PlanetHero
Collaborative System for Public Good Initiatives
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Exploration of Design Opportunities and Challenges in Collaboration of Public Good Sector in Cape Town, SA

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Abstract
This thesis investigates collaboration and partnership in public good sector. It explores existing practices, identifies challenges and opportunities related to collaboration in public good and defines an information communication technology system that could support such collaboration. The work specifically studies individual citizens and civil society organisations of the public good sector in Cape Town, South Africa as a case study.

The thesis is grounded in the Research-Based Design methodological framework of four stages: Contextual Inquiry, Participatory Design, Product Design and Prototype as a Hypothesis. Conceptually this research mainly builds upon: Communities of Practice and Computer Supported Collaborative Work.

The majority of the thesis research was carried out during four-months field work in Cape Town, South Africa. Overall, representatives of 15 different civil society organisations and collaborative initiatives of the public good sector were interviewed and observed; 3 civil society organisations took part in a participatory design workshop and over 30 individual activists participated in an unconference participatory action research event.

The thesis discusses the identified challenges and opportunities of collaboration in individual activism, civil society organisations and collaborative civil society organisations’ forums. Further, it presents six concept scenarios and a prototype of the PlanetHero designed concept system.

Keywords research-based design, collaboration, public good, civil society organisations
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According to United Nations Development Program (UNDP, 2013a), today over 1.2 billion people live in extreme poverty, 870 million people are undernourished, and 34 million people are infected by HIV. As devastating as these numbers are, they also exemplify the significant progress that the public good sector has experienced since 1990, when UNDP formulated Millennium Development Goals for 2015 (UNDP, 1990). These goals are pursued by millions of individuals, movements and civil society organisations (the term CSOs is discussed in section 1.2.1 of this thesis) who support transformation towards a more equitable and sustainable world. However, despite the large amount, diversity of structures, scales and cultures of these initiatives result in an unmeasurable, inconsistent and chaotic structure where communication is often scarce. This scarcity is addressed by one of the Millennium Development Goals which aims to “Develop a global partnership for development”.

This thesis attempts to make a step towards exactly this goal through investigating partnership and collaboration in the public good sector. The work specifically studies practices of individual activists and CSOs of the public good sector in Cape Town, South Africa as a case study. There have been several largely successful attempts internationally in supporting collaboration of civic networks using information communication technology (ICT), for example Mapping of Results (World Bank, 2013) or Ushahidi (2008). Their intent however differs from current project, as they concentrate on e.g. searching for funding, efficiency control, disaster relief or raising
social awareness. There are also some less successful examples where ICT systems failed to get traction mostly due to lack of understanding of end-users and end-user environments (Jeffries et al., 2011).

With Cape Town as a case study, the main goal of this thesis is to explore existing practices of collaboration in the public good sector, identify challenges and opportunities in this area and develop concept scenarios and a wireframe prototype of an ICT system that would support such collaboration.

The thesis is grounded in the Research-based Design Methodological Framework (Leinonen, 2010, p. 60) that consists of four stages: Contextual Inquiry, Participatory Design, Product Design and Prototype as a Hypothesis. Conceptually this research is rooted mainly in the following frameworks: Communities of Practice (Wenger et al., 2002) and Computer Supported Collaborative Work systems (Greif, 1988). The thesis fits under the umbrella of Social Design – the design for “the other 90 percent” (Fuad-Luke, 2009; Papanek, 1985).

The thesis was realized as part of the collaboration initiative between the two World Design Capitals (WDCs): Helsinki (WDC 2012) and Cape Town (WDC 2014). The majority of the research was carried out during four-months field research in Cape Town, officially hosted by two institutions: Cape Peninsula University of Technology (CPUT) and RLabs CSO (described in the section 1.2.2 of this thesis). The thesis was supported by The Nordic Africa Institute Travel Scholarship (Nordiska Afrikainstitutet, 2013) and Aalto University School of Arts, Design and Architecture ARTS scholarship (Aalto University, 2013) and awarded with the James W. Carey Urban Communication Award (ICA, 2013). This first chapter of the thesis opens by introducing the research question, followed by a discussion of the research context and related benchmarks. In the end, the chapter gives an overview of the research phases of this thesis.

1.1 Objectives and Research Question

The main goal of this thesis is to explore existing practices, identify challenges and opportunities of collaboration in the public good sector in Cape Town, South Africa as well as to define scenarios and a prototype of an ICT system that could support such collaboration. To address this goal the following objectives were identified:

1. Understanding context and identifying practices of collaboration in the public good sector in Cape Town at the level of:
   a) individual citizen activists  b) CSOs

2. Exploring potentials for collaboration in the public good sector at the level of:
   a) individual citizen activists  b) CSOs

This thesis attempts to answer the following research question:

What are the design challenges and opportunities for collaboration in the public good sector in Cape Town, South Africa and how could this collaboration be supported through an ICT system?
For this ICT system:

- What other stakeholders are involved in addition to individual citizen activists and CSOs?
- What are the key elements of the system?
- What are the main affordances of the system?
- What are the key uses of the system?

1.2 Context of the Research

In this section I describe the context of current research. The section opens by discussing the public good initiatives – explaining the choice of terminology and scope of opportunities identified in the beginning of the research. Next, South Africa and the passing of the World Design Capital (WDC) title from Helsinki to Cape Town are discussed.

1.2.1 Public Good Initiatives: Terminology and Preliminary Opportunities

In this section I first discuss the choice of terminology related to public good initiatives and then give an overview of the challenges and opportunities identified in the beginning of this research.

(a) Terminology

Classification and terminology of the public good sector is redundant and overlapping (Vakil, 1997). For this reason one of the initial challenges of current research was to define the basic terminology in relation to this particular work. Why and how the two terms - “public good” and “civil society organisations” were chosen is explained in the following.

The term “public good” (UNROL, 2013) was selected to describe the sector of concern out of several possible variants: development, development assistance, aid, humanitarian aid, Third World aid and other (Frandsen and Lawry, 2009; Vakil, 1997). This particular choice allowed moving away from the ideas of superiority of the “developed” countries and the “help” floating from north to south. The term “public good” stands outside superiority – inferiority discussion and rather represents the development of collective global good.

An even greater challenge was choosing a term to define an initiative unit within the public good sector. The list of such terms includes, among many others: nongovernmental organisations (NGOs), nonprofit organisations (NPOs), third sector organisations (TSOs), private voluntary organisations (PVOs), social change organisations (SCOs), humanitarian organisations, charities, aid organisations, civil society organisations (CSOs) (Bhatti, 2013; Frandsen and Lawry, 2009). Out of these terms, “NGO” is the one used most widely all over the world. It is more than half a century since the term came into use, although philanthropic movements towards public good have existed from the beginning of history. To be precise, the term “NGO” came into use in 1945 with the United Nations Charter, at a time when neutral organisations were needed for a consultative role to the UN (Frandsen and Lawry, 2009, p. 26). Today the term has
become more ubiquitous – NGOs work in many different fields and the term is generally associated with those seeking social transformation and improvement in quality of life in the following spectrum of orientations: charitable orientation, service orientation, participatory orientation, empowering orientation (Frandsen and Lawry, 2009, p. 40). In the recent years, however, the authenticity of NGOs’ goals and efforts has been continuously questioned. For example, it is estimated that the international community has donated £6.5 billion to the organisations supporting Haiti relief while the collective evidence of their work hardly corresponds to the smallest fraction of that money (Birrell, 2012). Cases like these question the authenticity of NGOs’ work. Discussions about the role of NGOs reach their climax in the context of World Social Forum (WSF) – the largest annual forum for civil society organisations. The WSF is criticized for replacing popular movements of the poor as well as grass-root movements with donor-sponsored NGOs. It has also been argued that bigger NGOs get more space to talk and lead the events while smaller NGOs and movements get marginalized (Ntseng, 2007).

Based on the disagreements mentioned above it was decided to avoid using the term “NGO”, despite its wide recognizability, and instead incorporate the more inclusive term “civil society organisation (CSO)”. According to UNDP, “civil society constitutes the full range of formal and informal organisations that are outside the state and market. This includes social movements, volunteer organisations, indigenous people’s organisations, mass-based membership organisations, non-governmental organisations, and community-based organisations, as well as communities and citizens acting individually and collectively” (UNDP, 2013b). As mentioned in the section 1.2, this thesis is concerned not only with organisations in public good but with the whole scale – from individual citizens to grass-root movements to large-scale NGOs. The term CSOs encompasses all initiatives of the scale and therefore is more appropriate for this thesis.

(b) Preliminary challenges and opportunities

Below I discuss the challenges and opportunities related to the collaboration of CSOs that were identified in the beginning of the project.

(b.1) Coordination and experience sharing

In poor and corrupt countries, CSOs are often responsible to those “chores” that governments fail to fulfil (Bhatti, 2013). However, while in this role, CSOs are disadvantaged compared to governmental structures as they lack overall coordination and strategy. While the number of NGOs worldwide are estimated in millions, official number simply does not exist (Nelson, 2007). Every CSO pursues its own ideas and goals which leads to natural gaps in some areas and repetitions in others. Thus there is a potential in establishing a channel that would allow CSOs to build joint strategies and view a problem at a higher level; to share and learn from best practices and failures; to be informed and adapt innovations from southern to southern countries rather than from northern to southern (Pradhan, 2012).

(b.2) From “donor, service provider and beneficiaries” to “continuous giving”

As highlighted by David Damberger (2011), the
“development sector” is the only one that does not depend on the feedback of the receivers of its services (Figure 1). In the private sector, customers base their future purchase decisions on the past experiences of quality of products or services delivered by the provider; in the public sector, constituents have a right to vote for another government in the next elections if they are dissatisfied with the present one; and only in the “development sector” this feedback loop is broken – the survival of CSOs depends on satisfaction not of the beneficiaries of their services, but of the donors providing the funding. This paradox results in fundamental flaws in the work of CSOs. As noted by Damberger, it results in projects that look great in reports but are of little use to service recipients. For example, CSOs are building schools without taking care of consistent presence of study materials or teachers; saving new-borns from death without taking care of their survival in the next fragile months; constructing water pumps without putting structure of their maintenance in place.

