Cultural Heritage 360

A Report for the AHRC Programme: Where Next? Scoping Future Arts and Humanities Led Research

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Section 1. EXECUTIVE SUMMARY

1.1. The scoping exercise which is the subject of this report was developed on the premise that there is an emerging area of research which can be described as 'Cultural Heritage 360' (CH360). The '360' approach involves the holistic understanding of an artefact, widely conceived, integrating its content and meaning with analysis of its physical composition and form (§2.1).

1.2. The scoping exercise was designed around a series of consultations, primarily six workshops, with the research community, with funders of various types, and with representatives of different creative and heritage industries (§2.2–3).

1.3. The scoping exercise involved 173 individuals and included 72 project presentations, with representation from the UK, Europe, the Americas, Asia, and Australasia. The range of participants in the consultation process was at a scale unanticipated in the original application, with notable engagement from funding agencies beyond AHRC, a wide range of heritage and cultural institutions, and an impressive number of disciplines and subject areas extending to major professional networks and scientific facilities (§2.3).

1.4 There is clear potential for further engagement nationally (in particular with EPSRC) and globally (in particular the NEH and the Office for Digital Humanities) (§2.6).

1.5. Recent projects demonstrate the innovative and successful nature of humanities-led interdisciplinary research (§3.1.1).

1.6. CH360 starts from the premise that the humanities are well placed to lead successful, innovative interdisciplinary research. One of the most promising and timely areas for such collaboration is cultural heritage. CH360 has a wide disciplinary valence within its interdisciplinary framework and the capacity to attract research ideas from a concomitantly wide range of practitioners (§3.1).

1.7. Beneficiaries include not only academics from a wide range of disciplines in both humanities and sciences, but also local communities, heritage sites, GLAM organisations, Creative Industries, and general publics. With a strong emphasis on end-used engagement CH360 projects deliver high public value (§3.5).

1.8. CH360 maps onto four of the priority areas of the AHRC Delivery Plan (2019): Research Unlocking Cultural Assets; Arts and Science, Arts in Science; Interdisciplinarity for Contemporary Challenges; Understanding Cultural Value (§4.1).

1.9. CH3060 also maps onto four principal areas of focus in the UKRI Corporate Plan: Creative Industries; Globalisation and Economic Growth; Enriching and Supporting Society; Interdisciplinarity (§4.2).

1.10. The scoping exercise further highlighted CH360's capacity to map against the strategic priorities of other bodies (§4.3 and 4.4).

1.11. The scoping exercise revealed a research landscape that is both complex and full of potential (§5). Notable features are: 1) the large-scale nature of the projects; 2) the inclusion of lab-based research alongside other approaches; 3) the extent of cross-sector engagement, especially with the Creative Industries, and the integration of impact into project design; 4) the often unanticipated results of interdisciplinary and cross-sector work; 5) the global partnerships necessary to gather the expertise required; 6) the diversity of project members especially in terms of career-stage as well as EDI.

1.12. The scoping exercise demonstrated the timeliness and urgency of CH360 research, in a variety of ways ranging from responses to material threats to human cultural heritage, to the growing national focus on heritage policy and projects (§5.9).

1.13. Among the large number of individuals and organisation who engaged in the scoping exercise we were able to identify a number who will be particularly important as contacts for the AHRC, were it to invest further in the CH360 (§6).

1.14. While the scoping exercise demonstrated the enormous potential for future research in the field of CH360 it also highlighted a number of issues which are perceived as barriers to research (§7.4): 1) the need to break down disciplinary silos; 2) difficulties in identifying potential collaborators; 3) lack of spaces or mechanisms to facilitate dialogue across disciplinary boundaries; 4) limited levels of experience and understanding of complex multi-disciplinary projects; 5) the higher risk of complex, cross- and interdisciplinary projects; 6) doubts about the standard of assessment in project design; 7) the need to train future generations of researchers; 8) cultural barriers in academe to participation in collaborative projects.

1.15. In order to support and develop CH360 research this report makes 14 separate recommendations in 9 areas (§7.5):

Infrastructure (§7.5.1):
- That consideration be given to the establishment of a pilot cultural heritage audit for a region. The aim would be to identify if there are likely to be *systemic* gaps in provision unaddressed through AHRC programmes such as RICHeS, Capability for Collections, World Class Labs, and to distinguish these from potential *capacity* gaps. Establishing such a baseline would enable key funders in the cultural and heritage sectors, such as the AHRC, the Arts Council and National Lottery, to engage with each other, and to improve the robustness of the data available to public policy initiatives (such as DCMS work on cultural heritage capital). This work could also consider good practice in monitoring and evaluation of cultural heritage work.
- That consideration be given to the appointment of a dedicated CH360 research officer to act as liaison between UK universities (and their research centres) and other public sector entities (museums, libraries, archives) to curate and maintain a directory of available facilities and equipment for CH360 research and to nurture trans-institutional networks of researchers.

Project funding (§7.5.2):
- That priority be given to a specific funding call or the establishment of a research theme in CH360, perhaps framed, if appropriate, to encourage responses to particular contemporary challenges or to develop specific cross-disciplinary or cross-sector working.

Network grants (§7.5.2.1):
- That consideration be given to the development of larger and longer network grants to develop the necessary cross-disciplinary and cross-sectoral contacts, and to establish the particular project teams. These network grants might also include funds to support the development of aspects of projects which might be novel and untested or perceived as high risk, such as pilot studies for particular methodologies or for particular collaborations with non-academic and industry partners.
- Consideration might also be given to a dedicated funding theme in which enhanced networks feature as the entry level grant and pre-requisites for dedicated larger grant applications.

Cross-Council Working (§7.5.2.2):
- Given that the appeal, attraction, and effectiveness of CH360 lies in collaboration across sciences and humanities, consideration should be given to the arrangements for cross-council funding, with the aim of providing funding to support large-scale (i.e., with a cost of more than £1 million) inter-disciplinary projects led by humanities.

Doctoral Training Centre(s) (§7.5.3):
- That consideration be given to the creation of a DTC in CH360, based on a 2 + 3.5 model of training, research, and engagement with non-academic sector partners. The integration of multi-disciplinary research training with wider heritage sector collaboration, from creative industries to GLAM, should be included as part of the set-up and design of the DTC, as the equivalent of science DTC industrial buy-in.

Pedagogy-led Research (§7.5.4):
- To explore the possibilities for a CH360 programme incorporating pedagogy-led research.

Peer review (§7.5.5):
- To establish a specialised group of peer reviewers to facilitate swifter, more focused and more knowledgeable responses to proposals. Although this report focuses on the opportunities for CH360, such arrangements would have implications for other areas of multi- and inter-disciplinary study as well.

Evaluation (§7.5.6):
- That consideration be given to developing guidance on assessment methodologies for interdisciplinary research and for cultural heritage researc.

International collaborations (§7.5.7):
- To develop specific bilateral calls on CH360 (on the model of the AHRC/NEH joint calls on Digital Humanities) with the USA (NEH) and Canada (SSHRC), in the first instance.
- To prioritise the development of similar bi-lateral arrangements with other national funders.
- To be open to flexible ways of developing of collaborations with academics and cultural institutions in countries lacking a funding infrastructure equivalent to AHRC.

International co-Investigators (§7.5.7.1):
- To consider the ways to fund International co-Is. One suggestion would be a flat-rate contribution to the Co-Is institution. An alternative, arguably less inclusive suggestion, would be for asymmetric funding, where an overseas funder pays for a fellowship or equivalent to facilitate the participation of the international co-I, while the primary costs of the project fall to funders in the UK.

Training days (§7.5.8):
- To explore the possibilities for training days on inter- and cross-disciplinary methodologies and working practices, specifically with relation to CH360.

Burden of Innovation (§7.5.9):
- That funding be made available to extend/apply successful research projects to new objects, particularly those from under-represented communities. Where this would take place under a new PI, funds should be provided to facilitate consultation with original PI for purposes of project design.

Section 2. APPROACH AND METHODOLOGY

2.1. Introduction

The scoping exercise which is the subject of this report was developed on the premise that there is an emerging area of research which can be described as 'Cultural Heritage 360'. The focus of the research area is cultural heritage and its record, that is, artefacts widely conceived from manuscripts to ceramics, from textiles to structures. The '360' approach involves the holistic understanding of an artefact, integrating its content and meaning with analysis of its physical composition and form. This approach foregrounds and requires interdisciplinary engagement, bringing scientists and social scientists together with arts and humanities scholars, while also engaging with the creative and heritage sectors not only as stakeholders but also as partners. It is possible to identify a series of successful recent projects which adopt this approach making Cultural Heritage 360 an emerging area of research. This fact determined the approach and methodology of the scoping exercise. Key questions were to identify the enthusiasm within the academic community and other stakeholders for further research of this kind, the range of academics and potential non-academic partners who were interested in engaging with this research, the range and type of projects which this research community sees as significant and timely,

and the extent to which CH360 might be seen as a distinct field or simply as a group of discrete projects.

2.2. Setting out the scoping work
The CH360 scoping exercise was designed around a series of consultations with the research community, with funders of various types, and with representatives of different creative and heritage industries, from hospitality to digital, and from artists to heritage building management. CH360 was directed by a core team of seven investigators, two of them international, drawn from humanities, science, and curation, and six PGR students. A [website](), which has full details of the workshops, was set up as part of the scoping exercise and helped to bring the project to the notice of a wider audience of academics and other stakeholders.

