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TITLE:

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Publisher citation:

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**Supporting Digital Humanities
Copenhagen, Denmark, 17 - 18 November 2011**

Creating Sustainable Digital Community Heritage Resources Using Linked Data

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Abstract

The CURIOS project investigates how digital archives can support interest in local heritage and, in doing so, can contribute to community regeneration and strengthened community cohesion. Software tools that utilise semantic web/linked data technology are being developed to build a general, flexible and 'future proof' software platform to assist remote rural communities to collaboratively maintain and present information about their cultural heritage. Under this broad programme of research we are investigating how online cultural communities are transforming the ways in which local history is 'written' and remembered. Empirically, we focus on digital cultural heritage resources managed by community groups in remote and rural parts of the UK. Researching community-led initiatives enables us to explore how locally managed digital heritage resources can support sustainable rural areas.

Introduction

This paper will focus on the presentation of findings from the first case study of CURIOS, Hebridean Connections, which is a community managed, online historical resource. We introduce the paper by critically reflecting on the meaning of community heritage and the implications digital resources have for its preservation and communication. In doing so we discuss the potential impact of digital engagement on the local community and the broader range of users from diasporic communities, tourists and other user groups. We identify and discuss potential tensions between the values of heritage 'gatekeepers' and the possibilities of a virtual archive. We argue that digital spaces for stor(y)ing cultural objects has the potential to reconfigure locally-held understandings of community and place. We then go on to outline some of the challenges that face electronic cultural repositories for local historical information and, finally, we briefly outline the development of our cultural heritage 'toolkit' which seeks to overcome some of these challenges.

We focus in particular on interview data conducted with key stakeholders in the initiative. Interview participants included representatives from existing and potential data depositors, the local historical associations or 'Comainn Eachdraidh', as they are known in the local Gaelic language; individuals with direct involvement in the

management of Hebridean Connections, and; representatives of affiliated organisations. The interview data has been analysed and synthesised using a combination of inductive and deductive data analysis. The findings are presented under thematic headings and linked to key literature where appropriate to assist with the formation of theoretical understanding.

Background

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. Place identity is typically important to the self-identification of local residents as well as to the rural diaspora. This cultural distinctiveness is dynamic given traditional cultural practices are reproduced and new forms of cultural expression are introduced as cultural systems evolve and adapt to new social and economic circumstances and heightened mobilities. This, Cloke et al. (1992) suggest, leads to an inter-mixing of the 'traditional' and the 'modern' in everyday activities in rural areas. Paradoxically, it is argued that the geographical marginality which has been the underlying cause of rural areas' relative economic fragility in the recent past, has protected traditional forms of 'culture' which, in the post-modern era, are being valorised to determine future development trajectories.

Forms of cultural expression, such as story-telling, oral history, music and song, poetry and literature, dance and drama together with material objects, artefacts, sites and cultural spaces are both resources for interacting with the past and for experiencing the present. Moreover, by making them accessible for recreation, leisure and tourism consumption, or by transforming them into commodities as part of the 'creative countryside' (Bell and Jayne, 2010), they also represent a major economic asset.

These tangible and intangible aspects of culture are both a property of people and of place and with direct, indirect and non-use values. Yet the immobility of these cultural resources means that access, for whatever purpose, has often been place dependent and restricted to certain members of a local community. Moreover, because the above 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).

Community efforts to collate and manage different kinds of cultural forms and resources are commonplace. They are often heavily dependent, however, upon short-term funding and long-term efforts of a few dedicated individuals. They also involve, in many cases, the expensive maintenance of cultural spaces in e.g. community buildings.

Cultural repositories based on information systems offer scope for community groups to widen participation in cultural activities in rural areas and enable their consumption independent of place, at a relatively lower cost and with fewer human resources. Different types of 'e-cultural communities' have been established through government-led initiatives or by the self-determination of local voluntary groups. There is little evidence or understanding to date, however, of the technical and social processes involved in their construction and use.