Figure 1: Challenge of the Development Sector (Damberger, 2011)

Partly this challenge has to do with the common ideas of giving: what is given is lost. In the context of public good the giver usually is considered to be more privileged, ready to loose fractions of own possessions to the benefit of the disadvantaged. The donors have an ultimate right of deciding how to spend these resources, and most often they decide on something tangible and definable (like a school, a saved life, a well). A shift in this mindset could truly change the world – when donors would be re-positioned from the role of privileged decision makers into equal recipients of goodness; when they would be ready to understand that “what is spent does not result in accumulation by the receiver and in a loss for a giver. Rather, it accumulates as an asset for both. … That there is no terminal recipient … (that) giving is continuous” (Inaba et al., 2009, pp. 33–34). Through this shift, the donors will be ready to accept that some projects might be successful and some might completely fail and to support not only tangible “hardware” projects but also the much-needed “software” processes (Damberger, 2011).

Another part of the challenge is that recipients of the CSOs’ services have no means to voice their own needs, concerns and ideas. For too many years CSOs have been playing the roles of sole providers, keeping the service recipients in a passive mode, with no ways to actively participate in self-development processes nor to voice own aspirations and concerns. The above mentioned shows how there is a need for a mindset shift from “a donor, a service provider and a beneficiary” to “continuous giving” and “collective global good”.

(b.3) Dealing with wicked problems

The subjects of concern of CSOs vary greatly, the most commonly being in the fields of human rights, environmental or development work (Vakil, 1997). Most of the problems that CSOs deal with are what Karl Popper first coined (Buchanan, 1992) and Horst Rittel defined
in the design context as “wicked problems”. Rittel pointed towards the fact that unlike the traditional linear design thinking model based on determinate problems, the wicked problems approach suggests that there is a fundamental indeterminacy in design problems. As described by Rittel, wicked problems are “a class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramification in the whole system are thoroughly confusing.”

Most of the problems of the public good sector are “wicked”. They are difficult or impossible to solve due to incomplete or contradictory knowledge, the number of people and opinions involved, economic burden and the interconnectedness of those problems with other problems and the consequential indeterminability of the problems’ scope and scale (Kolko, 2012). Disconnection of the public good actors is an unnecessary layer of obstacles to the process of dealing with these wicked problems and a wicked problem in itself. This thesis, inline with one of the UNDP millennium development goals discussed in the introduction to this chapter, aims to help solve this wicked problem and support creation of a “global partnership for development”.

1.2.2 South Africa

The majority of the Phase 1, and entire Phases 2 and 3 of this thesis were carried out in Cape Town, South Africa. This section (a) discusses South Africa as a research context at large; (b) describes R.Labs, the organisation that hosted my research.

(a) South Africa

South Africa (SA) is a country of breathtaking natural beauty and very recent revolutionary history. It has a culturally diverse population of 53 million people and as many as 11 official languages. Its economy is the largest and the most developed of the African countries which makes SA the leading big-brother that neighbour countries look up to.

But the challenges of SA are manyfold. It is one of the most unequal countries in the world with 40 percent of its population and 70 percent of all children living below the poverty line. It is estimated that every fourth adult in SA is infected with HIV, only 20 percent of the population have graduated from high-school, and about 40 percent are unemployed (Hickman, 2010, pp. 5–9; Young, 2003, pp. 3–6). Moreover, SA is the largest recipient of asylum-seekers in the world with 220,000 asylum-seekers registered by the end of 2011 (UNHCR, 2013), resulting in an intensification of the already challenging competition over employment as well as the provision of basic services.

At the moment of writing, over 20,000 active CSOs are confronting the challenges in SA (Barnard, 2013). Their job is not not easy – fighting problems in “normal condition”, where the reality is not a recent cataclysm but a mundane everyday norm and all processes involve strategic thinking with large amounts of stakeholders (Stoll et al., 2010). What South-African CSOs do is inline with one of SA’s most known philosophies – Ubuntu, which most commonly translates to “the practice of being humane” from Nguni (Ngubane, 1963, p. 76). In Ubuntu, the self is determined through engagement with others and the individual is determined through the community (Gade,
2011). Therefore by contributing to the well-being of a wider community and ensuring no-one is left behind, one is in fact contributing to one’s own well-being. The fundamental ideas of Ubuntu – interconnectedness and interdependence – correspond to the core intents of the this thesis.

(b) RLabs

In Cape Town, my research was officially hosted by two institutions: Cape Peninsula University of Technology (CPUT) and Reconstructed Living Labs (RLabs), a movement and a CSO. Both CPUT and RLabs have played an important role in my research. CPUT was supportive in terms of networks and RLabs was a research base and an in-depth case study. I spent a lot of time not only researching but working as an active member among RLabs staff and those working experiences were richest with insights and learning. I would therefore like to describe RLabs in more detail.

RLabs is a CSO that was founded in Bridgetown, Cape Town only six years ago by five volunteers. Since then it has grown to have franchises in 16 countries all over the world. The headquarters office in Bridgetown currently has 40 members of staff who works with several thousand service recipients every year.

I was fortunate to be introduced to Cape Town exactly through this office and the rough realities of Bridgetown. Located in the Athlone suburb of the city, Bridgetown is one of many communities of Cape Town living in poverty, unemployment, gangsterism and drugs. RLabs engages people of Bridgetown, giving them hands-on knowledge in disciplines such as social media, personal development, small-scale entrepreneurship. Moreover, RLabs gives hope and belief to lives, largely given up on.

The financial model of RLabs is exemplary. While most CSOs around the world rely on grants for their survival, RLabs operates as a social enterprise and self-sustains most of its funds. The CSO achieves that through franchising digital concepts developed in-house as part of social-responsibility innovation communal activities.

What is most special about RLabs, however, above the scale of its impact and self-sustainability is the spirit of passion and support among the staff. Professional burnout, one of the biggest challenges of the South-African CSO sector (“NGOs in South Africa,” 2009), is virtually inexistent in RLabs. Here the staff constantly looks out for each-other and protects each-other from the hardships of everyday. The atmosphere in the labs feels like one of a big family where people really care about each-other and try their hardest to lighten the workload of others.

Unique in the way it operates and sustains itself, RLabs is one of the most significant case studies in my research. More information about RLabs can be found on the thesis project blog (Nasibova, 2013a).

1.2.3 WDC Title Passing from Helsinki to Cape Town

As mentioned above, the majority of my research was undertaken in Cape Town, SA. The research was realized as part of the collaboration initiative between the two World Design Capitals (WDC): Helsinki (WDC 2012) and Cape Town (WDC 2014), passing the title from one to another.
It was a great experience to observe the Cape Town WDC scene development during my research. Attending some of the pre-WDC events gave a good understanding of the design and social design scene as well as valuable benchmarks for this thesis.

The mottos of the WDC Cape Town: “Live Design, Transform Life” and “Rebuild, Reconnect, Reposition” reflect how Cape Town is aiming to utilise design in order to transform the city through reconnecting its public, economical and physical divides. Aiming to connect initiatives of the public good sector, this thesis aspires to contribute to the overall transformation of the city.

1.3 Motivation

My decision to undertake this research originates out of both professional and personal motives.

“Changing the world for better” was my strive from early school years, when I was gathering clothes for orphanages and drawing huge posters for international “Peace” days. However, these actions soon after felt like drops of fresh water into a salty ocean.

Years later, developing as a design professional, I found myself most engaged with challenges where design was used “for good”: when contributing to solving problems of transport accessibility for impaired and handicapped people or when building tools for design research in the poorest contexts. It was great to discover how powerful the design discipline is in the application to such matters.

I wanted to continue working in this direction and exercise my expertise in social, responsible design, what Papanek calls “design … responsive to the needs of men” (Papanek, 1985, p. 5). Inspired by projects like OpenIdeo (OpenIdeo, 2013) and Ushahidi (Ushahidi, 2008) that utilize the power of massive collaboration for solving problems on the global scale, I decided to explore potentials of such collaboration in the public good sector.

While this written thesis is an important part of the project, my biggest hope is that this project will live beyond current master thesis and benefit practitioners of public good.

1.4 Related Work

In this section I contextualise current thesis on the terrain of related work. Many projects have been inspirational and many are highly related to this work. It would take a separate thesis to give justice to them all. Therefore I discuss the most influential projects in more detail and then briefly list the rest of important related works that were benchmarked during the research process.

**HCD Connect** – is an online platform that shares a human-centred approach to problem solving and connects practitioners worldwide (Ideo.org, 2013). It was launched in 2012 by IDEO.org in support of their HCD open toolkit. The platform sustains a community of individuals and organisations “who are taking a human-centred approach to poverty-related challenges around the world.” Inspiration, knowledge and experience exchange happens through such functions as mapping, story and project sharing. This platform relates to my thesis with its poverty-
fighting agendas, international audience and intuitiveness of user experience (UX).

**Interaction Design Association (IxDA)** – is a non-profit association that aims to improve the human condition through advancing the discipline of interaction design. The association is international, with over 50,000 members involved at different levels – online and offline communities, conferences, education, outreach and awards. What is most inspiring for this thesis is that IxDA consists of 140 local groups – small physical communities of passionate members with monthly events. These communities are great examples of what Wagner coined as Communities of Practice (Chapter 2, Section 2.1). The ways that these communities of practice operate online and offline have inspired underlying ideas of this thesis (IxDA, 2013).

**LeMill** – is an international “web community for finding, authoring and sharing open educational resources” (LeMill, 2012). The development of this project took place between 2005 and 2008 and was lead by the Learning Environments Research Group of the Media Lab at the University of Art and Design in Finland. The main practice of the LeMill community is sharing resources for teaching and learning. Anyone can browse, copy and use the content posted on LeMill as all of the content is open source. The LeMill engine was also released under an open source licence (Leinonen, 2010, p. 26). This project is related to current thesis due to its empowerment of collaboration and sharing through building an online community as well as open licensing (discussed in chapter 2, section 2.4).