2.2.1. The principal medium for the exercise were six workshops, with international participants and attendees from the key stakeholder groups. Each of these workshops, which took place from March to July 2021, focused on a different aspect of the '360' approach to Cultural Heritage research. The workshops were organised around the themes of: i) Interdisciplinary Modelling; ii) Arts and Science – Technology; iii) Cultural Content and Value; iv) Cultural Assets and Digital Presentation; v) Cultural Heritage and Creative Industry; vi) Training for the Future. Taking place online over a two-day format each had a mix of project presentation, facilitated group discussion, and plenary summary. Each workshop consisted of 1–2 Exemplary Projects; 8–10 Short Presentations; and included c.36–40 participants. Workshops brought together existing networks from the core team and projects identified from the AHRC database of funded projects and searches on other national funder databases, for example, the Social Sciences and Humanities Research Council, Canada. Workshop participants were selected with sensitivity to equality and diversity; we sought gender balance, career-stage balance, and a diversity of subject areas. Workshop notes from the core team were collated and form the basis of the analysis presented within this report. They also provide the basis for the reports on each workshop.

2.2.2. Following the final workshop, all participants in the scoping exercise were invited to complete a survey, giving them an opportunity to reflect further on the Workshop discussions. Questions were designed to generate qualitative responses about the substance of future multi- and inter-disciplinary research and innovation in the area of CH360, though many of the comments have broader implications for multi- and inter-disciplinary work between humanities and sciences. This exercise also provides the core of an extensive network of researchers, creatives and funders interested in engaging in collaborative CH360 research.

2.2.3. A series of additional conversations and correspondence for advice and different areas of experience were conducted by Taylor and Gasper. These were focused on UKRI and other funders, relevant facility directors, and authors of relevant cognate reports. Insights from these contacts were fed into relevant workshops or into reflections in the report.

2.2.4. CH360 identified three partners (Animmersion, The Projection Studio, and Alan Fentiman Films) to provide reports on their capacity to engage with CH360

methodologies and academic research, as individual companies and as representatives of their broader networks and industries. The reports expanded on presentations made at Workshop 5 which focused on Creative Industries. They drew too on a Proof of Scope exercise with Durham Cathedral. This consisted of a series of site visits and joint meetings between academics, heritage management staff from the Cathedral, and the CH360 partners. The aim was to scope the potential for specific CH360 projects and the challenges of cross-sector working in this area.

2.3. Reach and Range

The CH360 scoping exercise involved 168 invited workshop participants (78 male, 90 female, by participant pronouns) and included 72 project presentations. The participants were drawn from 50 universities (20 UK, 13 US, 13 Europe, 3 Canada, 1 Lebanon); 11 Research Institutes (6 UK, 2 US, 2 Australia, 1 Nepal); 2 Government Agencies (US and Pakistan); 9 Heritage Organisations or Charities (7 UK, 2 Canada); 6 Contemporary Artists (5 UK, 1 Brazil); 3 National Funders (2 UK, 1 US); and 9 Businesses (4 US, 5 UK). Project reach extended across North and South America, UK and Europe, China, Australasia, South-East Asia, and Western Asia, with cross-sector perspectives including indigenous South American communities. Participants represented all career stages from undergraduate to doctoral students, post-doctoral researchers, and full-time staff from early, mid, and senior career, and emeriti. A very wider of range of disciplines was represented from natural sciences, especially Physics, Chemistry, Psychology, Computer Science, and Computer Engineering; humanities, especially History, History of Art, History of Science, English Studies, Modern Languages, Theology and Religion, Classics, Music, and Philosophy; social sciences, especially Archaeology, Museology, and Education; Business, especially Creative Enterprise; Digital Humanities and Visualisation; and Heritage Science and Conservation. With workshops specifically dedicated to Digital Technology and Creative Industries, and the participation of GLAM representatives, NGOs such as UNESCO/ICOMOS and Government agencies, the scoping exercise had wide reach and range in terms of end-users from policy to general publics.

2.4. Potential impact of findings

The potential impact of our findings in terms of funding would be to promote CH360 as an AHRC Theme in its own right. Such a theme would, given its range of disciplines and cross-sector partnerships, also allow swift humanities-led response to short timeframe calls for schemes supported by UKRI hypothecated funds. CH360 is a field of research that also has considerable potential to transform humanities-led training for researcher pipelines. This report provides the evidence on which this potential is predicated.

2.4.1. Most of the data presented in this report stems directly from the workshops and the attendant survey of participants. These were designed to identify CH360 as a field of study, to feature existing successful projects, to scope the potential for the establishment of the field, and to ascertain ways in which it could most advantageously be advanced. The hypothecated funding opportunities for AHRC within UKRI acted to frame and focus the Scoping Workshops and Survey, and operate to the same effect in this report. This was especially the case for the Strategic Priorities Fund (SPF), the Strength in Places Fund (SIPF), and the Connected

Capability Fund (CCF) (particularly in terms of innovative curation and presentation of artefacts), together with opportunities for the Fund for International Collaboration (FIC) and, potentially, the Industrial Strategy Challenge Fund (ISCF). The scoping exercise accordingly elicited ideas and critical reflection on issues such as the definition and vitality of the field, the potential for, and timeliness of, further research in CH360, the significance and impact of that research, and the challenges and barriers faced. The discussions ranged widely, and much of the information generated has implications for multi- and inter-disciplinary research between the humanities and sciences more generally and for cross-sectoral research collaborations. The findings have implications for institutional, disciplinary and sectoral cultures, as well as for funders, particularly the AHRC, in terms of the opportunities for, and the requisite support for, research in CH360.

2.5. Strengths and Weaknesses of the Scoping Exercise

2.5.1. Strengths

2.5.1.1. Within a UKRI context we were able to broaden beyond AHRC, with a good range of contact and interest from EPSRC. This was particularly encouraging in terms of the distinctive humanities-science collaboration at the heart of CH360. We were able to engage with other funding bodies, such as the Royal Society, the US National Endowment for the Humanities (NEH) - Office of Digital Humanities, and the Getty Research Institute.

2.5.1.2. We were also able to engage with a large number of heritage and cultural institutions, other government agencies as well as NGOs, and professional networks: from ICOMOS to the Art Gallery of Ontario and the Canadian National Gallery, from the British Museum and the Rijks Museum to the US Parks Service and the Pakistan Federal Department of Museums and Archaeology. Alongside this we were able to connect with major scientific facilities, for example the Australian Synchrotron at the Australian Nuclear Science Technology Organisation).

2.5.1.3. The sheer range of projects across disciplines and subject areas, and contact across disciplines, was astonishing, and at a scale unanticipated in the original application.

2.5.1.4. The ability to bring in perspectives from a wide range of private sector heritage organisations allowed, for example, the different cultures of heritage support with philanthropy in North America to be contrasted with approaches in the UK and Europe.

2.5.1.5. The scoping exercise provided the opportunity to bring together existing networks, some of considerable breadth, others more specialist. The workshop framework facilitated conversation and cross-fertilisation between these networks, one outcome of which was the development of new soft (that is, non-project-based) networks, which have the potential to stimulate and provide the basis for further collaborative, cross-disciplinary research in CH360.

2.5.1.6. Access to the data on projects from the AHRC was a particular strength during the design of the workshops.

2.5.1.7. Public value: the CH360 scoping exercise revealed projects with very high levels of engagement with individuals and organisations at regional, local, and community level, as well the international and interdisciplinary profiles which also characterise the field. The diversity of end-users was striking, from academic and professional development to public interest groups (see, for example, projects on Byzantine Mosaics, and the Ordered Universe, where engagement with sound and light shows brought not only creative arts but also science-humanities research to audiences which would not ordinarily experience either). The role of end-users in the co-design of projects and the range of such projects from global to local were both noteworthy features.

2.5.1.8. Adding the Training for the Future workshop (a post-award change) opened up a series of essential questions on the pipeline of researchers, the contribution of CH360 projects to training heritage professionals as well as academics, the relationship between research training and research funding, and the notion of pedagogy-led research.

2.5.2. Weaknesses

2.5.2.1. Despite some initially promising contacts with charitable funders, we had difficulty persuading representatives to attend the workshops. We were able to mitigate this to some extent with individual contact rather than workshop attendance. Overall, however, engagement with, and input from, the charitable sector was more limited than we had hoped.

2.5.2.2. The geographical coverage of the scoping exercise was more limited than we had hoped. While we were able to include a good number of participants, including project presentations, from Canada and the US (in addition to Europe and the UK), we had more limited coverage from South Asia, Western Asia, Australasia, and South America. Regrettably, we were unable to include any projects from East Asia or Africa. The shift from in-person to online workshops both inhibited and facilitated international participation.

2.5.2.3. The speed with which the scoping exercise had to start meant that the project team was more reliant than it intended on using existing networks to identify workshop participants. With 3–4 months more preparation time we could have developed a wider range of contacts, which would have helped in expanding the geographical range of participants (see 2.5.2.2).

2.5.2.4. In retrospect, it would have been valuable to have organised a further workshop with the end-users of several of the projects. This would have enabled the project to have explored more fully the challenges of co-creation of projects and cross-sector collaboration and also to have generated more robust data about the creation of public value through CH360 research.

2.5.2.5. When developing the original application, the team's focus was very much on collaborations between humanities and the physical sciences. The project, however, highlighted some exciting collaborations with the biological sciences (e.g., Sculpture in US Parks; Professor Frederica Bowcutt (Evergreen State, USA) on Botany in interdisciplinary programmes), and it would have been valuable to have devoted more attention to this kind of interdisciplinary approach to CH360.

2.6. Recommendations for Further Engagement

2.6.1. Within UKRI we would recommend further engagement with EPSRC about the potential for joint funding of research in CH360.

2.6.2. We would recommend further engagement with the NEH and the Office for Digital Humanities in particular, specifically in terms of CH360; and with the US Parks Service in terms of imaginative insight into the interaction of biology and habitat management and the implications for human heritage.

