

Dissemination Strategy - Deep Time

What is Deep Time?

The project of Deep Time was borne out of two earlier successes. First, ArchAI developed AI in partnership with Historic Environment Scotland to automatically detect archaeological sites on the Isle of Arran (Banaszek et al. 2021), second the DigVentures' online 'How to do Archaeology' course re-launched in 2020 getting 8,000 participants engaged with archaeology digitally online (Wilkins 2021).

The key reason many non-professional archaeologists voice for not participating in heritage is a lack of awareness of how they can actively get involved. This fits into a broader theme identified through public engagement and archaeology that the development process and how archaeology fits into this is poorly understood by the public.

"Ideally, however, the issue of fore-fronting public benefit in archaeological projects means a degree of input from the public themselves at early stages, to determine how they see the project developing, whether there are any local research aims that need to be considered in the project design, and to enable a collaborative approach that will remove the problem of the 'us and them' relationship often observed in public engagement, which is itself an assumption of passivity on the part of the public" (Watson 2021)

A key target of the Deep Time project was to demystify how archaeology feeds into development and empower locals to input into this process as a way for them to feel more deeply involved in their local area and develop a deeper connection to their local heritage (Wilkins et al. 2021).

It sought to do this by having participants train AI to identify historic sites through LiDAR imaging. It would do this through a multiple step process where participants were guided and trained in how to carry out this type of data generation through an online course. Initially participants would identify historic features on LiDAR images to create a dataset that could be used to train AI, then AI would identify features on the LiDAR images, which would then be validated by the participants. This seeks to remove the burden on archaeologists to be identifying historic sites, with an emphasis on areas that are changing quickly due to climate change, development or other factors. Training AI to be able to carry out this work would allow for continually updated HER records with a reduced burden on HER officers and archaeologists to manually check sites.

The project seeks to address a larger systemic issue in British archaeology where development led archaeology is seen merely as rescue archaeology, which must be done to record archaeology in order to ethically develop the site. It is often not viewed as a moment to engage local communities with the heritage assets within their community and deepen their connection to the local landscape (Reilly et al. 2018).

"The project also sought to understand if this approach could potentially provide a pathway into decision-making about places for local people, creating relationships between those managing development and communities affected by it" (Wilkins et al. 2021, p.1)

Archaeologists often complain of underfunding within the sector, and it is heavily reliant on public sector funding to fill in gaps throughout a large part of the industry. While most funding comes through the private

development sector (FAME 2020) this is often dependent on a fraught relationship with the developer who will attempt to pay the lowest amount required in order to pass their planning permission, tending to see archaeology as nothing but a legal/bureaucratic girdle they need to pass to complete their development project (Zorzin 2015). Although this is changing slightly with developers having a social burden in order to achieve their planning permission in most cases archaeologists have not yet adapted to be able to tap into this side of potential funding avenues (Redhead 2021; Watson 2021). The potential key strength of this project is the inclusion of the public in the data generation that feeds into the planning process and giving the public a greater understanding of how that data feeds into the process. This should make the public feel more involved in the development process in a way in which they have more agency, and provides a motive for development companies to fund archaeology in a more deep and public facing way.

The project had two aims:

- “If the application of the CI/AI Deep Time model can refine and enrich the baseline archaeological information, then the quantity and quality of data in the HER will be improved
- If a wider range of people can get involved in the CI / AI Deep Time model, then awareness and understanding of heritage considerations in the planning process will increase”(Wilkins et al. 2021, p.2).

The full methodology can be viewed in the project report (Wilkins et al. 2021).

What are the results?

