

# Social requirements for sharing information and experiences

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## ABSTRACT

The possibilities to share user-generated content (e.g., photos, videos, text messages, multimedia messages, and notes) are increasing through the rise of several ubiquitous technologies. Because both user and context can change settlements on a frequent basis, there will be a growing trend of accessing audio/video content everywhere (on the move, at home, at work, etc.), depending on the available applications and services. In this paper we want to investigate some of the (social) requirements users have related to content sharing through different applications and the context in which they will be used. To achieve this, we will look at the lessons we have learned in developing a mobile city application with the same purpose.

## Author Keywords

Content creation and sharing, Context-of-use, user/social requirements.

## ACM Classification Keywords

H.5.2 User interfaces: Theory and methods, H.5.2 User Interfaces: User-centered design, H.5.3 Group and Organization Interfaces: Collaborative computing

## INTRODUCTION

In this paper, we present some results from an ongoing research project focusing on the use of mobile technologies for users within a city context. The A4MC\_ (Architecture for Mobile Community Content Creation) project explores the feasibility of creating the prototype of a mobile application which enables users to interact with others who share the same interests, to publish and exchange content with them, and to find information about the city they live in. Therefore, the development of this mobile city application is twofold: (a) building a platform with allows the sharing of personalized content that is generated to (b)

establish and maintain an online community.

More specifically, we will briefly introduce some of the results and lessons learned out of this A4MC\_ project related to content sharing and see how we can validate them into another research project Citizen Media. Like this, we hope to identify some possible future directions for this Citizen Media project in which we want to build applications that allows user to co-create. These ‘citizen media’ applications (like we call them) are audio and/or video systems that are usable for multiple non-professional users to give them the possibility to upload their user-generated content by co-created networked applications on a user-friendly way [10].

## CONTENT AND THE SHARING PARADIGM

Content is the key driver in (new) media applications. While in the past, this content has been produced mainly by professionals (like journalists), more and more content is generated by non-professional users in a more personalized way [10]. This results in the new situation that users can be consumers as well as producers, and a larger number of people will become potential publishers.

Therefore, a need for efficient tools and applications that allow these non-professionals to create, edit and augment media content with personalized information exists. The biggest change is that applications will have to be developed that allow media production and distribution in a more interactive way [10], which we define here as ‘Citizen Media’ applications (see above). In relation to these developments, all issues related to privacy, security, integrity, authenticity, usability, and accessibility of created and shared content must be addressed [1, 2, 5, 9].

Before taking a look at the conclusions from the A4MC\_ project, we would quickly like to introduce the sharing paradigm in which the main user methods of sharing content are presented [1]. In this context, sharing means the possibility to show, send, give or offer ‘items’ in a (reciprocal) condition between at least two people. By giving some examples, we will illustrate the difference between these four methods. When two people see a movie on the same iPod, we speak about *showing*. In the second case, items (like a MMS message) are *sent* between at least two mobile phones. The Bluetooth technology is a good illustration of how media items can be *handed over* in a

more physical way. The best way to show the last principle is by looking at how music files are *offered* through peer-to-peer networks. It seems obvious that the decision of the used method depends on the available and preferred technology (mostly based on both user's habits and expectations), but also on the relationship between the people who will share this content. This latter fact will be discussed in more detail later on in this paper.

## **(MOBILE) CONTENT CREATION AND SHARING**

### **Community building through content creating**

In the A4MC\_ project, we dealt with the development of a mobile application within a city context to allow users, i.e., (mainly) city inhabitants, to communicate and share information with one another. The final system is developed to share (general) information about the city or about events taking place within a city context and this in the form of photos and recommendations. Empirical research was conducted on the use of mobile technologies by people in a city context and on their impact on the formation of a community by the exchange of this content. This project aims at developing a mobile application to connect mobile users and to be of use for a variety of heterogeneous goals, ranging from keeping social contacts to share content, publishing in an online newsletter (like a city blog) to advertising in a business in a user-tailored way [2, 5].

