



**Community Based Comprehensive Recovery**

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**D3.3: Report on procedures and use scenarios in which  
the COBACORE tool is used**

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**Deliverable Title:** Report on procedures and use scenarios in which the  
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**Executive Summary:**

This report comes after a long period of concept development, experimentation, evaluation and reflection, and aims to capture the many discussions on the practical use of the platform. In its current state, the platform contains many features, and supports many forms of interaction between our key communities. The platform is inspired by different schools of thought in crisis management, is built following different socio-technological trends, and tries to harmonise these influences into a versatile, integrating collaboration platform for all parties involved in disaster recovery. However, by positioning the COBACORE platform in this manner, it becomes open to many interpretations of its value in practice. For some, the platform just a piece of technology, for others it is a catalyst for a new way of organising crisis management. Many see most practical value in the platform's capability to support civilian exchange, other praise its value for professional users. There are various narratives that can be told about the platform, and this report aims to capture some of the major forms in which the platform can be used. Additionally, we discuss some fundamental questions that surround the use of the platform, such as privacy, governance and information validity.

Deliverable 3.3 describes the primary use scenarios of the COBACORE platform and illustrates how the platforms features support that use. The report introduces several core use perspectives ('frames') that have driven the development of platform features, and it discusses cross-cutting themes that impact the development, deployment and use of the platform. In conclusion, the report presents an integrated, comprehensive use-case that illustrates how the platform could become part of a community-based disaster management approach.

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## Preamble to D3.3

As this deliverable comes at the end of a long project, it is worthwhile to provide the reader with the necessary background to understand the origins and intention of this report. The title of this report is *'Report on procedures and use scenarios in which the COBACORE tool is used'*. The original description in the Description of Work (DoW) stated that this report would cover 'procedures and use scenarios in which the COBACORE tool is used' and 'use cases for the COBACORE tool'. While this document does indeed cover the most typical use scenarios for the COBACORE tool, it does not provide strict use procedures of formally denoted use cases.

In system engineering, a *use case* is a structured description of the interactions between an actor and a system. These interactions are typically linked to a specific goal, and characterised through sets of actions – basically, a *procedure*. Use cases are depicted in diagrams, or represented in templates. The figure below shows a typical use case diagram that specifies various key users and key 'use cases', such as 'register capacity' or 'create status report'.

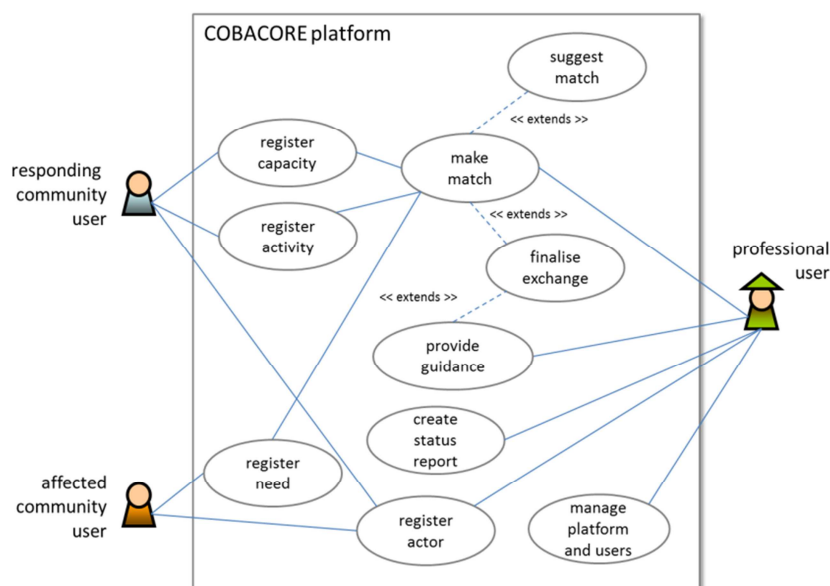


Figure 1: Example (fictitious) use case diagram for the COBACORE platform

The original intention of the project was to converge towards a single platform design, with clearly delineated use cases and procedures. However, in course of the project, we came to understand that it would be far more valuable to provide end-users with a 'buffet of ingredients' from which platform variants could be construed that suit local practices and demands.

As may be inferred from our explorative work in D1.1 ('Scope and Requirements') and D1.2 ('State-of-art, trends and opportunities'), disaster recovery processes come in many forms, and are profoundly shaped by the nature of the originating crisis and the characteristics of the local context. For instance, crisis management governance differs greatly across EU (i.e. command structures), and there are significant differences in the perceived role and responsibilities of civilian parties across EU member states. Moreover, the concept of citizen involvement in crisis-management is not equally well developed in each EU member state. Furthermore, there is a large variety in the implementation of common EU data protection and privacy among EU

members states, with some states encouraging open data sharing and self-governance, whilst others keeping tight control on datasets, sources and streams.

With so many social, cultural, legal and institutional differences across EU Member States, it is impossible to arrive at a single design that caters optimally to all possible circumstances and all possible stakeholders: there is no “one size fits all”. The effects of such differences across EU Member States go well beyond ‘details’ and have a profound impact on the ideal form and use of the COBACORE platform. For some deployments of the platform an open, community-driven approach would be the most desirable option, while for others a controlled and governed form is more appropriate. For some deployments, the focus will lie on needs and capacity matching by citizens, while for others the platform will need to center on collaboration between professionals and volunteer groups.

This means that, at least for our project purposes, there is no single ideal recipe for all deployment contexts. Each deployment will need to be tailored to make it valuable and suitable in its use context – in terms of user roles, platform features, use procedures and information content. A strict procedural description would severely limit the applicability of our work and thus would not be conducive. Therefore, we have chosen to follow a more flexible approach: build a solid and adaptable platform foundation, and provide end-users with the means and guidelines to self-build platform instantiations that harmonise with local operations, demands and capacities.

- **Features.** D3.1 introduced the general approach, and provided a ‘core set of features’: key platform features that form the foundation of the platform. These features are comparable to *use cases*, albeit more focussed on platform functionality than use procedure, and not as strictly defined. D3.2 extended the set to 35 features, most of which were implemented in final platform, as specified in D4.3 (Final Implementation Report).
- **Frames.** The ‘frames of use’ that were introduced in D3.2 and elaborated on in this report D3.3 represent key uses of the platform (section 2.4). From a system design perspective, a frame is similar to a *use case package*: a collection of use cases that describes a particular platform use. Not every frame of use may be of benefit to every end user, and a frame may be arranged through different platform features and local configurations. Again, frames serve rather as an inspirational concept than a design specification.
- **Cross-cutting themes.** As a third ingredient, this report introduces a number of ‘cross-cutting themes’ (chapter 3) that are of relevance for an eventual deployment, such as governance models, abuse prevention and privacy protection measures, and content management formats. Designers and stakeholders will need to make choices on each of these themes, and these will affect eventual use procedures. For our evaluation and demonstration purposes, we have made some straightforward choices in this area, but actual deployment will demand a thorough think process.
- **Guidelines for local implementation.** In D6.8 we bring all of these ingredients together in a customisation process that provides guidelines for the design of local platform deployments. During this process, system designers will be able to derive specific use cases and use procedures for their local implementation, based on the generic materials from the project.

This deliverable, D3.3, covers the Frames and the Cross-cutting themes.

Given this rationale, the reader of this report is invited to view D3.3 as an inspirational source for further customisation rather than a procedural description of platform use. The reader is also encouraged to connect this report to other deliverables – specifically D3.1 (development approach; core feature set), D3.2 (extended feature set), D4.3 (final platform implementation), D4.4 (platform user guide), D6.8 (guidelines for local implementation), and other project outputs. Jointly, they provide the reader with a clear view of the platform as developed in this project, and provide a valuable development path towards future local deployments.

# 1 Introduction

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This report represents deliverable 3.3 (D3.3) of work package 3 (WP3), which is titled: *Report on procedures and use scenarios in which the COBACORE tool is used*.

## 1.1 WP3 and its contribution to the COBACORE project

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The Community Based Comprehensive Recovery (COBACORE) project aims to support common needs assessment and recovery planning efforts in complex multi-sectorial, multi-stakeholder crisis environments by building upon the community as an important source of information and capabilities. COBACORE aims to help bridge the so-called collaboration gap: failure of collaboration through insufficient information sharing among partners, incompatible work practices and misaligned decision making processes. In the field of humanitarian needs assessment, this collaboration gap is ubiquitous and detrimental to the efficiency of many recent relief efforts. Closing this gap is the key to improve the efficiency of needs assessment, enhancing the robustness of needs monitoring, as well as providing an evidence base to inform planning and resource allocation decision-making.

WP3 helps to develop the COBACORE concept through its tasks and intermediary role in the project. It is the responsibility of WP3 to define the underlying tool behaviour concepts that determine how end-users interact with the COBACORE platform. Therefore WP3 will develop user interface concepts, functional mechanisms and use procedures for effective use of the COBACORE platform.

The role and tasks of WP3 are closely related to the other work packages in COBACORE. The functional concepts developed by WP3 are based on functional requirements specified by WP1, the data- and information models from WP2 and feedback from stakeholder interaction sessions organised by WP5. Furthermore, the functional concepts of WP3 have consequences for the experimentation and evaluation requirements in WP5 and provide guidance to platform development activities in WP4.

## 1.2 Deliverable 3.3

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This report comes after a long period of concept development, experimentation, evaluation and reflection, and aims to capture the many discussions on the practical use of the platform. In its current state, the platform contains many features, and supports many forms of interaction between our key communities. The platform is inspired by different schools of thought in crisis management, is built following different socio-technological trends, and tries to harmonise these influences into a versatile, integrating collaboration platform for all parties involved in disaster recovery. However, by positioning the COBACORE platform in this manner, it becomes open to many interpretations of its value in practice. For some, the platform just a piece of technology, for others it is a catalyst for a new way of organising crisis management. Many see most practical value in the platform's capability to support civilian exchange, other praise its value for professional users. There are various narratives that can be told about the platform, and this report aims to capture some of the major forms in which the platform can be used. Additionally, we discuss some fundamental questions that surround the use of the platform, such as privacy, governance and information validity.

Deliverable 3.3 describes the primary use scenarios of the COBACORE platform and illustrates how the platform's features support that use. Chapter 2 of this report describes the origin of the COBACORE project, and sets the foundation for platform use. It introduces several core use perspectives ('frames') that have driven the development of platform features. Chapter 3 discusses a number of key cross-cutting themes that impact the development, deployment and use of the platform. Chapter 4 describes an integrated, comprehensive use-case that illustrates how the platform could become part of a community-based disaster management approach.