Section 3. DEFINITION OF RESEARCH AREA OR CHALLENGE

What follows is a summary of the research area encompassed by CH360; sections 4, 5, and 6 outline in more detail the research landscape, fit with UKRI/AHRC strategy, and key contacts.

3.1. Key research questions, methodologies, and approaches, including key areas of interdisciplinarity

CH360 starts from the premise that the humanities are well placed to lead successful, innovative interdisciplinary research. One of the most promising and timely areas for such collaboration is cultural heritage, which faces, locally and globally, unprecedented challenges in a fast-transforming world, with rapid technological developments and environmental change. The field that we are describing as CH360 prioritises humanities-led interdisciplinary research, embracing sciences and social sciences, into cultural heritage and its record, that is, artefacts, widely conceived, from manuscripts to ceramics and textiles to structures. '360' is defined here as an holistic approach which integrates the content and meaning of a cultural artefact with understanding of its physical composition and form. This methodological framework also embraces the intangible heritage of such artefacts and the ethical sensitivities required in their interpretation and presentation. For example, the understanding of a medieval manuscript requires not only a full, contextual reading of what it says, but also insight into the materials of which it was constructed and with which it was written. Similarly, to reconstruct the interior of a medieval cathedral, in a living building, requires multiple disciplines, from psychology of perception and cultural history to materials science, as well as appreciation of its current uses by a variety of publics. CH360 provides an organised and comprehensive framework in which genuinely inter-disciplinary collaborations can take place, asking new research questions, developing new methodologies, and generating both scientifically-informed knowledge and interpretation, and humanities-led new science.

3.1.1. Recent projects demonstrate the innovative and successful nature of humanities-led interdisciplinary research. However successful, it remains the case that such projects are dispersed, and the potential for their methodologies unrealised or unrecognised across much of the academic community. The scoping exercise brought together scholars with experience of leading such projects and others with experience of collaborative work in cognate areas. Forging new interdisciplinary links, between sciences, social sciences, and humanities in response to pressing contemporary, societal and cultural challenges, lies at the heart of the CH360 methodology. CH360 projects engage with cross-sector partners beyond academe: heritage, design, digital technologies, third sector institutions, and the creative industries, as well as providers of education and a wide range of other funders of humanities-led initiatives.

3.1.2. CH360 has a wide disciplinary valence within its interdisciplinary framework and the capacity to attract research ideas from a concomitantly wide range of practitioners. It interacts with some areas with well-established methodologies, such as heritage science and digital humanities, but with aims and outcomes that are quite different. CH360 is project-based and team-oriented rather than focused on individual research. By virtue of the need for interdisciplinary working a high level of collaboration is involved, though with circumstantial variance in how interdisciplinarity is embedded in projects. Some involve a more cellular approach, using, for example, scientific methodologies and partners for data collection, or creative industries for dissemination of results. Others develop more integrated approaches, informed by co-design at every stage from the articulation of the research questions to the production and dissemination of the outputs. Both create environments which bring the sorts of serendipitous and unintended results that make the field so fertile and dynamic.

3.2. What arts and humanities research specifically could offer

Arts and humanities research brings leadership to CH360, notably in grounding the research questions in the analytical narratives necessary to explain the meanings, past and present, of heritage artefacts. Further, the emphasis on the human stories roots CH360 research in end-user communities, offering guidance for the continued use and exploitation of heritage objects. Engaging with lived human experience requires humanities leadership.

3.3. Geographical scope (is it regional, national, international in scope)

Cultural Heritage is global; CH360 is regional, national, and international in its range and implications, as demonstrated in the scoping exercise.

3.4. Key potential outputs and outcomes of the research

Outputs and outcomes are multiple: from traditional academic outputs, to those connected to wider communities and users: heritage policies, conservation, and preservation, and presentation of artefacts. CH360 contributes to audit and assessment of cultural assets, provides material for engagement with and inspiration for Creative Industries, and offers innovative solutions to issues of heritage management.

3.5 Key potential beneficiaries and benefits of the research
1) Local communities: connection to their own heritage and the human stories that give it meaning; encouraging inter-generational discourse; involvement in formulating research questions and research priorities.
2) Heritage sites: innovative management solutions; fuller and richer presentation of heritage artefacts to their audiences; involvement in formulating research questions and research priorities.
3) GLAM organisations: fuller understanding of the artefacts which they curate; benefits from partnership within CH360 projects in terms of research engagement, and holistic presentation of holdings; potential gain from the unanticipated elements in interdisciplinary research.
4) Creative Industries: as embedded partners driving research questions and approaches; content providers for dissemination.
5) General Publics: most CH360 projects are also concerned with enhancing public understanding; considerable potential for integration of public input into active research and citizen science or humanities.

Academic Beneficiaries:
Academic Beneficiaries: As indicated by the scoping exercise, the range of disciplinary practitioners who engaged in the process, and whose work crosses disciplinary and sector boundaries, highlights academic beneficiaries at considerable breadth. Multiple disciplines contribute to the new research questions CH360 projects generate which push at the boundaries of current knowledge, and the limitations of single-disciplinary or sector work. The methodology of team collaboration and interdisciplinary frameworks comes more naturally to science and social science than humanities (as a whole). Here, CH360 provides models of interdisciplinary collaboration and working which could become models for other areas of research in the humanities (or between humanities and science).

Section 4. MAPPING AGAINST PRIORITIES

4.1. AHRC Delivery Plan
CH360 maps onto four of the priority areas of the AHRC Delivery Plan 2019:

4.1.1. Research Unlocking Cultural Assets. CH360 research supports a number of objectives of this theme. The 360 approach allows a wide variety of academic constituencies to be involved, bringing value from humanities-led research to bear on the content and form of the heritage objects. The range of perspectives on which CH360 research draws means that this approach also leads naturally to engagement with a wide variety of users. As a cross-sector methodology CH360 pivots naturally between heritage research, heritage industries of all types, creative industries, digital and technology sectors, and professional and public users. CH360 maps closely to the core values of the RiCHES programme, with its emphasis on de-centralised approaches to Heritage Science. Digital presentation of research on cultural artefacts is also an important area in which CH360 supports this aspect of the Delivery Plan. In a similar way CH360 enjoys synergies with the National Collection programme,

emphasising the material, as well as textual, and the variety of research and professional insights needed to bring the full significance of cultural heritage to its publics.

4.1.2. Arts and Science, Arts in Science. The CH360 methodology is particularly pertinent to the development of working practice across different disciplines and sectors and to the identification of effective ways for their very different skillsets and priorities to be harnessed. On the one hand, corss-disciplinary research between the humanities and the physical sciences is at the heart of the methodology of many of the most successful and innovative CH360 projects. On the other hand, Creative Industries are, as the scoping exercise revealed, a valuable asset for cultural heritage. This is not merely in terms of presentation and dissemination, important though those activities are in communicating cultural value, but also in terms of the identification and articulation of fundamental research questions. CH360 will allow new interdisciplinary methodologies to be shaped and will catalyse new research accordingly: Arts and Science, Arts in Science, forms a key area for growth and development.

4.1.3. Interdisciplinarity for Contemporary Challenges. CH360 provides fresh perspectives on how to deploy multiple disciplines in response to contemporary challenges, especially in terms of preservation of cultural heritage. A number of the projects presented and assessed in the scoping exercise placed the preservation or reconstruction of cultural heritage at the heart of their endeavours and used a multi-disciplinary framework: for example, the Rekrei (formerly Project Mosul), which created from tourist photographs virtual reconstructions of sites such as the Mosul Cultural Museum, destroyed in 2015. Similar methodologies are needed for heritage at risk from environmental as well as political factors. In this connection, too, cross-sector research into Cultural Heritage speaks to issues of climate change and challenge.

4.1.4. Understanding Cultural Value. This is an area with strong resonance with CH360. The scoping exercise brought this into relief with a variety of projects, which shared a concern with understanding the cultural value of artefacts and sites worldwide and communicating that value to a wide variety of audiences from the local to the global: using traditional artisan techniques from modern China to re-invigorate modern fashion; studies of indigenous communities in the Amazon Basin; efforts to preserve Nepalese built heritage in a region prone to earthquakes and landslides, as well as a political climate often inimical to the preservation of past culture; the reappraisal by the US National Parks Service about how most appropriately to preserve statues which have become micro-ecologies for plant and animal life; and integrated multi-agency approaches to public cultural heritage in Scotland.

4.2. UKRI Strategies

CH360 was designed to cohere with the UKRI 2018 Strategic Prospectus (now unavailable), particularly its emphasis on the integration both of research expertise within academe and of research insights into broader societal and economic impact. CH360 brings four principal areas of focus to the fore which are reflected also in the UKRI Corporate Plan 2020-1:

4.2.1. *Creative Industries.* The inclusion of representatives and resource from Creative Industries supports the strategy to connect research communities with businesses and wider society, in this case from humanities-led research to the creative economy. CH360 scoped the potential for collaboration between interdisciplinary academic research and creative industries, including the challenges experienced by SMEs and sole traders, and the mutual benefits of knowledge exchange. The results indicate that this is an area that would richly repay investment in different types of funding and in support which is responsive to the issues of creatives in relation to their business models and economic performance.

4.2.2. *Globalisation and Economic Growth.* International collaboration is central to CH360. Heritage is a global concern, both because its value and meaning is not confined geographically and because research insights are readily transferable from one area to another. This allowed CH360 to scope the potential for international co-operation at scales both manageable and ambitious: we featured projects and partners from North and South America, UK, Europe, West Asia, South Asia, China, and Australia. The range of projects working with governmental or non-governmental organisations was significant, bringing different levels of experience and insight into the approaches to cultural heritage, and reinforcing its viability as an area of funding and resource. The potential for bi-lateral agreements between funding agencies emerged strongly, as too did the interest of international charities and NGOs (e.g., UNESCO).

