

Linking to the past: An Analysis of Community Digital Heritage Initiatives

Elizabeth Tait, Marsaili MacLeod, David Beel, Claire Wallace,

Chris Mellish, Stuart Taylor

At the time of the research all authors based at dot.rural RCUK Digital Economy Hub, University of Aberdeen, Kings College, AB24 5UA

Corresponding author: Dr Elizabeth Tait, email: e.j.tait@rgu.ac.uk

Dr Elizabeth Tait is a lecturer in the department of Information Management at Robert Gordon University, Aberdeen

Dr Marsaili MacLeod is a lecturer in the department of Celtic Studies at University of Aberdeen

Dr David Beel is a Research Fellow at dot.rural Digital Economy Hub at University of Aberdeen

Professor Claire Wallace is a Professor of Sociology and Co-Investigator at dot.rural Digital economy Hub at the University of Aberdeen.

Professor Chris Mellish is a Professor in the department of Computing Science and Co-Investigator at dot.rural Digital economy Hub at University of Aberdeen

Mr Stuart Taylor is a Research Assistant at dot.rural Digital Economy Hub at University of Aberdeen

Structured Abstract

Purpose – Community initiatives to collate and manage different kinds of cultural forms and resources are a popular way for local people to engage with the heritage of their area. These initiatives are often heavily dependent, however, upon short-term funding and long-term efforts of a few dedicated individuals. This paper explores how community digital archives offer scope to widen participation in cultural activities and investigates the sustainability of these initiatives.

Design/methodology/approach – a case study approach was taken of Hebridean Connections, which is a community managed, online historical resource. This paper is primarily based on interview data with key stakeholders, all of whom are based in the Outer Hebrides of Scotland.

Findings – Participation in Hebridean Connections was reported in positive terms by respondents and many cited that it was a good way to reconnect with diasporic

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populations and that they believed that this would encourage tourism. It was also reported that the system of linked records added value to the collections as previously undiscovered connections could be made that would not be possible without the electronic resource.

Practical implications – The paper provides insights into socio-cultural dimensions of community digital archives and in particular the challenges of sustainability that these initiatives have.

Originality/value – Few studies have been undertaken examining community digital archives. The multidisciplinary nature of the study also brings together different perspectives on the area of enquiry.

Keywords- Cultural heritage, community identity, digital archives, semantic linked open data

Paper type- Research Paper

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Linking to the past: An Analysis of Community Digital Heritage Initiatives

1. Introduction

Developments in digital technologies are facilitating community activity in the collation, production and communication of cultural heritage. Information and artefacts can be digitised, catalogued and archived and tools such as websites and Apps have been developed to retrieve and present this information to users. This means that historical artefacts, which were once confined to local collections in libraries, community centres or in private properties, can now be made available to anyone with an Internet connection. Technological developments are also facilitating new mechanisms for user engagement and the co-production of heritage by a wider range of people. However, community digital archives often arise as a result of grants or government support, which allows for the initial tasks of digitisation, cataloguing and technical developments to be completed, but there can be subsequent problems of sustaining these resources in the longer term once the funding runs out. Furthermore they are often heavily dependent on volunteers and can be reliant on the continued involvement of key individuals.

The project discussed in this paper aims to investigate the technical and social processes involved in the construction and use of community based digital archives with a specific focus on rural communities in the UK which have a rich cultural history but face challenges of digital exclusion.

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The paper draws on findings from a case study community of Hebridean Connections, which is a community managed, digital heritage initiative in the Outer Hebrides of Scotland. We introduce the paper by critically reflecting on rural community heritage initiatives and the implications these have for their preservation and communication. In doing so, we discuss the potential impact of these initiatives on the local community and the broader range of users from diasporic communities, tourists and other user groups. Using data from interviews with local stakeholders in the Outer Hebrides of Scotland, we identify and discuss potential tensions between the values of heritage gatekeepers and the possibilities of a digital archive with particular focus on the role of social media for collaborative community heritage. We then go on to outline some of the challenges that face community digital archives, including barriers to sustainability that have been identified through the fieldwork. Finally, we briefly discuss the development of an open source toolkit for community heritage organisations which is being developed in partnership with the case study community.

