

Connecting Communities: Stories of Digital Adventures in a Third Sector Organization

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Abstract—This paper aims to give an overview of the implementation of read and write back Quick Read (QR Codes) and Radio Frequency Identification Data (RFID) technology to a third sector, charity organization. The context of the research project is the Internet of Things and this particular "snapshot" of the research created tagged items with a story or history of that item, which was then accessible to customers of the charity via relevant mobile apps. The paper discusses issues around knowledge and knowledge browsing, the background to the project, the initial pilot, the regional trial of ten weeks and the journey towards national roll out. Then, the paper considers aspects of knowledge recovery and concludes with thoughts about knowledge sharing.

Keywords-communities; third sector; QR codes.

I. INTRODUCTION

In order to attempt to "connect communities" we must first examine the medium we use to connect – and that is knowledge. In its simplest form, knowledge can be categorized, as explicit or tacit knowledge [1][2][3][4][5]. Members of a society produce knowledge via raw information. Society in general is organized into many different systems, (organizations), which are often controlled by technology. Within organizations knowledge systems utilize the available technology in order to undertake particular parts of the information management process – including careful planning of the way in which the information flows within the organization structure – resulting in overall improved control of the way in which the knowledge is managed. Due to the current, continuous nature of change in organizations today, it is critical that managers are able to respond and take prompt decisions. For example, new tagging technology can provide a means of improving business performance by offering a new way of browsing, recovering and sharing information such as an estate agent who is able to measure the performance of property adverts in local papers by offering clients the facility to "read additional information" via QR codes placed beside the property photo.

Another example is that of a recruitment manager who could dramatically affect the induction process by setting up

a process for leaving "hidden" memories in the form of messages embedded in QR Codes, on items in offices, such as printers, keyboards; desks; walls, in order to speed the levels of efficiency and effectiveness, and again improve performance of the organization. The charity store manager may have the facility to personalize each donated gift through a technological facility where customers can listen to powerful memories associated with objects by "reading" the QR code. In these examples, knowledge that was tacit becomes available – available for others to browse; available as a form of recovered information (known but never written) and almost a type of mythological knowledge; and knowledge which is available to be shared using new forms of technology. All of these aspects are part of a broader discipline of knowledge management that can be defined as the process of locating, organizing, transferring and using the information and expertise within an organization. More formally, knowledge management can be defined as "the generation, representation, storage, transfer, transformation, application, embedding and protecting of organizational knowledge" [6] and this is the one that we consider best represents the work outlined in this paper. The old adage that the overall success of the organization, however, rests on one aspect, that of sharing information is still true, but with the onset of social media and newer more accessible technologies the ways of dealing with knowledge is changing. Now it is easy to share and indeed sometimes, difficult not to share.

What has become important and what will be discussed next is the ability to both "browse knowledge and to recover knowledge" and to show how tagging technologies can be applied in these areas.

II. KNOWLEDGE BROWSING

The confidence to browse suggests that an individual or organizations are comfortable in a context to afford them the time to survey products, services and perhaps people with whom they would like to connect. The act of browsing also suggests an open-minded disposition that is receptive to new modes of practice and interested less in finding answers to specific questions, but to understanding novel solutions, or even opportunities of which they were previously unaware.

What is important in this technological context is that aspect of browsing which we can define as “uncertainty”. We will deal here with organizational uncertainty. Uncertainty can be viewed from two areas, that of “relational uncertainty” [7], where it is difficult for employees to predict the beliefs and behaviour of colleagues and that of “informational uncertainty” where the accuracy of the actual information is called into question- as addressed in the information seeking literature [8][9][10][11][12]. Both these areas are concerned with three issues. The first is the trepidation experienced by organizational members about levels of accuracy and quantity of information; the second issue is about both trusting the source of the information and a willingness to trust co-workers enough to share information whilst the third issue is about having sufficient relevant knowledge to make quality decisions. All of these issues are becoming clearer through the use and application of new forms of media and technology.

III. THE CASE STUDY – CONNECTING A COMMUNITY THROUGH KNOWLEDGE

The project known as Tales of Things: Electronic Memories (TOTeM) aims to apply digital technology to the public at large, to business and to ensure that new kinds of technology are available and in a format which can be used by all sectors of society. The research is multi – institutional (Edinburgh, Salford, Brunel, UCL and Dundee Universities) and multi –disciplinary, and arises out of a research council Digital Economy Programme. During the project, a small pilot was launched working with a third sector charity store whereby a number of donated items were “tagged with QR codes which were embedded with the memory or history of that particular item. So, for example a teapot may be tagged with memories of families growing up and a variety of celebrations; a scarf may be tagged with memories of cold crisp winter days and so on. Audio facilities were located placed in the store, so that voices could be heard re-living the memory. In this way a very powerful atmosphere was created which enhanced the selling process and made the process of buying connected with the process of donating.