4.2.3. *Enriching and Supporting Society.* CH360 revealed a wide range of routes into community and user groups, including museum groups – from local to national; libraries and special collections; and regional and national policymakers (e.g., Regional divisions of English Heritage; US National Parks Service). The scoping exercise identified the enrichment of society as a key area for developing new sorts of grant and partnerships, and the potential for involving end-user communities in identifying research questions and priorities. This aligns to UKRI ambitions to expand the regional footprint of the Research Councils.

4.2.4. *Interdisciplinarity*. CH360 operates entirely within interdisciplinary frames of reference as well as cross-sector working. UKRI future strategy for developing positive, diverse, interdisciplinary research and a culture of innovation would be well served by CH360 projects.

4.3. As noted above (§2.9) the wide disciplinary appeal and subject coverage of CH360 research make it potentially attractive for response to the UKRI hypothecated funding schemes.

4.3. Other funding councils

In addition to the above, CH360 maps to a number of EPSRC priorities and themes: the notion of product value and ownership, central to Sustainable Industries, has particular synergy with the themes of CH360, as do the themes of the digital economy, global uncertainties, and living with environmental change. In addition, EPSRC's commitment to research infrastructure, both human and physical, has significant implications for the Heritage Science aspects of CH360.

4.4. Other stakeholders

The scoping exercise highlighted further capacity to map against strategic priorities of other bodies. The emphasis from HMG DCMS on Cultural Capital fits well with the CH360's identification of multi-disciplinary and cross-sector working as effective models for cultural heritage engagements. The Federal Directorate of Museums and Archaeology in Pakistan also expressed keen interest in the use of CH360 methodology for collection management, as did Durham Cathedral for its restoration programme. The US National Parks Service policy debate over how to balance human heritage against use of human heritage as natural habitat also speaks closely to CH360's model for inter-disciplinary teams. So too the National Gallery of Canada and the Art Gallery of Ontario, whose preservation and presentation departments were keen to integrate their own projects into the CH360 methodology. The scoping exercise was able to include over 10 Creative Industry professionals, from glass making, multi-media sculpture, and sound and light projection art, to heritage hospitality management, representing both companies with global reach and those more regionally focused. From Technology and Digital perspectives, the project was also able to include a number of different sized companies, with differing levels of experience of working with academic projects and across heritage sectors. In all of these cases the CH360 call for holistic multi-perspective research matched the stakeholders' own intended direction of travel. The nature of stakeholder engagement in the scoping project is indicative of the potential for a much wider range of industry partners to engage with CH360 research.

Section 5. CURRENT RESEARCH LANDSCAPE

5.1. The current research landscape is both complex and full of potential. The complexities arise as a result of the interdisciplinary methodology with which CH360 operates and the number of research fields, additional methodologies, and disciplinary approaches and technologies with which its practitioner teams work. A further complexity is the breadth of interests served by CH360 research. It is, however, precisely this breadth of interests and wide valance across disciplines that create the potential for CH360 to become a well-established field, driving innovation within and without academe, connecting sectors, and contributing significantly to UK and global efforts to preserve, curate, present, and ensure benefit from cultural heritage.

5.1.1. CH360 is taken (see §2) as the study of artefacts widely conceived, from monuments to manuscripts, by interdisciplinary teams drawn from humanities,

science and social science, working closely with different sectors, especially Creative Industries and Heritage Organisations (including GLAM). Activities with this focus provide the parameters for the research landscape from composition and construction of the artefact, with concomitant interest in techniques of preservation and management, to questions of the changing and developing meanings of artefacts and their content, for example the interpretation of texts within manuscripts, books, or as inscriptions. Research questions in this field are generated in curatorial or creative contexts as well as being university-based. The holistic 360 methodology ensures that different points of focus are recognised as contributing to the understanding of each other; the way in which something is constructed contributes to the meaning conveyed by the object and vice versa. Both are needed to understand the cultural value of objects, in the past and in the present. The CH360 field includes, then, the creation of cultural value as well as dissemination of knowledge about a given object.

5.2. As an emerging field the scoping Exercise was designed to map and identify projects that operate with CH360 methodology. One of the primary aims of the scoping exercise was to establish the extent of work using CH360 approaches in terms of projects, funding, and range: geographic and chronological, methodological (for example the extent of emphasis on cross-sector partnerships), and in terms of diversity of subject area and personnel. What emerged was a cadre of projects which operated with humanities-led interdisciplinary research on and with cultural heritage. The exemplary projects featured in Workshops 1–4 serve precisely as examples of this kind of project (Workshop 5 presented a different element of scoping focused on cross-sectoral collaboration with Creative Industries; Workshop 6 had a different structure resulting from its emphasis on Training.)

5.2.1 In what follows we use the structure of the scoping exercise to focus discussion of the current landscape. The scoping work was designed to showcase success in large-scale, long-prepared, CH360 projects. Both the Exemplary Projects, highlighted in each workshop, and a range of other featured Knowledge Exchange Projects, exemplify the considerable range of research topics and questions addressed by CH360, the potential of CH360 as a methodology, and its vitality as an emerging field. (The Workshop reports, read together, provide a more extended and descriptive account of the research field.) The current landscape with reference to Creative Industries and Training is given separate consideration. The related themes of the relationship between CH360, on the one hand, Heritage Science and Digital Humanities, on the other, are then explored.

5.3. Exemplary Projects
The exemplary projects illustrate the range of research activities CH360 encompasses, and the similarities of approach, preparation, and scale that underpin successful projects in this area.
1) Ordered Universe (UK, with partners in Canada, US, Italy, Ireland, Lebanon)
   Brings together natural science (Physics, Psychology, Engineering, Computer Engineering), humanities (History, Theology, Classics, Philosophy, English Studies, Palaeography), social science (Education), and Artists, to elucidate medieval science. PI Gasper, Co-Is Smithson, and McLeish, with a core team of 25 and, in total, c. 170 scholars of all career stages involved in workshop meetings, publications, or outreach.

> Outputs: science and humanities journals, edited volumes, collaborative monographs, extensive media coverage, and impact work across creative industries, access to university with a path-breaking programme, and public education. AHRC-funded, network and large grant; and Leverhulme Trust funded Artist in Residence.

2) Materials Science, Archaeometry, and Conservation Science (Italy, Australia, global partners)

A very large-scale series of research programmes, headed by Giliberto Artioli (Padova, Italy), responsible for helping to define the relationship between scientific and cultural heritage, and archaeometry (archaeological science). A focus especially on materials science and metals analysis, which involves collaboration with large research facilities such as the Australian synchrotron, part of ANSTO. Outputs both for specialists and non-specialists, and work on high-profile projects, for example, the analysis of Ötzi the Iceman. Funded by industry and ERC.

3) Medieval Polychromy and Medieval Mosaics (Norway and UK, with European partners)

(a) Medieval Polychromy: directed by Kollandsrud. Examined the visual vocabulary of the polychrome expression of painted church art from the period between 1100 and 1350 in Norway, as representations of a pan-European painterly tradition, using insights from art history, art technology and heritage science, history of science, philosophy, theology, Old Norse. Outputs: public talks, radio programmes, humanities journals, and conference proceedings. Funded by the Norwegian Research Council.

(b) Byzantine mosaics: directed by Professor Liz James (Sussex), funded by a series of grants from the Leverhulme Trust, and an AHRC Centre (2000–5); international collaboration; multiple outputs, including database of tesserae.

4) Making and Knowing (US, with partners in the UK, The Netherlands, France)

Brings together humanities (History of Science, Art History, History, Material Culture Studies, Palaeography, French Studies, Comparative Literature, Digital Humanities), social sciences (Archaeology, Education), natural sciences (Chemistry, Materials Science, Conservation Science, Physics, Computer Science, Data Science), artists, practitioners, and graduate and undergraduate students to elucidate the intersection between early modern craft making and scientific knowing. Core team of 10, with over 450 scholars, practitioners, and students worldwide involved in hands-on workshops, graduate seminars, working group meetings, publications, or outreach. Outputs: award-winning, open-access digital critical edition and translation with companion visualization sandbox, humanities journals, edited volumes, international exhibitions and conferences, media coverage, and impact work across creative industries, hands-on humanities pedagogy, digital humanities pedagogy, and public education. Funding: NSF, NEH, Science History Institute, philanthropic foundations and donors.

5.3.1. Range

The significant range of the exemplary projects is clear in terms of: academics involved; multi-disciplinarily; global partnerships; funder types – national, charitable, industrial; and outputs. The range of the CH360 methodology and its capacity to broaden from Heritage Science *per se* (which featured most prominently in Workshops 2 and 3) is shown across the exemplary projects. While many CH360 projects will necessarily engage with aspects of Heritage Science, CH30 projects are designed to answer research questions grounded in a holistic contextual approach, beginning with analysis of the objects and moving through to presentation of research

results and outputs to, and in collaboration with, a broad range of user communities. In this way the range of potential projects is broad, diverse, and humanities-led.

5.3.2. Similarities
The exemplary projects also reveal a high level of similarity in approach, whatever the different research questions.

1) The inclusion of lab-based research and activities alongside other modes of research.
2) The investment of time in building larger projects, and especially the importance of preparatory and in-project networks to allow projects to capitalise on cross-sector connections.
3) The extent of cross-sector engagement within projects and the integration of impact into project design. In addition, the considerable extent to which user groups were involved in and included in the research process and formulation of its questions.
4) The often unanticipated results of interdisciplinary and cross-sectoral exchange.
5) The global partnerships necessary to gather the expertise required.
6) The large-scale nature of the projects.
7) The diversity of project members, especially in terms of career stage as well as EDI.

