existing clean grid infrastructure, powering them with renewable resources while minimising the environmental and economic cost of building new grid systems. If new

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[12] This is a new and developing research area impeded by a lack of data and transparency from companies. The most helpful article I found that gives a good overview of current research is Sundberg, Niklas. 'Tackling AI's Climate Change Problem'. *MIT Sloan Management Review*, 62, no.2 (2024), pp. 38-41.
[13] Ashtine, Masao and Mytton, David. 'We are ignoring the true cost of water-guzzling data centres.' *The Conversation*, Oct 19, 2021.
[14] International Telecommunication Union (ITU), and the World Benchmarking Alliance (WBA). "Greening digital companies: monitoring emissions and climate commitments." (2022), pp.57.
[15] Hodgkinson, Ian and Jackson, Tom. 'Dark Data is killing the planet – we need digital decarbonisation.'
[16] There is not an agreed statistic due to the lack of transparency within the ICT sector; See International Telecommunication Union (ITU), and World Bank (2024). "Measuring the Emissions & Energy Footprint of the ICT Sector: Implications for Climate Action.", pp.23-24.
[17] Ashtine and Mytton, *The True Cost*.
[18] ITU, Measuring, pp.4.
[19] ITU, Green Data Centres, pp.9.
[20] Pendergrass, '*Towards*', pp.175.

and existing data centres create and increase the demand for renewable resources, national governments will be incentivised to transition towards renewable energy. [21] If further motivation is needed, data centres situated in those regions already being directly affected by climate change are also vulnerable to severe weather and therefore have a vested interest in reducing their environmental impact.[22]

The most sustainable opportunity for change, however, lies in user behaviour. Our current digital practice is unsustainable, as organisations encourage data duplication, single-use knowledge, and poor information governance resulting in the creation of 'Dark Data'.[23] This term quantifies the environmental effect of collecting, processing, and storing data that is only ever used once.

As much as 88% of data that is stored has become redundant, obsolete, or trivial.[24] This statistic may be even higher, with UN figures indicating 94% of data ends up in 'data landfills'.[25] As a result of these inherently wasteful digital behaviours global data is predicted to exceed 79 zettabytes by 2025.[26] This will in turn drive up demand for device procurement and the mining of 'conflict minerals'[27] and increase the billions of kilograms of E-Waste generated annually.[28] This signifies a chance to significantly reduce the demand for new data centres and reduce resource consumption, through better behaviour and management of digital storage and technologies.

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[21] ITU, Green Data Centres, pp.55.
[22] ITU, Green Data Centres, pg.16.
[23] Hodgkinson, and Jackson. 'Knowledge Management', pg.428-29.
[24] Hodgkinson, Ian, Jackson, Tom, Tasker, Tom, and Smyth, Sarah-Jane. "How digital waste is polluting the planet: The threat of Dark Data, and Redundant, Obsolete and Trivial Data." Loughborough University.
[25] Schwarzer, and Peduzzi. 'UN Foresight Brief 027', pg.5.
[26] Hodgkinson, Ian and Jackson, Tom. 'How firms can reduce their Digital Carbon Footprints.' *Journal of Business Strategy* volume 44 issues 6 (2023): pg. 363.
[27] Fuchs, Christian. (2018). Capitalism, Patriarchy, Slavery, and Racism in the Age of Digital Capitalism and Digital Labour. *Critical Sociology*, *44* (4-5), pg. 691.
[28] In 2022 62billion kg of e-waste was generated globally, only 22.3% of which was documented as formally collected and recycled. UNITAR. 'The Global E-waste Monitor 2024.'

As such there is a huge opportunity for museums to manage the social and environmental footprint of their digitisation practices. User behaviours can be managed sustainably by more effective knowledge re-use and management of acquired knowledge.[29] This behaviour change will require a mind-set shift as current practices are driven both by a lack of awareness and risk-averse behaviours. Michelangelo didn't paint an extra Sistine Chapel ceiling 'just in case', there are no back-ups of the Mona Lisa. However, because we can create multiple digital copies so easily, we do, just in case. The challenge for our cultural institutions is in managing the fear of data loss, even when it is obsolete, and these behaviour challenges can translate to the broader loss within climate change – how can we face uncertainty and fear, and how can we deal with the grief of loss while still acting for a better future?

Museums as Changemakers

For the remainder of my paper, I want to introduce and focus on the principle of Active Hope. I will explore how this principle can inform our future choices around digitisation in the museum sector and at a greater level can transform society in addressing the climate crisis.

