USING NEXT GENERATION SERVICE ORIENTED TECHNOLOGIES TO ASSESS CULTURAL HANDLING OF INFORMATION COMMUNICATION TECHNOLOGY

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ABSTRACT

Much work is under way with developing aspirations for innovation and new competences for use of Information Communication Technology (ICT) to identify the areas in which ICT use is strategically important to support operational, business and practices across the arts sector. This paper provides findings of an in progress Arts Council funded research project that is related with enhancing competitiveness in the use of ICT across creative and cultural organizations located in the North West and Eastern regions of the UK. The development process employs a specifically designed User Needs and Innovation Development Framework approach to allow user organizations developing zones of peripheral participation in Communities of Practice (CoP) where the apprenticeship of novices is enacted. The approach aims to identify best practice of ICT in cultural industries in order to develop a Knowledge Community Portal to allow the CoP in becoming better informed about business objectives, choices and implementation strategies towards a better understanding of development practices. With this in mind, the paper presents organizational and community requirements based on experiential activities using next generation service oriented technologies and current governmental policy innovations. It concludes with some early findings about the knowledge transfer process itself.

KEYWORDS

Web Community, Next Generation Technologies, Arts Sector.

1. INTRODUCTION

The Achiever (Assessing Cultural Handling of ICT, Enabling Value-Enhancing Responses) project is directly funded by the Manchester Digital Development Agency (MDDA) and it is part of a larger national project (Ambition) that is funded by the Arts Council, England. The Ambition project "aims to enable UK arts organizations to develop the effective use of current digital technology in their business and artistic pursuits improving their offer and competitiveness in a 21st century market" (Slacther, 2007). Recent studies conducted by the MDDA suggest that the arts sector's ICT and digital content capability is below average. Their work has shown evidence that there is a lack of ICT inclusion; specifically in the areas of formal strategic documentation, budgets and capacity planning, and organizational development thinking. In turn, the Ambition project has targeted seven arts organizations from the North West and East regions of England (Tier 1) to fully support them to intensively implement significant changes towards ICT adaptation across all their operational, business and artistic practices. Ten further arts organizations from the North West and East regions (Tier 2) will then partly be supported to achieve their ICT adaptation in a more self-driven process by utilizing resources and experiences learnt during the Tier 1 arts organizations ICT adaptation process.

The Achiever project aims to develop a web based knowledge portal, which will aid the knowledge transfer across the involved arts organizations. It is our approach that the knowledge portal should tell the stories of the arts organizations as they change as well as describing, how and why they have done so. To achieve this, we have employed a specifically designed methodological approach in order to:

- Identify existing good practice in the sector with particular reference to where ICT is currently or strategically important.
- Develop a knowledge community portal as an online mechanism for supporting the sustainable sharing of good practice in the sector.

- Appreciate the reflection on organizational and sector change as a method to assess the knowledge transfer process itself.

With this in mind, the paper presents the ongoing findings of the Achiever's aforementioned activities that are associated with developing the web based knowledge portal to aid knowledge transfer occurred from within the arts sector community when these undertake the ICT adaptation challenge. The paper's main goal is multi-fold: firstly, to present our methodological approach; secondly, to describe findings from our approach, which have led to the development of an underlying model as the basis for our system prototype and finally, to conclude with some ongoing findings with regard to the knowledge transfer process itself.

1.1 Methodological Approach

We employed a specifically designed User Needs and Innovation Development Framework (UNIDF) approach. Our approach synthesizes a number of Participatory Design, Social Network Analysis and Rapid Application Development activities into various development stages. The process is drawn from a body of user experience and it aims to be an iterative approach as a whole, since it will be re-cycled throughout and in each development stage using next generation technologies. Our approach (see Fig. 1) - employing conventional methods and other next generation technologies - appreciates that this user community as a Community of Practice (CoP) will require the following levels of support:

- The first level is about familiarization and awareness. The user community as a CoP needs to be made aware of the existence of the UNIDF approach and its process and benefits for them.
- The second level involves using the UNIDF approach in practice. Here, the approach is used for assisting and enabling users to participate, network and develop cross-sector coherent implementations.
- The third level assumes a level of expertise amongst users so that they can use the UNIDF approach for criticism and for sustaining the user community by sharing experiences and innovations with a wider CoP. This is also serving as the vehicle to sustain user community and ultimately, gather evidence for critical analysis and evaluation about our methodological approach.