**Wiki** – according to Ward Cunningham, the developer of the first wiki software, WikiWikiWeb, Wiki is “the simplest online database that could possibly work” (Cunningham, 2002). Wiki fosters “Quick Collaboration on the Web” (Leuf and Cunningham, 2001), and helps professionals collaborating over long distance to work more effectively. Particularly, wikis provide online space for editing and storing documents, maintaining schedules, posting Web links, storing email announcements, and more. Wikis also allow controlling privacy settings and customization of a collaborative workspace where all invited members, or the public, can access stored material (Kinsey and Carrozzino, 2011). A great example of using wikis is the Knowledge Sharing wiki for NGOs that is built on Wikispaces platform (Kstoolkit, 2013). Wiki is a crucial benchmark for this thesis by being an open platform that allows for collaboration and bottom-up individual activism.

**Mapping of Results** – part of the AidData initiative it “visualizes the locations of World Bank-financed projects to better monitor development impact, improve aid effectiveness and coordination, and enhance transparency and social accountability” (World Bank, 2013). Overlaying such data of Millennium Development Goals as infant mortality rates with donor-funded projects on a map enhances transparency and the ability to monitor the actual development impact. Mapping of Results’ functionalities relate to the mapping affordances of the system designed in this project (described in chapter 5).

**Jumo and GOOD.is** – Jumo was a social network launched in 2010 by Facebook co-founder Chris Hughes that aimed to connect people with nonprofits. The platform intended to establish this online community in order to deepen the connection between people and causes from donations to loyal following. However, soon after the
launch it became obvious that things would not develop as planned. The problem was manyfold – some of the core functionality of the platform was confusing for its users, while everything else in Jumo felt like an unnecessary extra social network. In 2012 Jumo was “acquired” by GOOD.is – a global community working towards individual and collective progress (Jeffries et al., 2011). Both Jumo and GOOD.is (Good.is, 2013) are valuable benchmarks for this thesis. The failure of Jumo proves that digital connection on a level of “liking” might not be enough for building strong bonds in the public good sector. At the same time, the openness, inclusiveness, presence on multiple channels and attractive UX of GOOD.is exemplify a smart package of system qualities.

**Ushahidi** – is an open emergency response platform most widely known for its use in the crisis period after Kenyan elections 2007 and Haiti disaster relief in 2010. Ushahidi offers services that enable local observers of situations to submit reports through their mobile phones, email and web while simultaneously creating mashup of this data on the map. Updates about the situation are sent back to the reporters’ devices. This platform is highly related to current thesis with its crowdsourcing through different channels, mapping features and open license (Ushahidi, 2008).

**Delstat** – a tool for internal management and joint-case management of CSOs with further functionalities such as tracking fund-raising activities, measuring the impact of services and managing customer (donor and client) relationships. Delstat was discovered during the field research in South Africa. Built upon a Salesforce (2013) product core, Delstat has a service subscription fee (UTurn, 2013).

**Stack Overflow** – is a gamified question and answer community of programmers that was started in 2008 and at the time of writing has over 1,900,000 registered users (StackOverflow, 2013). Through active participation users of the platform can earn reputation points and badges. All user-generated content is licensed under Creative Commons. Two aspects of the platform: gamification and self-sustainability (users create and evaluate the content themselves) are most relevant for this thesis.

**Connectedness Within Civic Networks** – research initiative by Jennifer Stoll from Georgia Institute of Technology and her colleagues. Stoll has been working with a local network of non-profits dealing with various issues as crime and gang violence, concentrating most closely on child sex slavery CSOs (2011; 2012, 2010). Stoll initially studied existing practices and challenges related to interorganisational coordination and awareness in a cross-section of CSOs collaborating around their service receivers. Next she explored and highlighted the significance of informal interactions between CSO workers. Finally in 2012 she studied how existing social media tools support civic networks and why they are inadequate for such purposes. Thus, the subject of the research initiative is closely related to this thesis. Ideas of Stoll’s research such as group-to-group communication v.s. individual-to-individual communication influenced one of the fundamental ideas of the platform – adjustability – described in chapter 5.

The rest of the benchmarks, that have influenced this thesis to a lesser extent, are presented in table 1.
<table>
<thead>
<tr>
<th>Name of the project</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sharing knowledge and experience:</strong></td>
<td></td>
</tr>
<tr>
<td>AdmittingFailure.com (2013)</td>
<td>An online service that collects failures of civil society and other sectors.</td>
</tr>
<tr>
<td>Playground Ideas (2013)</td>
<td>An organisation not only building playgrounds in under-resourced communities, but</td>
</tr>
<tr>
<td></td>
<td>also openly sharing manuals and online tools for anyone to start their own project.</td>
</tr>
<tr>
<td>SANGoNET (2013)</td>
<td>South African NGO Network thriving to support effective use of ICT in South African</td>
</tr>
<tr>
<td></td>
<td>civic sector.</td>
</tr>
<tr>
<td>Network for Nonprofit and Social Impact (NNSI) (2013)</td>
<td>A research initiative by Northwestern University aiming to answer the question:</td>
</tr>
<tr>
<td></td>
<td>“How can nonprofit networks be rewired for maximum social impact?”</td>
</tr>
<tr>
<td>GitHub (2013)</td>
<td>A collaborative coding platform and one of the most popular repositories for open</td>
</tr>
<tr>
<td></td>
<td>source projects.</td>
</tr>
<tr>
<td>OpenIdeo (2013)</td>
<td>A global community solving global problems for social good.</td>
</tr>
<tr>
<td><strong>Mapping data and checking efficiency of provided services:</strong></td>
<td></td>
</tr>
<tr>
<td>Kenya Open Data Initiative (2013)</td>
<td>Key government data freely available to the public through a single online portal.</td>
</tr>
<tr>
<td>Check My School (2013)</td>
<td>A platform that helps to monitor whether teachers and teaching materials arrive in</td>
</tr>
<tr>
<td></td>
<td>Philippine schools.</td>
</tr>
<tr>
<td>Haiti Aid Map (2013)</td>
<td>Map of projects in Haiti carried out by the members of largest U.S. CSO coalition.</td>
</tr>
<tr>
<td>Open Street Map (2013)</td>
<td>Collaborative project, “The Free Wiki World Map”, that is utilized in a wide range</td>
</tr>
<tr>
<td></td>
<td>of open source projects.</td>
</tr>
<tr>
<td><strong>Giving to organisations:</strong></td>
<td></td>
</tr>
<tr>
<td>Charity Navigator (2013)</td>
<td>A guide that rates CSOs to help donors in their choices.</td>
</tr>
</tbody>
</table>

Table 1: Benchmarks of Secondary Influence (part 1/2)
<table>
<thead>
<tr>
<th>Name of the project</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Giving (2013)</td>
<td>Charity fundraising web site that gives CSOs and individual activists a chance to raise the money that they need to improve their communities. After supporting an initiative, a donor gets regular email updates about its progression.</td>
</tr>
<tr>
<td>Givengain/Greatergood (GivenGain, 2012)</td>
<td>Recently merged online fundraising tools presence on which gives CSOs credibility. “A global movement connecting activists with causes”.</td>
</tr>
</tbody>
</table>

**Grass-root campaigning and petitioning:**

<table>
<thead>
<tr>
<th>Name of the project</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change.org (2013)</td>
<td>The world’s biggest online petition platform.</td>
</tr>
</tbody>
</table>

**CSOs internal and external operations and management:**

<table>
<thead>
<tr>
<th>Name of the project</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrating Participatory Design into everyday work at the Global Fund for Women (Trigg and Ishimaru, 2012, pp. 213-215)</td>
<td>In this research initiative participatory design was used to develop two connected internal databases that complemented work of Global Fund for Women.</td>
</tr>
<tr>
<td>Engineering Book of Knowledge (EBoK) (Wenger et al., 2002)</td>
<td>A database of relevant knowledge for engineers. The project was a success due to engineer’s ownership of its development process.</td>
</tr>
<tr>
<td>Open Innovation Platform (OIP, 2013)</td>
<td>A platform for internal and external work and collaboration developed by Aalto University Global Impact team.</td>
</tr>
<tr>
<td>Reconciling the Wild West of Private Development Assistance (Makinan, 2011)</td>
<td>“Reconciling the Wild West of Private Development Assistance - Harnessing Social Media for More Effective Private Development Assistance” – an MA thesis by Ilona Makinen student of Aalto University School of Technology</td>
</tr>
<tr>
<td>1%Club (Onepercentclub, 2013)</td>
<td>An online platform that connects people with ideas in developing countries with volunteers, money and knowledge around the world.</td>
</tr>
<tr>
<td>Causes (2013)</td>
<td>A free online platform that helps to share ideas, raise money and make impact.</td>
</tr>
<tr>
<td>Project Free World (2013)</td>
<td>A complex project providing awareness and action tools, aiming to end poverty in this generation.</td>
</tr>
</tbody>
</table>

Table 1: Benchmarks of Secondary Influence (part 2/2)
1.5 Research Phases Overview

This section introduces the four phases of the project and gives a brief overview to what was done in each of the phases. The four phases of the project were: (1) Comprehending the context and the challenge of collaboration; (2) Analysis and refocusing; (3) Exploring potentials with collaborative groups; and (4) Analysis and documentation, concept scenarios and prototyping. The timeline of the phases is illustrated in figure 2. As seen from the illustration, Phases 1 and 2 are overlapping – as part of the analysis happened simultaneously with the context exploration.

**Phase 1: Comprehending the Context and the Challenge of Collaboration**

The first and second research phases were conducted in January-March 2013. The main aim of this period was the exploration and understanding of the larger context of collaboration. Phase 1 consisted of three sub-phases:

(a) Exploring Cape Town culturally as context
(b) Exploring cross-cultural collaboration of individuals
(c) Exploring civil society organisations and identifying collaboration links

The first part of this phase was carried out in Helsinki mostly through desktop research. The rest of the phase was spent in Cape Town, where I was gaining preliminary understanding of the city, its citizens, civic activism and collaboration. At the end of the phase I started observing and interviewing different CSOs. Information from one interview determined the interviewee of the next one. By the end of the study I had interviewed and observed representatives of 15 different CSOs and collaborative initiatives in the public good sector. Detailed description of Phase 1 can be found in the section 4.1 of chapter 4.

**Phase 2: Analysis and Refocusing**

This phase was partially overlapping with Phase 1, as the information gathered through contextual inquiry was largely analysed in-between observations and interviews simply on the pages of my project’s logbook. The main five findings of this phase were:

(a) Cultural divide and safety issues as obstacles in individual activists and CSO collaboration
(b) Bureaucratic hardship of registration
(c) World of CSOs as a competitive business market
(d) Collaborative forums of CSOs already exist
(e) On the crossroads of open culture and competitive market dynamics

Figure 2: Research Phases Timeline
These findings determined the focus of the following Phase 3. Section 4.2 of chapter 4 discusses this phase in detail.