The ability to derive the most value from forms of tangible and intangible cultural heritage is being linked to technological innovations to aid both long-term preservation of cultural heritage and to drive new models of public engagement. The main challenge for the UK's cultural sector is, therefore, how to create "smart aggregations of digital collections and open source tools and methods for designing systems (Museums Computer Group, 2011, online). At a European level, the opportunities and challenges associated with 'digitising culture' are reflected in the recent 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" (EU and Comité des Sages, 2011: 4).

Despite a general consensus that cultural diversity should be maintained, and the intangible traditions of different cultures 'safeguarded' or, in the case of material sites and artefacts, 'preserved', culture's contribution to enhancing rural well-being is very difficult to fully understand due to the following analytical problems. First, the concept of 'culture' is itself abstract and multidimensional and

subject to multiple interpretations across different disciplines. Second, many aspects of culture (and heritage) contribute to economic activity indirectly through non-market benefits and have public good characteristics which are complex and difficult to measure. Third, societal preferences for different dimensions of cultural diversity (embodied in people, in material artefacts and at the landscape interface) are themselves subject to the principal of cultural relativism.

There are real obstacles to reaching a common understanding of what is, or should be defined as 'rural culture' and how the formation of online cultural communities might contribute to rural well-being. A lack of strong theoretical grounding is because the nature of cultural phenomenon has lent itself to sectoral (and usually local and empiricist) development studies – such as cultural tourism, local food culture, historic buildings and agri-environmental heritage. This focus on sectoral rather than territorial approaches to cultural heritage presents challenges for identifying an appropriate conceptual framework for this project.

The work of rural development theorists such as Ray (1999), Jenkins (2000, Marsden (1999) and Bryden and Hart (2001), suggest that responsive rural development strategies should derive competitive advantage from less mobile assets, including cultural heritage, which are protected from, or not subject to, global competition. They argue that tangible and intangible aspects of cultural heritage assets are both a property of people and of place and with direct, indirect and non-use values. However, because they are often public or common goods, they need to be developed through some form of state or collective action (Bryden and Hart, 2001).

As indicated, the CURIOS project incorporates in-depth analysis of the social and cultural factors that influence the development of local cultural heritage resources, the structure and evolution of these communities and their relationships with digital technology. After Pierre Nora (1996:2) we understand these initiatives to have arisen because "the institutions that once transmitted values from generation to generation - churches, schools, families, governments - have ceased to function as they once did". Such community initiatives fall outside national institutional frameworks. As such, they disrupt conventional knowledge-power asymmetries associated with professional endeavors in the heritage sector. One consequence of this is that local people then become the 'gatekeepers' of heritage and select what to commemorate based on their own customs of remembering.

On the other hand, we recognise 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, we are sensitive to the evidence which 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. 10). In doing so, we are alert to the ways in which 'place history' is subject to alternative understandings which, in turn, shape the

nature of digital archival resources, their content, management and uses.

This area of inquiry also raises questions about how digital archives can inform identity and discourses of belonging and identity in return. The social histories of peripheral areas in the UK are marked by emigration and prolonged outmigration. The development of digital technology enables local heritage archives to become a meaningful identity resource for an international community, who previously had no access to them. Consequently, 'memory work' taking place at a very local level can develop wider spatial meaning.

Hebridean Connections and Disconnections

'Gatekeepers': Comainn Eachdraidh and Local Archives of Place

In contrast to professional heritage practices, community heritage is a 'messy' endeavour. Whilst some Comainn Eachdraidh have been professionalised, and maintain museums open to the public, others continue to be informally run and prefer not to be beholden to external organisations and legislative responsibilities. As such, we found that community 'archives' embrace different 'registers of order and disorder' (Lorimer and Philo, 2009).