2. THE WEB BASED KNOWLEDGE BASE PORTAL DEVELOPMENT

This section describes the process in which early findings have led to. The use of a development framework, the development of an underlying model towards the development of a relevant web based knowledge portal, the implementation of the portal and the testing of specific portal functionality.

2.1 User Needs and Innovation Development Framework in Practice

First, we employed focus groups involving stakeholders from arts organizations of both Tiers. The aims of these were to create a baseline understanding of how the participants perceived themselves and their peers and their organizations in terms of experiential and learning change as well as the influence and use of ICT. Various elicitation techniques were employed in a manner inviting participants to consider experiences in the past, present and future. This was done in a manner with regard to their work experiences. Participants were also provided with the opportunity to discuss these matters in an informal peer group setting.

During the focus groups, we exposed participants to a case study describing the use of ICT by an arts organization and collected information regarding its perceived usefulness in terms of what aspects of the case study participants found of interest to themselves as well as what they felt may have been lacking. This was useful in feed back to NMP, a consultancy whose task was to produce an initial batch of six case studies, which were to form the basis for us to observe the manner (and identify the underpinnings for a model) in which it would be beneficial for arts organizations and trigger them to prepare and publish their own stories and case studies using next generation technologies. An important aspect of the results collated from the focus group content analysis was that participants wanted online case studies to contain navigation to other relevant case studies. Further, participants expressed views on specific aspects of the organization, the nature of their job, what they thought and felt, and the work environment (social and physical). To achieve this, we

employed content analysis of nine textual case studies; three of these were developed by independent sources with the remainder being provided by NMP. The overarching aim was to identify key categories and produce a taxonomy of types of information that would inform the design of the knowledge base. The taxonomy served two related purposes; it allowed the tracking and analysis of how users tag and search information within case studies, and; it helped to provide guidelines to the users on how to tag and search information. An inductive grounded theory approach was taken for this analysis. Each case study was analyzed in terms of structure and content (types of statements) being made as well as supporting categorizations. Content analysis was also used with the data collected in the focus groups described earlier. The participants perceptions of organizational change and learning were identified, as well as, their experiences of using ICT.

