THE COBACORE PROJECT – A COMMUNITY-BASED APPROACH TO DISASTER RECOVERY

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Abstract

Disaster recovery is a complex process that takes place over a prolonged period of time with many factors, actor, consideration and conditions at play. Rebuilding a disaster-affected area to a self-sustaining state is a daunting task, and requires a high degree of community effort and comprehensive knowledge about the affected environment. All too often, these requirements are not properly met, leading to a long recovery trajectory and misalignments between recovery efforts and community needs. We argue that most issues in disaster recovery stem from 'collaboration gaps': flawed organisational structures between stakeholder parties that exist between levels of operation and between phases in the recovery process. In this short paper, we introduce the COBACORE project (Community-Based Comprehensive Recovery – www.cobacore.eu) that aims to reduce those gaps, and present its ambitions, approach and current status.

Keywords: Disaster recovery, community participation, needs assessment

1 INTRODUCTION

Disaster recovery is a complex process that takes place over a prolonged period of time with many factors, actor, consideration and conditions at play. Rebuilding a disaster-affected area to a self-sustaining state is a daunting task, and requires a high degree of community effort and comprehensive knowledge about the affected environment. All too often, these requirements are not properly met, leading to a long recovery trajectory and misalignments between recovery efforts and community needs. We argue that most issues in disaster recovery stem from 'collaboration gaps': inefficiencies in collaboration between mission-critical parties [1]. The word 'gap' refers to the discrepancy to the ideal and the actual level of efficiency. These gaps may be caused by all sorts of factors, such as ineffective coordination of activities, lack of mutual awareness between parties, flawed information distribution, lack of knowledge, conflicting beliefs or work practices, or any other factor that may have an impact on the collaboration between parties.

Such collaboration gaps can be recognized across all level of operation of a disaster recovery process: between parties at the field level, between parties at more strategic levels, between parties that are active at difference phases of a recovery process, and between affected and supporting communities. In practice, collaboration gaps lead to neglect of stakeholder groups, interference of activities, loss of accountability, waste of capacities and a general discontent with restoring societal wellbeing. Such effects have been recognized in most recent large disasters, and have found their way in many policy recommendations on disaster recovery improvement.

2   THE COBACORE PROJECT

The COBACORE project (Community-Based Comprehensive Recovery) takes on the challenge to close these gaps. COBACORE is an EU funded research project that aims to bring innovation to the field of disaster recovery, especially in population-dense areas in EU member states.

In the COBACORE project, we distinguish between three main communities: the professional community, the affected community and the responding community (figure 1). The affected community are the people directly and indirectly adversely affected by a crisis or disaster and in need of urgent (humanitarian) assistance. The responding community consists of local or outside community members which support in relief or recovery but are not trained in crisis response. This community includes technical volunteer groups and civilian groups that organise response effort through social media channels. The responding professionals are part of the professional community in the field of crisis response and recovery, such as national and local governments, NGOs and national crisis coordination centers. At the intersections, there are evident additional communities, such as the trained volunteers and the affected professionals.

Based on the analysis of recent natural and technological disasters [2], we found that there are three main issues between these groups: (1) problematic information exchange between the professional community and the affected community, (2) significant collaboration and coordination issues between the professional community and the responding community and (3) inefficiencies in needs and capacity matching between the affected and responding communities.


Figure 1: The three main communities in the recovery phase

These three issues form the main drivers for the COBACORE project. Our prime instrument to mitigate these issues is a collaborative platform that facilitates the interaction between members of the professional, affected and responding communities (e.g. between affected citizens, professional organisations and volunteer groups). The COBACORE platform helps to register needs, capacities, and recovery activities and provides means for professional organisations to engage with affected and responding communities. By emphasizing a community-wide involvement in creating an up-to-date situation overview, the platform helps to achieve a higher level of recovery effort coordination and a better matching of needs and capacities. We explore how such a platform can be used to obtain a better integration of spontaneous