These points are all indicators of the significance and transformative impact of such projects, pointing to the potential for further, new humanities-led research in this field. They also indicate some of the requirements, ideally reflected in funding packages, necessary for successful CH360 projects.

5.4. Knowledge Exchange Presentations
Scoping Project Wider Project Presentations and CH360
Workshops confirmed the perception that there have been and are a number of very imaginative projects that take a similar holistic approach – we featured 36 in Workshops 1–5 and a further 12 in Workshops 6, with a global range, from South America to China, and on topics as varied as music and poetic performance before 1500; volcanology, history and glass art; perceptions of taste; and humanities approaches to STEM. These projects are producing challenging and transformative research, demonstrating the potential for cross- and inter-disciplinary collaborations to generate new insights and new research from all disciplinary perspectives, and also the potential to engage and excite new audiences, often through the use and involvement of digital technology and/or creative industries. The significance of the research findings owes much to the development of integrated methodologies across disciplines and sectors and the inherent unpredictability of such engagement and collaboration.

5.5. Creative Industries
Different aspects of engagement with Creative Industry
Workshop 5 focused on the role of Creative Industries within the CH360 research field). Creative Industries have enormous scope in the wider dissemination and presentation of humanities-led research but also in framing research questions (as in Exemplary Project Ordered Universe, or Xingu Encounters, directed by Professor Paul Heritage in partnership with indigenous artist Mayra). In order to get a better sense of the grounds on which collaboration between Creative Industries and CH360 might better operate we included a scoping for proof of concept between three very different creative industry companies (VR/AR; Sound and Light Projection; Film), Durham Cathedral as a heritage site, and academic research on the life of the medieval building. What emerged was a rich series of possible collaborations, taking very different approaches: contributing to active research on public responses to heritage artefacts and their presentation; creating innovative solutions to complex heritage management; and bringing novel perspectives and techniques to academic investigation. The current landscape, in this connection, possesses enormous potential for the development of new projects and will flourish with specific funding.

5.6. Themes Arising
5.6.1. CH360, Heritage Science, and Digital Humanities
Two particularly important larger frames of reference for CH360 are Heritage Science and Digital Humanities. Both are well developed and supported by investment at individual institutions and as part of national and international funding schemes. CH360 projects have creative overlap with both fields, but, in the current research landscape offer a distinctive methodology which often draws on one or both, but is neither coterminous with, nor subsumed by, either.

5.6.2. Different aspects of engagement with Heritage Science
As with the Exemplary Projects the Wider Project presentations revealed a range of responses to, and different levels of engagement with, Heritage Science, which, while maintaining a close relationship with Archaeology and Conservation, has achieved recognition as a developed field. The scoping exercise included projects close in identification with Heritage Science, such as Professor Gilberto Artioli's work on metal analysis; others, for example The Pigments of British Illuminators, with significant areas of overlap; and others where potential connections to Heritage Science existed but did not play a major role, for example the Reconstruction of Renaissance Silk. The variety of interactions with Heritage Science again shows the broad potential within the future research landscape for humanities-led research making use of the CH360 methodology.

5.6.3. Different aspects of interdisciplinary working
Interdisciplinary working at some level was common to all Project Presentations, although methodologies and working practices were diverse. Discussion on the Synchrotron positioned the science facility as a service available to projects on Cultural Heritage. The different collaborative environments when commercial funding was involved, as was the case with the Centre for Underwater Archaeology at Texas A&M, were noteworthy. It was also common to see multidisciplinary teams being assembled for particular projects, sometimes with quite separate disciplinary working

practices, but combining to produce interdisciplinary outputs. This flexibility is an important feature of CH360 methodology.

5.6.4. Integration of the Research Landscape and Interdisciplinarity
As an emerging field issues of integration and interdisciplinarity are key to the future growth of CH360. While the breadth of the field is not in doubt, the importance of networks to ensure contact between researchers and partners, especially across sciences and humanities, is essential. There is no field journal but consultation with the editor of *Endeavour*, one of the leading History of Science journals, revealed an enthusiasm for the CH360 methodology and an interest in featuring it in the journal.

5.7. Research Training (Workshop 6)
The final Workshop within the CH360 scoping exercise took a different direction and looked at the question of Research Training. We consider this to be part of the research landscape, especially with respect to infrastructure (facilities, programmes, and personnel). What is provided for research in this arena can offer support for the training of future generations of researchers, albeit often as a by-product. The training landscape, however, is patchy, with some concerted work on interdisciplinary training, both in terms of familiarising students with other disciplines, and in terms of working alongside those engaged in other disciplines. This has specific connection to CH360 in, for example, the EPSRC-funded CDT at UCL in Heritage Science. Humanities-led training is, however, an area of the field that is under-developed.

5.8. Field Sustainability
At a broader level the key individuals for the successful prosecution of CH360 projects and programmes are those colleagues within the humanities, science, and social science research communities, who are already adopting CH360 approaches and methodologies. As the scoping exercise demonstrated, there is a considerable number of such people, who, gathered together, would constitute a new field. Some of the principal issues in defining and advancing the field are the identification of partners and the ability to work collaboratively, both within academia and with other sectors. The former requires an interdisciplinary framework for networking and communication; the latter an interdisciplinary culture with reciprocal acceptance of expectations of output and value. In order to fulfil its potential, the research activity must be of value to *all* the participants. A key challenge in meeting this objective is the different expectations about value for lab-based researchers (mostly science but including archaeology), particularly in terms of monetary value and the fit with the on-going work of the lab or group within its institutional context. The significant point to stress here is the existing level of research in this area and the considerable potential for establishing a new field of study which connects and integrates researchers into interdisciplinary partnerships and their research with end-users far beyond the academy.

5.8.1. The scoping exercise identified capacity building alongside networking and connectivity as central areas for the development of the field. There are no particular barriers to working with other institutions; all of those involved indicated a willingness to find new ways to carry out research, to participate in networks and to collaborate on specific projects. The challenge is build capacity to allow these expressions of

interest and areas of expertise and excellence to come together. It is here that the AHRC can play the leading role in establishing and expanding the field. CH360 projects are interdisciplinary and collaborative between institutions and/or sectors. Were specific funding to be allocated for CH360, as with the differing expectations of outputs and value, especially between humanities and science, issues of scale and the greater resource sometimes needed for collaboration with lab-based colleagues would need to be addressed.

5.9. Timeliness and Urgency of Work

5.9.1. CH360 work is both timely and urgent. Some projects within the field respond to the wide array of material threats to human cultural heritage, from climate change to political vicissitudes. The examples of ICOMOS in Nepal and Rekrei in Syria have already been noted. A related area concerns statues as part of memorialisation and the need for a CH360 approach to appreciate the implications of materials science (for example, colour fade), biological science (statues as natural habitats as well as cultural and political statements), and the fuller, shifting historical context and cultural significance at erection and since.

5.9.2. The extension of CH360 into curation, as demonstrated in the interest generated by heritage management staff at Durham Cathedral and in the Pakistan Federal Department of Museums, is another timely aspect. The increasing need to identify ways to engage people with their social and cultural heritage in ways which are richer and more rewarding, involving discussion of cultural identities and narratives and balancing regional and global perspectives, makes CH360 a valuable methodology. The preservation of cultural assets for open access and exploitation by multiple users is also a strong feature of CH360 projects.

5.9.3. Investment in CH360 research is also timely in the context of the growing focus within UKRI/AHRC on heritage projects, guiding heritage policy, and responding to the sector's infrastructural needs. CH360 has the potential to complement current strategies and funding schemes on Cultural Capital, the development of RICHeS, and the importance of working with UK regional agencies, in particular county councils with respect to their responsibilities for cultural programmes, heritage businesses, and connecting resources across sectors.

5.10. Explicit Opportunities

5.10.1. Every workshop generated new ideas for collaborative grant-funded projects (see Appendices and Workshop Reports). Several immediate opportunities emerged from the Creative Industries scoping activities, which will form the basis for Follow-on-Funding.

5.10.2. The combination of scale, novelty, timeliness, and responsiveness to contemporary challenges (whether political, social or natural) indicate that there is a real opportunity for an explicit theme or call in the field of CH360. Given its cross-disciplinary nature there is also an opportunity to think in fresh ways about the opportunities for collaboration on funding, both between the UK councils and internationally in terms of bi-laterals (see §7 Recommendations).

5.10.3. In its range of project types, interdisciplinary methodology, and cross-sector working, CH360 also creates opportunities to develop calls in response to hypothecated funding.

Section 6. KEY INDIVIDUALS AND ORGANISATIONS

6.1. Introduction
The CH360 scoping exercise engaged with a wide range of academic, GLAM, creative and digital, and funding personnel and organisations. A number amongst them would be important in future CH360 projects as lead-organisations or prospective partners, as potential gateways for bi-lateral funding initiatives, and as researchers (of whatever career stage) with specialist networks within academe and across sectors. These individuals and organisations are highlighted below. As well as their evident relevance for CH360 projects, they also offer a wide pool of potential contacts for collaboration and consultation with AHRC on a range of potential cross-sector and cross-disciplinary initiatives.

6.2. GLAM Sector
The CH360 scoping exercise opened up a series of contacts with representatives from the GLAM sector, both UK-based and overseas.

6.2.1. CH360 Projects at GLAM
Individuals from a number of GLAM organisations gave presentations on CH360 projects run from or with the organisation. These included the Art Gallery of Ontario (AGO) for the Boxwood Project (Lisa Ellis, Conservator, Sculpture and Decorative Arts, and Alexandra Suda, Director and CEO National Gallery of Canada, previously of the AGO); the Fitzwilliam Museum for ongoing work and challenge to traditional heritage science methodologies from Spike Bucklow; the Museum of Cultural History, University of Oslo (home institution of co-I Kollandsrud) for conservation projects on Norwegian medieval polychrome; the Ashmolean Museum, and the integrated contextual and conservation work from Dr Tea Ghigo, who also presented on Training for the Future and the importance of multi-disciplinary doctoral programmes. One significant theme that emerged from the scoping exercise is the different models for funding within the GLAM sector: private donations, charities and public monies, with different emphases and approaches to the former in the North American context. The implications for diversified funding and grouping multiple smaller donations are important for future funding of the cross-sector projects that would emerge from CH360.

