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Capturing mink and data

Interacting with a small and dispersed environmental initiative over the introduction of digital innovation

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Abstract

The MinkApp project – a cooperation between the University of Aberdeen's digital hub dot.rural (initiator) and the Scottish Mink Initiative (SMI) (project partner) – has developed a digital platform enabling SMI's volunteers to directly upload records of signs and sightings of mink to SMI's main database. While successful already in various ways, the development and implementation of this platform has raised at least two ethical questions (i.e. questions that revolve around responsible practice) that are tightly interwoven with the small and dispersed nature of the project partner. The first question concerns the impact of the innovation on the organisational nature of the project partner. The second concerns dealing with a variety of staff. One of the main insights is that the initiator needs to be sensitive to the diversity of staff from the earliest stages of the project, to ensure the most fruitful cooperation in the long run.

1. Background and technology

The SMI project is the world's largest community-based invasive species management programme in terms of area covered (more than 20.000 km^2). From an ecological point of view, such a large scale approach is important, as small scale efforts are susceptible to rapid recolonisation (Bryce et al. 2010). The programme's aim is the detection and subsequent removal of American mink (*Neovison vison*). American mink is an invasive non-native species that negatively affects native prey populations of water vole, ground nesting birds and other riparian species through predation. SMI's 450 volunteers across Scotland are central to the success of the programme through managing rafts (a floating raft with tunnel and a clay pad to detect mink footprints) and traps (if mink are present in the area). The volunteers are coordinated by three full-time employed SMI Mink Control Officers (mink officers), to whom the volunteers report all sightings, signs and captures of mink. The mink officers, in turn, are supervised by SMI's project manager. The MinkApp project's digital platform enables volunteers to directly upload records of footprints and sightings to SMI's main database. This may facilitate data collection and allow mink officers to focus more on expanding the project area and recruiting additional volunteers to help meet SMI's goal of eradicating American mink (cf. Beirne and Lambin, 2013). The second phase of the MinkApp project aims to increase volunteer retention, motivation and engagement through providing customised text summaries that will be automatically generated on submission of data. This textual feedback will be generated through the application of Natural Language Generation (NLG – Reiter and Dale 2000).

2. Stakeholders

The contribution of small initiatives (with local volunteers) to nature conservation cannot be overstated (Bell et al. 2008, Schmeller et al. 2008). This is despite the fact that in nature conservation, it is often large non-governmental organisations that are in the limelight (e.g. RSPB, WWF). SMI is a partnership between multiple organisations, but its organisational nature is that of a typical small scale environmental organisation: its form and size have varied considerably and success in acquiring grant-based funding is vital. Mink officers are on fixed-term, two year contracts and have no communal office. As a result, there is less face-to-face interaction between staff compared to large organisations operating from main offices.

These organisational features have shaped SMI's interaction with its volunteers; mink officers have developed their own style of interacting with the different types of volunteers involved. And as SMI is managing with very few staff a large number of volunteers over a wide area (consisting of many regions with their own particular characteristics), it has been a de-facto policy of SMI to allow plurality across mink officers in their day-to-day interaction with volunteers.

Stringent funding requirements require information on the social impact that SMI has with its activities. Yet, to help secure future funding, data is also needed about the impact SMI is having on the mink and native species populations. The volunteer networks are the main source of the latter data, and the digital platform developed by the MinkApp team may help in collecting and analysing this data in the most efficient way possible.

3. Issues encountered and ethical questions arising

Following on from extensive SMI-wide consultation and system testing with mink officers and volunteers, the original launch of the online platform was planned for August 2012. The plurality of SMI's dataset formats and concerns regarding this digital innovation by some of the mink officers led the MinkApp team to postpone the launch by three months. During the first months after the actual launch, the MinkApp team received numerous requests from mink officers to make further improvements to the platform with regard to the user interface (for both volunteers and mink officers), data management and data quality control. It may have been the case that behind some technical concerns voiced after the launch, more general but implicit issues with the potential

impact of the innovation were conveyed. These points suggest that the MinkApp team launched the online platform at too early a stage and was not entirely successful in communicating the potential relevance and benefits of the digital innovation for the mink officers (and their volunteers).
Some of these issues probably also stemmed from different interests by those involved (Rotman et al. 2012). The MinkApp team wanted to improve the SMI's state of affairs with regard to data handling and communication between the mink officers and the volunteers. On the other hand, for some mink officers, the launch of the digital platform triggered – understandably – a desire to see a web interface that would continuously be improved upon (e.g. a wider use of drop-down lists, change of webpage lay-out, additional fields, a mobile version of the platform).
Given that it was important to understand how the mink officers had been working, and whether the innovation would affect that, two plenary focus groups and one-to-one in-depth interviews with the mink officers and other key people involved were held. Furthermore, during the implementation phase (November and December 2012), the MinkApp team asked mink officers to keep a notebook, so that their interaction with volunteers became visible to the MinkApp team.
The individual mink officers dealt very differently with the innovation; all worked hard to have the best possible interaction with their volunteers but responded in unique, and in some cases unexpected, ways. For confidentiality reasons we cannot go into detail, but differences between mink officers became apparent in IT skills, intensity of interaction with volunteers, the perceived value of the innovation, and in trust in the innovation.
While it is normal for different personalities to respond differently to change, we observe that the small and spatially dispersed nature of the environmental initiative feeds directly into this plurality of response and uptake. Small and dispersed initiatives benefit from flexibility and speed of decision-making. Yet, staff typically work independently (with different interests, skills, aims and levels of expectation), and are thus likely to appraise the usefulness and purpose of an innovation in different ways. This latter point, we would argue, leads to at least two ethical questions for responsible ICT innovation in this field:

1. To what extent should the initiator take into consideration that its intended innovation may affect the organisational nature of the project partner?
2. How should the initiator deal with the project partner's diversity of staff in a small and dispersed environmental initiative?