### 1.3 Relationship to other deliverables

This deliverable continues the work in D3.1 and D3.2 on key platform features and information objects, and draws on the development work in WP2 and WP4, and the evaluation work in WP5. In particular, the work is closely connected to:

- D4.3: Final platform implementation report
- D5.3: Report on second intermediate and final evaluation
- D6.8: Guidelines on practical introduction of COBACORE results

D4.3 presents the final state of the COBACORE platform, and details the features that have been implemented, based on design that were introduced in D3.1 and D3.2. This report takes the final state of the platform as its starting point.

D5.3 describes the appraisal of the platform and its corresponding concepts by end-users. The results from the second Intermediate Evaluation (IMEV2) and the final evaluation (FINEV) have given direct input to this report, and provided us with invaluable insights in use perspectives of the platform.

D6.8 presents guidelines that can help to develop the core COBACORE materials (the platform, the vision, the collaboration concepts) into practical solutions that fit local customs and established operations. D3.3 can be used in such an implementation process as a source of information and inspiration, and, as such, is written for a public audience.

### 1.4 Changes in the revised version of this report

This report was originally released in March 2016. This version contains modifications that were made in response to comments made by the Project Officer and the external reviewing team. The following changes have been made:

- A preamble has been added to better explain the of intention and position of D3.3 as an inspirational source for local implementation/customization of the COBACORE platform.
- Various minor text and layout corrections.



## 2 Framing the COBACORE project and platform

### 2.1 The challenge: disconnects between communities

Our living environments are becoming more and more complex. Through urbanisation, digitalisation and globalisation, urban communities are becoming more and more dependent on infrastructures, digital systems and government facilities. While in general these developments are seen as signs of progress, in practice they weaken the degree of disaster resilience: the changing fabric of society is changing the capacity of a community to withstand the effects of a disaster, or recover rapidly. When disaster strikes in an urban environment, it disrupts many social, infrastructural and economic systems, and that makes it hard to bounce back quickly. Due to climate change, economic and societal shifts across the globe, we will see more frequent and more significant disasters than ever before, and effective recovery mechanisms will become crucial. In general, there is a global awareness that we need to invest in new and innovative ways to reduce risk and improve recovery capacity. The fact that 187 UN member states signed the Sendai Declaration and Framework for Disaster Risk Reduction 2015-2030 underlines that point: the declaration recognizes the increasing impact of disasters and their complexity in many parts of the world, and calls all stakeholders to action.

Over the past decade, there have been many natural, industrial and social disasters in well-developed urban areas with pronounced and long-lasting effects. Cities such as New Orleans, L'Aquila and Christchurch continue to endure the impacts of disaster, be it environmentally, socially, economically or emotionally. Disaster recovery is a complex process that takes place over a long period of time with many factors, actors, considerations and conditions at play. Rebuilding a disaster-affected area into a self-sustaining state is a daunting task for all involved, and requires a high degree of collaboration to succeed. All too often, collaboration among critical partners goes awry, leading to misalignments between recovery efforts and community needs as well as unnecessarily protracted recovery timelines.

In our exploration of the recovery and reconstruction domain, we have concluded that 'collaboration gaps' between mission-critical parties hinder the effectiveness and efficiency of the recovery and reconstruction process (Neef, 2011). The word 'gap' refers to the discrepancy to the ideal and the actual level of efficiency. Plainly put: parties do not interact as they should. These gaps can be attributed to a range of factors including; poor coordination of activities, a lack of understanding of each other's needs, flawed information distribution, lack of knowledge, conflicting beliefs or work practices, and so on. This is not a new insight: disasters put societies under stress, and under stress, things go wrong – at all levels, and between levels. There are typically collaboration gaps between parties at the field and strategic level. Governments, donors and upper level parties usually do not have the means, capacities or 'hands-on' experience to fully grasp understand the situation at ground level. Conversely, people in the affected area typically do not understand the dynamics of governance and funding. Moreover, since recovery is a lengthy process, the parties active at the start will not be the same as those active at the end. Often information gets lost because of changing actors, and carefully crafted collaboration agreements prove hard to maintain over time.

Where does this all lead to? This leads to media reports we see time and time again: reports that, long after the initial disaster has struck, highlight the fact that communities are still battling to recover. Even with a surplus of money, capacities and societal support, it seems hard to efficiently remedy all the damage that a large-scale disaster does to an urban environment. We feel that the core cause of inefficiency lies in persistent collaboration gaps

between the major groups in disaster recovery. Closing these gaps forms the core ambition of our project. Specifically, we have identified a need to improve collaboration between the affected community (relative to their needs) and the responding community (relative to their capacities). What affected communities need is not always as simple as it may seem. Within the confines of a recovery and reconstruction effort there is seldom a shortage of people that care and want to contribute. This is a resource-base that remains fundamentally under-utilised with a lack of supporting ‘vehicles’ and structures contributing to the lack of impact achievable.

## 2.2 The COBACORE fundament: Closing collaboration gaps

The COBACORE project starts from five fundamental assumptions.

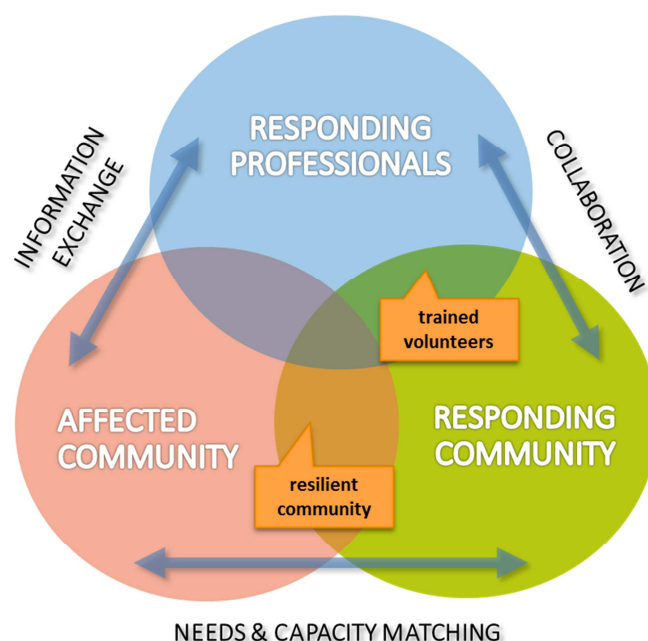
Above all, we believe (1) that disaster recovery needs to be viewed as a society-wide responsibility. Disaster recovery may not be regarded as the sole responsibility of professionals – or citizens for that matter. Every stakeholder in a society needs to play their part and contribute, and this notion needs to be deeply embedded in a societies’ disaster management repertoire. From this notion, we infer that (2) communities need to be connected – in terms of mutual awareness, trust, information, and appreciation. Societies exist by virtue of connected communities, and in disaster recovery that connectedness is a crucial asset. Thirdly, (3) information needs to be shared broadly, but suitably. Communities need relevant and trustworthy information to act efficiently and timely, and it is a common responsibility to make that happen. Additionally, there needs to be (4) a widespread agreement on the need to empower communities wherever possible. Professionals can empower citizen communities with guidance, instructions and materials. Citizen communities can empower each other by joining, sharing and inspiring, and can empower professionals by providing actionable information. And, above all, there needs to be willingness to (5) co-create and co-learn. No single situation is the same, so it is crucial that societies create an atmosphere where joint learning, joint creation and joint actions are the default, not the exception.



Figure 2: The foundation of the COBACORE project

These five assumptions form the foundation upon which the COBACORE project was built.

The COBACORE project aims to help close collaboration gaps between communities in disaster recovery. We distinguish between three main communities: the responding professionals, the affected community and the responding community. The affected community are people and groups that are directly and indirectly adversely affected by a crisis or disaster, and are in need of support. The responding community consists of local or outside community members that support the recovery process but are not trained in crisis response. This community includes spontaneous volunteers, established community groups and other willing and able individuals and organisations that ‘stand-up’ in times of crisis. The responding professionals community is comprised parties that partake in the disaster recovery in a professional capacity and includes civil support organisations, and city government teams.



**Figure 3: The three key communities in the COBACORE project**

It is important to realise that people can be part of multiple communities. Someone affected by a disaster can still offer help and thus be part of the responding community. A local firefighter might be formally part of the responding professionals, but in his private environment suffer from the effects of a disaster, and be part of the affected community. Also, at the intersections of the key communities, there are interesting cross-cutting groups, such as the trained volunteers and the affected professionals.

Based on our analysis of recent natural and industrial disasters, we found that there exist three main collaboration issues between these groups:

- 1) Problematic information exchange between the responding professionals and the affected community
- 2) Significant collaboration and coordination issues between the responding professionals and the responding community and
- 3) Inefficiencies in needs and capacity matching between the affected and responding communities.

These three observations form our COBACORE issues: the three most significant examples of collaboration gaps between the key communities.

So, here begins the innovation path of COBACORE: to close the collaboration gaps between our three key communities. Closing these gaps will help build a more connected, collaborating society that has the propensity to recover faster from disaster.

## 2.3 The COBACORE platform: technology to connect communities

Technology alone can never solve such large ambitions, but it can be a tremendous catalyst to encourage change. We see the community members in or near the affected area as the most important actors in relief and recovery. In its Network Age report, UN OCHA reports a fundamental shift in power from capitals and headquarters to the affected people. New tools to engage broader social networks, communities and individuals are more effectively determining how people can help themselves, and how they want to be helped by others — mobilizing local, national and sometimes global support to meet their needs. [UN OCHA 2013].

For our purposes, our prime instrument of change is the COBACORE platform: a online collaborative platform that facilitates the interaction between members of the professional, affected and responding communities in disaster recovery. The COBACORE platform is an illustration of how smart technology can help close collaboration gaps between communities.

We position the COBACORE platform as the central mediating platform between communities. In its most progressive form, the platform would be the sole mediating platform during disaster recovery – the place where information comes together. In practice, the platform might be interlinked with other platforms, or perhaps might not be visible at all for some groups if they connect through an intermediate person or organisation.