The biggest difference between the two projects is that the A4MC\_ project only focuses on exchanging content with mobile devices in a city context and in this way help to establish and maintain an online community [2, 5]. In the Citizen Media project however, we will investigate new ways on how we can exploit user-generated content in innovative ways to support people in their daily lives. In relation to this, we will examine how technology can enable social change and bind users to these co-creating networked applications. In this project we will not limit ourselves to mobile devices but look at all kinds of possible applications [10]. For that reason, we will investigate which social aspects are (according to its users) related to a community.

### **Social aspects related to communities and their users**

Within the context of both projects, it is important that the developed systems encourage and support the establishment of social relations and are not limited to the creation and sharing of content. To get a clear understanding of sociability<sup>1</sup> we take a look at the Participatory Community-Centered Development (PCCD) framework. This framework proposed by Preece and Maloney-Krichmar (2002) offers a wide perspective on the community building process. It foresees four stages in community development: We have to understand community's social needs to

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<sup>1</sup> According to the dictionary the concept 'sociability' is the relative tendency or disposition to be sociable or associate with one's fellows.

develop a conceptual model of it. That model must refine both sociability and usability, but also support the community's growth to help it expand. These four stages go hand in hand with a technological process. This process consists of the selection of a system that can support all this and which identifies three key elements in the support of (online) sociability, namely the community's purpose, its people and the policies that help to guide (online) behavior [8].

In the objective of the projects A4MC\_ and Citizen Media, we state that everyone can become a provider of one's own content through the use of ubiquitous technologies to share personal stories/experiences (e.g., photos and videos) or personal productions (like, amateur music/videos) with people who have the same interest and therefore belong to the same community [2, 5, 10]. People interact with each other and some of them do so by sharing or exchanging information with other (mobile) users. Mobile applications make it possible to do this whenever and wherever people want [6].

The users we have been studying in the A4MC\_ project can be identified as two different classes of users, namely (a) the creators, who are the 'senders' and own the content, and (b) the people who belong to a certain community and consequently receive this created content. In this context, communities as a broader group of people who share some common interest (e.g., have the same hobby and therefore share some resembling interests) with the content creator, but do not necessarily know this person [1, 2].

### **Mobile systems' design issues related to content sharing**

In the next paragraphs we will briefly summarize some noticeable aspects from our tests: a user and task analysis (that was performed with 13 inhabitants of a small Belgian city), three expert interviews with a usability expert (in which we checked a conceptual model which is the translation of these users' requirements) and a usability test with six individuals and two couples, all inhabitants of this city with this mobile city application. For the different tests, we selected users heterogeneously in terms of gender, age, familiarity with technology and professional background.

### **Privacy and security**

The ways people can communicate and share information with others in a city context (within this project) depends on the status of both the sender and the receiver. This status can be determined by the user and will depend on where s/he is located, what s/he is doing, what and how much s/he wants to disclose about him- or herself to others [5]. The creator of content can decide if other members of the community get full access rights (which implicates that the others are in the possibility to read, edit and delete all or parts of content) or only reading rights. In this application, the user's 'rights' were related to their login profile.

When there is no direct relationship between the users, they mostly will not trust each other completely, which has some consequences related to privacy. According to our respondents, privacy is essential both for themselves and for others and this effect grows as they are less intimate (like in making contact with colleagues, people only known online, etc.). Users seem to be sensitive to when and where they communicate certain information with other people. This (emotional) security will also be reflected in the chosen technology (like preferring to send an email to people they are not close with in contrast with making a phone call to people they are intimate with) [2, 5].

### **Integrity and authenticity**

All respondents almost immediately saw a possibility to find the information they were looking for in this mobile city device. But is the content provided by non-professional users always correct? This is a question related to the integrity of the users and authenticity of the content, which can easily form a problem in what Dan Gilmore [4] calls the ‘photoshop’ world. It is the task of the whole community (which can be seen as the ‘audience’) to be skeptical about all the information they find and check this themselves.