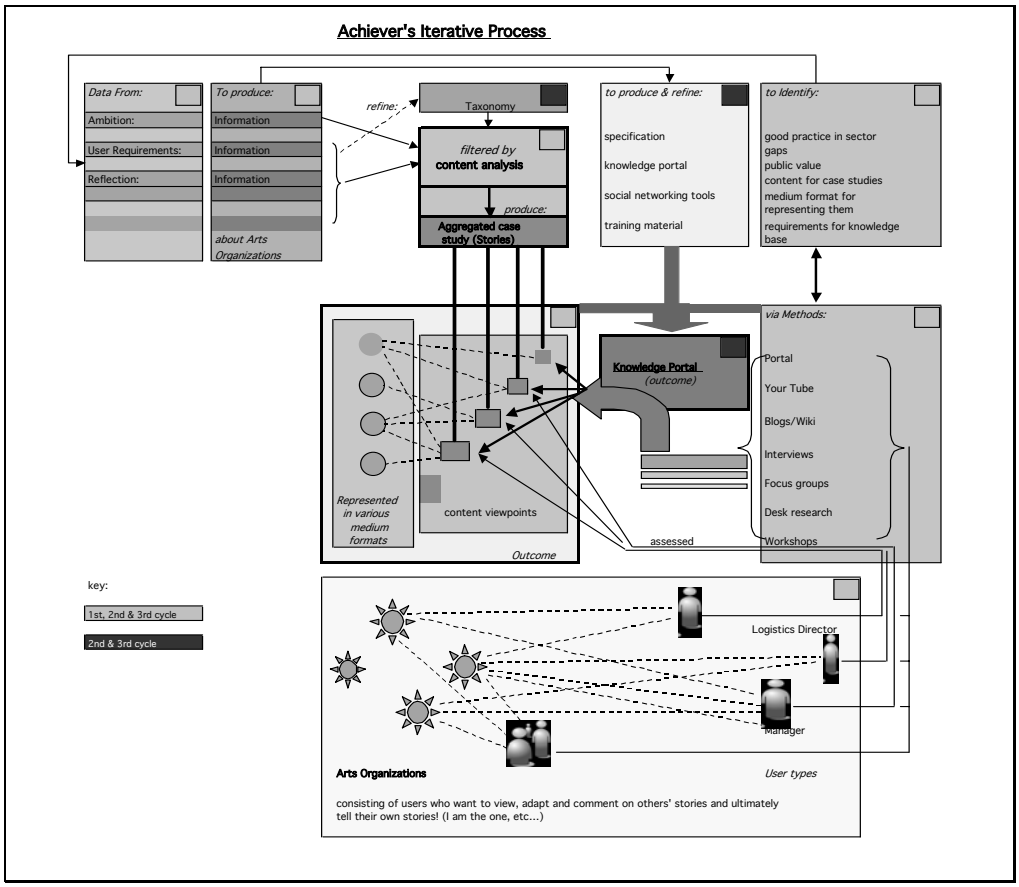

Figure 1. The Iterative Process of our User Needs and Innovation Development Framework Approach (UINDF)

Seven organizations, both Tier 1 and 2, were invited to participate in blogging about their experiences in the project to date. Participants were encouraged through emails to write about specific themes. They were also given the option to write about any other topic related to or stemming from participation in the project. The blogs are set up to be confidential, only the participants and the Achiever project team have access to them. It is hopped that through this means participants express their views about what is happening in their organizations, reflectively. It is also an opportunity to capture and analyze the users reactions to the prototype of the knowledge base when it becomes available to them. These blogs can also help the organizations create their own case studies which they can upload to the knowledge base at a later stage. Site visits to consultants and organizations have been implemented. The visits consist of an interview based approach in order to elicit a perceptual timeline of experiences and hopes of the project to date. Enquiries here are to help identify general as well as specific positive and negative experiences. This is an opportunity to engage in dialogue between the research team and the participants to discuss the process of knowledge transfer/generation.

2.2 The Underlying Model

Using the content analysis of the nine case studies to feed into the development of the web-based portal was essential to reflect the needs of the user community. By creating a model (Bessis et al, 2008) based on the content analysis, further evaluation of how users interacted with the portal could be ascertained. The model would then have two purposes, the first would be to direct us on how to tag the case studies on the portal and the second was to assess whether our tagging is consistent with how users were tagging their content at a later stage. The underlying model is based on findings from the content analysis described above. The premise for its use is based on the reasoning that users from the community may not necessarily use the knowledge engine technology simply because it is available but rather a 'push-pull' strategy needs to be adopted. The content analysis of case studies revealed that statements could be matched to seven basic descriptions (see 'STATEMENT describes' in Fig.2). These descriptions were applied to 'Actors', an 'Actor' could be described as any one of five 'ACTOR Types'. Further, analysis showed that 'Actors' would perform an 'Action', 'Action Types' were categorized into eight distinct categories. These 'Action Types' were often further described in the case studies and a finer granularity of description could be given in our model with regards to the 'How', 'Where', 'When' and 'Why' of a given 'Action'.