volunteer groups, and how professional community groups can obtain a richer situational overview of the recovery process.
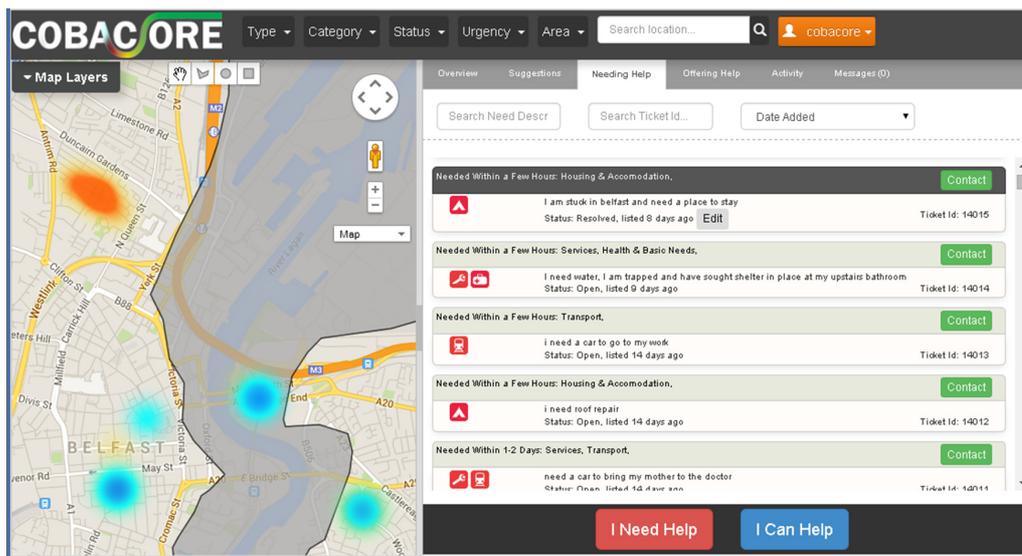
3   THE COBACORE PLATFORM

The COBACORE project has been set up as a CD&E (concept, development & experimentation) project [3]. The project features a number of development cycles that include both concept development, experimentation and evaluation activities. To this end, we have adopted a simple incremental platform development process, where we add new features as we learn more about the interests and preferences of stakeholders.
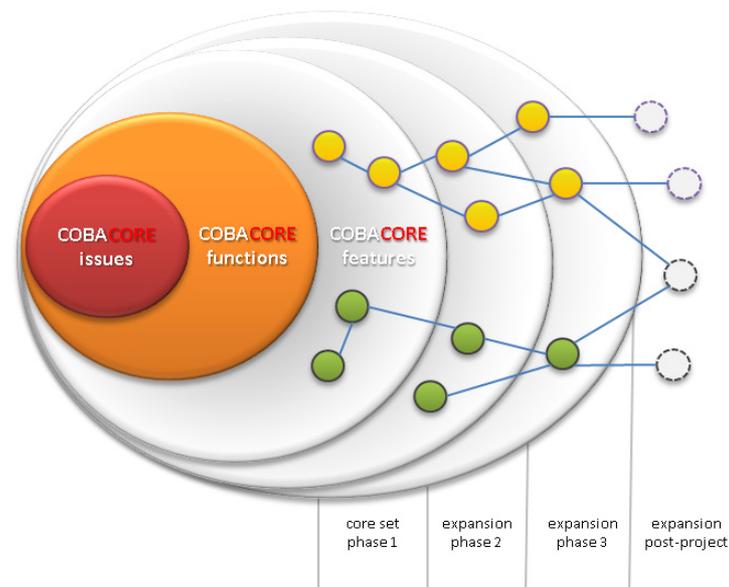
Figure 2: The COBACORE platform development process [3]

Figure 2 illustrates the approach. The aforementioned three issues form the core issues that we confront in this project. From these three issues, we have derived three major COBACORE platform functions: (1) enhance information exchange between the professional community and the affected community, (2) facilitate collaboration between the professional community and the responding community and (3) improve needs and capacities matching between the affected and the responding communities. From these functions, we derive specific platform features in a number of phases, starting with the definition of a core feature set and adding new features in expansion phases that build upon the core set, taking into account domain specific HCI challenges [4]. Not all proposed features might be realisable during the project due to time constraints or technical limitations, so certain features might need to be deferred to follow-up projects.