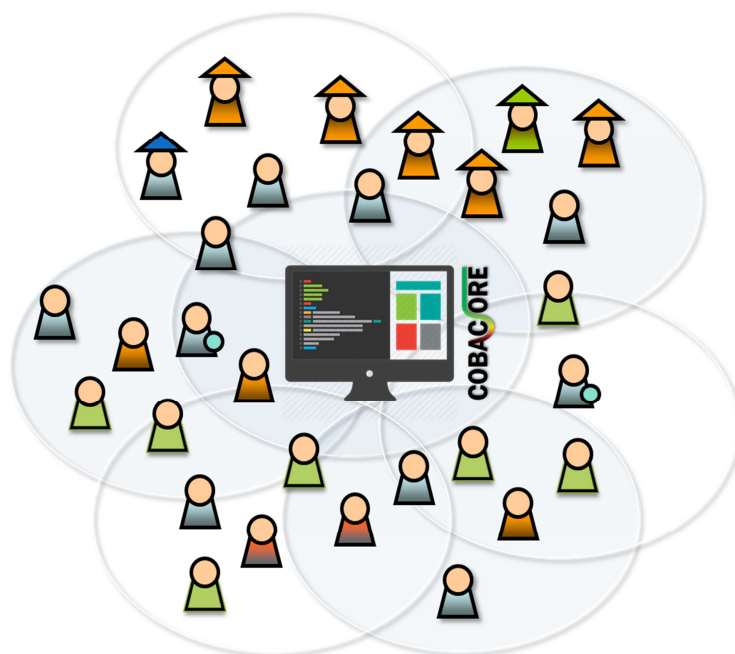


Figure 4: The COBACORE platform as a mediating platform between communities

The COBACORE platform aims to connect those in need with those who can help, and help activate capacities throughout society. Additionally, the platform provides professionals with a deeper insight into civilian recovery activities than is normally available, which in turn helps to deploy resources more efficiently, and provide guidance to spontaneous citizen volunteers. The COBACORE platform emphasizes that disaster recovery is a community-wide responsibility where information is shared freely and coordination of actions is a joint responsibility.

The COBACORE platform is built with flexibility in mind – in terms of inter-linkages with other information sources and platforms, in terms of available specialised features and in terms of user interface. Users can choose to use a web-based version of the platform, or use a mobile application. Both versions provide similar functions to users and draw on the same cloud-based information source.

Additionally, the platform offers a different interface to each of the key communities. For members of the affected and responding community, the focus of the interface lies in registering needs and capacities, and making matches. For professional users the interface helps to build up situation awareness and brings extensive information management options. Additionally, there are specialised interface versions for community liaison team members and field officers, centered on information verification and establishing communication with community members.

## 2.4 Functions, frames and features

The key themes that the platform looks to address are improving situation awareness, connecting communities and sharing information. As such, the platform has been developed around three primary objectives:

- 1) Enhance the information exchange between the professional and affected community,
- 2) Facilitate collaboration between the professional and responding community, and
- 3) Improve needs and capacities matching between affected and responding communities.

So which platform features would fulfil these objectives? In its core, the COBACORE platform is a CSCW (computer supported cooperative work) environment. Such environments exist in every domain imaginable, from simple chat and document sharing systems to elaborate dedicated command and control systems. Moreover, it could be said that modern social media platforms are an evolution from the archetypical CSCW systems from the past decades.

There is an interesting commonality among popular social technologies: users tend to create their own way of working – sometimes widely different from what the creators originally aimed for. The COBACORE platform is no different: it serves many types of users, many types of needs, and offers a high degree of freedom to users. This makes platform development and evaluation a rather complicated task. The COBACORE project has made extensive use of stakeholder interaction to validate its assumptions and assess the value of its tools for stakeholder communities. Through many interaction sessions across different parts of Europe, we have gained a thorough understanding of typical local issues that arise during disaster recovery, and learned about relevant local community interactions. For many of our stakeholders, true community-driven disaster recovery is a ‘game changer’.

There is widespread belief that citizen communities and volunteers need to play a far greater role in disaster recovery, and that there is a significant potential to improve the efficiency and effectiveness of both short and long-term recovery operations. However, the challenge is how to best harness or leverage this potential. For example, how do we connect to people who are

by definition not (formally) organised? How do we direct their efforts to where their help is needed most? How do we integrate and link formal response with their resources and skills? In trying to answers these questions, the COBACORE team has conducted a series of evaluation activities including stakeholder discussions and evaluation sessions, case-study analysis and best-practice research, which have highlighted the need to develop a common collaboration system to facilitate and optimise community-based recovery.

Throughout the project, we have built up five major ‘frames of use’ that collectively address our core functions. These frames characterise a typical use of the platform and helped to steer the development of specific user features.

During our development work, we have seen that prospective users are drawn to different features of the platform. This has led to the development of different ‘use frames’. A ‘frame’ is a vision of how the platform could be perceived by a group of users. For the project team, this has helped to steer development and enables us to better tell the ‘COBACORE story’.

We have established five distinct frames:

- The marketplace. In this frame, the ‘needs’ and ‘capacity’ matching by affected and responding communities take centre stage, and the COBACORE platform functions primarily as a marketplace during disaster recovery.
- The Community Champion. This frame emphasizes the use of the platform to initiate activities and mobilize community members. A ‘community champion’ from the responding community would use the platform to make plans known and build up a community-based activity.
- Community Liaison Teams. In this frame, the focus is on a community liaison team: a team that consists of professionals and trained volunteers that act as an intermediary between the responding professionals and the responding communities and that uses the COBACORE platform as a primary information gathering and dissemination platform.
- Information and Insight. The information and Insight frame accentuate the value of the COBACORE platform for professionals to gain a deeper understanding of the

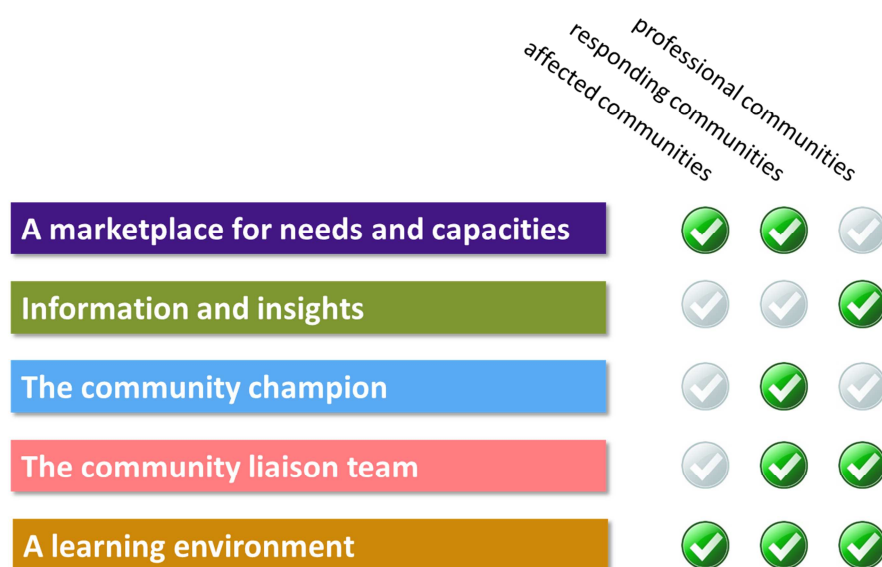


Figure 5: The five COBACORE project frames and their primary benefitting communities



activities that take place among the communities in the affected area. Through metrics and analytical tools that work off the base information in the platform, professionals can make better-informed decision on where to deploy capacities.

- A Learning Environment. The COBACORE platform can not only be used as an operational tool, but also as an instrument to train professionals and trained volunteers on interacting with civil communities and parties during disaster recovery and building up effective partnerships.

The frames are not necessarily relevant for each of our three key communities. Figure 5 shows the primary communities that directly benefit from a certain frame.

The following sections introduce the frames and describe how the platform supports the frames through features.

## 2.5 The Marketplace

### Narrative

‘Needs and capacity matching’ forms the backbone of the COBACORE platform. From its inception, the COBACORE project has targeted needs- and capacity matching and assessment in recovering communities, with the underlying obvious notion that ‘needs’ must be met by ‘capacities’ in order to recover properly. ‘Needs’ and ‘capacities’ are very broad concepts, and run from simple, tangible items (‘I need a hammer’) to intangible, composite requests (‘I want to feel more secure’).

**The Marketplace**  
For affected and  
responding communities  
**REGISTER, SEARCH,  
MATCH, CHAT, SHARE**

In many disaster instances, this matching of needs and capacities is problematic. Therefore, a central goal of the COBACORE project is to help connect community members in need better to those that can provide matching products or services. One could view the COBACORE platform as an elaborate marketplace where goods and services are offered and people connect to each other.

Such marketplaces readily exist, but do not specifically cater to a disaster recovery situation. For example, Marktplaats (marktplaats.nl) in the Netherlands is a generic advertising and bidding platform for citizens and small businesses. It makes use of an extensive product categorisation system and offers various means of contact to establish a trade. There are numerous similar platforms, but they are seldom used in times of crisis. Most crisis-time exchanges take place over common social media platforms, such as Twitter and Facebook. For instance, after the Boston Bombing, Google Docs was used to offer a place to stay<sup>1</sup>, and after the Bataclan shootings in Paris, the same happened on Twitter using the #porteouvert hashtag<sup>2</sup>. The COBACORE platform tries to go beyond what social media platforms offer.

<sup>1</sup> <http://www.theatlantic.com/technology/archive/2013/04/boston-and-the-kindness-of-google-docs/275033/>

<sup>2</sup> <http://time.com/4112428/paris-shootings-porte-ouverte/>

### How the platform supports this frame.

Since needs and offers may vary wildly in type, users are guided in the registration process. This ensures that needs and offers are properly stored, and good matches can be made. For affected and responding community alike, the platform offers smart searching, matching and linking options so that users quickly find what they search for. Content is placed on a versatile map that gives a comprehensive overview of needs and offers in the affected area.

The platform contains many supporting functionalities that facilitate this way of working. We discuss the main features.

- **Registration of needs and capacities**

The platform offers a simple registration process to a register a need or capacity. The needs registration process takes the user through a four-step process to describe the type of need, the intended recipient, the applicable location and any relationships to other registered needs. Capacity registration follows a similar process.

Following registration, content is put on a map, showing its type via icon (e.g. the type of need or capacity, based on content categories) and its status (e.g. open, resolved). Also, registered content becomes visible in overview panels (e.g. list of needs on the main page).

- **Search relevant needs and capacities**

Through various search, filter and suggestion features, users are supported in finding relevant platform content. The system automatically provides suggestions to registered needs and capacities, making it easier for users to find matches. Also, the platform provides many options to filter registered content. For example, the map can be tuned to show only specific content, or content in a specific area, as to ensure quick targeting of relevant content. Also, the user has an option to 'mark' content by entering a 'favourite' checkmark, making it easier to gather content that the user is particularly interested in.

- **Matching needs and capacities**

The platform offers options to connect in case of a match. By pressing a 'contact' button on a registered need or a capacity, the user is put into contact with the registrant. Conversations are held through the platform in a dedicated chat area connected to the need or capacity in question.