The voluntary and fluid nature of Comainn Eachdraidh activities mean 'foraging' for new information is a sporadic activity, often dependent upon project funding and volunteer effort. The reliance on volunteer efforts means that, to a degree, the community archives represent individual interests, enthusiasm and knowledge: the historic collections are, therefore, selective and partial and rooted in local understandings of historical value. Comainn Eachdraidh can be reactive and proactive in their foraging practices. For example, Comainn Eachdraidh have applied for external funding to support topic-specific historical research. The employment of contract-staff enables more systematic 'gleaning' and 'archiving' practices to be adopted for the period of the project, typically involving oral history interviews with older members of the community. Several Comainn Eachdraidh told us about a village event on a particular historic event or topic, which were organised in order to enable what Halbwachs (1926 and 1950) refers to as 'social remembering'. On such occasions, individual members of the community acquire, localise and recall their memories in interaction, thereby generating more oral intangible data and accompanying artefacts.

Between times, the collection is usually shaped by what people choose to bring to a Comann Eachdraidh, whether it be artefacts, stories or genealogical information. One interviewee told us: "Even last night. You know – somebody came in with a currag; one of those white lacy hats that... a set of cuffs". (Interviewee 2) Lorimer and Philo (op cit. 250) argue that it is the very haphazardness of such collections which give them value. In contrast to professional endeavours which focus on official sources, community gleanings capture "the stories from below or, indeed, from within, the feelings, the joys, the frustrations, the elations, the angers, the senses of accomplishment or loss, the passions of pleasure or despair, that arguably

linger more palpably in certain sources than in others". According to Stevens et al (2010:60, original emphasis) "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".

The 'backbone' of the local collections are croft¹ histories: genealogical information archived according to each smallholding and the houses on it. The croft histories lend themselves to being ordered but a lack of continuity of volunteers and a lack of standardised practices means that even these can be 'disorderly':

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)

One consequence of these processes of community heritage is that Comainn Eachdraidh can have multiple forms of cataloguing, archiving and content management. An absence of standardised processes over time, mean that the process of preparing data for Hebridean Connections is both a resource issue and an ideological issue.

On the other hand, all the ways of remembering which the Comainn Eachdraidh have been reliant upon are 'withering' (c. Nora, 1996). 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) An undercurrent of fragility runs through these organisations, as the principles upon which information has been gleaned, recorded and ordered are being threatened. There is a prevailing sense that organisations are literally 'running out of time', as this interviewee articulated:

[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)

At the same time, the physical condition of the archives are themselves fragile due to the nature of the buildings in which they are housed:

There's a lot of text we can't display because it just keeps falling off the walls. It's so damp in here. (Interviewee 2)

It's surviving at the moment. In fact, we're amazed sometimes at how well it does survive. There is a certain amount of

¹ A 'croft' is a small-holding recognised under Scottish crafting legislation, which protects the rights of tenants

dampness but it's not too bad. We've got heaters going all the time right throughout the year, storage heaters. (Interviewee 5)

Hebridean Connections – and the digital open source era – is in part a response to these changes; a way of preserving records and data in a more systematic way which is accessible to 'all'.

The development of Hebridean Connections and its fit with other Cultural institutions.

From the interviews with stakeholders and analysis of secondary material it has been determined that Hebridean Connections can be seen as a linked but separate initiative from the Comainn Eachdraidh. The main driving force for its development was a member of one of the Comainn Eachdraidh who also had a background in IT and who recognised the possibilities of 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. 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 relationship between Hebridean Connections, the Historical Societies and other local initiatives is rather complex due to many of the same people being involved in all local initiatives. The Historical Societies have a broader cultural and societal role rather than simply presenting history and many have projects of their own that they are undertaking. For example, one interviewee indicated that his Historical Society had been awarded funding to create electronic tourism tools.

The 'bottom up' approach to Hebridean Connections' development, coupled with the fact that the records come from community resources, mean that Hebridean Connections can be viewed as a community-created online historical resource which represents "how the community is remembered itself" (pers. comm., Hebridean Connections representative, 17 Feb. 2011). 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 selective and can be seen as an 'interpretive object' (Interviewee 11).

By falling outside of national institutional frameworks, local people are the 'gatekeepers' of their own heritage and are selecting what to commemorate based on 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 historical associations. Additionally, the website encourages contributions from its users and, therefore, has the potential to foster reciprocal knowledge exchange across geographical boundaries.