2. Literature Review

2.1 The mobilisation of digital cultural heritage resources

The ability to archive and communicate cultural heritage is being linked to technological innovations to aid the long-term preservation of cultural heritage and to drive new models of public engagement (Museums Computer Group, 2011). Tanner and Deegan (2011) conducted research into the value and impact of digitisation of UK

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cultural resources and argue that digital resources have a significant impact across several 'modes of value' (p 43) including widening access to collections and make them available for new forms of interaction and connection with other resources. At a European level, the opportunities and challenges associated with digitising culture are reflected in the appointment of a special reflection group on 'Bringing Europe's Cultural Heritage Online', to support the European Union and its member states to define policy in this area. The Committee's final report suggests the rationale for developing such a strategy is both cultural and economic: 'Digitisation breathes new life into material from the past, and turns it into a formidable asset for the individual user and an important building block of the digital economy' (European Union and Comité des Sages, 2011, p. 4).

We conducted a review of web-based cultural information resources from around the world and it was determined that digital cultural heritage repositories diverge according to, among other factors: the actors which manage them, their spatial reach, their content, and the software technologies which underpin them. For the purposes of this paper, we draw a distinction between two primary categories: on the one hand there are cultural repositories which are state-led and have a national or supra-national remit, and, on the other hand we have repositories which are managed by the voluntary sector at a sub-national level which, we suggest, have emerged in part due to gaps in official repositories and differing perspectives and versions of history between local people and official accounts.

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2.2 Supranational and National Level initiatives

At a supranational level, the World Digital Library aims to link together cultural materials from collections around the world. The website presents multilingual content with a consistent set of metadata, which makes the database easier to search and index by search engines. On a similarly ambitious scale, Europeana, Europe's digital library, archive and museum (portal), brings together cultural institutions from different sectors and from all the Member States. Europeana has made over 23 million artefacts from 34 countries available under creative commons license using a semantic linked open data format to encourage reuse and linking of data (Europeana, 2013).

It is at the national level, however, that the majority of cultural repositories are being developed. Projects to digitise heritage resources and to make them accessible through digital portals are part of the national project of repositioning national identities to foster social cohesion and a sense of shared national identity. Examples at the national level include Norwegian Cultural Net (kulturnett.no), Culture.fr in France and Croatian Cultural Heritage (kultura.hr), which allows for map searching and links to cultural institutions.

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Comparable initiatives are being developed in the UK. For example, Scran (www.scran.ac.uk) - part of the national government body, the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS)- aims to provide educational access to digital materials representing material culture and history. According to its website, a number of institutions use their online solution - Scran-in-a-Box - to provide access to their data. The RCAHMS is also active in developing collaborative community heritage resources through, for example, Scotland's Rural Past (www.Scotlandsruralpast.org.uk). This initiative aims to involve communities in documenting and preserving records of ancient monuments and settlements in rural Scotland, which might otherwise not be documented. Another example in Scotland is Tobar an Dualchais / Kist o Riches (<http://www.tobarandualchais.co.uk>) which aims to digitise, catalogue and make available online Gaelic and Scots recordings from 1930 onwards.

Several state-led initiatives are exploring and developing 'open' versions of cultural heritage data. Examples include the UK Culture Grid and the Dutch Continuous Access to Cultural Heritage programmes. There are also a number of cultural heritage ontologies in existence, including Categories for the Description of Works of Art (J Paul Getty Trust) and CIDOC CRM (Doerr, 2003). The projects creating open data generally involve large museums and the conversion of significant amounts of existing data, rather than supporting small communities with distributed knowledge.

2.3 Community digital archives

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Whilst national heritage can be conceptualised as part of a political project of selective representations which support national unity, in contrast, community heritage is often positioned as a response to this top-down, prescriptive approach: ‘just as the authority of mainstream archives came to be conceived as more contestable, so community-based movements emerged with the theoretical apparatus to contest it.’ (Mason and Baveystock, 2009, p.15)

The concept of community heritage is, however, relatively nascent, and has only recently receiving recognition within national heritage policies in the UK context. It is also undergoing some definitional development. According to Stevens *et al.* (2010), ‘the defining characteristic of a community archive is not its physical location, inside or outside of formal repositories, but rather the active and ongoing involvement in the source community in documenting and making accessible their history *on their own terms*’. (Stevens *et al.* 2010, p.68 original emphasis)

At the same time, such initiatives have developed considerable academic interest. For example, Paul Basu's project on 'digital repatriation, knowledge networks and civil society' (Basu, 2011) seeks to explore how diasporas of objects and knowledges become meaningful resources to local people, who currently have no access to them. The research is being undertaken in post-conflict Sierra Leone (www.sierraleoneheritage.org). Central to Basu's research approach is a focus on how community knowledge can be used to validate and evaluate institutionally managed

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digital resources, through the use of participatory methods and social networking sites such as Flickr.

These examples draw our attention to the potential for digital heritage to be a powerful mechanism in the construction of national heritage whilst, at the same time, opening new possibilities for previously localised and small scale collections to challenge dominant historical and cultural discourses. The tensions and challenges which arise in the process of exporting locally (re)produced cultural traditions to digital space is an issue that will be explored in this paper.