The short pilot was very successful with all the items sold and a high rise in revenue during that week. The value of the goods had been increased by the connection with memory. Later in the project, as the charity became familiar with the work, the team were involved in a larger study which involved ten charity shops over an initial period of twelve weeks. The team developed an App for use with iPhones that would encourage customers to try out the technology for themselves. The App could be downloaded to any Smartphone and used to read the QR Codes. Many items were tagged with QR Codes and placed on the shelf, ready for customers to read using mobile phones. The “stories” were interesting and varied – for example, the memory about a Party Dress (worn on a first date) to a pair of trainers (worn when running city Marathons) to memories of teapots and favourite cookbooks.)

A press launch took place and considerable interest was shown in the work. During the following ten weeks, 166 customers were interviewed about their experiences using

the technology. The results were positive with most people enjoying the innovation and the novelty of accessing previously denied information. Donors’ tended to spend less time leaving stories at drop off points, but buyers were keen on hearing the stories.

IV. KNOWLEDGE RECOVERY: THE CONTEXT OF MEMORY

Knowledge recovery is a new term and one that can be used to discover and recover information – to find out about memories and about identities of artifacts, to engage almost with history. This kind of knowledge is embedded personally in an individual experience and depends on other factors such as personal belief, perspective and the accepted value system, Gourlay [13] discovers that tacit knowledge has the identical phrase and defines it as practical know-how. It is informal rather than formal among professional groups including managers. What is particularly interesting is that new forms of digital technology are used to enhance this process. For example, the web site talesofthings.com that allows users to record a “tale” about any object and to upload to a database, is a form of both knowledge sharing and knowledge recovery. As individuals we are able to share with relative ease, however this becomes more problematic for us as we spend most of our lives dealing with or as part of organizations that operate within an ever-changing external environment. How then, can knowledge recovery both implicit and explicit be enhanced through digital technology? We may start to approach this problem by analyzing types of societies. This may be helpful as it allows us to consider the aspect of sharing information and the management of knowledge from quite different perspectives than technology and sociology. For example, Van der Rijta [14] was concerned with the two concepts of societies which displayed characteristics associated with individualism and collectivism. These types of societies are important and provide means of charting differences in the concept of sharing [15][16].

V. KNOWLEDGE SHARING

Sharing generally happens within the context of an information system or a knowledge management system. For example, the work carried out in 2004, [17] concerned a virtual learning environment for French Physics teachers. This was an important study as it showed how the sharing of knowledge through the use of IT could be used to successfully “mediate” information, learning and understanding. Yet, the popularity and availability of social media sites has made “sharing” a much more social activity. Sharing in organizations only takes place where there is trust and where there is a shared feeling of ownership of goals. The reasons behind the tendency to share are based on the kind of interpersonal relations between co-workers inherent within the organization and the effects of social relationships

on organizational teams. Strengthening the social relationships between individuals in the team is crucial in motivating team members to share knowledge.

The current thinking in the research community about knowledge sharing within organizations is that barriers to knowledge sharing can be classified into individual barriers, organizational barriers and technology barriers. The UK has a rich array of examples where attention has been paid to knowledge management initiatives in order to set up major knowledge management systems, e.g. the Health Service and Banking sectors. Although these have not always been wholly successful, UK companies have taken up the ideas of knowledge management and have endeavored to identify and overcome barriers to sharing [18]. Of particular interest is the work [19], which investigated knowledge sharing capabilities and knowledge development needs in the context of East-West technology. However, in order for even the most basic KM system to work effectively, as we have seen, (above) there must be a sense of trust in the organization and this trust is crucial to the open sharing of information. Sharing only takes place where there is trust and where there is a shared feeling of ownership of goals. Within a business, this is often done through a framework of knowledge sharing networks. For example, Dyer and Nobeoka [20], on the Toyota's network can be seen as a purely classical way as having solved

“three fundamental dilemmas with regard to knowledge sharing by devising methods to (1) motivate members to participate and openly share valuable knowledge (while preventing undesirable spillovers to competitors), (2) prevent free riders, and (3) reduce the costs associated with finding and accessing different types of valuable knowledge. Toyota has done this by creating a strong network identity with rules for participation and entry into the network. Most importantly, production knowledge is viewed as the property of the network”.

VI. CONCLUSION

There seems to be a high-degree of interest in the project and the responses have been mostly positive, but the user statistics suggest that this has not yet translated into “a story for every object”. An Android application may have helped gather more stories and questionnaire responses, although iPhone users were the most prolific respondents to the questionnaire. The creation of an iPhone application for this trial can be justified by the results on Smartphone usage. The work is ongoing and evolving as both the technology changes and communities become less fragmented as knowledge is recovered and new knowledge is added, and ultimately memories are enriched.

The digital adventure of sharing, of connecting communities both locally and globally is ongoing, exciting and dynamic. The ability of technology to radically shift our perception of value is changing the life of communities towards more sustainable futures.

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