4. Lessons learned

While different emphases amongst staff within SMI have become visible over the course of the MinkApp project, the effective gathering and efficient handling of data was deemed important by all. The online submission platform has contributed significantly to these data-related processes, and promises to do so even more in the future. In that sense, the MinkApp project seems a success already. However, in relation to the above posed questions, some lessons can be drawn. These may facilitate an even smoother introduction of digital innovation in future projects that involve cooperation between an academic actor and a small and dispersed environmental initiative.

4.1 Impacts on organisational nature

In principle, we believe that it is up to the project partner to determine if and to what extent it wants to allow an innovation to affect its organisational nature. This does not mean that the initiator should not be critical or carefully consider in what ways the innovation is likely to be used. The latter includes anticipating potential pitfalls that need discussing as early as possible. In the case of SMI, as with all grant funded conservation initiatives, there is much uncertainty around finances, and thus around its long term existence. But it seems realistic to presume that the online platform will become pivotal to SMI (or its potential successor), and to its interaction with volunteers in the future. It seems unlikely that there will be less need for mink officers in this scenario, yet their roles may change, e.g. requiring more system administration related skill. Yet, such focus may be at odds with some of the skills that constitute (what is perceived as) a good volunteer coordinator (e.g. field

experience and communication). In other words, greater ICT specialisation may lead to problems of its own in a small and dispersed environmental initiative.
Furthermore, we received indications that some volunteers became involved because of the human interaction with coordinators. Regardless of whether these kind of volunteers are the exception or not, it begs the question whether the full implementation of a digital platform will, in the long run, exclude those volunteers (and others who are unable or unwilling to use the platform) from the SMI programme (cf. Haklay 2013). While this is not in our hands, we deal with this issue by planning to conduct social scientific research on the uptake of the innovation by volunteers (Hargittai 2002, Warren 2007).
Finally, we mention the importance of a well-planned, step-by-step transfer of both the online submission platform itself (e.g. from MinkApp's to SMI's server), and the knowledge to administer the platform. As the MinkApp project officially ends in September 2014, we are currently training SMI staff to become proficient in these tasks.

4.2 Variety of staff

Firstly, the initiator will need to consider what kind of 'impact' it seeks to achieve (short-term, long-term, directly measurable, etc.). In any case it is inevitable that the initiator cannot control the implementation beyond its own life-span. The process of handing-over will thus determine to a large degree the impact of the innovation and the overall success and sustainability of the project in the long term.
Secondly, we mention the need to balance the initiator's aim of impact, its research priorities, and its expertise (e.g. NLG) on the one hand, with the question of what technology would help the project partner most, on the other. It is likely that the project partner picks up on certain aspects that have less relevance for the initiator. In our case, this proved to be a trial-and-error process in which frequent communication, and some flexibility of all parties, was key to allowing us to move forward together.
Finally, enthusiasm by pivotal individuals in the project partner is much needed, but it is important to assess if this enthusiasm is, or can be carried by all relevant individuals. In this sense, thinking of the project partner as a uniform block with the same interests and aims should be avoided. There are many practical actions that can and should be taken to ensure common understandings and aims. For instance, we have organised numerous pre hoc, ad hoc and post hoc meetings (plenary and one-to-one) (cf. Kim et al. 2011). Moreover, we agreed on post hoc reinforcements and specifications of agreed tasks, e.g. we asked SMI to list and prioritise any requests for system changes and feed this into the weekly MinkApp meeting through SMI's designated representative. However, our case shows that underlying barriers to the innovation may be at play that cannot necessarily be addressed by the initiator directly (e.g. uncertainty about the impact, distrust). Therefore, when working with individuals with a large degree of independence within small and dispersed environmental initiatives, it is important to bear in mind that the success of introducing an innovation is perhaps less about technical dimensions, and more about creating and sustaining trust, commitment, managing expectation, clear communication and understanding the ultimate aims of the project partner at different levels of operation (cf. Rotman et al. 2012). Openness about the initiator's own aims is key in that process, as it allows anybody in the partner organisation to see that the initiator is there to help, and that in the long run, the innovation can only be what the key people using it, make of it.

5. Conclusion

When interacting with a small and dispersed environmental initiatives over the introduction of digital innovation, it is likely that there will be an array of attitudes, abilities, interests, priorities and opinions which – more than in larger, institutionalised organisations – are directly linked to the staff's large degree of independence, individual modes of operating, and limited level of centralised, top-down decision-making. This may result in working relationships with fewer formal stipulations of

roles and responsibilities. It is in the initiator's own interest to balance rigorous terms of reference for interaction and delivery, with trust-building and positive engagement. The latter mentioned part of the balance is particularly important when (technical) issues arise that may well be symptomatic of hesitant attitudes towards the innovation as a whole.

Given that small environmental projects are crucial for the delivery of nature conservation at the national level, it seems appropriate that more consideration is given in ICT projects to how these project partners deal with digital innovation from an organisational perspective. We have shown that there are several mainstays that can help to ensure the quality and sustainability of developing and implementing digital innovation together with small environmental initiatives.

Attribution

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