2.4 Motivations for rural areas to develop digital archives

Rural areas are characterised by a strong identity of people with place. These identities draw on a repertoire of distinctive cultural norms, knowledges, histories, customs, skills and practices which, taken together, construct unique place identities with direct, indirect and non-use values (Bell and Jayne, 2010). Yet the immobility of cultural resources means that access, for whatever purpose, has often been place dependent and restricted to certain members of a local community. Moreover, because cultural resources are often public or common goods, they depend upon some form of state intervention or collective action for their development (Bryden and Hart, 2001).

Many rural areas are heavily dependent on tourism and there is a certain amount of cultural competitiveness between rural areas as they try to compete for visitors and ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

market themselves on their uniqueness and authenticity. The reconstruction of authenticity for the 'tourist gaze' (Urry, 1990) underpins the co-construction of place by residents and consumers. Contemporaneously, returns from tourism expenditure can be reinvested in the tourism product which typically include (immobile) historical resources and built visitor attractions. Garrod *et al.* (2006) use the phrase 'countryside capital' to refer to natural, socio-cultural and built resources in rural areas. For example, digital archives may facilitate benefits for rural areas as they promote engagement with diasporic communities and showcase the cultural heritage of an area to an international audience of potential visitors.

It is recognised that place history gives rise to divergent perceptions and significations within any local community. According to Waterton and Smith, (2010), professional heritage efforts, including those of the academy, are dominated by a nostalgic ideal of communities as homogenous collectives with communal pasts. In contrast, evidence suggests that local communities are 'run through with divergent interests, anger, boredom, fear, happiness, loneliness, frustration, envy, wonder and a range of other motivating or disruptive energies' (ibid p. 10). It can therefore be argued that 'place history' is subject to alternative understandings which, in turn, shape the nature of digital archival resources, their content, management and uses.

There can be tensions between the practices of collection and preservation between the professional archivist and the community archivist-activist. This is often reflected

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by the perception of control which community archivists feel they have over their collections and their willingness to follow professional methods of archiving and curation (Stevens *et al.*, 2010). Central to this then is the question of value and who has the ability to make such judgements. This has consistently led to post-modern critiques of archives as sites for the materialisation of dominant power structures. However, there have been a variety of attempts to address this by using mainstream archive service providers to share aspects of responsibility for the management of collections within communities: giving community groups the access and help to maintain collections whilst not intervening in what is and is not collected. Adding to this has also been the potential for technological innovation in data storage and web based strategies of access to potentially again change existing relationship:

Moreover, imagining the custodial models that might serve the ends of a democratised heritage has been facilitated by the technological innovations associated with digitisation and the prevalence of born digital records, which call into question traditional assumptions about the need for all records to be held in a single physical location (Stevens *et al.*, 2010, p. 69).

Seen by Stevens as a potential 'win-win' situation, the possibilities of technological advancement in archiving potentially create a number of interesting as well problematic opportunities for community heritage groups.

DeSilvey (2012) argues that new practices of collection, interpretation and dissemination are required in order to show how history and heritage can be used to ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

rethink the way in which people can approach future difficulties. This is where digital technologies can be used to link together different ways of producing history. Both DeSilvey (2012) and Cresswell (2011) discuss the importance of linkages between objects in determining value. With the development of semantic web technologies the ability to interrogate and link data in archives is changing drastically and present new opportunities for local organisations such as community groups, museums and libraries (Reid and MacAffee, 2007).

While community digital archives are often discussed as helping to sustain local heritage, they themselves face challenges of sustainability. In the UK funding is available from, for example, the Heritage Lottery Fund which can be used for the digitisation of collections and the initial development costs for developing digital archives. However, ensuring the long term sustainability of the initiatives is problematic and it is estimated that over 70% of projects funded under the New Opportunities Fund for Digitisation are either no longer updated or unavailable (Maron and Loy, 2011). Challenges of sustainability do not end at the point of digitisation but rather digitisation brings about new challenges for sustainability, stewardship and curation to ensure the long term preservation of digital archives (Bradley, 2007).

Digital objects break. Digital materials occur in a rich array of types and representations. They are bound to varying degrees to the specific application packages (or hardware) that were used to create or manage them. They are

prone to corruption. They are easily misidentified. They are generally poorly
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described or annotated; they often have insufficient metadata attached to them to avoid their gradual susceptibility to syntactical and semantic glaucoma.