6.2.2. In addition to presentations the scoping exercise included staff as respondents from four major national Museums/Galleries: the Federal Department of Archaeology and Museums, Pakistan; the National Gallery of Canada; the British Museum; and the UK Science Museum Group; as well as the Thorvaldsen Museum, Copenhagen. These organisations were keen to engage with the CH360 methodology to enhance existing programmes of heritage science, public presentation of collections, and engagement with the academic sector, through the development and enhancement

of networks, as well as on specific collaborative projects. Feedback on the positive effect of larger and longer AHRC network grants for this sector was particularly noted, as too their active role in shaping projects and training (another area where distinct national emphases were apparent). The potential for pedagogy-led research, the value and innovation of which emerged clearly from the scoping exercise (see §7.5.4.), would be suited to cross-sector engagement with the institutions named above.

6.2.3. These positive approaches were mirrored too in the responses of specialist library staff attending: from a number of UK and US university libraries with strong conservation and digital programmes (Durham, Rice); and independent research organisations including the Huntington Library and the Othmer Library, Science History Institute (both US). These are institutions who would welcome further contact and would be potential partners in future CH360 work.

6.3. Heritage Organisations
The CH360 scoping exercise also included a number of broader umbrella heritage organisations, or organisations with cultural heritage as a principal responsibility. These bodies range from UNESCO, through its research chairs; ICOMOS (in particular the regional directorate in Nepal); the US Parks Service; and the Europeana Foundation. The individuals from these bodies attending were keen to engage with the innovative scope and collaborative methodology of CH360 and would act to advocate positively for the sorts of networks and projects the field will generate.

6.3.1. Within the UK context we were keen to engage with two broader networks: 1) the Creative Industries Federation, with its close links to the AHRC Creative Clusters programmes (including extensive input from Candace Jones); and 2) The Heritage Alliance. Both would be of considerable help within the UK and further afield in promoting CH360 projects and the development of the field, and in providing access to wider networks amongst their membership for research partnerships. In addition, the policy emphasis of The Heritage Alliance would help to key CH360 projects to heritage policy in national and local government and in larger organisations such as the National Trust.

6.3.2. The positive feedback from Durham Cathedral, the heritage organisation selected as the Proof of Potential for CH360 collaboration between academic research, creative industries, and the heritage sector, bringing humanities-led research to bear on the complex nexus of conservation, management, and presentation, provided convincing evidence that such collaborations could be replicated *mutatis mutandis* with other partners.

6.4. Digital Technology Companies
A productive element of the CH360 scoping exercise was the inclusion of several Digital Tech companies with an interest in innovative approaches to Cultural Heritage. In all cases, from the US-based Performant Software Solutions, Rekrei, and Oshman Engineering Design Kitchen, to the UK-based Annimersion, this interest was already a strong element in company brand and activity. Projects ranged from modelling early modern understandings of physiology to the VR and AR presentation of past built

environments and landscapes. In the case of Rekrei, the commitment to the virtual reconstruction of the looted and destroyed heritage of Mosul Musuem from photographic sources has particular resonance with the CH360 methodology: embracing multiple end-users within the research and data gathering process, exploring the emotional responses to cultural heritage, and raising new questions about the role of digital technology and traditional narrative in the preservation and presentation of heritage artefacts. In a broader sense connections between craft and textile orientated cultural heritage and modern fashion design using digital technology emerged from Yang Jiang's (Robert Gordon University) presentation of her research group and network within and outside China.

6.5. Commercially Funded Heritage Research
Alongside the commercial enterprises included in the scoping exercise we also sought insight from commercially funded heritage research, as, for example, commercial archaeology units and consultancies in the UK. We used the Center for Maritime Archaeology and Conservation, Texas A&M to explore the different research questions that emerge from private/public activities, and the different imperatives for public dissemination and management of diverse stakeholders (state agencies, private property, universities, publics). Many of these organisations already have an established role in the field of Heritage Science, and their potential as partners in CH360 research projects is considerable.

6.6. Artistic Partners
A further fruitful area within the scoping exercise were creative arts. These might be considered under the broader definition of Creative Industries, but the engagement of artists of a wide range of skills and expertise opened up a distinct perspective on collaboration between the humanities and the sciences within CH360. At one level, artistic response to both the process and outputs of CH360 projects form a rich arena for dissemination and impact. At another level, the integration of artistic craft and technology and artists' engagement with questions of materiality not only complement, but also deepen, the nature of the inter-disciplinary collaboration required by the CH360 methodology. The scoping exercise worked closely with The Projection Studio and Alan Fentiman films. It also included as workshop participants academics in glass architecture and digital technology from the National Glass Centre, University of Sunderland (Colin Rennie and Dr Cate Watkinson); the multi-media sculptor Alexandra Carr, whose extensive experience of working with both humanities and science in collaboration was particularly illuminating; and the Art and Gallery Consultant Renee Pfister. In addition, we included Professor Paul Heritage's long-running project on indigenous cultures and artists in contemporary Brazil.

6.6.1. The importance of research in the plastic arts was made very clear in the scoping exercise, highlighting different ways of identifying and valuing academic outputs, further networks and connections to GLAM, and specific funding opportunities (e.g., in the UK context, the Arts Council). CH360 projects have the ability to work across these disciplinary areas and sectors, and therefore have significant potential for developing integrated funding bids, bringing together funders with a wide range of constituencies and objectives. A specific area would be collaboration between AHRC and Arts Council.

6.7. Academic Research Community
As noted in §§5.6.1-2, CH360, as a field, overlaps with other interdisciplinary areas with established identities, such as heritage science, and draws on broader methodologies, such as Digital Humanities; both these have been supported by specific national funding calls and by institutional support within universities. In both cases, some academics now identify themselves as members of these (sub-)disciplines. On the whole, this is not the case with CH360. The CH360 collaborative methodology means that projects will involve elements of 1) data gathering and curation; 2) textual and material analysis; 3) development of necessary technologies; 4) interdisciplinary working. As such, the potential academic research community, the range of academics who might engage with CH360 projects, is large-scale and diverse. This was borne out by the scoping exercise and was reflected in the landscapes of research and practice, both in the UK and globally.

6.7.1. Specific Organisations and Programmes
All exemplary projects and knowledge-exchange projects represent the CH360 methodologies and core approaches, that is collaborative interdisciplinary working, and humanities-led collaboration with science. This applies equally to the work and projects of academics and practitioners from other sectors asked to participate in the workshops as interlocutors. Amongst all participants some organisations and programmes were of particular relevance.

6.7.1.1. Within a UK context, a number of organisations stand out for their engagement with interdisciplinary research in areas with clear relevance to the approaches of CH360. Most of these already have a record of close engagement with one or more of the Research Councils. They include the King's Digital Laboratory, King's College London, which, in various incarnations has now been operating for over 20 years, and the more recent Software Sustainability Institute. Participants from programmes like Towards a National Collection and the UCL EPSRC-funded Centre for Doctoral Training, SEAHA (Science and Engineering in Arts, Heritage and Archaeology), showed the potential for humanities-led CH360 projects. The experience of the CDT, which picks up the legacy of the AHRC Heritage Consortium (2013–18), is of enormous significance when considering the challenges of producing a pipeline of inter- and cross-disciplinary researchers. We were keen to include insight from organisations like the University of Oxford's TORCH, which supports humanities-led interdisciplinary research and shows the potential for CH360 in such contexts.

6.7.1.2. Outside the UK the scoping exercise invited staff from research facilities such as the Australian Synchrotron facilty within ANSTO, to showcase their potential for partnership in CH360 projects. The Synchrotron has some track-record in providing analysis of heritage data (about the composition of metals in particular) and a lot of potential to engage more actively in this field. In addition to the international organisations mentioned above (UNESCO etc) and the North American organisations, we also explored the organisational context for interdisciplinary work and training with colleagues from the Max Planck Society, which offers a different template for large-scale academic funding and a group structure that integrates

training, teaching, and research. As in the UK, specific projects can offer valuable fresh insights into the way in which research might be organised and pursued. Making and Knowing, one of the scoping exercise's exemplary projects, led by Professor Pamela Smith (Columbia), offers insight into the potential of pedadgogy-led research, working with undergraduate and postgraduate students. This approach brings benefits not only in terms of incorporating artisanal research and expertise, but also for broadening public understanding, challenging the siloing of interdisciplinary conversation, and challenging conventional locations and academic working practices through the adoption of lab-based humanities.

Section 7. INTERVENTION NEEDED

7.1. This scoping project has established the value of research into what we have described as 'Cultural Heritage 360'. As noted earlier, there is much research on cultural heritage which does not fit the methodology of 'CH360', but CH360 projects have been shown to be innovative and successful, to address timely and significant research questions, and to generate impact and engagement which involves a large and diverse range of partners and audiences beyond academia. A high proportion of CH360 projects involve integral input from non-academic end-users which positions future projects very positively in these terms. The nature of CH360 also makes projects of this sort of high public value, in terms of collections (regional, national, global), and their preservation, presentation and explanation, and making results available to inspire other research and engagement questions. The scoping exercise has also demonstrated that there is enormous potential for future research, much of which addresses a wide range of contemporary challenges.