The core set represents the minimal set of features that satisfy the key platform. Among others, this core set contains features that manage needs and capacity registration and matching, features to visualise situational data and provide assessment overviews, and options for interaction between community-members. At the time of writing, this core set has been implemented and tested with end-users in an evaluation session. Figure 3 shows a screenshot of the platform in its core feature state. In later stages, there will be community-specific interfaces that will align better with specific information needs per community group.

Figure 3: The COBACORE platform in its 'core feature set' state

4   VALIDATING THE APPROACH – THE COBAGAME

The COBACORE project makes extensive use of stakeholder interaction to validate its assumptions and assess the value of its tools for stakeholder communities. Through interaction sessions across different parts of Europe, we gain a thorough understanding of typical local issues that arise during disaster recovery, and learn about relevant local community interactions. In such sessions, we present members of the various communities with statements about future disaster recovery, and present them with platform feature proposals. In this manner, these sessions provide us with a sense of appreciation of proposed functionalities, and help to prioritise among possible platform assets. Additionally, the project features two larger evaluation sessions in which the platform is tasted in an integrated manner with eventual end-users: an intermediate evaluation session with a game-like structure, and a final evaluation session with a more operational setup.

In June of 2014, the intermediate evaluation session was held in Rotterdam, The Netherlands over the course of two days, with a participation of more than 40 volunteers from the Dutch Red Cross and representatives from Dutch Safety Regions. The session was centered on the 'COBAGame', a cooperative game in which professionals, volunteers and civilians need work together to match needs and capacities against the backdrop of a major flood in Belfast city. During the game, the player groups are placed in separate rooms, and use either conventional or novel communication means to engage with each other, and score points for successful matches of needs and capacities. Each civilian is provided with a personal profile, and is based in a predefined neighbourhood. In this instance for example, there were five neighbourhoods with 4 civilians players each. Furthermore, there are on-scene responding and professional groups and remote groups such as an online digital volunteer groups and an off-site NGO coordination group.

The central ambition of the game is to test the efficiency of self-organisation among the various groups to solve complex needs using different collaboration tools. The evaluation session is divided into three formats: a baseline session, a COBACORE platform session and a 'new media' session.

In the baseline condition, the groups use verbal exchange of needs and capacities, and do not make use of the COBACORE platform. In the second format, the groups follow the same scenario, but now make use of the COBACORE platform to register needs and capacities and take advantage of its mapping and communication communities. In a third format, the groups are allowed to use established platforms such as Twitter, Facebook and other channels to voice their needs and capacities.

By comparing the observed interaction dynamics between the three formats, we can learn about the operational value of the COBACORE platform. At the time of writing, the results are still being analysed, but the experience seems to have been positive for most participants, with many encouraging recommendations on platform design and workflow. Alignment with operational practices of professional groups seems insufficient at the moment, and needs to be improved in the next iteration of the platform. The comments from participants and observations from the team will lead to improvement that will be tested in the final evaluation session at the end of the project. This session will be far more realistic in nature, and will feature the participation of multiple professional and volunteer groups active in the Dutch-German area.

5 CONCLUSION

In this short paper, we briefly introduced COBACORE project and the core issues that it aims to solve. We introduced the main value functions and features of the COBACORE platform, and demonstrate how we employ these to shape our project ambitions. Additionally, we described the setup of our first major evaluation session of which yielded the first tangible assessment of our platform. In the remainder of the project, additional features will be added, based on recommendation from stakeholders. The final form of the COBACORE platform will be assessed in a large-scale evaluation session on the Dutch-German border.

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