**Phase 3: Exploring potentials with collaborative groups**
This phase was carried out in April-May 2013 in Cape Town. The main aim of the third phase was to gain deeper understanding of the collaboration in individual citizen activism and among CSOs. In the pursuance of this aim two events were organised: (1) an unconference jam event – an Open Design Hackathon that explored potentials of collaboration in individual activism; (2) a participatory design workshop with members of a Street People CSOs forum that explored collaboration in collaborative CSO forums. Details of both Open Design Hackathon and the participatory design workshop are discussed in the section 4.3 of chapter 4.

**Phase 4: Analysis and documentation, concept scenarios and prototyping**
The concluding phase of this project took place in June-September 2013 in Helsinki. During this period, the data that was gathered in the previous three phases was analysed and built upon. The findings and insights from the analysis boiled down into two main categories:

(a) **Identified challenges and opportunities for collaboration in individual activism**

(b) **Identified challenges, opportunities and collaborative practices of studied CSOs and collaborative CSO forums (CoPs)**

These insights and findings were reflected in the designed concept. Key elements, characteristics and a list of affordances of the designed concept are presented in chapter 5, section 5.1. Based on the list of affordances a middleway prototype and six use scenarios were built (Chapter 5, Section 5.2). In parallel with these processes, the research process of all four phases was captured in the current thesis document.
This chapter discusses conceptual framework of the current thesis. The study is rooted in ideas of communities of practice – CoPs (Lave and Wenger, 1991), Unconference Meetings (Egan Warren and Riehle, 2012; Follett, 2006), Computer Supported Collaborative Networks – CSCWs (Greif, 1988), Open Culture (FSF, 2013) and Gamification (Nicholson, 2012).

### 2.1 Communities of Practice

Communities of practice (CoPs) as a term was first coined by Lave and Wenger (1991), most recently defined by Wenger (Wenger, 2011) as: “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”.

These people meet because they find value in their interactions. They share information, insights and advice, they discuss common issues and help each other solve problems. They may create tools, standards, manuals or other common documents or they may develop a shared tacit understanding. Here, authoritarian organisational management is replaced by self-management and ownership of practice (Collier and Esteban, 1999). Members of CoPs learn together, accumulate knowledge and develop strong social bonds (Wenger et al., 2002, pp. 4–5). Lave and Wenger note that important aspect of this “situated learning” is co-construction of knowledge.

Three characterises are crucial to every CoP (Wenger, 2011):

**a. Domain** – an area of shared inquiry, of expertise and purpose

**b. Community** – a group of people addressing the domain, the relationships among these people and the sense of belonging

**c. Practice** – (praxis as opposed to theory) the body of tacit knowledge, methods, stories, cases, tools, documents. The specific knowledge and learning which the community produces, shares and accumulates in the process of addressing the domain.

CoPs is not a new phenomena – it has existed as long as people have been learning. CoPs are ubiquitous, they vary in size and structure: some of them are informal or unrecognised while others are formal and have a developed identity. Wenger notes that everyone is part of multiple CoPs at the same time (2002).

There are three components that differentiate CoPs from traditional organisations and learning situations: (1) different levels of expertise that are simultaneously present in the CoP; (2) fluid peripheral to centre movement from being a novice to an expert, (3) utterly authentic tasks and communication. Supporting concepts include constructivism, community knowledge being greater than individual knowledge, and also an environment of safety and trust (Johnson, 2001).

While traditionally happening in physical spaces, be it a lunchroom at work or a dedicated activity space, the last few decades have seen CoPs extend into the digital realm, where interactions could happen at a distance: in discussion boards or newsgroups, blogs, Wikis, Twitter feeds, Facebook groups and so forth. The technological constrains of these interactions along with any negative effects are often advantageous due to suppressed group norm behaviour (e.g introverted members of the community get to share ideas on equal grounds as extroverts) (Johnson, 2001). Wenger also notes that increased access to information on the Internet does not obviate the need for community, but on the contrary requires it as a form of extracting knowledge from the increasing flows of information. At the same time the web expands “possibilities for community and calls for new kinds of communities based on shared practice” (Wenger, 2011; Wenger et al., 2002, p. 8).

Among other domains, CoPs has been practically applied as a concept in the public good sector on regional and international levels with a growing interest in building communities among practitioners. Wenger (2011) states that: “In the non-profit world... practitioners are seeking peer-to-peer connections and learning opportunities with or without the support of institutions. This includes regional economic development, with intra-regional communities on various domains, as well as inter-regional learning with communities gathering practitioners from various regions.”

On the international level there is increasing recognition that the challenge of “developing” nations is as much in knowledge as in finances. A number of people believe that the CoP approach can provide a new paradigm for development work. Some development agencies now see their role as conveners of such communities, rather than as
providers of knowledge (Wenger, 2011). In the course of current research, I have encountered such a development agency in South Africa, called “Bridge”. A description of this organisation can be found in chapter 4.

This thesis uses CoP as a fundamental framework for both characterisation of the collaborative practices encountered during this research and as a backbone of the designed system. As described in chapter 5, in a nutshell, the designed system is a large IT-supported CoP consisting of many smaller CoPs.

## 2.2 Unconference Meetings

Unconference is a participant-driven meeting. It’s often used as a format for a subset of a conference, a full conference or as a professional jam session (Egan Warren and Riehle, 2012; Follett, 2006). The format is based on the premise that in any professional gathering, all the people – not just those selected to speak on stage – have interesting thoughts, insights and expertise to share. At traditional conferences, the most productive moments often happen in the corridor between meetings; at unconferences, attendees like to say, it’s all corridor. Everyone who attends an unconference is required to participate in some way. Inexpensive, informal gatherings are conceived as little as weeks in advance most often through discussion on a wiki system (Craig, 2006).

Unconferences usually don’t comprise a set agenda, but they work according to a defined structure and a set of tools. The main principles of the unconference are influenced by the work of Harrison Owen, who described a method of organizing group interaction, called Open Space Technology (OST). Owen suggested four principles of OST: 1) Whoever comes is the right people, 2) Whatever happens is the only thing that could have, 3) Whenever it starts is the right time, and 4) When it’s over, it’s over. Basic mechanisms of OST include a “marketplace” with many breakout spaces that participants can move between, and a “breathing” pattern of flow, between plenary and small-group breakout sessions (Owen, 2008).

The OST meeting and the Unconference have strong resemblance to a musical jam session. Participants with different expertise gather to co-create in a hands-on practice, creating meaning through doing. This “jam” format has also found a large application in recent years (Follett, 2006).

In this thesis, a jamming culture was studied extensively and a jam session was further organized in Phase 3 in order to investigate the interaction of individual activists and explore the potentials of their collaboration. Some of the Open Space techniques were used along with practices from creative commons guidelines sources. The event is described in detail in chapter 4, section 4.3.1.
2.3 Computer Supported Collaborative Work Systems

CSCW as a term was first coined by Irene Greif and Paul Cashman in 1984 (Schmidt and Bannon, 1992) and has since then grown into a complex interdisciplinary field bringing together computer scientists, anthropologists, social psychologists, sociologists, economists, organisational theorists and others (Greif, 1988). According to Bannon and Schmidt (1989): “CSCW should be conceived as an endeavour to understand the nature and characteristics of cooperative work with the objective of designing adequate computer-based technologies”. In other words, CSCW is devoted to studying the ways that collaborative activities and their coordination can be supported by means of computer systems.

However, CSCW should be differentiated from Groupware. While Groupware refers to studies of computer-based systems to support activities of a group over a network, CSCW studies the tools and techniques of Groupware, as well as their psychological, social and organisational effects (Grudin, 1994). CSCW goes beyond technology studies and looks at how people work in groups and organisations and how technology impacts these processes. The human being is viewed not as an individual entity, but as part of a society where s/he works and interacts (Penichet et al., 2007). With this perspective, a lot of CSCW studies looked into “peripheral” but important social concepts of work – e.g. Root (1988) studied tools enabling unplanned, informal social interactions, while Dourish and Bellotti (1992) designed a system with a passive awareness mechanism that allowed to move between close and loose collaboration.

One of the most popular models of conceptualization of CSCW introduced by Johansen in 1988 is based on the consideration of ways of systems use: time and space (Figure 3). The time-space matrix reflects proximity and synchronism of collaborators (Johansen, 1988).

![Figure 3: CSCW Time-Space Matrix (Johansen, 1988)](image)

Other largely discussed characteristics of CSCW include:

- **Information sharing** – allows sharing information through documents and advanced collaborative document editors.

- **Communication** – allows to inform and to be informed.

- **Coordination** – allows to capture and coordinate the internal processes of an organisation.

(Poltrock and Grudin, 2005, 1999)

Coordination falls under the umbrella of another popular CSCW characteristic:
**Articulation** – Schmidt and Bannon state that due to the interdependence in work, the distributed nature of the arrangement must be articulated (1992). Those cooperating must be able to partition work into relevant units, and after the work is performed reunite it. There are obvious parallels between “articulation” and “coordination”.

**Appropriation** – a process by which people adopt and adapt technologies, fitting them into their own particular situation (Dourish, 2003).

In their paper (2007) Penichet et al. propose a classification array of CSCW that combines Johansens time-space matrix with the three characteristics from Poltrock and Grudin (Table 2). In current research this classification is expanded by replacing “coordination” with the more appropriate category “articulation” as well as adding “appropriation” as it’s a characteristic widely discussed in CSCW and significant for current study. The resulting characteristics array includes eight categories, as illustrated in table 3.

Many of CSCW’s fail. Grudin outlined the reasons of CSCW failure: disparity between those who will benefit from an application and those who must do additional work to support it; lack of decision-makers intuition; failure to learn from previous experience (1988). These pitfalls can be addressed through application of the research-based design methodology discussed in chapter 3. Disparity can be avoided through the basic rule of designing a system that is useful and intuitive for its users; intuition of decision makers can get factual support with the use of Participatory Design (Kensing and Bloomberg, 1998); Benchmarking, Document Collect and other methods of Contextual Inquiry can support learning from previous experiences.