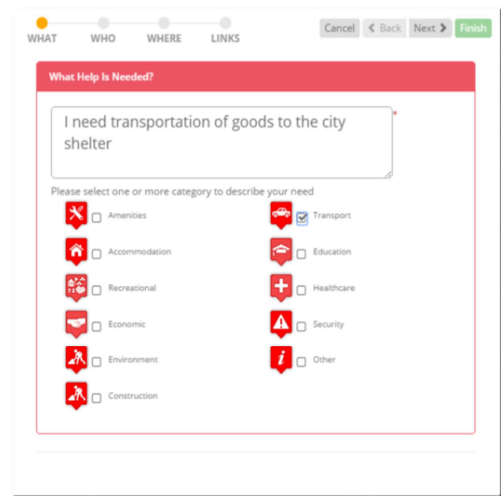
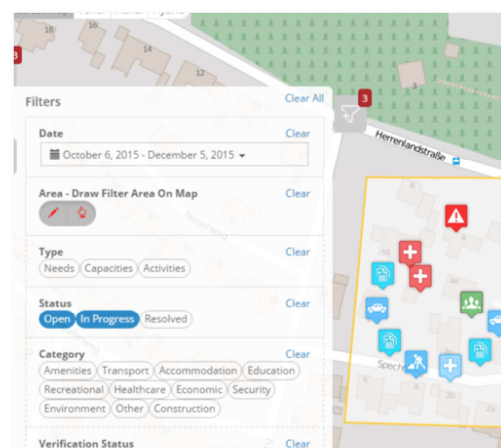
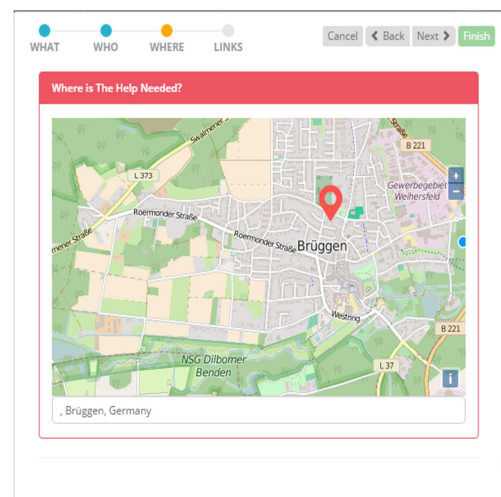



Figure 6: The Marketplace frame



## Assumptions

The marketplace frame assumes that communities are familiar with the COBACORE platform, and that there is enough participation to fulfil matching expectations. There are many ways to make this happen, for instance via campaigning by governing parties.

Additionally, in the project setup, we assume that COBACORE is the exclusive platform for needs and capacity matching, i.e. communities do not use alternate platforms to collaborate. In a later actual deployment, there might be smart connections to other platforms (e.g. Facebook, Twitter) so that community members can access the same information via different routes. We can image, for instance, that a need posted on Twitter automatically is inserted into the COBACORE information sphere, or that a capacity offer posted on a Facebook group is carried over and properly registered in the platform. For now, options to do so are limited in the platform.

## Typical use scenarios

- Affected citizen has a need and posts that need.
- Responding actor looks for needs and makes a match.
- An affected citizen looks for an offering that suits his need.

## 2.6 The Community Champion

### Narrative

‘Community champions’ are important driving forces behind community building and community action. Community champions are people that play a key role in mobilising communities to act, and take a proactive stance in promoting and strengthening the ties with other communities.

Many advocacy groups see ‘champions’ as a critical factor in attaining community resilience. For example, the UK’s ‘Strategic National Framework on Community Resilience’ (UK, 2011) states the following:

*The resilient community has a champion, someone who communicates the benefits of community resilience to the wider community. Community resilience champions use their skills and enthusiasm to motivate and encourage others to get involved and stay involved and are recognised as trusted figures by the community*

### The Community Champion

Tools for organisers

**ORGANISE, INVITE,  
PROMOTE, MANAGE**

Such champions can stem from activist groups or civil society organisations, but also often rise from the general public. What binds them is a firmly grounded motivation to build upon the capacities of a community and the right skillset to lead, motivate and manage a community into meaningful action. For that reason, champions play a great role in environmental activism (e.g. climate change protests), public debates (e.g. refugee influx across Europe), political actions (e.g. grassroots support in campaign time) and societal change (e.g. the Occupy movement) (Burns, 2013)

So, what would a community champion typically do? Change champions create awareness, mobilise like-minded people to join up, and organise activities. They do not necessarily need to be the most visible leader of a movement, but they do play an invaluable role in bringing people together to act. With the popularity of social media, becoming a community champion is easier than ever: a well-phrased challenge or invite is enough to gather an enormous crowd.

### How the platform supports this frame

The platform helps community champions by making it easy to organise activities and inviting parties to join. The activity organiser can set tasks, communicate with activity partners and link offers and requests that have been posted to the platform.

The platform offers a simple way to register an activity. Similar to the needs and capacity registration, the user is guided through a four-step registration process that registers basic activity information, but also provided options to link existing content. For example, a new initiative on neighbourhood transportation can be linked to transport options already offered by responding community members. After registration, the activity is placed on the map and becomes visible in the content overview panels.

The community champion can directly invite people to join an activity. Alternatively, interested parties can self-invite to an activity. After joining an activity, it shows up in the user's 'My Activities' list, from where the activity details page can be accessed.

After starting an activity the community champion has various options to manage. For instance, a discussion can be held online among the activity participants and tasks can be divided and monitored. Such management tools are accessible to all activity participants from their front page, and make for a simple yet effective way to collaborate.

### Assumptions

Similarly to the assumptions in the marketplace frame, we assume that the COBACORE platform is the exclusive platform for community champions to organise joint activities, i.e. they do not use alternate platforms. In a later actual deployment, there might be smart connections to other platforms (e.g. Facebook, Twitter) so that community members can access the same information via different routes. We can image, for instance, that a community champion starts an initiative on Facebook, and that it is carried over to the COBACORE platform.

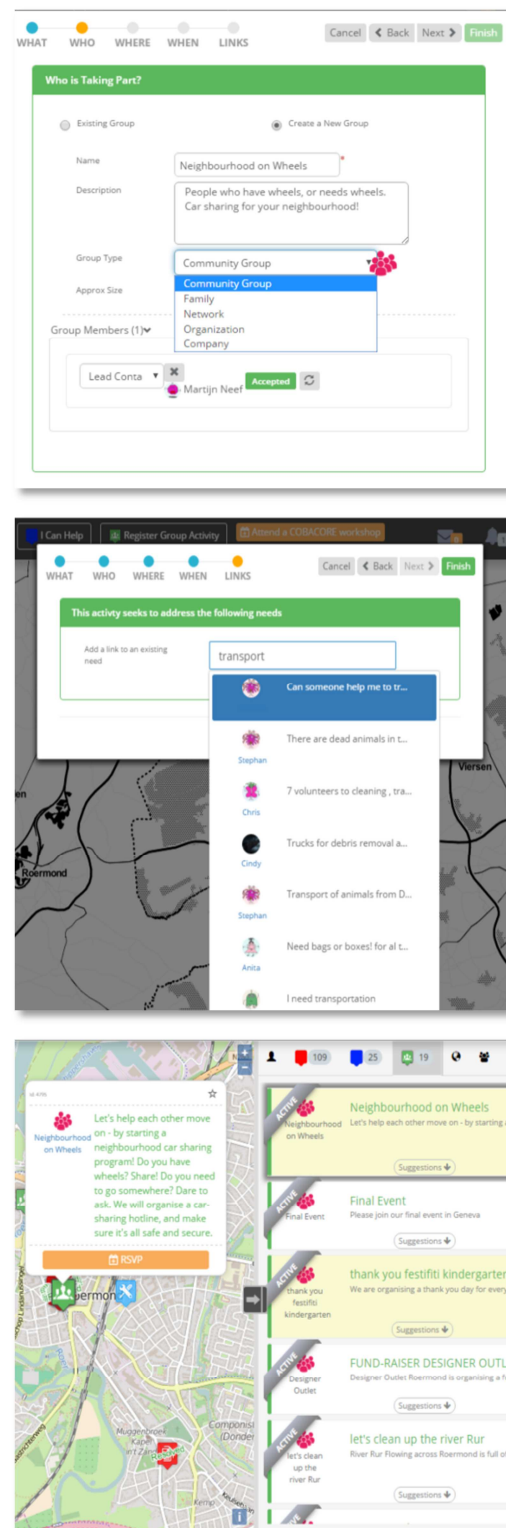


Figure 7: The Community Champion Frame

### Typical use scenarios

- A community champion starts an activity by going through the activity registration process on the platform
- A responding community member finds an interesting activity and joins this activity by pressing the 'join' button
- An activity group develops a new activity through chats with activity members and divides tasks
- A community champion posts activity updates on the notice board on the activity details page.

## 2.7 Community Liaison Team (CLT)

### Narrative

At the core of the COBACORE project is the notions that in disaster recovery communities need to be connected more tightly than they normally are. Smart technology can play a role to connect communities, but the human element is invaluable. A smart way to bridge the gap between professionals and citizens is to make use of a liaison team: a team of professionals and volunteers that relay support information exchange between professionals and civilian communities, and ensure information validity.

#### The Community Liaison Team

Connecting communities

HELP, VERIFY,  
MODERATE,  
INTERPRET

The CLT is an outfit that consist of professionals and citizens and that pro-actively build connections between community members. A CLT is a networked team that consist of people active off and on the field and is dispersed geographically over many locations. Its composition may change over time as different stakeholders and different themes come into play. The perform all sorts of moderation and management tasks, such as connecting people in need with those who can help, verifying offers and request via field-visits and providing communication and collaboration support to new citizen-led volunteer initiatives. The COBACORE platform provides the CLT with a dedicated collaboration space where actions can be coordinated.

### Assumptions

Since a liaison team stands in-between communities, we assume that the team is known to all, and has a recognised role. This is especially important on the professional side because requests and information coming from the liaison team must be trusted before it can be used in operational decision making.

Additionally, we assume that the CLT is a mixture of professionals and trained volunteers. There should be a dedicated CLT training so that CLT members know how to cope with communities in distress. Also, we believe that a part of the CLT needs to be active on the ground in order to provide face-to-face support in using the platform or expressing needs and capacities.

We assume that the CLT provided unbiased support. Because a CLT will most likely consist of professionals and trained volunteers, there is a danger that the CLT members go beyond their liaison role and make decisions instead of forwarding requests to professionals. The CLT should provide guidance, advice and support, but not judge or decide. This can be a difficult accomplishment for passionate professionals, but a necessary step to maintain the legitimacy of a CLT.