(Ross, 2012, p44)

In order to address these challenges, researchers have identified the need for the development of sustainable business models to reduce the dependence on support from the initial funders and the development of open source technological solutions (Bradley, 2007). Further, in order for digital archives to be linked, there are challenges of ensuring the interoperability of metadata particularly with small organisations who have limited resources and training (Lim and Liew, 2011). Much of the literature on standards and frameworks for sustainability is targetted at large national level institutions or professionally curated collections. However, developments such as the Open Archival Information System (OAIS) model which provides standards for the long term preservation of digital material have been adopted by large professional organisations and it is proposed that simplified versions could be developed would be suitable for small community organisations (Spence, 2006). It has also been suggested that greater user engagement at the project development stage and developing systems that facilitate active user contributions and integration with Web 2.0 technologies may help with project sustainability (Marchionini, 2009).

It must be recognized that different rural communities have very different archives, therefore there is a need to begin to think how such disparate collections can be linked ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

together in order to represent the commonalities of resilience and tradition, as well as a variety of other practices. However, as a broad spectrum of academic work suggests, archives represent vast banks of knowledge collected over time and finding ways to make them more accessible, understandable, usable and connected can increase the sustainability of cultural heritage and lead to new understandings of heritage across communities.

3. Methodology

The empirical findings presented in this paper are based on a case-study of Hebridean Connections (www.hebrideanconnections.com). We draw on interview data from 11 interviews with key stakeholders, all of whom are based in the Outer Hebrides of Scotland, and more specifically the northernmost island of Lewis. The interviews were conducted during May 2011. The interviewees were representatives from the local historical associations or ‘Comainn Eachdraidh’, as they are known in the local Gaelic language. Four of these interviewees were representing Comainn Eachdraidh who had been part of the original Hebridean Connections project (coded as Original HC Member) and, of these, two interviewees were also directly involved with the management of Hebridean Connections and so were representing both roles for the interviews (coded as Original HC member/ HC Project Team). An additional five interviews were conducted with representatives from four Comainn Eachdraidh who were joining Hebridean Connections and are going to be depositing data (coded as Joining HC member) in the next phase of the project. Finally, two interviews were ***‘This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.’***

conducted with affiliated heritage organisations from the Outer Hebrides (coded as Heritage Organisation).

The interviews were analysed using the framework method for qualitative data analysis. The results were synthesised and presented thematically in the following section of the paper. Before presenting the findings of the analysis of Hebridean Connections, a short explanation of the development of the Comainn Eachdriadh and their place in Hebridean Connections will be provided.

4. Findings and Discussion

4.1 The development of Comainn Eachdraidh and Hebridean Connections

In 1977 a group of local history enthusiasts from the north of Lewis met informally to discuss, 'how best to preserve the rich, but as yet largely undocumented, social and cultural heritage of their community' (Comann Eachdraidh Nis, 2011 online). Over the course of 20 years, some 18 Comainn Eachdraidh have been established in the Outer Hebrides.

Successive community initiatives have followed in the Outer Hebrides, most notably the increase in community ownership of previously privately owned estates under the provisions of the Land Reform (Scotland) Act 2003 (See MacKenzie, 2006, 2010).

MacKenzie (ibid.) argues that community is reconstituted through the principles and ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

practices of community land owners in the Highlands and Islands, as they take control over the meanings of history and of place.

The Comainn Eachdraidh movement is an interesting example of a ‘bottom up’ community initiative and have received a lot of interest from academics and historical organisations. One interviewee from a heritage organization commented:

They are amazingly dedicated people. They are passionate about what they do – all local history groups are passionate but I think a lot of them are not aware of just how innovative and progressive that they’ve necessarily been... it’s been so concentrated on the community and telling the community story and seeing that as a vehicle to bringing people in towards that and the economic benefits. That community cohesion that it brings. (Interviewee 11, Heritage Organisation)

Our research revealed that some Comainn Eachdraidh maintained museums that are open to the public (for example in Uig) while others continue to be informally run and do not have premises for exhibiting collections. The voluntary and fluid nature of Comainn Eachdraidh activities mean that their collections are developed rather sporadically and are heavily dependent upon volunteer effort. Some Comainn Eachdraidh apply for external funding to support topic-specific historical research. Between times, the collection is usually shaped by what people choose to bring to a

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Comann Eachdraidh, whether it be artefacts, stories or genealogical information. One interviewee told us: ‘...there was a box given to the Comann Eachdraidh from a house absolutely stunning photographs and you are trying to figure out who these people are.’ (Interviewee 6, Original HC member)

One consequence of these informal processes of community heritage is that Comainn Eachdraidh can have multiple forms of cataloguing, archiving and content management which means that it is harder to find information:

We don’t use that system anymore and I know a lot of that is on a database as well. I couldn’t even find it. Same thing with the croft histories. We know they are there but nobody knows where to find them. So you spend about half an hour every time somebody comes in trying to find them. (Interviewee 2, Joining HC Member)

While the Comainn Eachdraidh movement has been very successful, concerns were expressed by interviewees that the traditional customs of remembering which the Comainn Eachdraidh have been reliant upon are in decline. As one representative told us ‘The population is changing, the people who really knew the people here and the language and everything else – they are dying, basically.’ (Interviewee 5, Joining HC Member) An undercurrent of fragility runs through these organisations, as the principles upon which information has been gleaned, recorded and ordered are being threatened and digitization is seen as a way of ensuring that information is not lost: ***‘This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.’***

[We're] trying to get things, especially – things recorded in Gaelic, in the natural language of the people that were telling the stories so those have been digitally preserved. But again, unfortunately, a lot of these people are now no longer with us. So as time goes on the source of that information is becoming less and less. (Interviewee 4, Original HC Member)

4.2 The development of Hebridean Connections

The interviews established that a key individual was responsible for instigating the development of Hebridean Connections. He was a member of one of the Comainn Eachdraidh who also had a background in IT and recognised the potential for digitising the materials that had been collected. He proposed this idea to the other historical societies and four decided to pursue it. They were awarded Heritage Lottery funding and Hebridean Connections, the website, was created in 2006. Subsequently, Hebridean Connections has been constituted as a voluntary group and its members comprise of representatives from participating Comainn Eachdraidh and other local organisations with a historical remit.

The additional funding allowed for members of staff to be paid for project staff to manage the project and digitise materials and also allowed the Hebridean Connections team to contract a web development company to develop their website and database.

A project manager developed the structure and categories for the data which enhanced the search functionality:

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... it was also cross referenced so if you knew the trade or employment of an individual... You could put in a surname and then chose the work categories, for example. And you could see all the MacLeod's who were fishermen, all the MacLeod's who were bakers and so on and you could choose – extremely powerful from that perspective. (Interviewee 8, Original HC Member/HC Project Team)

Hebridean Connections differs from digital cultural resources created by academic institutions or museums in the respect that, rather than a simple digitisation of artefacts, the history presented is selected to represent local understandings of culture in order to reflect 'how the community remembers itself' (pers. comm., Hebridean Connections representative, 17 Feb. 2011).

Hebridean Connections isn't an archive database in the sense of a finding aid or like the catalogue of national archives, it's a much broader experience than that, it's much more of an interpretive object that includes archive records and digitisation of photographs and oral history... doing interpretation and making aspects of the raw material more accessible by transcription and making those connections for you... (Interviewee 11, Historical Organisation)

By falling outside of national institutional frameworks, local people are the

gatekeepers of their own heritage and are selecting what to commemorate based on ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

their own customs of remembering. The history of the area is told through texts, images and audio resources which have been collated from the four participating Comainn Eachdraidh. It is estimated that the archive currently consists of over 79400 records (Hebridean Connections, 2013). Additionally, the website encourages contributions from its users and, therefore, has the potential to foster reciprocal knowledge exchange across geographical boundaries.

The private company who were awarded the tender developed a proprietary system. Unfortunately, the Hebridean Connections team discovered that 1) the software was not entirely suitable for their needs and 2) changes to the software that they requested incurred significant charges. By 2010 (when the current project began), the funding had run out and, with no staff to maintain or add to Hebridean Connections, the website had fallen into abeyance.

4.3 Impact of Hebridean Connections and relationship with Comainn Eachdraidh

The relationship between Hebridean Connections, the Comainn Eachdraidh and other local initiatives in the Outer Hebrides is rather complex to analyse due to many of the same people being involved in multiple local initiatives. Local narratives suggest that Hebridean Connections cannot be considered simply the outcome of a linear progression from traditional forms of cultural transmission and the development of the Comainn Eachdraidh but rather that it is one aspect of the rich and heterogeneous cultural heritage activities that co-exist in the Outer Hebrides.

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The literature on the development of digital archives reviewed earlier in this paper indicates that the motivations for communities to develop digital archives can be for social, economic or cultural reasons. Analysis of the interview data revealed that Hebridean Connections is typically seen as having two main aims:

- To provide a resource for the Comainn Eachdraidh to maintain their records
- To broaden the audience for the records so that the wider Hebridean diaspora can have access to them and find out about their heritage.

A further aspiration that was touched upon by several interviewees was the potential to generate economic gain by potentially selling Hebridean Connections as a genealogical service or charging for access to photographs and other products. One interviewee reported that they were disappointed that the Comainn Eachdraidh did not receive direct revenue from the website.