What's interesting to consider with the Deep Time project is that it's generated two different types of information, which will each be targeted at a different audience with a very different function. The data generated by the project itself (point/polygon and metadata for historic sites identified through LiDAR) is going to be useful to a wide range of users of technical archaeological data, both within and outside of the profession. That data needs to meet the FAIR principles for reuse with a particular focus on its re-use in archaeological contexts (CifA 2021). On the other hand the project also created data about the project itself. This includes the demographics of people involved, the accuracy of the data created by those involved as well as the volume of data that could be created by those involved. Something that the author has experienced in their own time working in professional archaeology is the gatekeeping that occurs within the industry in regards to the data it uses. There is an assumption the data used by archaeologists (e.g. in DBAs for the planning process) has to be generated by archaeologists and data generated by a non-professional audience does not meet the quality threshold for use in this process. There is a cultural shift happening within archaeology, moving away from archaeology being done by archaeologists for the benefits of archaeologists and towards archaeology which is done for the benefit of all, with the say or involvement of all. Despite this shift in the conceptual framework the practice of implementing it has been inconsistent and the data generated by this project can go a long way to dispelling some of the assumptions and stigmas associated with non-professional archaeology. It can also serve as a blueprint to guide future projects and help establish this type of project as more of a mainstay in archaeological practice. Therefore the publication of the results of how accurate and much a non-professional archaeologist can do in comparison to professional archaeologists is key point to disseminate, particularly to the professional archaeological audience as these will be able to drive change within the industry.

The results of the collective intelligence (CI) data collection have already been analysed as part of the project report. While there has been much ideological and philosophical discussion of the role of archaeological experts vs. public participation there has so far been limited examination of the differences

and relationship between these groups based on hard data (Hølleland and Skrede 2019). The data collected as part of this project offers some significant insight in this regard. The most important insight to be communicated is that while HER data is overall slightly more likely to be true or accurate, the levels of these three data quality factors are not fundamentally different between professionally and publicly generated data (see figure 1). When one considers the burden of updates to existing HER records any small loss in accuracy is outweighed by the potential for much faster and wider input the system through public participation. This insight directly contradicts the pre-conceived notions in the archaeology industry mentioned above, and should form the basis of any dissemination strategy.

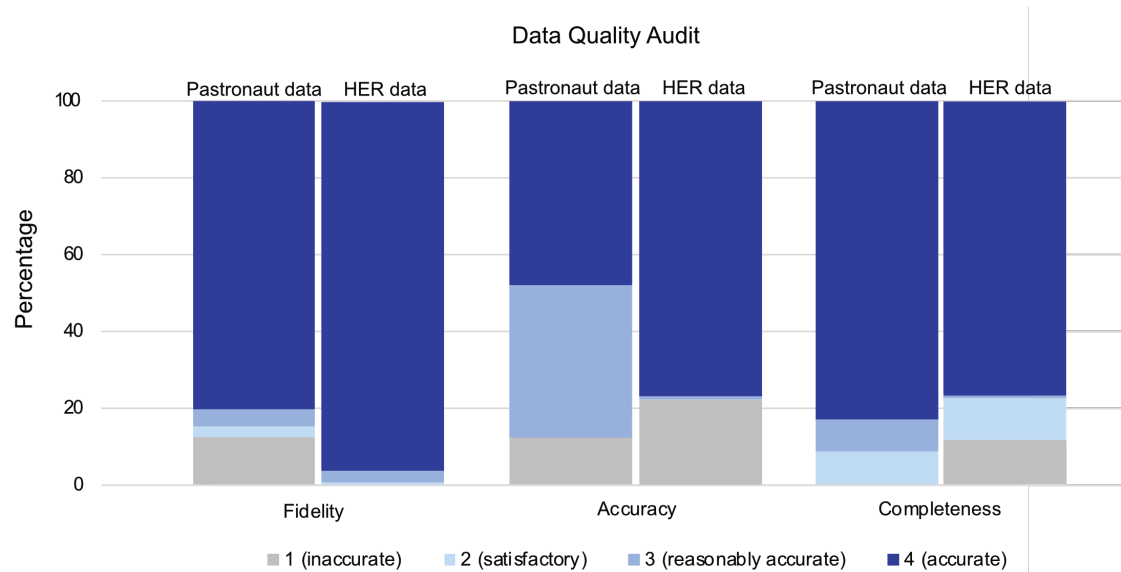


Figure 1 - Graph comparing the quality of the data generated by participants in the Deep Time project ("pastronauts") with that of a sample of HER records across 3 primary metrics.