### How the platform supports this frame

The COBACORE platform has dedicated features to support a liaison team such as quick-communication channels, information verification options and a dedicated interface for on-field liaison team members. These features become accessible once a platform user has logged in through a 'CLT account'.

The CLT feature panel includes various dedicated communication and identification features. Above all, the current CLT team is visible from a team overview panel. Through switches CLT members can denote whether they are available or offline. Also, the platform offers options for CLT members to send out platform-wide messages (e.g. in case of urgent events or general requests). There is an option to send out such messages through the internal communication system, or through email, SMS text or social media channels. Additionally, there are options to configure the media streams that are displayed on the information panels of normal users.

CLT members also have the option to verify platform content. Every registered need, capacity and activity has a 'verification' status that signifies whether a CLT member has verified its existence, legitimacy and relevance. After a check (online, or through phone calls or site visits) a CLT member can change the status in the platform. In this manner, CLT members can prioritise verified content and notify professionals to rejected content.

### Typical use scenarios

- a CLT member connects a need with a capacity by sending a link through chat, and thus powering 'marketplace frame activities'
- a CLT connect points members of an activity to online instructional information through a messages on the activity chat page
- a CLT field officer verifies a registered need by visiting and changes the status into 'verified' through his or her mobile device
- CLT members jointly address activities in a certain region
- a CLT member advertises an activity, e.g. organised on social media by a community champion, on the COBACORE platform

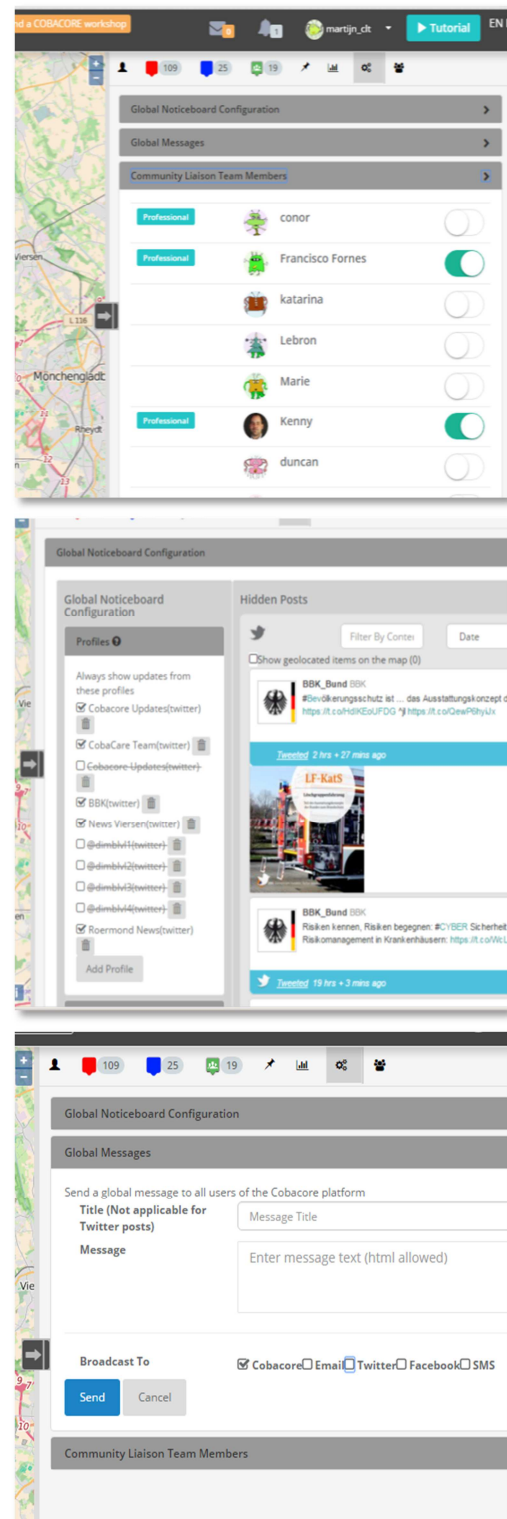


Figure 8: The Community Liaison Team Frame



## 2.8 Information and Insights

### Narrative

For professional users, the platform provides novel insights into the disaster recovery process. As community members register their needs, offers and activities, it becomes clearer for professionals to understand where their professional help is needed most. Professional users also have access to analytical graphs that give a detailed breakdown of the types of registered needs and capacities, with further options to monitor progress over time. Furthermore, professional users have dedicated annotation tools to place markers on the map, and enable specialised overlays. In summary, the platform provides professional users with an indispensable asset to make better informed decisions.

### Assumptions

The analytical features of the platform can only generate meaningful graphs and insights if there is enough incoming data. We assume that a large portion of society is connected to the platform, and uses the platform to share needs, capacities and activities.

Also, we assume that professionals have auxiliary systems to collect, integrate and share operational information. The COBACORE platform is not intended to be a replacement for existing systems, and should not be viewed as such. The platform is meant to complement the information environment of professionals with novel, relevant insights into the dynamic of a recovering society.

### How the platform supports this frame

The COBACORE platform has dedicated features to support professional users, mostly targeted towards gaining situation awareness and optimising decision making. These features become accessible once a platform user has logged in through a 'professional account'.

The professional user has an extensive set of features at his disposal to create a display that is tailored to his information needs. The platform has an extensive filtering mechanism that allows content searches on thematic categories, status, registration time and geographic

#### Information and Insights

A dashboard for professionals

**VISUALIZE, ANALYSE, UNDERSTAND, CONNECT**

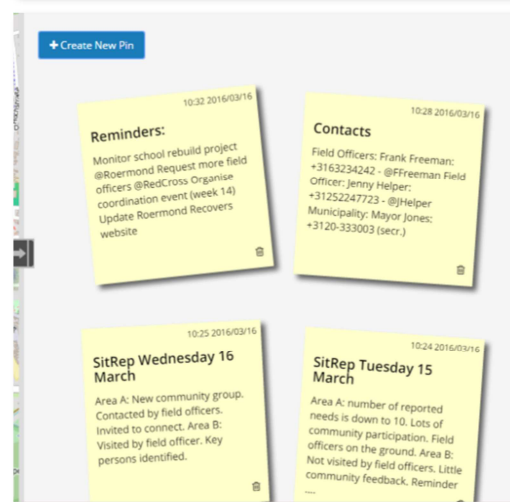
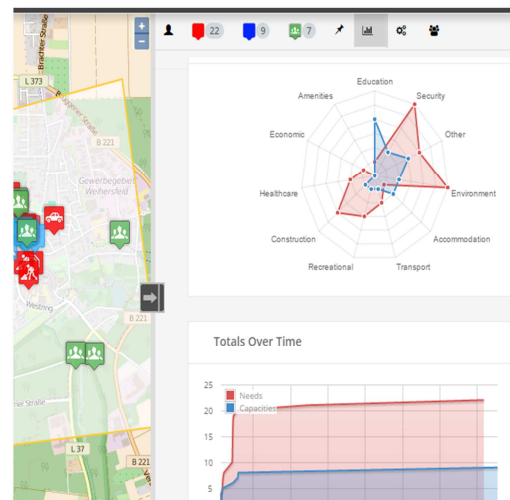


Figure 9: The Information and Insights frame

location. Professional users also have the option to narrow down content by drawing polygons on screen to select a certain geographic area.

The map-part of the display is a layered graphical information system. Aside from the option to select different types of background maps (e.g. satellite-based, OpenStreet Map), there is an option to include additional information layers. Professional users can add data from their own sources and visualize them on the map by adding a new data-layer. Such a layer could, for instance, contain locations of certain buildings or infrastructures.

The professional interface also contains rudimentary yet informative analytical features. The default interface contains a graph denoting the distribution of types of content in the selected area, providing an insight into the categories of registered needs that are most prevalent. Similarly, the dashboard also provides a time-series graph that shows how registered needs develop over time.

Furthermore, the professionals' interface offers options to annotate maps with notes, icons and areas. This is particularly interesting for creating situation reports or sharing insights with other professionals. Annotated maps can be shared and exported for further use.

#### Typical use scenarios

- a professional user performs a needs and capacity assessment in a demarcated area
- a professional user build a situation report using data graphs and annotated maps
- a professional user gains a deeper insight in the situation by tracking developments over time and assessing the capacity of areas to self-organise their recovery.

## 2.9 A Learning Environment

### Narrative

Practice makes perfect, but in the (thankful) absence of frequent large-scale disasters, it is not easy to learn how to collaborate in a disaster recovery setting.

Disasters occur rarely, thankfully. However, this limits options to create, develop and test in practice. Therefore, we have built the COBAGame method: a serious game that builds upon the COBACORE platform and puts participants in a post-crisis scenario. Players are given role profiles and become part of the professional, affected or responding community. The COBAGame is designed around the needs posed by the affected community which can be addressed by 'undertaking' an action in that neighbourhood. For each action various resources are required, which will, over the course of the game, be harder to come by. In order to provide the affected community with suitable relief, all communities will have to pool their resources and jointly determine what actions are to be taken where. This requires the players to assess what the needs are, establish what actions can be undertaken and who has the resources to make that happen. Most importantly, it requires the players to look beyond their own capabilities and establish collaborations rather than only undertake actions that they are able to carry out on their own. This aligns closely with the process that COBACORE aims to facilitate.

#### A Learning environment

Experience gaps and learn how to close them

**LEARN, TEST, EVALUATE, PLAY**

### How the platform supports this frame

The COBACORE platform is a versatile environment that can also be used for learning purposes. The platform is easily configurable, and has various moderation and logging features

that make it suitable as the centre piece of a learning environment. During the project, the platform has been used extensively for evaluation purposes in so-called COBAGames and to great appreciation by participants.

The COBACORE platform plays an important role as it provides a realistic information exchange environment to participants, but also logs activities and communication for post-game performance assessment.

### Assumptions

There are a number of assumptions associated with the use of the platform for training and evaluation purposes. First of all, the COBAGame setup with COBACORE platform assumes a world that does not yet exist. The COBACORE platform is neither an operational system, nor is this ideology of community-wide disaster recovery commonplace. This implies that one needs to be cautious with conclusions drawn from COBAGames sessions. It is a very suitable environment for skill development (e.g. enhance collaborative decision making, leadership, situation awareness), but less so for operational training (e.g. practicing operational procedures). We assume that organisers are aware of the limited realism of the COBACORE platform and are capable of properly framing the COBACORE platform as a learning environment.