We weren't looking for a massive amount of money we were just looking at... if they press that button we'll get x amount or every time... there's bound to be a way to do that, there's bound to be a way round that. But unfortunately that didn't appear. (Interviewee 6, Original HC member)

On the other hand another interviewee commented that they did not want the website to charge for access to content. Instead, they believed that that the potential for economic benefits could be indirectly acquired by Hebridean Connections users from

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around the world visiting the Outer Hebrides as a result of finding out information about their heritage on the website.

Despite some differing viewpoints over whether and how Hebridean Connections could generate income, interviewees held largely favourable views towards the initiative. In particular it was reported that Hebridean Connections allowed local histories to be captured, preserved and passed on to a wider audience:

...if we don't get that information gathered in an accessible manner we're not going to be any better off than we were before we started. Because as each expert within a Comainn Eachdraidh dies or gets burn out or whatever, you are going to lose that information unless it's logged. (Interviewee 1, Joining HC Member)

Other interviewees commented that digital technologies may encourage younger people within the community to participate. In addition, interviewees commented on the way that the website allowed for matching records once held independently by individual Comann Eachdraidh.

We learned a lot in the course of the work that we did, especially when we started putting the records of more than one historical society together with another adjacent historical society. Relationships were recognised that weren't previously recognised. Again, because everything sat in a cupboard within a

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historical society and tracing a person there to another area wasn't always possible. So we found that we had some duplicate records when we went to match two people together and found the rest of this person's history in another historical society. So a lot of important things came out of that.

(Interviewee 8, Original HC Member/HC Project Team)

This notion of 'adding value' by making links between artefacts was highlighted by a number of interviewees who indicated that with digital resources it is possible to:

... end up with something that is much more than the sum of its parts that way.

You start to get a real picture of how people moved around the island and the ways stories are told differently in one place. Our great hero here is the great villain to Ness and that kind of stuff – it's all very interesting.

(Interviewee 9, Original HC Member/HC Project Team)

The added value gained from linking together previously disconnected collections strengthens the rationale for developing community digital archives. These technologies have great potential for transforming the way that local history is understood as new connections and links are made.

The interview analysis revealed that some Comainn Eachdraidh did not join the early development of Hebridean Connections because members expressed concerns about giving away their data and therefore losing control of it.

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... they didn't want to share the information because it might get lost and swallowed up. Which when we look at it now seems a bit silly because I think we should really be getting the information out. So that as many people as possible can visit. (Interviewee 7, joining HC member)

The interviewees who were part of the project team indicated that these concerns were due to misunderstandings about Hebridean Connections by some Comainn Eachdraidh members at the early stages of the initial project but that many are now keen to become involved and contribute data. However, this has given rise to new concerns as the original project had a budget to assist with digitising and entering data but at the time of the interviews it had not been determined whether financial support would be available to assist the joining Comainn Eachdraidh with these tasks. Several respondents mentioned concerns about the labour involved in preparing, digitising and cataloguing materials for Hebridean Connections:

The idea is so good, everything is great but it's eventually sourcing the material, how do you put it in- we've got a certain amount of it but it still needs work done on it. And there's no way the volunteers can do it... that is the only thing that is worrying us: how do we fit that in with our work? Because it is voluntary what we are doing here. (Interviewee 10, Joining HC member)

The fact that the current version of Hebridean Connections is currently in abeyance was also raised as a concern for the long term sustainability of the initiative, and ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

interviewees indicated that a re-launch and additional marketing would be required when the redeveloped system is released.

These findings indicate that community digital archives are viewed in positive terms as having the potential to collate local knowledges in order to preserve them for future generations. Further, interviewees recognised that making resources available electronically would broaden their reach to include diasporic communities which some indicated may have a positive impact in terms of economic benefits from tourism. However, interviewees also identified challenges and potential negative impacts such as concerns about the time commitment of making resources available online and challenges of sustaining the system in the long term.

4.4 Balancing the needs of local and diasporic users

An area of investigation explored in this project is whether there are conflicts between the needs of local users of community digital archives and the needs of the diasporic communities. Although interviewees indicated that Comainn Eachdraidh collections were created for and by the people in the local communities, the interviewees were happy for these to be shared and made available to diasporic communities:

Initially, very much the Comman Eachdraidh collection was for the local community to the point that some Comann Eachdraidh – not ours so much, since I've been here, but some of them are still saying that the tourism or ex-pat

interest is very much secondary; it's about preserving communities history and ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

culture and Gaelic and pictures and all that, for the community itself. And the second tier is those that came from here and went away and we're always very happy when somebody comes back and we can show them the stuff.