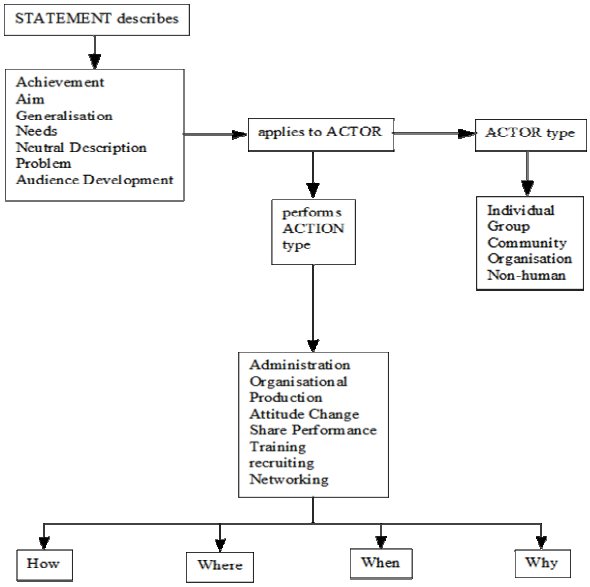

Figure 2. The Underlying Model

2.3 The Implementation of the Web based Knowledge Base Portal

The portal prototype (see Figure 3, http://test.getambition.com) involved Joomla, an open-source content management system. It was chosen as the base middleware to use for both the production of the web-based knowledge portal and its embedded knowledge engine functions. The portal has several distinct sections that comprise the user experience. Particular sections of note are: the 'knowledge engine', in-built blogging, discussion or forum pages and incoming RSS feeds. The 'knowledge engine' uses 'intra' and 'inter' document tagging in an innovative way and, as far as our research has been able to ascertain, this method is currently unique. Tagging as a technology is fairly well used and understood, however the 'knowledge engine' differs from other systems by enabling multiple users to tag specific documents as well as specific components there in. The functionality of the portal thereby allows for the browsing and navigation between documents and the searching of specific components within a given document (intra tagging) as well as to other documents (inter tagging) that contain that specific tag. The use of user-generated tagging of documents allows for the most specific and relevant content to be identified and consumed by practitioners as

opposed to software (search engines) or documents on a macro level. Two levels of tagging are accommodated by the knowledge engine, macro and micro. The macro tag is a generic descriptive tag of the type of content in a document such as financial, computing etc. The micro tag is specific as to actual content and content type. The blogging, forums and RSS features are part of a modular approach to building the portal to the specifications requested.

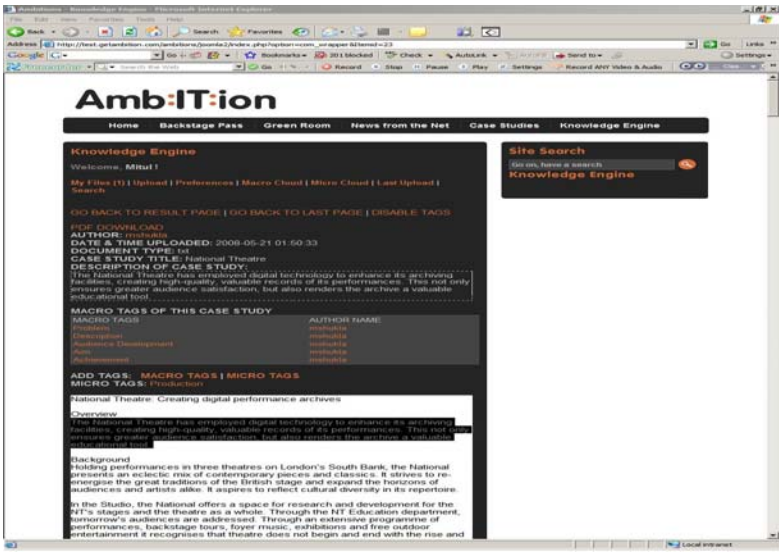

Figure 3. A screenshot of the Knowledge Engine

2.3.1 User Testing Plan

Testing of the knowledge engine component of the portal is currently undertaken by three specific discrete groups, namely arts professionals, software testers and non-regular users. Arts professionals will be assessing the general functionality of the knowledge engine by logging in to the system and carrying out specific tasks, such as: Logging in to the system, testing the upload feature, testing the tagging features, testing the tag cloud and search features, assessing the knowledge engine impact value towards their work. Software testers will be testing specific functionality of the knowledge engine for errors, again by logging into the system to carry out pre-determined tasks in a similar fashion as the arts professionals. Finally, non-regular users will be looking specifically at testing content and usability as the previous two groups.

3. CONCLUSION AND FURTHER WORK

In this paper we have focused on the solution provided by the Achiever project in enabling arts and cultural organizations to transfer knowledge using an online knowledge engine portal. To achieve this, a user needs and innovation development framework was employed. Focus groups, case study content analysis, blogs and face-to-face interviews using next generation technologies were conducted. A short description for the knowledge engine portal implementation containing a novel inter and intra tagging system of documents is given. Further work involves intra and inter tagging of media rich documents in the portal, as well as, user community testing as to assess the portal's functionality and impact value in their work.

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