Another assumption is that organisers are aware that it might be beneficial to turn off certain features of the platform during learning events or use other methods to limit the amount of available information. By design, we assume that all communication is mediated through the platform. Every interaction, every piece of content and every action is registered and available through the platform interfaces. This might simplify decision-making to such a degree that it harms the desired learning effect. In order to maximise the learning effect of a COBAGame, great care needs to be taken to configuring the platform and building up a suitable scenario.



Figure 10: The Learning Environment frame

### Typical use scenarios

- Professionals learn to understand how communities self-manage recovery activities by jointly playing a COBAGame
- Citizen communities learn collaboration and decision making skills in disaster management by playing a COBAGame.
- Professionals and citizen communities jointly develop practical and efficient collaboration forms in a disaster preparation effort.

### 3 Cross-cutting themes

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A good idea does not equal a good solution. In the COBACORE project, we have built up a vision about community-based disaster recovery and experienced how smartly designed technology can help to realise that vision. However, at the end of the project, that is just what it is: a vision and a technology demonstrator. As we all know, disaster management (preparedness, response and recovery) is a complex undertaking that is governed by many rules, laws, procedures, parties and human behaviours. Our vision of a common community collaboration platform will only succeed if it attains a critical mass of users and the support of many parties. So, how can that ambition be realised?

The future success of the COBACORE platform does not depend on technology. The technology that drives the COBACORE platform is readily available. What is needed is that the right circumstances are created for a community-wide adoption, based on the acknowledgment of our core principle: effective disaster recovery demands that existing collaboration gaps are closed – and the same holds for the other phases of the disaster management cycle. Practically speaking, communities need to interact more closely than they normally do. Professionals need to allow for a great role of citizens in disaster recovery and they need to be aware of the actions deployed by those citizens. Citizens need to become more aware of the responsibilities and constraints of professionals, and obtain a better understanding of their own limitations. And, most importantly, as a society, we need rethink our approaches to disaster management. We need new perspectives on the role of communities, and we need new rules that make these new roles possible. We need to invest in the creation of a new safety culture – one that is driven by the notion that disaster management is a society-wide responsibility in which all types of communities have an obligation to communicate, contribute, and collaborate.

The above might sound a bit abstract, but has very practical connotations. For example, in most European member states, government parties are still struggling with the role of spontaneous volunteers in their disaster management activities. There are many reasons for this, such as legal barriers, distrust of civilian capabilities, resistance to change or lack of proper training. Also, there are many citizen-led initiatives that center on self-reliance in communities, but they rarely get enough uptake to really make a difference in disaster situations.

So, what is the best path forward towards have COBACORE ideas implemented? There is no single answer. Conditions differ per area, and what would work in one region, would not in another, due to differences in organisational structures, regulations, culture, existing systems, and so on. In this chapter we discuss some critical cross-cutting themes that need to be addressed when deploying the COBACORE platform in practice.

#### 3.1 Governance and user-groups

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With the expression ‘governance’ we refer to the manner in which the platform is governed: all processes related to the interaction and decision making between parties involved. Typical topics are: ownership of platform, services and data; operations & maintenance; service provisioning and discontinuation; finance; communications, etc. Governance of a platform like COBACORE is an important theme, as it defines the accountabilities and responsibilities of parties involved, should cater for the daily management of the platform including the verification and validation of users and data and the prevention of abuse. Furthermore, the governance, and especially the parties that are in charge, is an important influence on trust



that (potential) users have in the platform and its services. An important task of the daily management is to manage the expectations of (potential) users: what happens if you are affected by a disaster and post a need request? Can you expect (immediate) help? How does the service relate to official public control rooms or activity centers? In addition, the choice for operating parties will influence the options for interconnecting the platform to other (public) emergency platforms, databases, organisational procedures and services.

When it comes to the choice for parties to own and operate the platform and its services, there are three main options: COBACORE can be run by an institution of the public government, by a community of citizens, or by a company. Each option is likely to result in a different business model, different pricing structure, and different options for interconnections to public emergency services, and is likely to have an effect on people's trust in the service. Based on external expert consultation and internal discussions the project team sees the following advantages and disadvantages for each option.

**Table 1: Overview of possible advantages and disadvantages of different options for governance.**

	Government-run	Citizens-run	Company-run
Possible business model	Free public service	Crowd sourcing, free and open source	Commercial models such as freemium, leverage user data, multi-sided platform.
Scaling of service provisioning and usage	Good options to scale to provincial and national levels.	Often citizen run initiatives have difficulties to sustain and scale up. Is related to maturity of the service sustainability, trust, etc.	With a successful commercial business model the service could scale quickly to international levels.
Interconnection with public safety and emergency response services	Strong options to interconnect with public services.	Typically public services are hesitant to affiliate with small initiatives and/or initiatives run by non-professionals.	Possible if the company is solid and the service appears to be successful.
Trust of users and partners	Trust differs per country, but European governments generally receive relatively good trust.	Trust depends on professionalism and looks of the service offered. Trust of citizens could be good (or in some countries perhaps even better than in government-run services)	Trust depends on professionalism and looks of the service offered, and privacy policy / business model of the company. Trust of citizens is typically not a barrier if added value is good.
Flexibility, Innovation, and future developments	Differs per situation, but public services run by government are typically less flexible and less innovative.	Depending on the (software) community that supports and develops it, but good be very flexible and innovative.	Depending on the innovativeness of the company and their options to continue to invest in the service, innovativeness and options for future development could be good.

Also intermediate options are possible, like a public-private partnership running the platform. Such a construction could benefit from the advantages of both the government-run and company-run options. As an example of an public-private initiative, we describe an “ad hoc relief and recovery project office driven by community and facilitated and mandated by government”. As COBACORE facilitates community driven recovery planning, it is of primary concern that the governments takes a facilitating role only in exploiting the COBACORE platform and takes their distance in actual implementation and exploitation. The project office with representatives from communities and other stakeholders must be given the mandate to act on behalf of the responsibility of the government, must be given by the government the resources to act accordingly, but at the same time must be given enough freedom to act fast and flexible as the dynamics of the disaster require. Examples of such a project office are the office erected in Christchurch after the 2011 earthquake, and the German Red Cross given this mandate by the German Government after the 2012 floods. COBACORE should be made standby in the preparedness phase in order to maximise effectiveness in especially the relief phase. We foresee a role for the national government or a collaboration of several regional public safety organisations to own COBACORE and preload it with data. The national government would then after a disaster provide COBACORE to the project office to tailor and exploit it (i.e. offer it to affected communities, supporting communities, relief professionals, etc.). Noting the different stakeholders and needs during normal time and time of crisis, the governance of the platform may change during a crisis.

### 3.2 Trust and expectations

The platform is meant to support people in a vulnerable situation. In such a situation where people are depending on the help of others for their basis needs, it is important that people can trust the platform. We can differentiate trust in:

- Trust in the organisation that owns and runs the platform (see section above);
- Trust in the technology used by the platform, i.e. the Internet, mobile devices, internet connections. Although we have seen that mobile telephony and internet connections are being restored quickly after a disaster of crisis [IFRC 2013], technology may not always work flawless. COBACORE therefore offers access to its services via a number of online and offline channels. See section Inclusion below.
- Trust in the services offered by the platform including its functionality and underlying “smart” algorithms, i.e. the market place, information dashboard. Practice shows however that if online services add prompt and direct value to the user, the user is typically less concerned about risks e.g. related to his privacy and security. In addition to complying with industry standards and legal frameworks on privacy and security, the COBACORE platform focusses on delivering direct value to its users by providing direct and open access to information, peer2peer matchmaking, and citizen led initiatives.
- Trust in the users active on the platform and the data they publish. The platform offers a number of mechanisms aiming to improve integrity of data such as needs and capacities. Data can be verified by others. Trusted parties like COBACORE field officers or authorities can take this validation role, but also other users can be given the option to verify data. In addition content on the platform such as needs, capacities, activities and users can be rated by other users by giving stars. Users need to register and authorise themselves before they can post on the platform. In this way their email

address is validated. Optionally, also other information like mobile phone number could be validated before providing access.

Related to trust are the expectations that people may have. Expectations with respect to service delivery (responses, offerings of appropriate help, information provisioning, etc.) should be realistic to prevent disappointments, or even worse potential dangerous situations and/or claims. Service delivery will highly depend on the actual implementation in a local situation, but it is unlikely that professionals can provide a direct response to an individual need expressed on the platform. Responses from (spontaneous) volunteers within the community can also not be guaranteed. It is thus important to manage the expectations of users by clear information on the platform and in supporting documents. Also the platform's terms and conditions for use need to reflect how the platform works and what can be expected (and what not).

### **3.3 Misuse, abuse, security and privacy**

The use of online platforms, social media and open data has become a powerful mechanism driving social, organisational and economic change. Platforms like COBACORE enable people to express themselves, share (personal) information and generate ideas. This has brought numerous good initiatives of peer2peer help, spontaneous volunteering during crisis, crowd-sourced damage and needs assessments, empowerment and increased resilience through information provisioning, increased security through online neighbourhood watch, community policing, etc. However, the use of these online tools has brought a dark side as well, as also people with bad intentions have found the internet to organise themselves, find people in vulnerable positions, contact them and commit criminal activities. Criminal activities can be online (cyber-crime such as stealing of identity and financial crime), as well as in the physical world (e.g. plunder areas evacuated after a disaster, burglary informed by online information about presence and valuables). Just like with any other online platform and social media, where personal data is shared (semi) openly, people using COBACORE should be aware of their privacy and security risks and use the tools in a sensible and responsible fashion.

In states with strong political or military regimes (e.g. dictators) or in fragile states, personal data is likely to be used by other parties for political or military reasons and may thus form a security risk for individuals, their families or even complete communities. In European contexts that COBACORE is focussing on, we consider this risk as low.

Besides crime and abuse, platforms with personal data about people in need, may also attract people and organisations with other – not necessarily bad - intentions. People in need after an incident of disaster can be targeted by commercial organisations and may be approached by lawyers, insurance companies, recovery services, good suppliers, and others.

The COBACORE platform is equipped with a number of precautions to prevent abuse:

- Personal data in someone's profile is by default not shown to others. User names can be freely chosen and do not have to reveal someone's real name.
- Contacting other users with messages or chat is facilitated by the COBACORE platform without revealing personal contact info.
- Users can be assigned validated roles (such as Professional, Liaison, etc.) and can be rated and commented upon by others (social review).
- The exact geo-location of someone in need is not shown on the map. Instead an approximate location is provided.
- Users that upload data to the platform, such as map layers or databases, can choose to make their data public or private.

- A tool like COBACORE must be serviced with appropriate and terms and conditions for usage, but the service provider should also explain the user in normal and clear language possible privacy and security risks and precautions that the user is expected to take.