7.2. CH360 and Academic Culture

There is much here that is beyond the scope, even outside the remit, of a funder like the AHRC. Issues of academic culture, of facilitating dialogue across disciplines, of hiring and promotion culture, and so forth, are primarily matters for institutions and disciplines. Most of them are still a matter of self-regulation. For example, the primacy of the monograph in most humanities disciplines, embedded in the REF and promotion culture, reflects attitudes within the humanities community, not imposed upon it.

7.2.1. It is worth noting, however, that the AHRC, as the most significant funder of humanities research, has considerable influence over that culture through its policies and preferences. AHRC support, primarily through funding schemes, gives credence to ECR choices and value to higher risk collaboration. At a secondary level AHRC commitment to ambitious fields, such as CH360, signals awareness of the importance of centres, institutes, and other less formal institutional spaces as incubators of inter- and multi-disciplinary work.

7.3. Field-Specific Considerations

When considering the interventions that might be made to support and develop CH360 research, it is important to bear in mind a number of aspects of the research field which might affect their attractiveness or likely effectiveness.

7.3.1. First, and most important, there is no clear consensus about whether CH360 is regarded more appropriately as an emerging field of study or as a series of discrete projects. While most of those engaged in relevant projects believe that it can be identified as an emerging field, many are resistant to this characterisation, whether because they feel that it lacks the necessary methodological coherence or because they believe the value of the approach is precisely its inter- and multi-disciplinarity, identifying significant research questions in the intersections between them and pulling together diverse teams from different disciplines across the humanities and sciences in order the answer them. This divergence of opinion has implications for how CH360 research is supported and conducted, from training, though the construction and management of research teams, to the nature of funding. The recommendations in this report thus need to reflect both perspectives.

7.3.2. There are important intersections between CH360 and a number of other emerging cross-disciplinary fields. Most notable among these is Heritage Science (including Conservation), which should arguably be seen as a blend of an established discipline (Conservation) with an emerging wider identity. This emerging wider identity is where the greatest potential of Heritage Science lies, and where the convergence with CH360 is greatest (see §5.6.1.) Also important are Digital Humanities and Data Science, defined by method, rather than by object of study (see §5.6.1.). Many CH360 projects will require collaborators from one or more of these fields, who are likely to provide valuable experience of cross-disciplinary working across humanities and sciences, as well as subject expertise. But it is important to note that the skills of scholars working in these (sub-)disciplines do not map precisely or directly onto those needed in CH360.

7.3.3. Many CH360 projects are not only cross-/multi-/inter-disciplinary, bringing together academics from the humanities and the sciences, but they also involve, and may even be driven by, cross-sectoral collaborations, above all with heritage institutions and with creatives. Future funding schemes need to be sensitive to the diversity of this intellectual economy to ensure that all aspects of it are supported and sustained.

7.4. Barriers to Development
The scoping exercise highlighted a number of issues which are perceived as barriers to the development of CH360 research, a significant number of which are linked to the fact that such research is almost invariably inherently collaborative.

7.4.1. Breaking down disciplinary silos. Individual scholars repeatedly reported that one of the biggest challenges both to starting and to developing collaborations is breaking down disciplinary silos. At the most fundamental level, this concerns the challenge of finding the cultures and languages to facilitate collaboration between disciplines. Often these find expression in superficially trivial differences in disciplinary practices: e.g., conventions about crediting authorship in outputs

(commonly academic publications, but the same point applies to, e.g., artwork); the weight attached to different forms of output in promotion criteria. Other differences, such as expectations about the role of PGR students in developing their research projects, are suggestive of different conceptions about the nature and purpose of the PhD. Too often, these issues need to be worked through *de novo* in each new collaborative project.

7.4.2. Difficulties in identifying potential collaborators. This issue was frequently raised, especially by humanities scholars looking for scientists. Directories and networks, both national and international tend to be discipline-based, and even interdisciplinary organizations (such as period-based groups, like the American Society for Eighteenth-Century Studies) are focused on humanities disciplines. While similar problems were noted with cross-sectoral collaborations, they were commonly seen as less of a challenge, perhaps because creatives and GLAM colleagues are more accustomed to looking for academic collaborators.

7.4.3. Lack of physical spaces and mechanisms which facilitate dialogue across disciplinary boundaries. This lack impedes the identification of synergies and shared interests, and the necessary disruption of those boundaries, in order to open up the potential for collaborative work.

7.4.4. Varied or limited levels of experience and understanding of complex multi-disciplinary projects. Awareness of the time necessary to develop collaborative projects, especially large-scale ones, and also of the demands of running them remains very patchy. There is a surprisingly widespread impression in the humanities that collaborative work takes less time, and even among scientists familiar with working in teams the complexities of putting together and managing *ad hoc* teams bringing together a wide range of people trained in distinctive disciplinary practices are under-estimated. The challenges are even greater when teams are genuinely trying to develop and explore research questions which generate benefits for all collaborators, rather than projects in which one discipline or sector is the provider of 'services' for the lead discipline.

7.4.5. High risk research needs freedom to fail. Collaborative cross- and inter-disciplinary projects are inherently complex, making often unexpected demands on all their participants. They address questions that are more unpredictable in terms of synergies and eventual outputs and are less easy to define. There is, therefore, a higher level of risk involved in such projects, with implications in terms of individual confidence that engagement in such activity will be rewarded. Appropriate institutional capacity and support are essential, meaning not just measures to incentivise bolder, risk-taking, research, but also ensuring an open and positive research culture that embraces different approaches. The process of collaboration is in large part the development of language to be shared between disciplines, respect for different understandings of the nature of evidence (here the implications for de-colonisation are particularly pertinent), and sensitivity to the varying significance of findings and outcomes. Research crossing the boundaries between the humanities, the sciences, and other sectors brings all of these complexities to the fore. As a result,

there needs to be a greater tolerance of failure or, at least, of unexpected shifts in research direction in CH360 (and other interdisciplinary) projects.

7.4.6. Standards of assessment in project design. A significant issue which emerged in the scoping exercise and survey was the common perception among those engaged in CH360 projects that interdisciplinary research is measured against a higher standard in the assessment of project design. Specifically, multi- and inter-disciplinary projects are expected to demonstrate innovation in methodology in ways not expected of disciplinary projects working within well-established methodologies.

7.4.7. Training future generations. There is widespread agreement in all disciplinary areas and sectors that formed part of the scoping exercise that sustainable growth in the number of CH360 projects being undertaken within the community, and their success, are dependent on the development of a pipeline of scholars with the necessary skills, from postgraduates and post-docs through to established scholars able to lead multi-disciplinary teams.

7.4.7.1. The development of collaborative doctoral awards has helped to create a generation of academics who are used to working with colleagues in the GLAM sector, as well as providing similar collaborative skills for people who have pursued careers in that sector. A similar point might be made about those CDA doctoral students who have worked with commercial companies.

7.4.7.2. However, there are almost no opportunities for academic research training bringing together the humanities and the sciences; interdisciplinary training at postgraduate level, where it exists at all, is almost exclusively confined within the humanities (or sciences), even within Digital Humanities programmes. There is strong support for the provision of more flexible, more responsive inter-, multi- or cross-disciplinary training combining humanities and science disciplines, though opinions differ about whether the priority is for (a) multi-disciplinary training, in which PGR students would be inducted in research methods and practices in both humanities and science disciplines; or (b) programmes in which PGRs would be given experience of working within multi-disciplinary teams.

7.4.7.3. Opportunities for early career researchers (ECRs) to develop their profiles as PDRAs on CH360 projects (or, indeed, any inter- or multi-disciplinary project between humanities and science) are currently very limited, but they will become more common as more projects of this kind are funded. More of a challenge are the barriers to their subsequent career progression in a profession which is still dominated by disciplinary-specific departments, especially in the humanities where revenue comes primarily from undergraduate teaching. ECRs from an interdisciplinary background tend to appear a less safe choice than those whose experience fits neatly into a department's teaching programme, and often their cvs – lists of publications, etc. – are less easy for selection panels to interpret.

7.4.8. Cultures of participation. In many ways these barriers to participation in multi- and inter-disciplinary collaborative projects diminish as scholars become more established. But cultural issues remain. Publications outside one's discipline may be

perceived as having a lower value; collaborations with other disciplines or sectors may be regarded as a diversion, as 'fun', rather than as serious research. From another perspective the value accorded to knowledge and expertise can become a barrier to successful interdisciplinary collaboration, where everyone needs to be both an expert and a learner.

7.5. Recommendations

What follows is a series of specific proposals arising from the scoping exercise which the AHRC and other funders might consider to support and develop research in the area of CH360. As §4 demonstrates, these proposals map onto the AHRC Delivery Plan, and other initiatives (e.g., RiCHES) in a coherent and complementary manner. The interdisciplinary nature of CH360 research lends itself to AHRC-led or cross-council initiatives, and we have noted in §4 the alignment to UKRI strategy and synergies with EPSRC.

7.5.1. Infrastructure

The multiplication of CH360 projects implies greater access for humanities projects to scientific techniques and equipment. Some of the implications of this can be seen clearly in Digital Humanities and Heritage Science, where there are capacity issues both in terms of personnel and in terms of physical infrastructure. Sustainability is a key issue, and in some areas promising progress is being made: the development of a distinct career path for Research Software Engineers at the King's Digital Lab is a good example. However, the scoping exercise revealed widespread concerns about barriers to research in terms of access to facilities and the loss of experienced research professionals when individual projects end. What is less clear is whether gaps in provision are systemic or capacity. The AHRC has a role here as advocate, funder and organiser.

Recommendations:

(1) That consideration be given to the establishment of a pilot cultural heritage audit for a region. The aim would be to identify if there are likely to be *systemic* gaps in provision unaddressed through AHRC programmes such as RICHeS, Capability for Collections, World Class Labs, and to distinguish these from potential *capacity* gaps. Establishing such a baseline would enable AHRC to engage with other key funders in the cultural and heritage sectors, such as the Arts Council and National Lottery, and to improve the robustness of the data available to public policy initiatives (such as DCMS work on cultural heritage capital). This work could also consider good practice in monitoring and evaluation of cultural heritage work.