It is important to also note that most studies in CSCW have been considering work within a particular organisation (intra-organisational) while there are very

<table>
<thead>
<tr>
<th>Type</th>
<th>Tool</th>
<th>CSCW Characteristic</th>
<th>Time / Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Int. Sharing</td>
<td>Communicate</td>
</tr>
<tr>
<td>B-5</td>
<td>Fax</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>B-6</td>
<td>E-mail</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>B-7</td>
<td>IP telephony system</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>B-8</td>
<td>Chat</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>F-7</td>
<td>Document Management</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>F-7</td>
<td>Forum</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>F-7</td>
<td>Discussions</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>G-7</td>
<td>Approval mechanisms</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C-7</td>
<td>Group calendars</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C-7</td>
<td>Shared planning</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>A-7</td>
<td>Workflow</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C-7</td>
<td>Event management</td>
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<td>C-7</td>
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</tr>
<tr>
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<td>Co-navigator</td>
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<td>0</td>
</tr>
<tr>
<td>D-11</td>
<td>Shared whiteboard</td>
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<td>0</td>
</tr>
<tr>
<td>B-7</td>
<td>Notification systems</td>
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<tr>
<td>F-13</td>
<td>Presentation systems</td>
<td>1</td>
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</tr>
<tr>
<td>C-11</td>
<td>CDSS</td>
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<td>1</td>
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<tr>
<td>G-11</td>
<td>CSCW</td>
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<tr>
<td>F-7</td>
<td>Sharepoint</td>
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<td>1</td>
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<tr>
<td>F-10</td>
<td>Meeting Room</td>
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</tr>
<tr>
<td>F-9</td>
<td>Video-conference</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2: Expanded CSCW Classification Array (Penichet et al., 2007)
few studies focusing on collaborative work between organisations (inter-organisational) (Stoll et al., 2010). This study therefore resides in a less explored area of CSCW research and suggests potential value for the field. The ideas of social informal interactions in CSCW collaboration that have been investigated previously by Root (1988), are one of the central points of the designed concept described in chapter 5. The classification of CSCW systems presented in table 3 forms the base for characterisation of various collaborative tools encountered during this research and is also used to describe the designed concept system of this thesis.

## 2.4 Open Culture

The “Open” or “free” culture movement promotes free sharing and modification of information. The movement was originally founded back in 1985 when Richard Stallman established Free Software Foundation (FSF, 2013). Since then, FSF has grown to include different movements beyond the open source software, such as Creative Commons (CC) license, Open Data, hacking and others. CC licensing was institutionalized by Lawrence Lessig and co-founders in 2001 as an extension to copyright with “some rights reserved” as opposed to “all rights reserved” (CC, 2013). In his book “Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity”, Lessig argues that copyright protects interests of the private sector along with substantially limiting the public domain and the growth of the creative arts and culture (2004).

CC licensing, open source software and Open Data are at the centre of interest of this thesis. The concerns of Stallman and Lessig were found to correspond to the concerns of the contemporary public good sector. As discussed in chapter 4, section 4.2, the representatives of the public sector studied in Cape Town during this research stand at the critical point where they acknowledge the potential of openness and collaboration but are not informed enough about the subject to take steps forward in this direction. Internationally, however, Open Culture is said to be already shifting the efficiency of the public good through three big trends: Open Knowledge, Open Aid and Open Governance (Pradhan, 2012). These trends are also explored in this research.

Another way that this thesis utilized Open Culture was the open jamming session organized as part of the study (Chapter 4, Section 4.3.1) and the continuous blogging (Nasibova, 2013b) where the entire study is documented under the Creative Commons Attribution 3.0 Unported

<table>
<thead>
<tr>
<th>Tool</th>
<th>CSCW Characteristic</th>
<th>Time/Space</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Inf. Sharing</td>
<td>Communication</td>
</tr>
</tbody>
</table>

Table 3: CSCW Classification Applied in Current Study
license. This places current research under the possible trend described by Carl DiSalvo who suggests growth of ties between participatory design (discussed in chapter 3, section 3.2), free/open source software and open access movements (DiSalvo et al., 2013).

2.5 Gamification for Collaboration

Gamification is an umbrella term that signifies the use of game design elements in non-gaming contexts. The most common applications of gamification today include loyalty programs, educational and behaviour-change systems. Here, game elements such as progress bars, points and badges are used as rewards that motivate users (Deterding et al., 2011; Nicholson, 2012; Werbach and Hunter, 2012).

One of the common discussions around gamification is the tension between intrinsic and extrinsic motivations (Zichermann and Cunningham, 2011, pp. 26–29). Intrinsic motivation appears naturally, based on users’ interests and passions. Anonymous donors or volunteers are good examples of those driven by an intrinsic motivation. Extrinsic motivation, on the contrary, is based on something other than the activity itself. Workers solely driven by the monetary compensation and slaves working under fear of punishment are examples of those driven by extrinsic motivation. Extrinsic motivation is the one used in most commercial applications and the reason why a lot of those applications fail. Studies have shown that with bad use, extrinsic motivation can even reduce the intrinsic motivation that users originally have for the activity. Therefore a lot of research is directed into understanding how gamification could avoid these pitfalls and instead motivate intrinsically through “meaningful gamification” (Nicholson, 2012).

In this study, the interest for gamification arose from benchmarking a largely successful system called StackOverflow (StackOverflow, 2013), where gamification is used to support an enormous collaborative community (the platform is also discussed in section 1.4 of chapter 1). From an informal interview with a user of the platform, I learnt that StackOverflow managed to implement exactly the “meaningful gamification” through aligning gamified mechanisms (advancement in the ladder of expertise, status and authority) with the real-life goals of users (professional development). The empirical study of this research has proven that a gamification concept could be complimentary and useful to the designed concept. However, the development of gamification mechanisms falls outside of the scope of the current thesis. Still, some gamified elements are described in the concept scenarios presented in chapter 5.
This chapter discusses the methodological framework applied in the current thesis. The study is rooted in Research-Based Design framework proposed by Leinonen (2010, p. 59) with an iterative process in four stages: Contextual Inquiry, Participatory Design, Product Design Work and Software Prototype as a Hypothesis. This chapter discusses each stage of the methodology on a theoretical level. How the framework was applied in practice and which particular methods were considered at each of the four phases of the thesis are discussed in the following fourth chapter.

**Research-Based Design**

Research-Based Design is a human-centred design process that employs the use of research methodologies for production of artefacts. These final artefacts are the main outcomes of the process (Leinonen, 2010, p. 59).

Leinonen describes research-based design as an iterative process that consists of four major stages (Figure 4):

1. **Contextual Inquiry** – defines the context and the preliminary design challenges
2. **Participatory Design** – defines preliminary concepts
3. **Product Design** – defines the use cases and basic interaction
4. **The Production of Software as a Hypothesis** – defines the specifications of the designed tool
It is important to note the stages are not linear but rather happening in parallel with different emphasis at different points of the design process. For example, in the beginning, more time is spent on contextual inquiry and closer towards the end most of the time is used for product design work (see figure 6 in chapter 4).

While research-based design was applied as the core methodological framework of this study, each of the stages were explored within the relevant academical realm and three practical methodological toolkits: DSKD method cards (Friis and Gelting, 2011) HCD Toolkit (IDEO, 2011) and D.school method cards (d.school, 2013). The use of such diverse sources revealed a territory of closely interweaving but often disagreeing concepts and terms. This discovery sparked an interest in defining the position of the current study in the larger picture of human-centred design disciplines.

Marc Steen’s map of human-centred design approaches (Figure 5) was relevant for this inquiry (Steen, 2011). Steen illustrates that diverse approaches of human-centred design have different points of emphasis and yet largely intersect. In regards to the current research the map allows the tracing of how the emphasis of the study shifts according to the stage of the framework. The emphasis moves from emphatic design and ethnography in contextual inquiry to participatory design (discussed in the following section), leaving out only the right top corner of the map. Indeed, the current study is grounded in a practice where the researcher progresses from trying to see the world through the eyes of the users towards designing with the users, while maintaining a focus on understanding “what is” rather than “what could be” throughout the process.

This concern about developing the design concept through existing and tangible can only be satisfied through iterative continuous development. The continuity reflects the intent of this framework to tackle wicked problems; the problems that are “difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize” (Rittel and Webber, 1973). As mentioned earlier in chapter 1 section 1.2.1, the challenge addressed in the current study is a wicked problem and therefore the designed ICT system can only exist as a living, ever-evolving prototype.
The following sections discuss the methodologies studied and applied during the research-based design process of the current project, addressing the wicked problems of public good.

3.1 Contextual Inquiry

Contextual Inquiry (CI) is carried out for gaining an understanding of the studied subject’s context as well as defining preliminary design challenges (Leinonen, 2010, p. 60). This involves understanding social, cultural and economical background of the subject and its environment, as well as gathering and analysing relevant benchmarks and literature (Wixon et al., 1990). The field research techniques of CI are adaptations borrowed from psychology, anthropology, sociology and interpretive hermeneutics (Holtzblatt and Jones, 1993).

At the beginning of the research process it is important for the designer to get a deeper understanding of the needs, allowances and affordances of the design subject. CI gives space for the first understanding of the studied culture and the reframing of the initially set challenge – a process that Schön calls “problem setting” (Schön, 1983). This implies starting a design challenge from asking not “how to build” but “what is the right thing to build” (Buxton, 2007, p. 78). Open-ended interviews is one of techniques that can be useful at this stage (Squires, 2002). While a set of themes would be prepared for the interview, the interviewer would rather follow interesting leads and redefine the structure and focus of the inquiry based on the findings of each interview. The “snowball sampling” technique (Biernacki and Waldorf, 1981) also might be used at this stage. Through this technique, the participants of the study get determined through the study itself: one interviewee determines participants of the next interviews.