In a similar vein another interesting reason to disseminate the information about the data side of the project to the professional audience is to challenge how the industry currently secures funding for development-led archaeology. The data could help emphasise that developers should value archaeology as part of the planning process beyond being a mere cost that they have to incur as part of their development. Focusing on the benefits of public participation within the archaeology sector and how that affects the public's views on the planning process is the type of data that could drive deeper engagement of developers with the archaeology, providing a benefit to them in the form of smoother planning processes and to wider society in well-funded heritage engagement projects.

What audiences should see the results?

To design an effective dissemination plan, the first objective needs to be establishing the audiences that the publication is aimed at. This section will discuss the relevant audiences and the key considerations in communicating to them. This is complicated by the fact that the archaeology sector is not made of a homogeneous group, it is made up of many organisations, institutions, companies and individuals who all have their own personal goals and agendas and often work in an only partially integrated way. The EEA identifies six core groups: Higher Education, Heritage Management Bodies, Museums and Archives, Commercial Archaeologist, Consultants to non-archaeological stakeholders and advocational research groups (Skeates and Frieman 2019). This project will not be equally relevant to all of these and the audience must be carefully selected.

To decide where the focus of dissemination should lie, it is worth considering which audience it is most relevant and where there is the greatest potential for driving change. The majority of funding decisions are not driven by academics, but rather by the private sector, particularly developers. As such, what is needed is a way of justifying additional funding for public engagement in a way that is compelling to this group of stakeholders (Watson 2021). Therefore the dissemination plan will focus on private sector and government-funded projects.

A particular focus should be placed on those professionals who design and lead projects where there could be a participatory element. The mere technological possibility of running a CI data collection project will not inherently lead to the adoption of these techniques (Fredheim 2020). Decision makers and project leads need to be given practical examples of how such an element can be set up, and see the specific benefits of doing so. As such communication should be designed with these concerns in mind, and thought should be put into how to reach this particular subset.

There is a belief that a non-professional participant can generate data to an adequate standard for use by the professional body. This wariness is reflected in a related idea that every piece of data generated by a non-professional must be checked by a professional and therefore projects such as Deep Time will only add to the burden of an already swamped industry. It needs to be noted however, that the wariness of this audience is not driven by ideological concerns, but rather by perceived practical issues. Fredheim identifies this dichotomy in a 2020 paper:

“Significantly, the most common reason given in favour of public participation was ideological, in that it was felt to foster and reflect public ownership of museums, while the most common reason given against public participation was practical: the belief that members of the public lack sufficient expertise and objectivity to usefully participate in collections development processes” (Fredheim 2020, p.14)

Therefore the dissemination of Deep Time results should be aimed at this professional audience as it is ideologically open to the findings but needs proof that their practical objections are unfounded. See Figure 2 for a summary of the professional audiences.

It's also worth dividing up the professional audience into those who are using the data on a regular basis as part of their role and those who are influencing those who are using the data on a regular basis. As participatory and community elements tend to be a flexible “add-on” to projects, there is little pressure on a reluctant data user to include this, or draw on data generated by these projects. However, there are influences on the users that can help get those more reluctant on side with the project. In particular the industry is very reliant on guidance produced by major heritage bodies (e.g. Historic England). This makes decision makers within these organisations a key audience, as any recommendation to include these types of elements would significantly enhance their standing and credibility throughout the industry (Cattermole 2017). Heritage bodies tend to be interested in the wider social impacts and benefits of such projects, and any communication aimed at them should therefore include a discussion of the wider implication of the results, beyond the simple practicalities other archaeological professionals may be interested in.