However, issues of resourcing and management have meant that the current model of Hebridean Connections is unsustainable. The technical development of Hebridean Connections was outsourced to a private company who developed a proprietary system. 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. As the funding for the initial development expired some time ago the website has fallen into abeyance and no new developments have been made.

Strategic Aims of Hebridean Connections

Analysis of interview data revealed that Hebridean Connections is typically seen as having two main aims:

- To provide a resource for the Historical Societies 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 respondents 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. This was not universally reported in a positive manner by respondents and there was evidence of tensions between the members on this issue. One respondent reported that they were disappointed that the Comainn Eachdraidh did not receive direct revenue from the website. On the other hand another respondent commented that they did not want the website to charge for access to content. Instead, they believed that the potential for economic benefits could be indirectly acquired by Hebridean Connections users from around the world visiting the Outer Hebrides as a result of finding out information about their heritage on the website. The issue of raising revenue and making economic gains from electronic cultural resources is interesting and will be investigated further in future work.

How Hebridean Connections is viewed by Comainn Eachdraidh

Despite the controversy over the business case for Hebridean Connections as a revenue raising site respondents held largely favourable views towards it. In particular it was reported that Hebridean Connections allowed local histories to be captured and passed on to a wider audience. There was concern expressed about the ageing population and the risk that local knowledge would be lost:

The way I see Hebridean Connections then and now is that so much information has been gathered over the years in the individual Comainn Eachdraidh on a voluntary basis and so much of the information is contained still in people's heads. And 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... We have thousands of photographs, we're now attempting to link the

photographs with the croft histories. We've got anecdotes about people, we've got poems about people, we've got photos of the houses they lived in and as they communities here change and as more people come in from the outside with no connections with the original communities, so the information gets more and more fragmented. In a way Hebridean Connections is a good way of getting the minutia captured. (Interviewee 1)

Other respondents commented that the digital element may encourage younger people within the community to participate as they were more engaged with digital technologies. In addition, respondents 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, [for HC] 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 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)

This notion of added value by making links between artefacts was highlighted by a number of our interviewees who indicated that with digital resources you "... 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). This indicates the potential electronic cultural repositories have for transforming the way that local history is understood as new connections and links are made.

There were also some concerns raised amongst respondents regarding Hebridean Connections. Several respondents commented that there were initial concerns raised amongst Comainn Eachdraidh that they were 'giving away' their data and therefore losing control of it and potentially allowing others to make money from their research. Those involved in the first phase of Hebridean Connections pointed out that it was not the case that copyright was transferred and that this was a misunderstanding on the part of some Comainn Eachdraidh. The concerns about ownership are, however, an example of the tensions that can manifest with the creation of electronic cultural repositories.

There was also evidence of concerns that putting material 'out there' on the Internet would be a barrier to people physically going to visit collections. Other concerns raised included the labour involved in preparing, digitising and cataloguing materials for Hebridean Connections, with the

limitations of the existing system meaning that this was a greater problem. The fact that the current version of Hebridean Connections is currently in abeyance was also raised as a concern about the long term sustainability of the initiative, particularly given a 'relaunch' and additional marketing would be required.

Barriers to Engagement and Generic Toolkit development

Data collection and analysis of the findings from the first case study have revealed a number of motivations for and barriers to the effective development of electronic cultural information system resources.

Although it has been determined that Hebridean Connections arose from particular cultural, historical and social factors that have resulted in a novel resource, a number of the problems identified will be common to all locally developed electronic cultural heritage resources:

- The proprietary nature of the current system means it is costly to run and to make modifications.
- The software was not specifically developed for local history resources and is therefore restrictive.
- The system has usability problems for both the historical societies to input data and for the end users of Hebridean Connections to access the records.
- The current system does not make optimal use of social media to encourage user contributions whilst maintaining the integrity of the core database of artefacts.

CURIOS seeks to investigate the hypothesis that the technology of the semantic web, and in particular Berners-Lee's (2006) principles of linked data organisation, can make a key contribution to making cultural heritage resources more sustainable. The use of linked data naturally allows for collaborative authoring of information, distributed responsibility and the direct exploitation of national and international resources which will help overcome the barriers to engagement identified through the fieldwork.