Another important premise in the initial stage of the research is moving from “peripheral membership” to “active membership” within the studied context (Adler and Adler, 1987). The father of ethnography, Malinowski, was the first one to coin the concept of “imponderabilia” - a perspective that can only be obtained through living among studied people for long periods of time (Malinowski, 1922, p. 25). However, while progressive for its time, “imponderabilia”, according to later CI texts, does not have the ability
Chapter 3: Methodological Framework

to provide deep empathy. Malinowski saw himself as a passive, descriptive observer being at what Adler and Adler (1987) describe as “peripheral membership”. Later studies suggested a more immersive and interpretive approach, where the researcher embodies all the activities of the studied people and understands them through empathy. Clifford Geertz (1973) used the term “thick description” to describe such an approach. Thick description is achieved when the researcher moves from a “peripheral membership” to an “active membership” and from a descriptive to an interpretive study. This approach blurs the line between the observing researcher and the observed subject and allows one to truly understand another cultural context (Plowman, 2003).

Thick description is only one of many ethnographic methods. Discussing the various approaches of ethnography in design of CSCW Hughes (1994) distinguishes between four types of ethnography: “Concurrent ethnography”: where design is influenced by an ongoing study taking place at the same time as systems development; “Quick and dirty ethnography”: where brief ethnographic studies are undertaken to provide a general but informed sense of the setting for designers; “Evaluative ethnography”: where an ethnographic study is carried out to verify or validate a set of already formulated design decisions and “Re-examination of previous studies”: where previous studies are re-examined to inform initial design.

The ethnographic approach of the current study employed characteristics of quick and dirty ethnography – it aimed at gathering general and deep understanding of the studied subject. The term “quick and dirty”, however, does not point to a short period of fieldwork but rather indicates the duration of research relative to the size of the research subject. This approach attempts to find the quickest ways to access relevant information and also recognizes the impossibility of acquiring complete and detailed understanding of the studied setting. In design of CSCW’s (that were discussed in chapter 2 section 2.3) quick and dirty ethnography supports strategic decision-making and the important, broad understanding required for the design of a system (Hughes et al., 1994).

Along with quick and dirty ethnographic methodology, this study incorporated many of the concepts of contextual inquiry discussed above: “imponderabilia”, initial thick description, open and then more structured interviews, “problem setting”, interpretive approach and active membership in the studied context. How exactly these concepts were realized is described in chapter 4.

Contextual inquiry alone however is not always sufficient for designing systems. The idea that the field is “a place to visit and to be known” while the design studio is “a privileged place for invention” leaves a big gap between the designed product and the end-user (Halse et al., 2010, p. 15). Instead, end-users should be active participants of the design process. This participation is realized through Participatory Design techniques that are discussed in the next section.

3.2 Participatory Design

Participatory Design (PD) is an approach that actively involves end-users in the design process in order to ensure
the developed system or product is more responsive to their needs (Clement and Besselaar, 2004). Unlike a traditional design approach, where the designer acts as an experienced visionary-dictator, PD recognizes the end-users of the products as the primary source of innovation in the process (Clement and Besselaar, 2004; Leinonen, 2010, p. 52). Schuler and Namioka define PD as “an approach towards computer systems design in which the people destined to use the system play a critical role in designing it” (1993). PD originates from a Scandinavian tradition, with Pelle Ehn being one of its earliest theorists and practitioners. Ehn discussed the importance of the fusion of natural, social and humanitarian sciences in the process of designing computer artefacts and an applied “collective resource approach to design of computer artefacts” and “inclusion of trade union activities” in practice (1988).

PD is driven through participatory events – in-context design workshops – where collaboration arises between stakeholders who may have very different types of expertise and backgrounds (Leinonen, 2010, p. 52). A collaborative space emerges that allows for challenging assumptions, learning reciprocally, creating new ideas (Muller, 1993), and constructing alternative futures (Ehn, 1988; Halse et al., 2010). Through polyvocal dialogues across and through differences together with diverse collaborative creative practices, assumptions of both the designers and the end-users are open to question, challenge, reinterpret and refutate (Muller, 1993). Thus it becomes possible to tap into end-users’ tacit knowledge (Leinonen, 2010). PD is also concerned with the consistency of the approach, where innovation is driven forward not through a single intervention but rather by a chain of collective events (Halse et al., 2010).

Certain methodological applications of PD aim at addressing challenges already during and through the research process; Action Research & Participatory Action Research, seeded by Kurt Lewin and Paul Freire, are two such examples. In his iconic work “Action Research and Minority problems”, Kurt Lewin describes action research as “a comparative research on the conditions and effects of various forms of social action and research leading to social action” (1946). In “Pedagogy of the oppressed” Freire discusses the importance of collaboration between those intending transformation with people in the environment under transformation (1970).

It is important to note that the way in which PD is applied requires careful consideration when research is conducted in non-Western contexts similar to the ones in this project. It is the egalitarian values of Scandinavian countries that allowed for PD and open dialogue. Therefore a designer must be aware that in a different context participation might be fraught and expectation of appropriate behaviour might influence the participation of relevant stakeholders (Blomberg and Karasti, 2013). As the context of the current research was far outside a Scandinavian framing, it was important to use reflections of the contextual inquiry study to define the assets of PD practices.

Among other PD techniques, the current research incorporated: action research, scenarios (Carroll, 2000; IDEO, 2011), design workshop, lightweight prototype (prototypes are discussed in the following sections) (Leinonen, 2010; Muller, 1993), affinity mapping and card sort exercises (Friis and Gelting, 2011; IDEO, 2011). Chapter 4 presents a detailed description of how these methods were applied.
3.3 Product Design

The product design stage defines the use cases and basic interactions of the designed system through stories and prototypes (Leinonen, 2010, p. 62). As noted by Leinonen, designers in this stage create some distance between themselves and the stakeholders and work solely in design offices in order to use some specific design languages. This does not imply, however, a brake point in a participatory design practice but rather a time for designers to synthesise the data gathered from contextual inquiry and participatory design into actionable design expressions that can be used for further participatory exploration.

For a long time it was not exactly clear, what happens in this “distance” period and how insights from field studies get turned into executable design requirements. For example, Schmidt and Bannon note that it is social science that should explore exactly how insights springing from field studies might be applied and exploited in the design of useful CSCW systems (1992). Or later, Plowman states that ethnographic fieldwork requires inductive analysis (2003). D.school method cards guide to “Saturate and group” insights while DSKD and D.school advices to work with clusters of information (d.school, 2013; Friis and Gelting, 2011). It was not until recently that this fuzzy stage was defined as “Synthesis” and methodologically described.

Synthesis is a way to apply abductive logic within the constraints of a design problem (Coyne, 1988). Defined by Kolko, “Design synthesis in an abductive sensemaking process of manipulating, organizing, pruning and filtering data in the context of a design problem in an effort to produce information and knowledge” (2009). The designer takes the data out of the cognitive and digital realm (head and the computer) and makes it tangible in the physical realm in an organised visual structure (the wall). Through this practice, the designer is freed from natural memory limitations of the brain and the artificial organisational limitations of technology (Kolko, 2009).

The methods of design synthesis vary largely, but most of them emphasize prioritizing, judging, and forging connections. Some of the methods proposed by Kolko include: reframing, concept mapping, and insight combination. The current study applied two techniques: concept mapping and insight combination. Exactly how these methods were applied is discussed in chapter 4.

In the product design stage, design synthesis is followed by refinement of the lightweight prototype into a middleway prototype (Leinonen, 2010, p. 59). While lightweight prototypes are often just sketches of initial speculations about the designed product, middleway prototypes can explore different conceptual and concrete ideas. At the same time middleway prototypes can still be regarded as rapid and thrown away. They can be realized in paper or computer software: minimizing the effort that it takes to create them and maximizing the learning outcome. The main goals of these prototypes are exploring ideas and asking questions as well as exploring and evaluating choices (Buxton, 2007, pp. 371, 388; Klemmer, 2012).

The way that both synthesis and middleway prototyping were executed in the current research will be discussed in the next chapter.
3.4 Prototype as a Hypothesis

“Software prototype as a hypothesis”, the last stage of research-based design, is discussed by Leinonen as a time for agile development that turns the early functional prototypes into more feature-rich applications (2010, p. 64). Functional prototypes get tested with users and the next iteration is built based on users' feedback. An overall effect on communities and environments is evaluated. These prototypes are hypotheses, potential solutions to the challenges defined earlier in the process.

Developing a functional application falls outside of the scope of the current thesis. Therefore, in this research, the last stage is called “Prototype as Hypothesis” and viewed more as another iteration stage, the time for building scenarios and developing the middleway prototype. In the prototype development, the idea of a “flexibly adaptive design” (Barab et al., 2004) is considered. Rather than aiming to create a perfect design for a particular community, this approach aims at designing with potential for local adaptation.

The practical application of this stage along with the rest of the research-based design methodological framework is discussed in the following chapter.
4 Research Phases

As discussed in chapter 1, this research consists of four major phases:

1. *Comprehending the context and the challenge of collaboration*

2. *Analysis and refocusing*

3. *Exploring potentials with collaborative groups*

4. *Analysis and documentation, concept scenarios and prototyping*

This chapter describes these four phases. The aim of Phase 1 (Comprehending the context and the challenge of collaboration) was to understand the larger context of the collaboration problem inside and outside of public good sector. In a partly-overlapping Phase 2 (Analysis and refocusing) evaluation of the data collected in Phase 1 revealed focal points of interest for the next phase: individual citizen collaboration in public good initiatives and collaborative CSO communities. These were explored in depth in the following Phase 3 (Exploring potentials with collaborative groups). Data gathered in these three phases was analysed in Phase 4 (Analysis and documentation, concept scenarios and prototyping) and conceptual system along with six concept scenarios were designed. The discussion of Phase 4 also presents answers to the first part of the research question of this thesis (Chapter 1, Section 1.1): “What are the design challenges and opportunities for collaboration in the public good sector in Cape Town, South Africa ...?” The answer to the second part of the research question (“...how could this collaboration
be supported through an ICT system?”) is presented in the next, fifth chapter.

Figure 6 is based on “Phases in the design process of iTEC WP3R” (Keune et al., 2011) and illustrates the research phases of this thesis along with work effort distribution, methodological framework and the key methods applied.
4.1 Phase 1: Comprehending the Context and the Challenge of Collaboration

As mentioned in chapter one, the first phase of the research, overlapping with the second one took place from January to March 2013. The main aim of this phase was to understand the larger context of the collaboration problem inside and outside of public good sector. The research started in Helsinki with benchmarking and literature review along with an interview of an open culture and collaboration practitioner. It continued in Cape Town where about one month was spent for problem setting (Schön, 1983) through empathy (Friis and Gelting, 2011), and “thick description” (Geertz, 1973). This phase was quite exploratory in a sense that it was started with a guiding theme but it was not clear what would be learnt and discovered or who will be attracted to participate in the research. As in “snowball sampling” technique (Biernacki and Waldorf, 1981), the stakeholders that participated in the study were determined through the study itself. Often findings from one interview determined participants of the next interviews.