(2) That consideration be given to the appointment of a dedicated CH360 research officer to act as liaison between UK universities (and their research centres) and other public sector entities (museums, libraries, archives) to curate and maintain a directory of available facilities and equipment for CH360 research and to nurture trans-institutional networks of researchers.

7.5.2. Project funding

The scoping exercise demonstrated that there is enormous potential and enthusiasm for further research in the field of CH360 which would be significant and timely, with considerable potential for end-user engagement. Most of these projects are

necessarily complex: in terms of scale, of cross-/inter-disciplinary research, and of cross-sector work.

Recommendation:
That priority be given to a specific funding call or the establishment of a research theme in CH360, perhaps framed, if appropriate, to encourage responses to particular contemporary challenges or to develop specific cross-disciplinary (see also §7.5.2.2.) or cross-sector working.

7.5.2.1. Network grants. This type of grant is especially important as (1) this is an emerging field; (2) the challenge of developing conversations across the humanities/science divide needs to be addressed; and, (3) the importance to the field of working across different sectors further complicates the conception and design of new projects. What is needed is the capacity to apply for larger sums of money to bring together ambitious and/or speculative networks and, if appropriate, to run small pilots with partners embedded in the proposed network. An enhanced network programme would also allow for higher risk ideas to be more fully explored at a relatively early stage, and would act thus as a mitigation of risk for subsequent applications for larger funded projects. Given that this is an emerging field, which requires a significant investment in projects and teams at the design stage, enhanced networks could also build in an element of progression, in the form of competitive access to a second round of project funding.

Recommendations:
(1) That consideration be given to the development of larger and longer network grants to develop the necessary cross-disciplinary and cross-sectoral contacts, and to establish the particular project teams. These network grants might also include funds to support the development of aspects of projects which might be novel and untested or perceived as high risk, such as pilot studies for particular methodologies or for particular collaborations with non-academic and industry partners.
(2) Consideration might also be given to a dedicated funding theme in which enhanced networks feature as the entry level grant and pre-requisites for dedicated larger grant applications.

7.5.2.2. Cross-Council Working. The interface between Research Councils and the funding of large programmes might be re-considered. The current lead-council arrangements can inhibit the development of larger-scale programmes of work and reduce the capacity for fully integrated research projects between the humanities and lab-based science. Under current arrangements with the AHRC as lead council its £1 million cap on major projects applies, making it difficult to engage scientists in co-design and the formulation of genuinely interdisciplinary research questions.

Recommendation:
Given that the appeal, attraction, and effectiveness of CH360 lies in collaboration across sciences and humanities, consideration should be given to the arrangements for cross-council funding, with the aim of providing funding to support large-scale (i.e., with a cost of more than £1 million) inter-disciplinary projects led by humanities.

7.5.3. Doctoral Training Centre(s)

A key issue for CH360 research is personnel, specifically the need for a pipeline of scholars comfortable working in cross-/trans-/inter-/multi-disciplinary teams. Structures which encourage PGRs to develop their disciplinary skills within an interdisciplinary environment and which train students to acquire multi-disciplinary skill sets could both be achieved in a DTC format. DTCs of this kind would need to be separate from the existing regional partnerships (Northern Bridge, White Rose, etc). The UCL Heritage Science DTC is an interesting example for comparison, but it should be noted that it is science rather than humanities-led. It would be inappropriate to prescribe the precise structure of these DTCs, but a longer period of training than the current norm would be essential to facilitate induction into both humanities and sciences.

Recommendation:

That consideration be given to the creation of a DTC in CH360, based on a 2 + 3.5 model of training, research, and engagement with non-academic sector partners. The integration of multi-disciplinary research training with wider heritage sector collaboration, from creative industries to GLAM, should be included as part of the set-up and design of the DTC, as the equivalent of science DTC industrial buy-in.

7.5.4. Pedagogy-led Research

A noteworthy feature of a number of highly successful projects surveyed in the scoping exercise was their rootedness in pedagogy rather than pure research. A prime example would be the Columbia *Making and Knowing* project. These projects would place emphasis on research programmes which incorporate innovative teaching programmes, blending pedagogy (UG and PGT) with research expertise and engagement with material-specific practitioners (creative, artisan, heritage industry, etc.) in co-creation of research outputs. The research aspects involve PGR students and PDRAs, as well as subject-specific practitioners. Such programmes inculcate undergraduate students into collaborative research as well as enhancing their own skills and diversifying the remit and range of traditional research. They are particularly appropriate for CH360, as they help to address the training challenges in the field (see above, 6.5.1) and they embody the fact that *all* participants are in some respects learners.

Recommendation:

To explore the possibilities for a CH360 programme incorporating pedagogy-led research.

7.5.5. Peer review

The nature and challenges of CH360 research require diverse teams to be assembled, while the research questions and outputs do not necessarily reflect traditional disciplinary expectations. Peer review in these circumstances can be difficult to carry out in ways that reflect expertise in multi-disciplinary research *and* that ensure appropriate understanding of relevant disciplinary and sectoral expertise. In addition, working with SMEs who form the bulk of creative industry and heritage businesses often requires quicker turn-around times than current peer-revie college arrangements allow. Specialist review is one solution to these particular needs.

Recommendation:

To establish a specialised group of peer reviewers to facilitate swifter, more focused

and more knowledgeable responses to proposals. Although this report focuses on the opportunities for CH360, such arrangements would have implications for other areas of multi- and inter-disciplinary study as well.

7.5.6. Evaluation

There are also broader issues around the challenges of appropriate evaluation of cultural heritage research. The workshop discussions revealed two widespread perceptions: that REF assessment (and associated publication hierarchies) was the primary assessment mechanism, and that this form of assessment was having a range of perverse consequences. This is obviously a complex issue, which extends beyond the remit of the AHRC, but it would benefit from further attention.

Recommendation: That consideration be given to developing guidance on assessment methodologies for interdisciplinary research and for cultural heritage research, perhaps in collaboration with other funders.

7.5.7. International collaborations

As noted in §3, heritage is global. The potential for international collaboration in CH360 is clear. International collaboration enhances research capacity and infrastructure, showcases the capacity of UK research leadership in this area, and allows the wider perspectives gained to inform UK research. A proven model for funded collaboration of this sort in the field of CH360 is the bi-lateral joint call on Digital Humanities between AHRC and the NEH, which could be extended to Canada and the Social Sciences and Humanities Research Council (SSHRC). In both the USA and Canada there was strong support in the scoping exercise for joint projects – this included input from NEH representatives and leading Canadian cultural institutions. A number of the featured projects within the scoping exercise had arisen from specific schemes within AHRC – e.g., focused on research with Brazil and China. The fact that this is the case indicates that a targeted approach to international partnerships could reap a richer reward. The scoping exercise also highlighted the considerable potential for collaborations with the Global South, where some of the challenges inspiring the CH360 approach are particularly pressing, for example, Nepal and Pakistan.

Recommendations

(1) To develop specific bilateral calls on CH360 (on the model of the AHRC/NEH joint calls on Digital Humanities) with the USA (NEH) and Canada (SSHRC), in the first instance.

(2) To prioritise the development of similar bi-lateral arrangements with other national funders.

(3) To be open to flexible ways of developing of collaborations with academics and cultural institutions in countries lacking a funding infrastructure equivalent to the AHRC.

7.5.7.1. International co-Investigators

These are a useful part of the AHRC research funding structures but are currently un-funded. They tend to be regarded as honorific or as a contribution to career advancement. This is only effective when the academic system and institution within which the co-I operates understand and value the non-funded co-I role. In the case

of co-Is who are early career researchers, there is a significant risk that these roles may be perceived as exploitative.

Recommendation:

To consider the ways to fund International co-Is. One suggestion would be a flat-rate contribution to the Co-Is institution. An alternative, arguably less inclusive suggestion, would be for asymmetric funding, where an overseas funder pays for a fellowship or equivalent to facilitate the participation of the international co-I, while the primary costs of the project fall to funders in the UK.

7.5.8. Training days

CH360 research is predicated on cross-disciplinary and cross-sector partnerships. The existence of the skills needed to lead and participate in such collaborations cannot be taken for granted. This skills-gap could be addressed by AHRC-led training days, focused on interdisciplinarity and working outside academe, and drawing on a wide spectrum of skills and sectors. These might be developed on the model of the existing media training days and would be strengthened by significant buy-in from leading heritage partners, e.g., English Heritage, Historic Scotland, and CADW.

Recommendation:

To explore the possibilities for training days on inter- and cross-disciplinary methodologies and working practices, specifically with relation to CH360.

7.5.9. Burden of Innovation

Successful CH360 projects reveal fruitful avenues of research that merit application across a wide variety of cultural heritage objects and data. While the AHRC has funded and will continue to fund research that stresses methodological innovation, there is also a need to replicate model practices in new contexts. We also believe that, in an area like CH360, where it is common for teams to assemble for particular projects and then disperse, it is important that the AHRC actively develops mechanisms to ensure that knowledge and experience of individuals and research groups are not lost when considering the best way of developing new research initiatives. Emphasis on innovation limits funding for projects that seek to apply the lessons of successful research methods. There is an implicit bias toward research on heritage objects that are preserved, documented, and situated in well-researched historical contexts. This has implications for the broader cultural project of decolonization.

Recommendation:

That funding be made available to extend/apply successful research projects to new objects, particularly those from under-represented communities. Where this would take place under a new PI, funds should be provided to facilitate consultation with original PI for purposes of project design.

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