Users

Debbie
HER Officer
County Council



- Traditional/Old school
- Protective of their data
- Member of AGLAO
- Thinks Projects like Deep Time create more work for HERs

Charlotte
HER Officer
County Council



- Open to digital innovation
- Member of AGLAO
- Eager to work with Deep Time style projects

Robin
Ranger/Countryside <anager
National Trust



- Manager of an estate
- May not have a background in cultural heritage
- Background in estate management
- Person on the ground
- Wants to know they have quality data to make decisions about the property

Sacha
Remote Sensing Lead
National Trust



- Open to digital innovation
- Knows data
- Focussed on data quality, standardisation and interoperability

Jaiden
Engagement Officer
Commercial Archaeology



- Understands GIS as a concept
- All about participants and impact
- Interested in how participants engage with heritage

Marcia
Regional Archaeologist
National Trust



- Understands GIS
- Advices colleagues on regions they look after
- Adds regional context to data

Influencers

Adi
County Curator
Local council



- Supervisor to HER officers
- Aware of local authority strategy
- Thinks of HER in wider council concerns
- Looks at how HER works in local society and devises strategy for HER officers

Peter
Head of Remote Sensing
Historic England



- Looking for innovation
- Looking to engage with public
- Looking for accessible data

Connor
Historic Environment Advisor
Natural England



- Concerned with specific historic environment
- Wants to know they have quality data to make decisions about the environment
- May prefer the status-quo

Ellie
Chair
ALGAO (Assoc. of local gov. archaeology officers)



- Speaks to HER officers
- Sector influencer

Figure 2 - Caricatures of the professional audience (Note: These are not real individuals but represent the different roles in the professional audience)

Finally a key audience for the dissemination of the project is the network of archaeological, regulatory and public professionals concerned with the maintenance and development of the HER system. To truly add long term value, the outputs of collective intelligence heritage projects need to flow into the HER system in an efficient and scalable manner. This is currently not possible as these outputs need to be filtered into the system through its traditional avenues, potentially creating backlogs and additional work for HER officers. Ideally the dissemination of the project would contribute to the dialogue with these stakeholders to influence the long term development of the system and make it more compatible with these projects.

To summarise, the project aims to communicate primarily with three key professional audiences:

1. Decision makers for commercial archaeological projects (e.g. Project Managers, consultants)
2. Decision makers in key heritage bodies (e.g. Historic England, ALGAO)
3. Practitioners in the HER system (e.g. HER Officers)

What methods could be used to target the audience?

While the specific outputs of Deep Time carry significant value in their own right, the full potential of the project is in the dissemination of its principles and its potential role as a blueprint for wider changes in the discipline. This matches Allen's 2015 argument that dissemination and publication of community projects is as important as their direct impact:

"Even in cases where the archaeological work is designed to effect social change or enhance community solidarity and heritage, knowledge transmission is still an essential element of the process. [...]. Withholding or delaying the archaeologist's contribution to the community's knowledge of its heritage has the same net effect as delays in academic publication" (Allen 2015, p.188).

The methods of dissemination should therefore be chosen to maximise the projects impact on the wider archaeological discipline and debate.

In dissemination there is frequently an inverse relationship between the complexity and length of a given piece of communication and the reach that it enjoys. As such any publication plan needs to cover the full spectrum of communication avenues and have a clear understanding of how each of these fits into this relationship.

The cornerstone, or "Hero" of the plan will be the full article published to *Internet Archaeology*. By its nature the article will be where the majority of the time resource is invested in terms of creation and writing. The additional pieces of communication across other channels will be based on its content, significantly cutting down on their creation time. As the purpose of the publication will be to drive wider change, the article will also provide enough length to fully elaborate the argument and provide the credibility of a journal, which may be important to industry stakeholders and policy drivers. This means that the other pieces of communication should not only draw on the article but their ultimate aim should be to drive traffic to the article and increase awareness of the article.

The most credible form of publication in archaeology is within a peer-reviewed journal. However, this credibility often comes at the cost of low reach and limited access. Since the purpose of the publication is to influence the practice of archaeology, particularly in the private sector it is important to select a journal

which does not limit its access through high fees or subscriptions (which will primarily be paid by academics). There are a number of respected open access journals which would be suitable, however for this purpose of this plan, *Internet Archaeology* has been selected. This is because beyond being free to access, its digital nature makes it possible to include a wider range of media in the journal submission, including videos, hyperlinks and downloadable datasets (Internet Archaeology 2020). This is important because, as mentioned earlier, there is still widespread scepticism in the industry regarding the reliability of non-professional collected and processed data. By attaching the raw data to the article, this hurdle becomes easier to overcome as anyone interested in this aspect would be able to download the data and verify the results themselves. However, one has to be aware of the limitations of journal articles, even within digital and open access journals. Most importantly they can suffer from low reach as many practising archaeologists may not check journals for new publications and this problem will be magnified where the publication is beyond their direct area of specialism (Cattermole 2017). This is where other forms of publication step in to drive awareness of the article and its ideas.