Phase 1 consisted of three sub-phases:
(a) Exploring Cape Town culturally as context;
(b) Exploring cross-cultural collaboration of individuals;
(c) Exploring civil society organisations and identifying collaboration links.

The understanding of Cape town culturally as the context (a) was important for gaining a “thick description” at the beginning of the study. Through understanding the cross-cultural collaboration of individuals (b) I was investigating the context, practices and opportunities for cross-cultural individual civic activism and collaboration. While exploring the civil society organizations and identifying collaboration links (c) I started observing and interviewing different civil society organisations to identify and get general understanding of existing links and collaborative practices.

4.1.1 Exploring Cape Town culturally as a context

The first weeks of the project were spent in Helsinki primarily in literature collect (Holtzblatt and Jones, 1993) and informal interviews about the subject of this research and South Africa as a context. I met several individuals who either were South Africans by origin or lived there for significant periods of time. I also interviewed a practitioner and facilitator of collaboration and open culture. These activities gave me preliminary understanding of collaboration as a theme and Cape Town as a context.

Having as little as this preliminary understanding of the subject was a great advantage for my research. Upon the state of arrival, natural curiosity and awareness of misinterpretation possibility served as great companions of the quick and dirty ethnographic process (Hughes et al., 1994). For example, a lot was learnt about inter-cultural relationships on different socio-economic layers through staying open-minded and questioning every new situation (Figure 7.1).
The first month of my research in Cape Town was spent primarily for gaining a “thick description” of the research context (Geertz, 1973). Most of the time I was working as an active member in one single organisation that was officially hosting my research – RLabs (described in chapter 1 section 1.2.2). In RLabs, I got the chance to gradually move from observing the organisation’s work to contributing to it, moving from “peripheral membership” to “active membership” (Adler and Adler, 1987). This time was very important for gaining initial in-depth understanding of the Cape Town’s public good sector context and the collaboration mechanisms within it.

At this time, a lot of valuable learning came from observations, embodied practice and casual conversations with people in shops, reckless public transportation, and the places I lived in. Some of the most interesting experiences were the mini-bus-taxis – the most widely used and very luckily most dangerous public transportation of Cape Town. For example, a mini-bus driver would address a woman of his own culture as “sister” or “mother”, but never so to anyone of a different culture. Another interesting observation was that if there were any Caucasians using public transportation it would most often be foreigners.

Initial lack of knowledge about the research context naturally also had its drawbacks. I composed a research plan prior to the field investigation while being very aware that during the fieldwork the cultural context

Figure 7.1: Cape Town as a Context. Left: Happy Collaborative Cockroach Haunt on a Bus; Right: Working Evening Blackout. Learning that Electricity in SA is Prepaid.
might thoroughly affect the timing and even the choice of research methods (Blomberg and Karasti, 2013).

Indeed, the methodology evolved proportionally to the level of insight. One of the biggest initial realizations was how dramatically different the communities of Cape Town were. As one of the interviewees noted: “Cape Town has everything from 1st to 4th world” (Figure 7.2). This socio-economic diversity together with racial, lingual and religious differences creates a whole plethora of beliefs, perceptions, literacy levels and fundamental values. The realization of this diversity led to a need of much broader investigation than what was originally planned. It is also worthwhile noting that the process of arranging interviews was quite challenging: Holtzblatt and Jones (1993, p. 193) suggest a fieldwork schedule where three sessions of group and individual interviews are executed daily. In the context of the current fieldwork such an organisation was not possible due to fluctuating schedules of many of the interviewees, sporadic timing of public transportation and general travel safety issues.
4.1.2 Exploring Cross-cultural Collaboration of Individuals

It took several weeks until the presence of individual civic activism and collaboration was identified first time, but a lot was discovered. Through observation and interviews it became obvious that the best practices of cross-cultural interaction and collaboration in Cape Town can be found in arts and sports circles. For example, creative people mix in theatrical performances and Open Streets festivals (OSCT, 2013); skateboarders, cyclists and roller bladers of different cultures meet as the “Promenade Mondays” community, aspiring the increase of open spaces for activities (Promenade Mondays, 2013). All of these examples can be characterised as communities of practice. For example, the latter Promenade Monday community of skateboarders, cyclists and roller bladers would be described in following terms according to Wenger’s three characterises of CoPs (Wenger, 2011):

a. Domain: gaining more spaces for sports activities, developing open and inclusive culture.

b. Community: skateboarders, cyclists and rollerbladers of different cultures from all over Cape Town.

c. Practice: sharing and encouraging culture of openness and equality through a big weekly joint ride; getting attention for the issue of shortage of legal spaces for skating, cycling and blading.

These weekly “Promenade Mondays” affected city policies and resulted in the grant of accessibility to a several kilometre boulevard for skate/blade/cycle riders. “Promenade Mondays” continued afterwards spreading inclusive collaborative culture.

I was fortunate to interview two participants of the “Promenade Mondays” who shared that while the most crucial collaboration was happening through face-to-face interaction, mobile phone and a Facebook group were utilized to support this initiative. These channels of collaboration can be characterised through CSCW classification (Table 4).

This example is one out of few identified in the art and sports circles. Yet, outside of these two circles collaboration and activism in public good seemed to happen mainly only among individuals of particular culture and community. An obstacle to such collaboration seemed to be primarily rooted in the lack of belief in its usefulness topped up with the territorial divide that enforces homogeneity of communities. However, I also encountered several examples of activism where individuals started dialogues with people

<table>
<thead>
<tr>
<th>CSCW tools of Street People forum</th>
<th>CSCW Characteristics</th>
<th>Time/Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inf. Sharing</td>
<td>Communicatio n</td>
</tr>
<tr>
<td>Mobile phones</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Facebook group</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4: Promenade Monday’s CSCW Tools Classification (1=Yes; 0=No)
of a different culture in order to build relationships and collaboration. For example, one of the interviewees of this study started her project by going and talking door to door, in a community that felt very hostile towards her. However, in a course of several weeks, continuous open dialogue and shared ownership of the project developed acceptance and support from the community.

Another very significant finding from the participant case described above is the necessity of registering an activist movement as an NGO. Getting funding in any other case is challenging. Therefore public good initiatives started by individuals are forced to engage with the registering process very soon.

4.1.3 Exploring CSOs and Identifying Collaboration Links

In the context of this research, overall, I have conducted formal in-context interviews with: 1 collaboration expert in Helsinki, representatives of 11 different civil society organisations and 4 collaborative initiatives of public good sector in Cape Town, 1 experienced cross-organisational social worker and 1 government representative. Figure 8 illustrates few of the interviewees.

The majority of the interviews were carried out during this first period of research, and the last interviews took place during the Phase 3. Brief descriptions of the interviewees can be found in table 5. More information about the organisations and the interviewees can be found on the project blog (Nasibova, 2013b). As can be seen from table 5, most of the interviewees work in one or more of the following four fields: street children, education, youth

Figure 8: Photographs of Four of the Interviewees. From the top: Bradley Naidoo, RLabs; Stassie Combrinck, Today movement; Laura Collura, School of Hope; Earl, Promenade Mondays, YMCA, SUSA, Desmond Tutu Peace Centre
<table>
<thead>
<tr>
<th>Name of an organisation or individual</th>
<th>Field</th>
<th>Amount of people interviewed</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homestead &amp; Street Children’s Forum</td>
<td>street children</td>
<td>1</td>
<td>Homestead’s projects for street children aim to help street children reconstruct their lives and learn to trust again. The projects work through early intervention, street outreach, drop-in centres, child and youth care centres. Member of Western Cape Street Children’s Forum. Western Cape Street Children’s Forum (WCSCF) is a collaborative CoP of CSOs working with street children.</td>
</tr>
<tr>
<td>Salesian Institute Youth Projects</td>
<td>street children, youth development, education</td>
<td>6</td>
<td>A big complex with four big projects for youth that provide residence, education, life-skills, crafts and occupation to youth. Member of WCSCF.</td>
</tr>
<tr>
<td>Today movement</td>
<td>youth and children development</td>
<td>1</td>
<td>A project that uses creativity to improve and solve problems in Western Cape by taking art and design to streets, and engaging with different cultures.</td>
</tr>
<tr>
<td>Mamelani &amp; Youth Development Forum</td>
<td>youth development, community development</td>
<td>1</td>
<td>Mamelani works in three key areas: Youth Development, Community-based health education &amp; Child and Family Support. Member of Youth Development Forum. Youth Development Forum (YDF) is a collaborative CoP of 30 CSOs concerned with Cape Town youth development.</td>
</tr>
<tr>
<td>Beth Uriel</td>
<td>youth development</td>
<td>1</td>
<td>A loving home for 26 disadvantaged young men. Member of YDF.</td>
</tr>
<tr>
<td>Worker of many youth development initiatives</td>
<td>youth development</td>
<td>1</td>
<td>A young man who has worked in three different CSOs for youth and recently has started a youth sports movement.</td>
</tr>
</tbody>
</table>

Table 5: List of Interviewees – Organisations and Individuals and Their Brief Description (part 1/3)
<table>
<thead>
<tr>
<th>Name of an organisation or individual</th>
<th>Field</th>
<th>Amount of people interviewed</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge</td>
<td>education</td>
<td>1</td>
<td>An organization that facilitates collaboration among educational CSOs of SA.</td>
</tr>
<tr>
<td>School of Hope</td>
<td>education, street children, youth development</td>
<td>1</td>
<td>A high-school with 70 students for youth at risk and vulnerable youth that gives them second chance through education and personal development. Participant of Bridge events.</td>
</tr>
<tr>
<td>R Labs</td>
<td>education, youth development</td>
<td>2</td>
<td>An upliftment movement with hubs in 16 countries all over the world. Core activities include skills and training, community development, social and disruptive innovation, mobile and internet solutions, social enterprise incubation, impact investing and social franchising. (more about R Labs in chapter 1 section 1.2.2)</td>
</tr>
<tr>
<td>Carpenter’s Shop &amp; Street People Forum</td>
<td>street people</td>
<td>1</td>
<td>The Carpenter’s Shop provides short-term rehabilitation services, training and accommodation to people in need so that they can re-integrate into society. Member of Street People Forum.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Street People Forum (SPF) is a CoP of CSOs working with street people in Cape Town.</td>
</tr>
<tr>
<td>Haven Night Shelters</td>
<td>street people</td>
<td>2</td>
<td>16 night sanctuaries for adults across Cape Town that provide shelter, physical care, social welfare and family re-unification services. Member of SPF.</td>
</tr>
<tr>
<td>Straatwerk</td>
<td>street people</td>
<td>1</td>
<td>A Christian organization with a wide range of outreach services including rehabilitation program for unemployable and desperate people. Member of SPF.</td>
</tr>
</tbody>
</table>

Table 5: List of Interviewees – Organisations and Individuals and Their Brief Description (part 2/3)
In the beginning of the research process the interviews were an interview with one individual/organisation. Led to illustrates how the research started with two information linkages between organisations started to emerge. Figure 9 (1981). Gradually, patterns of existing collaborative snowball sampling technique (Biernacki and Waldorf, 1981). Gradually, patterns of existing collaborative linkages between organisations started to emerge. Figure 9 illustrates how the research started with two information sources: physical environment and the internet, and how an interview with one individual/organisation led to interviews with other.