The simplest way to define Active Hope is to quote Rebecca Solnit: "Hope is not a lottery ticket you can sit on the sofa and clutch, feeling lucky. It is an axe you break down doors with in an emergency. Hope should shove you out the door, because it will take everything you have to steer the future away from endless war, from the annihilation of the earth's treasures and the grinding down of the poor and marginal…. To hope is to

[29] Hodgkinson and Jackson. 'Reduce digital Carbon Footprints.' 363-370.

give yourself to the future - and that commitment to the future is what makes the present inhabitable."[30]

Active Hope, whereby one commits oneself to a future and acts for that future, is already embedded within the fabric of our arts and cultural institutions. Particularly visible within the art of the 20th century, such as the political messaging of Russian Suprematism (where stark abstract images were plastered across posters to communicate with the illiterate),[31] it can also be traced through earlier precedents such as the 17th century Pastoral tradition of Arcadia (where peaceful and idyllic landscapes reflected the balance of human ideas and the desire to escape, and thus were integrated in the rediscovery of man,)[32]

If Active Hope is about a clear vision for the future, a possibility, we need to ask ourselves different questions, rather than simply asking how we minimise the carbon footprint of digitisation. Fundamentally, what is the purpose of art and our cultural institutions within society going forwards? What are the stories that we need to listen to, share, and create? How can we create true accessibility (e.g., through co-production and co-creation)? And what do we mean by preserve, i.e., what is the difference between traditional and hopeful preservation?

Researching digitisation has thrown up some fundamental questions that museums must address, such as what is digitisation for, who is it for and thus how to

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[30] Solnit, Rebecca. *Hope in the Dark: Untold Histories, Wild Possibilities*. Chicago: Haymarket Books, 2016, pg.4

[31] Harrington, J. W. "Suprematism: Revolutionary Art for Revolutionary Times." (2020), pg.1

[32] 'Kenneth Clarke's Civilisation: *Man: The Measure of All Things*' Written and Narrated by Kenneth Clarke. Directed by Ann Turner. BBC2, 1969.

make digitisation more sustainable and inclusive? Such principles can then be applied to wider, non-digital aspects of museum practice and management. [33]

Museums must ask why – why are they digitising? This question I believe expands to consider what the role of preservation is, and in essence of art itself. Museums must begin to define what value their collections and their operations bring across social, environmental, financial, and spiritual spaces.[34] Further, they need to recognise these spaces of value not as individual but as interconnected. Museums must also scrutinise what they are preserving and digitising, whether they are employing mass or slow digitisation.[35]

Additionally, museums must consider who digitisation projects and preservation initiatives are for and who the future stakeholders are. As part of this, they need to consider what stories need to be heard, created, and shared and in so doing they will transform who is telling these stories. It is this question that I will focus on, by exploring the role of co-production and co-curation within museums.

Co-producing narratives through Active Hope can transform current unsustainable digitisation habits and create a blueprint for wider change. Co-Production is a model where museums and institutions work with communities to manage collections and create exhibitions.[36] It invites more diverse voices into the conversation on how collections can create value.[37] As a model, it creates 'dual power' as institutions

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[33] Prescott, Andrew and Hughes, Lorna. 'Why do we digitise? The case for slow digitisation'. Archive Journal, pg. 11.
[34] Kershaw, Anne. Bridson, Kerrie. and Parris, Melissa. 'The Muse with a Wandering Eye: The Influence of Public Value on Coproduction in Museums'. *International Journal of Cultural Policy* 26, no. 3 (15 April 2020): pg.344–48.
[35] Prescott and Hughes. 'Slow digitisation'.
[36] Kershaw, Anne, Kerrie Bridson, and Melissa A. Parris. 'Encouraging Writing on the White Walls: Co-Production in Museums and the Influence of Professional Bodies'. *Australian Journal of Public Administration* 77, no. 1 (2018): 19–20.
[37] Kershaw, Kerrie, and Parris. 'The Muse', pp. 345

are refashioned as sites of public power and public culture.[38] As Nicholas Poole reiterates this is not to stop institutions being museums, but rather it takes 'the core role and identity of the museum and adapts it to be more authentic, more open, and more relevant to a broader cross section of society.'[39] This argument reiterates that co-production will not lose or cost institutions, but rather enrich them and expand the value that they can bring.

Digitisation risks perpetuating profound inequality. Given there are significant disparities in who has access to technology and the internet we risk marginalising, rather than including, large swathes of our populations – lower economic groups, women, older and disabled members of our communities and indigenous populations.[40] Additionally, as digitised manuscripts and documents are primarily only accessible to those who can speak the European language in which they are catalogued, the audience is further restricted.[41] Technology can offer channels and tools for change, but it is museums who must transform their operations.

Co-production offers an approach of 'diverse radical collaboration'.[42] In the face of insurmountable crisis, collective and shared approaches can mobilise change - and natural, diverse ecosystems are proven to have far great collective resilience. Barnes, Pamela, and Gayle argue that digital technology has changed the rules of engagement, enabling consumers to become active engagers who can challenge what they view,

[38] The Natural History Museum. "Decolonising Conversation: An Interview with Ashley Dawson". 21 May 2024.
[39] Poole, Nicholas. "Change". (2014)
[40] ITU. 'Digital Technologies to Achieve the UN SDGs'. ITU, December 2021.
[41] Woldeyes, Yigra G. "Repatriation: why Western museums should return African artefacts." The Conversation, May 15, 2019
[42] Figueres, Christiana. "I understand climate scientists' despair – but stubborn optimism may be our only hope". The Guardian, May 9, 2024.