Blogs represent a good compromise between readability, accessibility and reach. While their purpose in this plan would still be to drive traffic to the article they also have significant value on their own in driving awareness of the key ideas of the project. As blogs tend to be consumed in a shorter timeframe and different context from journal articles, emphasis will need to be placed on making the blog interesting to read. Ideally a number of core concepts will be identified in the journal article and a series of blog posts covering each of these ideas will be published. In the case of Deep Time the most suitable place to post these blogs would be on the DigVentures website as this already possesses a blog section with an existing audience. This audience consists of both non-professional archaeology enthusiasts (who make up the types of people who contribute to projects like Deep Time) as well as professionals, who may take these insights into their own practice. This further has a secondary benefit to DigVentures as a company, as it drives awareness of their own successful projects which could result in further work.

The importance of social media in the dissemination of archaeological knowledge and concepts is underdiscussed, but it can form a key pillar of successful project publication. There is a broad network of debate between archaeological professionals, academics and enthusiasts, particularly on Twitter. To a greater extent than any of the other channels discussed above, Twitter brings together all these interest groups, which makes it particularly important for a project aiming to enhance the input the public has into professional archaeology. In this regard Twitter provides both relevant reach and a space for discussion. Both of these can be enhanced by posting threads of the key findings across the twitter accounts of both DigVentures the company and the individual authors. The main limitation of twitter lies in the limited complexity of even a thread of 280 character tweets. This means posts need to be carefully planned and written to quickly engage readers in the thread and succinctly communicate the key ideas. As a result of this limited complexity the main purpose of Twitter would be to spark debate and drive readers to the higher complexity publications such as the blogs. Given the recent turmoil and uncertainty on twitter, it may also be worth considering alternative platforms such as LinkedIn. This offers a smaller, but more professional audience and the style of posts allow for more detail and complexity. However, overall Twitter is likely to drive more value. In regards to social media more generally there is synergy with the videos that can be included in the article as a result of publishing in *Internet Archaeology*. These represent a more sharable and accessible form of media and the re-use of these assets with the social media strategy should magnify the project and direct attention towards the journal article (Wang et al. 2017).

Action plan & Summary

The considerations and discussion above can be condensed into a clear step-by-step action plan to disseminate the results and underlying principles of the project.

1. Review analysis and identify key insights. Any archaeological project produces a wide range of outputs, so it is important to draw out the most relevant insights and decide what audience will be most receptive to them. In the case of this project this would be the data quality of publicly generated heritage data and the set-up of this project as a blueprint for future activity.
2. Preparation of the journal article. The journal article will act as the foundation for the entire dissemination strategy. This is where the majority of the work will be invested and it needs to be tailored to the previously identified audiences, in this case archaeological professionals, heritage bodies and HER stakeholders.
3. Development of supporting communication. Given the limited inherent reach of a journal article it must be supported by a dissemination ecosystem, providing access to a wider audience and enhancing the articles impact on the archaeological debate. It is important to cover the full spectrum of complexity, from social media to blogs and tailor each piece of communication to the advantages and limitations of its format.
4. Dissemination timeline. The release of supporting communication needs to be carefully scheduled in relation to the release date of the article. The objective should be to generate an initial influx of traffic to the article and then to maintain the conversation for the period of a month to ensure it is not simply a flash in the pan.
5. Review of results. Finally there needs to be a review of the results of the dissemination plan and an evaluation of its success or failure. This is to inform future publication strategy and where it has been successful to leverage on this to maintain the relevance of the article over time (e.g. by circling back to it in future publications and projects).

This dissemination strategy should allow for the successful publication of the project and maximise the chances of it having a positive impact on the wider archaeological discipline.

Word Count - 3761

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