(Interviewee 9, Original HC Member/HC Project Team)

It was speculated by some interviewees that the majority of users of Hebridean Connections are from outside of Scotland but unfortunately detailed user statistics were not available due to technical issues. There was a view that Hebridean Connections had resulted in increased interactivity and communication with diasporic communities which was viewed positively by interviewees:

we've got somebody from America or Canada visiting this month with no knowledge of the level of cousins or whatever they have here and they've written to Hebridean Connections and they were able to glean certain information out of that and they followed up with individual enquiries then to the various historical societies and they are meeting about twenty-six different cousins when they come here this month... (Interviewee 8, Original HC member/ HC Project Team)

These interactions with diaspora were viewed as being positive not only because of the potential economic benefits from genealogical tourism but also because diasporic users are often able to contribute knowledge and resources to Hebridean Connections. This will be explored further in the next section of the paper.

4.5 Opportunities and Challenges of Co-Production of Local Cultural Heritage
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A further point that was explored in the interviews was the extent to which community digital archives facilitate greater participation in community heritage efforts and whether these tools can contribute to the sustainability of these resources by encouraging user generated content for the co-production of heritage information. The existing system of Hebridean Connections allows for users to get in contact with the project team via a 'tell us more' button on the records. This enables people to send additional information or indicate that they feel a record is wrong. However, they cannot directly alter the information within the database itself. While interviewees reported interaction with the diaspora in positive terms there were concerns raised about how these interactions should be mediated. This is due to the extensive process of verification and validation that each record goes through prior to publishing. Interviewees reported that they were happy when additional information and artefacts were sent in by users but that these must be validated prior to publishing. Representatives from the Hebridean Connections project team indicated that the 'tell us more' function was tremendously popular with user communities but that this resulted in increased workloads for the project team and that in future individual Comainn Eachdraidh should appoint a member to assist with the verification process:

One person verifying everything kind of makes it much more standardised. But I think one of the things we were wanting to do was to set standards and to train people to apply these standards from each of the historical societies.

(Interviewee 8, Original HC member/HC Project Team)

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It was suggested that, potentially, social media tools such as blogs, Facebook groups and Twitter could serve a dual purpose of boosting awareness and marketing Hebridean Connections and providing fora for users to discuss records with each other, without compromising the integrity of the core database:

... they are looking at this Web 2.0 approach, which seems a very sensible approach... I know that there has been a lot of feedback on the previous stages of the current incarnation of Hebridean Connections of people saying ‘I’ve got all this data, I’ve done all this research and I want to share it’, which just adds to the colour. The down side is the quality control that comes with that... it needs a level of management which can be quite a lot of management if it’s a very popular site. (Interviewee 11, Heritage Organisation)

Hebridean Connections have utilised Facebook and Twitter although the accounts have not been linked to from the main website. At the time of analysis the twitter account @hebconnections had 165 followers. From a basic analysis of the unprotected accounts it was determined that the majority of followers are: heritage organisations, academics and individuals and business in the Outer Hebrides. The account is not regularly updated and had only tweeted 35 times as of 07/07/2013 The Facebook page www.facebook.com/hebrideanconnections was launched in April 2013 and currently has 81 ‘likes’. The page mostly has photographs of project events and promotes local historical events organised by the Comainn Eachdriadh. The page also has testimonials from Hebridean Connections users and some content such as ***‘This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.’***

photographs from Hebridewn Connections have also been posted.

Several Comainn Eachdraidh have a social media presence and one interviewee discussed how it was being used to discuss community heritage:

Obviously everybody is on Facebook and I think we have most local folk – most people here on Uig who are on Facebook are connected to our Comann Eachdraidh page and indeed to each other and so I put on little groups of photographs and news stories. I try to do it quite actively. If I find a news story that is of some interest or relevance. Something about a Viking discovery, there was a Viking harbour found in Skye recently so that’s a good thing to put on our Comann Eachdraidh Facebook... (Interviewee 9, Original HC Member/HC Project Team)

The findings from the analysis of interviewees’ beliefs about social media and other co-production of content in general are interesting because they demonstrate that whilst digital technologies allow for increased user participation and make contributing to collections much easier, it is important that policies are put in place for managing the contributed content and that checking and verifying processes are put in place. As identified by the interviewees, this could be potentially very time consuming and particularly problematic when projects are largely staffed by volunteers.