In future implementation efforts, privacy concerns and prevention of misuse should be at the center of discussion between developers, stakeholders and users, and should not be dismissed as a mere technical task. Especially in COBACORE-like socio-technical systems, ‘security-by-collaborative-design’ should be the norm.

### 3.4 Inclusion

An important issue of online services, and of special importance for crisis response services, is inclusiveness. With ‘inclusiveness’ we mean the accessibility of the service for all people, including vulnerable people, elderly, young people, immigrants speaking other languages, people without access to the Internet, etc. COBACORE has a number of technical and non-technical features to provide access to its services to as many people in need as possible.

Technical features include:

- Access to the platform via various devices, including web access and a mobile application. In addition, the platform could be further integrated with popular social media to increase discoverability and accessibility. In general it is wise to “be where your target resides”.
- Access via proxy. Users can post on the platform on behalf of some-one else who doesn’t have access to the online platform, or even on behalf of a group of people (e.g. a family, street, etc.).
- Different interfaces for different groups. Depending on its profile and/or role (affected community member, responding community member, responding professional, liaison team member, field officer), a user gets a different interface with only the relevant features.
- The interface has a multi-language set-up. Currently English and German languages are provided, but other language packs can be developed.

COBACORE as a holistic concept for community driven recovery is much more than just an online platform. Most functions and features have both an online and an offline (real world) side. The online side being the platform and the offline side being the people, actions, activities, processes and procedures that are linked to the platform but take place in the real world community or organisation(s) where COBACORE is used. Much is depending on professional organisations and community organisations and the extent to which they integrate COBACORE in their everyday activities. Non-technical features to improve inclusion include:

- The Community Liaison Team. This real-world team consisting of both professionals and volunteers acts an interface between professionals and offline activities volunteers and other community actors.
- The Community Champion and Activities. The community champion is a real-life person using the platform to create plans for real-world activities and mobilise (real-life) people. Of course people without access to the platform can join in these activities. To facilitate this, activities can be advertised in printed on e.g. notice boards, flyers, newsletters. Registration could be on-site or in advance via proxy.

- The request to online users, to check upon neighbours in case of emergency or include somebody who might have difficulties in accessing the platform.

### 3.5 Content management

The power of online platforms like COBACORE lies in the capability to crowd-source, collect, combine, share and publish large amounts of data and information. An inherent risk of these big data applications is that users are overloaded with data. Especially in crisis situations people in affected communities and responders don't have much time to analyse data and take decisions. In recent humanitarian crises were responders where supported by, among others, crisis mappers, digital tasks forces, and digital volunteers on site, decision makers and field workers in response organisations already encountered an information overload: they received more data (including emails, reports, databases, maps) than they could process and react to in the heat of the moment [IFRC 2013]. This risk also became apparent during the COBACORE Final Evaluation exercise in Arhweiler where responders received many help requests and offers for help from individuals and small groups.

The COBACORE platform has implemented a number of features to provide relevant information to each user and prevent information overload.

- Depending on the role of a user, COBACORE provides different interfaces with different functions and information elements. E.g. response professionals who typically require overview and have to set priorities are provided with dashboards showing analysed data on an aggregated and categorised level, whereas citizens willing to help are offered a map-based market place with need requests of individuals and small groups in their neighbourhood.
- COBACORE provides a very rich set of filtering, layering and search functions, giving each user the option to analyse and present only these data relevant to him/her.
- Each user has a personalised "MyCOBACORE" environment in which they receives matching suggestions for their needs requests or help offers. Furthermore, a personal message inbox facilitate communications with other users. Other features available on a personal level to monitor specific information or actions include: notifications, a watch-list, and a pin board.
- To facilitate collaboration and sharing of specific information within a group, a Group facility is provided with among others a chat feature.
- To maintain the information on the platform current, Needs, Capacities and Activities are archived once resolved/used/finished, or automatically archived after a certain period of time.

In addition to the technical features mentioned above, a solution to manage large amounts of information is also found in a number of organisational concepts, such as:

- The Community Liaison Team (CLT): an operational team with representatives from both the professional responders and the responding community, that serves as a bridge between both groups. The CLT would typically be tasked to monitor initiatives of the responding community, e.g. of spontaneous volunteers, provide oversight views to the professionals, and give guiding directions back to the responding community.
- Information Manager: crisis teams typically include an Information Manager who is tasked to provide situational awareness to his team and support decision making. Such a dedicated Information Manager could be equipped with COBACORE, to allow him to liaise with the responding and affected community.

Also the person tasked with Communications could use COBACORE to maintain a close link with the communities, notice questions, issues and possible rumours early in time, and respond with information updates adequately.

## 4 The Bigger Picture

In this chapter, we briefly revisit the concept development process in the COBACORE project, and recount the major conclusions of our evaluation sessions. From there on, we discuss an all-inclusive use scenario for the COBACORE platform, and discuss alternate options for use.

### 4.1 Reflections from evaluations

Testing and evaluation is a key part of system development. Throughout the project, the team has worked closely with potential users to develop valuable platform features. There have been development workshops in Berlin (DE), Sevilla (SP), Belfast (UK), Dublin (IE), Zilina (SK) and larger evaluation sessions in Rotterdam (NL) and Ahrweiler (DE), with each iteration presenting a more mature concept and platform to stakeholders.

The COBACORE project's final evaluation took place at the Akademie für Krisenmanagement, Notfallplanung und Zivilschutz (AKNZ), in Ahrweiler, Germany. The exercise was the last in a series of platform evaluation sessions, and demonstrated the platform in its final state. For two days, more than 60 professionals and trained volunteers submerged themselves in an elaborate COBAGAME setting, and experienced the difficulties of collaborating in disaster recovery.

The scenario depicted the aftermath of an earthquake in the German town of Brüggen, close to the Dutch city of Roermond. The earthquake caused substantial damage on either side of the border, and three weeks after the event, both cities are still very much in distress. The exercise was ran with both Dutch and German professionals and volunteers, and many played in their real-life role such as the Mayor of the city of Brüggen and his crisis-team, and representatives from the Dutch cities of Roermond and Veghel. Furthermore, many trained volunteers participated as either affected or responding community members. Both German and Dutch professional teams made use of a 'community liaison team': a team of volunteers that helped connect citizen communities to professionals and provide on-field support to citizens.

As with all COBAGame sessions, participants were given a role profile and specific tasks to solve. For example, participants needed to tend to a castle whose walls were crumbling, or deal with the disruptive effects of a blocked road, or even work together to locate a venomous snake that had escaped from the zoo. Some tasks could be dealt with by simply finding someone with the most suitable resources (e.g. a vehicle, or a pair of capable hands), but in many cases, the task required that many parties came together and make something happen. Even though many of the roles and tasks were rather frivolous, participants were quickly drawn into the scenario and actually experienced the chaos and disorder that is typical of disaster recovery.

After two days of play, there was an overwhelming appreciation of the setup, the COBACORE concept and the platform. The key appreciations:

- A clear confirmation that the COBACORE concept of community-based disaster recovery is effective and valuable.
- The COBACORE platform is a valuable instrument to foster community interaction.
- The 'community liaison team' concept and the COBACORE platform have proven to be easily adoptable in existing procedures and arrangements.



- The feature set for professionals and in particular the analytic feature are easily comprehensible and offers new data sources and a solid basis for informing decisions.
- COBACORE cannot be deployed only in a disaster context. It must be used during the preparedness phase too to increase familiarity and probability of application.
- The COBAGame setup is an excellent way to experience alternative approaches to disaster recovery, and a great way to become familiar with the COBACORE platform.

Participants all felt the COBACORE could work in a ‘real world’ situation subject to some enhancements that the COBACORE development team have been considering implementing in the final release of the platform. For example, the interoperability of the platform serves as a motivation to integrate presently disparate data layers. However, this is a very context-specific challenge, so it is difficult to generate the ‘ideal set of data layers’. This points to a broader reflection: Before the platform can be deployed in the ‘real world’, it needs to be and tailored, and that takes more than just minor fine-tuning: the COBACORE platform needs to be accompanied by new rules, new roles and new procedures that harmonize with the collaborative vision of the COBACORE platform. To arrive at that stage demands a collaborative creation process. For further reading on this process, we refer the reader to Deliverable 6.8: ‘Guidelines for Practical Implementation of COBACORE Project Results’.

## 4.2 Life with COBACORE: a blueprint for practical use

We have learned a number of lessons from our evaluation sessions, especially on embedding the platform with daily life and operational structures. Let us take a step back and envision how the COBACORE platform could become an integral part of life – before a disaster strikes and thereafter.

We embrace four principles for an integrated use-case:

- **Disaster recovery is part of a continuum.** The COBACORE project revolves around community interaction. Therefore, communities need to be interacting before disaster strikes, during a crisis and beyond.
- **There will be shifts in governance over time.** The stakeholders during disaster are different from those during non-crisis times. A use-case should accommodate for that.
- **There will be shifts in purpose over time.** The COBACORE platform will serve different needs over time. Aspects that are relevant in non-disaster times might differ from those during disaster recovery. A use-case should accommodate for that.
- **It is vital to create a closed learning cycle.** Disasters are a rare occurrence. When a disaster does strike, all care should be taken that experiences with the platform and its surrounding procedures are well recorded and used to improve. The COBACORE platform brings the ability to analyse and ‘track’ what events and activities went on during a disaster, and thus gives a solid foundation for continued learning.

We take these four principles and use them to sketch a blueprint for practical use of the COBACORE platform.

Let us take a typical medium-sized city in a well-developed country as our starting point. As in most urban areas across Europe, the city is composed of many groups, cultures and network, and social cohesion differs from area to area.



The normal phase: day-to-day life	
<b>Platform role</b>	A central place for citizens to improve their daily urban life
<b>Management</b>	Managed and moderated by volunteers. Monitored by municipal representatives.
<b>Dominant frames</b>	<ul style="list-style-type: none"> <li>• The marketplace</li> <li>• The community champion</li> </ul>
<b>Content</b>	Needs and offers related to urban life: safety, security, social, cultural and environmental needs.
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Registration of community members, registration of capabilities, skills</li> <li>• Announcements from professional parties (e.g. municipal representatives)</li> </ul>

We assume the COBACORE platform is active, and is known to citizens via local and national campaigns. The system is setup in such a way that every neighbourhood has its own instantiation of the platform, with potentially customised interfaces and feature-sets.

For citizens, the COBACORE platform is the default environment to ask help and share information, primarily for daily, non-urgent concerns. People use the platform to ask support on all sorts of things, ranging from requests for helping hands to the announcement of events. ‘Let’s put it on COBACORE’ is a frequently heard phrase, and for many it has become as ubiquitous as the neighbourhood newspaper.