### **Responding to content**

A mobile medium is completely different from a fixed environment (like a desktop). One of the biggest advantages of portable devices is that they give users a chance to be independent of time and space (see also [5] for more details). But we see only little interaction between the users, e.g. in the amount of information that is shared without response from others. This can be due to the small interfaces and the limited data transfer as there are not many opportunities to ‘respond’ to other people’s content. This already gives an indication of one of the usability problems we noticed during our tests. It is difficult to create textual content or evaluate content of others (in the form of a comment) while wandering around in a city, as mentioned above.

In general, we see that users prefer pictures and multimedia rather than textual information, especially on a mobile device. An image (with or without a note) says much more, according to our respondents, than a few sentences [5]. But the problem related to this is that we notice that most respondents only want to look at or read ‘content’ but do not want to generate it themselves (for more details, see [7]). We have to explore some possible audio/visual ways to replace or complement this more traditional textual way of content, either generated on one platform or cross-platform.

### **Context-of-use**

One of the most important characteristics of Citizen Media applications is the possibility to allow users to participate more in content production [10]. A problem of developing applications is that developers often fail to include the

social context in which users want to use them. While a context can easily be defined for fixed features (like the location and some other physical aspects), the social activities of a situation are much more difficult to be determined and traced (i.e. ambient conditions, user activities, social context and other factors) [9]. Some applications can move around with their users (such as mobile devices), others will bring different advantages related to the context in which they are used. To achieve easier interaction and choose the best device for every circumstance we need a better understanding of the social context.

Within the Citizen Media project, it is important to see which combination(s) of channels or technologies can work in which context. Sharing information at home will be different when compared to on the road or at work. We must also try to explore which situations have no available applications and what the user and social requirements are in relation to this. To get an impression of the ‘patterns of use’ related to the use of a Citizen Media application a possible user scenario will be drawn. Out of which we can explore some possible future perspectives.

### **DISCUSSION**

When applying all these different principles to the development of citizen media applications we notice the following important aspects: First, users want to control the amount of information users that will be disclosed about themselves, their location and the information and experiences they share with others.

Second, it is not enough to investigate and develop new ways to let user exploit the huge amount of user-generated content in innovative ways but these users most also be insured of the accurateness of all these shared ‘items’.

Third, we have to see how we can encourage more users to contribute content, which is strongly related to the previously other mentioned aspects.

Fourth, the Citizen Media application(s) should be simple-to-use communication tool(s) that let people express themselves and connect with like-minded people online when and whenever they prefer to do so. Therefore, the specific characteristics of these devices and the context in which users want and can use them are important. A possible way to do this in an interactive way is by rating the input of others. Out of the A4MC\_ tests however we noticed that many users seemed not to be familiar with this concept. Another way to do this is by writing a comment on what is uploaded by others, but this also seemed to be a problem because it is not practical to type a note on a mobile device.

So, we see many possible interactive ways to use mobile city devices that are currently left out. In the research of developing new Citizen Media applications, we would like to explore what these interactive aspects could be in the near future.

## CONCLUSION AND FURTHER WORK

Social situations have a strong impact on the use of communication technologies while at the same time the technologies shape the social situation of use [9, 10]. Photos, videos and audio files are becoming part of user-generated content and make media richer. Therefore, a need exists for the development of user-friendly tools and applications that support users in the entire content creation and sharing process (e.g. tools for intuitive creations, distribution, consumption, storage and retrieval, personalization and content awareness) that allow users to interact.

Several aspects remain for future development, research and testing of both technology and user perceptions. Some possible directions of future work within the Citizen Media project include:

- a more complete understanding of the interactive revolution of the current (digital) society. To succeed we have to explore which technologies, services and applications will be available in the near future and what users expect/prefer of them.
- defining what users want to share and whether they find it important to personalize their shared 'items'.
- focusing on users and society goals and needs and an in-depth understanding of user experience related to content sharing and the context-of-use (like relationship with time).

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