There are also a number of existing projects aiming to create 'open' versions of cultural heritage data, including 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. In addition, the ontologies and terminologies used are based on a range of technologies, for instance XML and distributed databases as well as RDF/OWL. Our proposed work is a novel application of linked data in that it will combine an RDF/OWL semantic web approach

with an emphasis on supporting collaborative small-scale authoring and flexible presentation.

Our starting point will be similar in many ways to that of Jankowski et al. (2009), who present a general approach to using linked RDF data to integrate cultural heritage collections. A further parallel can be drawn with the CultureSampo project which is a system developed for publishing heterogeneous linked data as a service (Mäkelä and Hyvönen, 2011), though the current application of CultureSampo only uses contributions from established, large information providers. In an evaluation of CultureSampo the authors indicated that, by employing semantic linking to heterogeneous collections (i.e. containing cultural heritage artefacts in many different formats), there is great potential for presentation generation and exploratory search support. Further, the authors argue that semantic linking can add value by facilitating links between artefacts which can lead to better understanding of themes or allow the user to make connections more easily.

In addition, the reengineered website will allow for integration with social media tools such as Facebook and Twitter and a blogging section with comments enabled will be trialed. 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.

Transferability

As the development of the re-engineered version of Hebridean Connections continues we are identifying a second case study group to work with, probably in the Cornwall area. As the aim of the project is to create a generic open source tool it is necessary to investigate how well the software can be adapted for use elsewhere. The generic software toolkit will likely be slightly different (although still maintaining the principles of a linked open data system) from the one produced for Hebridean Connections which will likely be tailored to be broadly compatible with their existing system.

As the development of the generic electronic cultural heritage resource will be informed from the findings of the first case study and therefore it is important to identify barriers to transferability of the Hebridean Connections model. The primary barrier identified is the uniqueness of the data collected and displayed in Hebridean Connections. As previously indicated this has been structured around the local custom of croft histories which is unique to the area. The structure of the data helps to facilitate the 'linking' of the records and so it will be necessary to determine how best to structure data from other communities who do not have the same tradition of croft histories.

A further barrier to transferability is the uniqueness of the Comainn Eachdraidh network which allowed Hebridean Connections to come into existence. As has been outlined in this paper, the network emerged as a result of social, cultural and political factors that are particular to the Outer Hebrides. When the second case study area is selected a point of comparison will be how well the

generic toolkit works in a case study area that does not have such a dense network of historical societies. It was also commented by respondents that projects such as Hebridean Connections would work best in rural areas with relatively small populations and places that are culturally similar to the Outer Hebrides.

Several respondents indicated, however, that they were keen to export the idea of Hebridean Connections to other areas and commented that there was interest from other historical societies in Scotland and Finland. Some saw this as a potential way of raising revenue for Hebridean Connections as the project team could act as consultants to assist other areas.

Further social research will be conducted with the second case study group to determine what effect, if any, factors such as local customs, ways of remembering and the composition and structure of local historical societies have on the development of electronic cultural repositories.

Longitudinal Impact analysis will be conducted with both case study areas to monitor user behaviour and engagement with the system.

Conclusion

This paper has provided an overview of the arguments surrounding local cultural heritage resources and electronic cultural repositories. 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.

We discovered that Hebridean Connections arose from the network of Comainn Eachdriadh although its development was largely driven by one individual. We also discovered 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 initiative from the others. This is made more difficult by the fact that people are often involved in multiple organisations with overlapping roles.

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. Interviewees were more concerned about users of Hebridean Connections contributing to the records themselves. 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'.

As the Hebridean Connections project is currently in abeyance it is clear that sustainability is a major barrier to the success of these projects. The CURIOS team aim to help overcome this problem by developing a generic cultural repository platform which will be made available for local cultural heritage organisations to use. We will

test the transferability and impact of this toolkit by working with a second case study group and refine the system as necessary.

Acknowledgements

This work is supported by the Rural Digital Economy Research Hub (EPSRC EP/G066051/1).

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