Part of the success is the support and participation of the city. City officials are linked into the system and frequently use it to broadcast events or ask for support. Even so, the platform is seen as a community-led initiative because it is managed by a local volunteer team. Surely, the government is keeping a watchful eye, but the day-to-day moderation is in the hand of community-members with moderator-accounts.

There are all sorts of links to other platforms so that everyone can use their preferred way of connecting to the platform. Some use the ‘#cobacore’ hashtag on Twitter to make sure that messages are being cross-posted. Others inform the moderation team of postings of Facebook for inclusion on COBACORE. For those less familiar with digital technology, there are enough helping hands in community centers, so that no one is left behind. All in all, the platform paints a fairly good picture of what is going in the neighbourhood, and there is a commonsense of trust in its value.

For the connected governmental officials, the COBACORE platform forms an interesting source of information. It gives an impression of the social cohesion in the neighbourhood, and shows the degree of activity. Neighbourhood representatives use this information as a complement to their usual stream of information, and occasionally use it to inform their decision making process. Just think of all the day-to-day information that can be gathered from social chatter: alerts about street potholes, reports malfunctioning streetlights, shared feelings of insecurity, reports of anti-social behaviour and so on.

### The crisis phase: escalation and response

<b>Platform role</b>	A crisis information and collaboration hub.
<b>Management</b>	Managed and moderated by professionals, with some support from volunteer teams.
<b>Dominant frames</b>	<ul style="list-style-type: none"> <li>• Information and insights</li> <li>• the marketplace (limited to specific themes)</li> </ul>
<b>Content</b>	Professional-generated information geared towards informing the population. On specific topics, community-generated information such as personal observations.
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Quick provisioning of verified information from authorities to communities</li> <li>• Specific Needs and damage assessments</li> </ul>

At some point in time, a disaster strikes in the area. Infrastructures fail, and chaos and panic ensue.

By operational procedure, the COBACORE platform goes into ‘emergency’ mode. As soon as a state of emergency has been declared, all information systems are being put into escalation mode, including the COBACORE platform. All information systems are being tuned to properly channel information from the disaster response teams to the population. By doing so, the city plays its part in the prevention of false information.

For the COBACORE platform, that means that platform management is now in the hands of the local and regional disaster response communication teams. By putting the COBACORE platform in emergency mode, certain communication features are enabled and existing content (needs, offers, activities) are subdued for the time being. Government crisis communication gets a prominent place on platform, and the platform is transformed into a crisis information environment. The platform now explicitly shows locations of emergency facilities and gives users clear information about the state of the emergency and its expected evolution.

Additionally, the platform is used to ask community members for information. The normal registration procedures for needs and capacities still stand, but priority is given for specific requests from professionals – for instance via dedicated buttons to report damage, human need, shortcomings and other observations.

On the organisational side, the COBACORE platform is now part of the professional response environment. Connections are made with other operational systems, for instance to show locations and availability of operational assets to citizens, such as information points, no-go areas, road closures and infrastructure status. Platform management is in the hands of a professional moderation team. The volunteer team from the normal phase is still involved, but is requested to follow the lead of the professional team.

The recovery phase:	
<b>Platform role</b>	A common collaboration environment during disaster recovery
<b>Management</b>	Management and moderations is in the hands of a community liaison team: a joint professional & volunteer team.
<b>Dominant frames</b>	<ul style="list-style-type: none"> <li>• The Marketplace</li> <li>• The Community Champion,</li> <li>• The Community Liaison Team</li> <li>• Information and Insights.</li> </ul>
<b>Content:</b>	Needs in affected communities, capacities in responding and professional communities.
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Alignment of capacities and activities of professionals and volunteers</li> <li>• Community driven needs assessment and recovery</li> </ul>

After the immediate response has passed and the most urgent relief has been provided, attention starts to focus on recovery and reconstruction. With the shift in focus, other actors in the professional field come into play, such as social workers, local businesses and community volunteer groups. The professionally-led platform management team makes way for a different group: the community liaison team (CLT). The CLT is an outfit that consist of professionals and citizens and that pro-actively build connections between community members. A CLT is a networked team that consist of people active off and on the field and is dispersed geographically over many locations. Its composition may change over time as different stakeholders and different themes come into play. The perform all sorts of moderation and management tasks, such as connecting people in need with those who can help, verifying offers and request via field-visits and providing communication and collaboration support to new citizen-led volunteer initiatives. The COBACORE platform provides the CLT with a dedicated collaboration space where actions can be coordinated.

For professional parties such as city municipalities, social care organisations and regional command teams, the information contained in the COBACORE platform is invaluable. Professional parties are represented in the CLT by a dedicated person that is responsible for bringing that information into the decision-making processes at the professional level, for instance via regular situation reports.

Content-wise, the focus of the platform goes towards social, physical, cultural and economic recovery. Citizens are invited to share needs, offers and ideas on the platform, and, in joint fashion, rebuild their environment. By involving them in planning and decision making, community residents are empowered and better prepared for future disasters, and the recovery planning process is legitimized [FEMA, 2011]. In this phase, the COBACORE platform is in its original mode with all features geared towards closing collaboration gaps to help a society recover faster from disaster.

### The mitigation phase: Learn and return to normal

<b>Platform role</b>	A common collaboration environment during disaster recovery and day-to-day urban life.
<b>Management</b>	Management and moderations is in the hands of a community liaison team: a joint professional & volunteer team.
<b>Dominant frames</b>	<ul style="list-style-type: none"> <li>• The marketplace</li> <li>• The community champion</li> <li>• The community liaison team</li> <li>• A learning environment</li> </ul>
<b>Content</b>	Needs in affected communities, capacities in responding and professional communities, but with a shifting focus on normal day-to-day urban concerns.
<b>Highlights</b>	<ul style="list-style-type: none"> <li>• Use of the community to encourage learning and preparing.</li> <li>• Co-creation to put management and moderation back in to volunteer hands.</li> </ul>

In due time, the recovery phase will quieten down, and normal life will take over again. This will be visible from the type of community activities taking place in the neighbourhood. The focus will be more on social initiatives and daily life than on disaster-related issues, and this will be evident on the COBACORE platform as well. The CLT will decrease in size over time as certain professional parties leave the scene (e.g. disaster recovery specialists, reconstruction agencies, social care groups) and volunteers will join for different reasons than before.

We envision that in this phase, the control over the platform is handed back to active volunteers. These would be trained volunteers that are committed and well-versed in the needs and capacities of a neighbourhood and are able to motivate platform use during the 'normal day-to-day' phase. An important part of this handover process is a reflection on the post-disaster process, and taking up lessons learned in preparation for the next phase. To this end, the CLT organises evaluation sessions with community groups and gathers recommendations for improvement, including suggestions for changes in the organisational, technical and process arrangement throughout the disaster response. Likewise, this could also include serious gaming 'COBAGame' sessions with communities to help them prepare.

## 4.3 Alternative uses for the platform

What alternative uses exist for the platform – outside the scope of crisis management?

In general, there must be:

- an information exchange and collaboration challenge among a fair number of groups
- some geographic dispersion among groups
- a wide range of challenges that require collaborative problem solving
- a willingness for groups to collaborate via a mediating platform

The COBACORE project was positioned as a disaster recovery project. However, our ideas and solutions are very much applicable for other situations as well.

COBACORE identified core issues in the recovery phase after a disaster. We also realised that the same issues are present in disaster preparation and response too. Does that mean that the COBACORE platform is readily suitable for the preparation or response phase? No. To make the platform suitable for disaster preparedness or response, it requires reassessment of its working principles, its interfaces and information structures, as the different disaster phases require different focal points of support for stakeholders. Does that undermine the idea to convert the COBACORE platform to an application in a different phase? Not really, but it does underline the fact that one cannot carelessly propose the current COBACORE prototype platform as a preparedness or response platform.

Let us briefly discuss some alternate uses of the platform and its surrounding concepts.

### **Urban city management**

An option is to view the COBACORE results in light of day-to-day urban city management. One could think of the COBACORE platform being the center point of neighbourhood development, where needs, capacities, activities and information are brought together. The COBACORE platform could be a common platform between city representatives, inhabitants and local businesses, and could be a central platform for public consultation, joint action planning, information sharing and local exchange of goods. There are many platforms that offer similar features, such as Nextdoor ([www.nextdoor.com](http://www.nextdoor.com)), BuurtApp ([www.buurtapp.nl](http://www.buurtapp.nl)), WijdeWijk ([www.wijdewijk.nl](http://www.wijdewijk.nl)) and others, that all create micro-social networks in an area. However, they typically focus on citizen interests and not cater to professionals.

Disaster recovery is akin to normal urban development, with many community members needing to interact and a strong emphasis on self-organisation among communities. The big difference is the level of distress in a disaster recovery situation, and the depth of disruption. The question beckons: is disaster recovery an intensified form of urban development, or a situation with a totally different dynamic? In the former case, one could argue that the COBACORE platform would be easily transferrable urban development, and could serve as a common collaboration ground for municipal parties, citizens and local businesses. In the latter case, we would need to reassess whether the current platform features sufficiently cater to day-to-day neighbourhood matters.

### **Refugee care support**

There are many other uses for our platform. For instance, with the current refugee crisis across Europe, many urban areas need to quickly assemble shelter capacities to care for incoming refugees. Because of the sheer volume of refugee influx, professional parties are quickly overburdened and rely on support from volunteer groups such as the Red Cross and local communities. This makes an ideal breeding group for COBACORE-like solutions, where a demanding and complex group of affected people (e.g. the refugees) needs to be jointly taken care of by professionals and responding communities. With the current volume of refugees coming into Europe, status assessment and integration into society is a lengthy process that requires the attention of many parties.

Currently there are no dedicated platforms that target this challenge. There are numerous small-scale initiatives to mobilise local support surrounding refugee shelters, but there is ample room for wider societal collaboration. Various COBACORE consortium partners are working with local government agencies to bring inspiration from the project into the refugee debate, and propose COBACORE as a collaboration platform.

### Event management

On a lighter note, one could also think of deploying the platform during large-scale event, such as national festivities or large-scale sporting event. Such events have in common that they require the participation of the entirety of a city to succeed, and that is where the COBACORE platform could come into play – as a common information and capacity sharing environment that links organising parties with local communities.

Most major events already deploy mobile applications to visitors, but they typically provide navigational information and timetables. If we take the COBACORE approach, the platform could go beyond merely sharing information, but rather linking together different communities: the organising community, supporting professional communities (e.g. medical services, police, city services), attending visitors and the surrounding neighbourhoods.

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