5. Barriers to sustainability of Hebridean Connections and Toolkit Development
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The analysis of findings from the case study of Hebridean Connections has revealed a number of challenges and barriers to the sustainability of digital cultural heritage initiatives. Although we have demonstrated that Hebridean Connections developed as a result of particular cultural, historical and social factors that have resulted in a novel resource, a number of the problems identified will be relevant for all community digital archives:

- The proprietary nature of the current system means that Hebridean Connection is costly to run and any modifications require payment and cannot be made by the project team.
- The software was not specifically developed for local history resources and is therefore restrictive.
- The system is not particularly user friendly for the historical societies to input data and does not support direct data input from ordinary users at all.
- The current system does not make optimal use of social media and its information cannot be referenced or incorporated in other applications.

We believe that project sustainability and greater user engagement can be facilitated through the development of open source software based on semantic web/ open linked data technologies. The use of linked data naturally allows for collaborative authoring of information, distributed responsibility and the direct exploitation of national and

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international resources which could help overcome the barriers to sustainability identified through the fieldwork.

The final deliverable of this project will be an open source 'toolkit' which includes a general flexible software platform utilising semantic web and linked data technologies which will be made freely available to any local community heritage organisation.

The redeveloped system is a novel application of linked data in that it combines an RDF/OWL semantic web approach with an emphasis on supporting collaborative small-scale authoring and flexible presentation. A parallel can be drawn with the CultureSampo project which is a system developed for publishing heterogeneous linked data as a service (Mäkelä and Hyvönen,2012), though the current application of CultureSampo only uses contributions from established, large information providers whereas our toolkit is being developed to meet the needs of community organisations.

The reengineered system allows for integration with social media tools such as Facebook and Twitter and a blogging section with comments enabled will be trialled. We believe that the use of social media can facilitate the transition of Hebridean Connections to being an online community without compromising the integrity and validity of the core data structure which will remain protected and only editable by approved individuals.

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A pilot system is currently being trialled with the Hebridean Connections team. The new system will be launched in October 2013.

7. Conclusion

This paper has provided insights into the challenges and opportunities that digital archives present for community organisations. Our findings are consistent with the literature on community heritage resources in the respect of the memory work of communities and the disorderly nature of the process for collecting, archiving and cataloguing information in these communities which leads to challenges of sustainability of community heritage resources in the long term. We found that a key motivation for the development of Hebridean Connections was a desire to capture and communicate the heritage (as understood by the community) of the Outer Hebrides.

Our research has contributed additional understandings regarding the relationship between digital cultural heritage initiatives and traditional heritage initiatives.

Through our research we found that the network of groups and associations involved with cultural heritage in the Outer Hebrides is complex and it is difficult to disentangle the impact of one from the others. Hebridean Connections can therefore be considered as just one element of a very rich and heterogeneous range of heritage activities that are occurring in the Outer Hebrides.

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Participation in Hebridean Connections was reported in positive terms by respondents overall and many cited that it was a good way to reconnect with diasporic populations and that they believed that this would encourage tourism. It was also reported that the system of linked records added value to the collections as previously undiscovered connections could be made that would not be possible without the electronic resource which strengthens the rationale for developing a system based on semantic linked data. A key finding, however, was that interviewees were concerned about the prospect of users of Hebridean Connections being able to directly contribute records and make changes to the database. While diasporic users sending in photographs and other records was reported in positive terms, there were concerns raised that allowing direct authoring by users may cause quality control problems. Instead, it was proposed that social media tools could be utilised to encourage discussion and community building between users but would allow the central database to remain protected and only the core project team would be able to validate records. This is an interesting finding as it demonstrates the practical concerns of community groups about co-production and the role of user generated content in community history.

Initiatives such as Hebridean Connections present certain challenges and conflicts between the desire to open up heritage to a wider audience while at the same time allowing the community to present their own narratives of history based on community traditions and customs of remembering. With semantic linked data there will be even more opportunities for data to be linked with other collections, reused and 'mashed up' with other collections by external websites and apps. There will be a ***'This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://hdl.handle.net/2164/2984>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'***

need for further research in future to determine what the impacts of this are and also to investigate potential negative impacts such as whether communities feel that this leads to a loss of control of their data.

As this paper has identified, Hebridean Connections project is currently in abeyance and it is clear that sustainability is a major barrier to the success of these projects. This paper has introduced the open source toolkit which is being designed to help overcome some of the barriers to sustainability that have been identified. We do not believe that software tools alone are the solution to sustainability of community digital archive initiatives and in particular recognise that there are training and support requirements that must be considered in order to ensure that communities are able to develop and maintain digital cultural heritage resources.

A limitation of this paper is that the re-developed system is not yet live and so it has not been possible to present an analysis of the impact of the system. Future research is planned to capture how the toolkit is received by the user communities and to evaluate the impact of the new resources.

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