participating in the co-creation of an idea or the co-production of an exhibition.[43] Moreover, as Gearty concludes that individuals learn both through the telling of their own stories and through their engagement in the stories of others',[44] digitisation already provides a framework for collaboration within museums. And by integrating grassroot community initiatives, that collaboration and resiliency can be progressed, inviting a diversity of people into the narrative to breakdown systemic hierarchies. [45]

Co-produced digitisation initiatives can enable museums to become spaces of belonging as socially conscious agents.[46] Involving indigenous knowledge and stewards can integrate communities who have lived experience and perspectives of climate change.[47] There is an opportunity to consider the diverse non-human agencies which reframe the current central anthropocentric orientation.[48] This would enable museums to acknowledge the expansive scope of community and future generations who may receive value from a collection which does not conform to human scales but rather multiple temporalities.[49]

The step to reimagining uncertainty begins with legitimising and privileging non-Western perspectives and knowledge systems - dismantling the structures of inequality,

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[43] Barnes, Pamela, and Gayle McPherson. 'Co-Creating, Co-Producing and Connecting: Museum Practice Today'. *Curator: The Museum Journal* 62, no. 2 (2019): 258.
[44] Margaret Gearty, "Beyond You and Me: Stories for Collective Action and Learning? Perspectives from an Action Research Project", quoted in Finnegan, William. "'It's Beautiful, living without Fear That the World Will End Soon' – Digital Storytelling, Climate Futures, and Young People in the UK and Ireland." Children's Geographies 21 (5), 2022, pg,900.
[45] Brown, Karen. 'Museums and Local Development: An Introduction to Museums, Sustainability and Well-Being'. *Museum International* 71, no. 3–4. (29 November 2019): pg.6.
[46] Jones, Sheryline. "Museums and Community Engagement in Belize", pg.83.
[47] Recio, Eugenia, and Dina Hestad. 'Policy Brief #36: Indigenous Peoples: Defending an Environment for All'. Policy Brief. International Institute for Sustainable Development, 2022, pg.7
[48] Cameron. 'Sustainable Development', pg.220.
[49] Cameron, Fiona. '7. Curating Sustaining Practices in and for more-than-humans'. In *Museum Practices and the Posthumanities: Curating for Planetary Habitability*. Taylor & Francis, 2023, pg.227

exclusion and racism that endure from the colonial era.[50] Museums can help to shape the value knowledge and capacities of people to respond to the global climate crisis - museums have the opportunity, indeed responsibility, to join together in solidarity to ensure a liveable and survivable world.[51] In 2019, the International Council Of Museums (ICOM) released a report that considered the collective state of crises that we face, and recognised museums were, 'as trusted sources of knowledge, invaluable resources for engaging communities and ideally positioned to empower the global society to collectively imagine, design, and create a sustainable future for all.'[52]

To paraphrase Sarah Sutton 'Museums could be the key agents in turning [inaction or paralysis] into action and hope.'[53]

Parting Words

Whilst making changes in museums and our cultural institutions will not, in isolation, change the planet, their practices do significantly contribute to our current trajectory of climate collapse. Therefore, these bodies have a responsibility to be part of the change towards a habitable future, and an opportunity – as spaces of collective voices – to rewrite the story of our future, reimagining uncertainty, and our grief. By definition, given humanity is at a pivotal moment in climate collapse, museums cannot

[50] Hicks, Dan. "Decolonising Museums isn't part of a 'culture war'. It's about keeping them relevant." The Guardian, May 7, 2021.
[51] Lyons, Steve, and Kai Bosworth. 'Museums in the Climate Emergency'. In *Museum Activism*. Routledge, 2019. Pg.180
[52] ICOM. 2019. Resolution No.1 'On sustainability and the adoption of Agenda 2030, Transforming our World'. Paris: ICOM, pg., 2.
[53] Sutton, Sarah W. "Museums as agents and settings for climate hope." *Nordisk Museologi* 30, no. 3 (2020): pg,14.

preserve our social and cultural history for present and future generations unless they create new narratives and meaningful, genuinely sustainable solutions.

These changes are underpinned by the need to address some key questions: What is the purpose of art? What is the role of our institutions in creating a fairer, more just, more sustainable society? If we can address these questions, we have the potential for art to connect with more people in a meaningful way. These questions can be answered through collective storytelling in Active Hope.

Within the constraints of a 3,000-word essay, I have tried to convey a message of hope that will inspire change. Rather than handing you a printed book of beginning, middle, and end, I am holding the door open for you - the beginning of a journey. As with all journeys it will involve learning, failing, and changing, and must begin with a first step. Just as climate change cannot be solved in individual isolation, this is not a journey that can be undertaken alone. A diversity of voices, perspectives, and lived experiences will be necessary to create an alternate positive future. Traditional museums were born in a colonial context and continue to favour a select audience, reinforced by their present digital actions but, just because that was how such institutions were born, it does not mean that is how they must stay. It is here, at the start of a new journey, that we can begin to decide what they may become.

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0048/full/pdf?title=keeping-a-lower-profile-how-firms-can-reduce-their-digital-carbon-footprints

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