All the interviews were recorded on a voice recorder and contextual photographs were taken before and after the interviews (Figure 10).

In the beginning of the research process the interviews were open-ended and towards the end they got more and more structured (Squires, 2002). A new interview guide (IDEO, 2011) was generated prior to every interview as the themes of interview evolved from general to increasingly specific, and from open to more structured. A logbook (Friis and Gelting, 2011) was started that collected interview notes and was then used through the study to collect insights and ideas. A special signage was developed that allowed fast reading of notes in later phases of the research (Figure 11). The audio recordings of the interviews were used for making more detailed notes that were also recorded in the logbook. The logbook also collected observations, ideas and first sketches of information architecture and the lightweight prototype. The most interesting findings from each interview (apart from sensitive information) were also documented on the project blog (Nasibova, 2013b).

Many of the interviewees were very generous in information sharing and sent me various documents that could be interesting for this research: strategies of organisations, transcripts of collaborative meetings, email discussion threads of collaborative activities as well as plans for ongoing and future collaborative activities and systems.

<table>
<thead>
<tr>
<th>Name of an organisation or individual</th>
<th>Field</th>
<th>Amount of people interviewed</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mxit Reach</td>
<td>social media for public good</td>
<td>1</td>
<td>SA’s biggest social network’s unit developing applications with social impact</td>
</tr>
<tr>
<td>Government representative</td>
<td>social development of a district</td>
<td>1</td>
<td>Social Development Manager of Cape Town Central City Improvement District</td>
</tr>
<tr>
<td>Open Culture and Collaboration practitioner</td>
<td>open culture and collaboration</td>
<td>1</td>
<td>An activist, open culture and collaboration practitioner and facilitator</td>
</tr>
</tbody>
</table>

Table 5: List of Interviewees – Organisations and Individuals and Their Brief Description (part 3/3)
Figure 9: Exploratory Route of Interviews

Figure 10: Samples of Contextual Photographs from Interviews
These documents were extremely useful for evaluating dynamics of existing collaborative activities and created together with recordings of interviews, notes, observations and photographs gathered in the field research a holistic picture. This phase brought very rich findings, few most important of which are summarized in the following section.

4.2 Phase 2: Analysis and Refocusing

As discussed earlier, Phase 2 was partially overlapping with the Phase 1, due to the fact that the analysis of information was happening largely in parallel with the initial research process and constantly determining its direction. The analysis in this phase was carried out more rapidly than the one the one in Phase 4. During Phase 2, it was happening largely simply on the logbook pages with use of special signage through which interesting facts, challenges and opportunities were marked. At the end of the phase a day was spent with rapid overall analysis carried out on several sheets of A4. The main findings of this phase are summarized in the following section.

(a) Cultural divide and safety issues as obstacles in individual and CSO collaboration

As mentioned earlier, the cultural diversity and divide in Cape Town exceeded the expectations of this research. One of the interviewees, for example, noted that “We (communities of different cultures) have learnt to be polite with each other, to tolerate each other but not to work with each other”. Another participant of the study mentioned that “we all have different pastes and ways of working and, sincerely, you know better what to expect from people of similar culture”. It is not only the historical divide but also lack of belief in such collaboration’s usefulness that supports the divide. The historical territorial divide also resulted in a notion where a lot of people only feel comfortable and exist on the territory of their home community. The fluctuating public transport travel safety also compliments this issue. The safety issue in general creates and extra obstacle level for individual citizen activism and collaboration: any initiative needs a “safety net”. For example, a grass-root initiative with wide citizen involvement all around the city like the Ravintolapaivä in Helsinki (Restaurant Day, 2013) would require much more extensive planning and safety organisation in Cape Town.

(b) Bureaucratic hardship of registration

This was one of the most interesting findings in the first half of this research: that in order to acquire funding, any grass-root citizen project very soon faces the need of
registering officially as an NGO. The registration process takes around 6 months and preparation of financial books and plans – a mission to which most individuals with great public good intents have no sufficient knowledge.

(c) The world of CSOs as a competitive business market

Growth means more funding. As one of the study participants described it, “the scarcity of funding and power struggles rise the competition between NGOs to a business market level”. It goes both ways: “Every soup kitchen wants to become a shelter” and “every bigger NGO wants to grow through eating smaller ones”. Funding is a major issue for CSOs in Cape Town and for many it often turns into a question of survival. However, young CSOs avoid joining bigger organisations that could provide them safety, in fear of losing freedom to follow their own vision. There have been attempts to create a system where older CSOs mentor younger CSOs (Designguru, 2013) but it was not successful.

(d) Collaborative forums of CSOs already exist

It was very exciting to discover self-organised existing collaborative forums of CSOs, namely the Street Children’s forum, the Youth Development Forum and the Street People forum. These forums operate as CoPs: representatives of different CSOs gather around similar subjects, and exchange best practices, tools, opportunities, and network, lobby, and build shared strategies. Another CSO called Bridge serves as what Wenger calls a “convener” in gathering practitioners of different educational CSOs into communities of practice (2011).

However, one of the current challenges with the development of such CoPs is funding - “you can’t cut a red ribbon on collaboration” noted one of the study participants. Another issue is that most of the awareness in these forums is ad-hock – with one organisation finding out about the forum through another and the possibility for some organisations to never find out. This creates operation in “pockets of existence awareness” (Stoll et al., 2010).

(e) On the crossroads of open culture and competitive market dynamics

In terms of collaboration it is a very interesting time for CSOs in Cape Town: the conditions are such that either open sharing culture will get popularised or the competition and isolation between organisations will become even more fierce. The interest in potential benefits from collaboration is there but people do not exactly know what collaboration means. Visible evidence of the need for collaboration and joint strategy is very present. E.g. one of the participants shared that the lack of CSO service capacity leads to the fact that 60 percent of HIV kids saved in birth die only several days after leaving hospitals. Organisations, each on their own, simply cannot meet all the challenges. This year with WDC Cape Town approaching, it feels like a time when either open culture of collaboration and sharing could be established or competition could grow.

The findings described above determined the direction of the next phase of this research. I decided to explore deeper the opportunities of individual citizen activism through participatory action research in order to observe a collaborative setting live. In parallel with individual
activism I decided to investigate existing collaborative CSO initiatives identified in this phase. These decisions resulted in two big participatory design events of the next phase: an Open Design Hackathon with individual activists and a participatory design workshop with one of the identified CSO collaborative forums.

4.3 Phase 3: Exploring Potentials with Collaborative Groups

The main aim of this phase was to explore further collaboration in individual citizen activism and in CSOs’ collaborative forums.

Participatory action research was chosen as an investigation method for individual collaboration. For that matter, a special unconference jam event (Follett, 2006) – Open Design Hackathon was organized to bring individuals with different cultural backgrounds together. This allowed observing participatory interaction in situ.

For exploring collaboration in CSO collaborative forums a participatory design workshop was held with members of the Street People forum CoP.

Details of both Open Design Hackathon and participatory workshop are described in the following section.

4.3.1 Open Design Hackathon

The main aim of this participatory action design event was to create an environment where individual citizens of Cape Town of various backgrounds could come into the same physical space and join their forces for public good. For the current research it was important to observe the dynamics of cultural turnout, collaborative work within teams and potential for continuity of collaboration (Figure 12).

The Open Design Hackathon (ODH) was held on the basis of RLabs - the organisation that was the main host of my research (discussed in chapter 1 section 1.2.2). By that time my relationship with the staff of RLabs reached the point where “design became an outgrowth of healthy relationships, as opposed to ... relationships being an outgrowth of good design” (Barab et al., 2004). This formed a solid ground for co-creating the flow of the initial event framework through iterations together with the RLabs staff.

Open invitations were sent out through digital channels to different CSOs and other stakeholders of public good sector one month prior to the event. The event gathered five teams of four to eight people with different backgrounds around the topics of their interests. The methodology of the event included techniques of Open Space Technology (Owen, 2008), D.school (d.school, 2013) and HCD Toolkit (IDEO, 2011). In the spirit of open culture and jamming it was announced that all the concepts created at the event will be published online under CC non-commercial attribution license.

Overall, the event turned out to be fruitful both in findings for this research and experiences for the participants. The
turnout of people was a bit lower than expected. This can be explained with the timing (the event was held in working hours on a Friday) and the distant location of RLabs. The multi-background and multi-cultural dynamics of the teams provided a lot of food for thought. The five concepts generated by the teams were truly powerful as rooted in multi-stakeholder tacit understanding of problems. One of the most important realizations of this event was that jam-like gatherings similar to this one might not create robust functioning teams in a day but can serve as solid platforms for networking and inspiration.

More observations and findings from the event are discussed in section 4 of this chapter. The team handout co-created with RLabs staff (Figure 13), also published under CC non-commercial attribution license, can be found in appendices of this thesis (Appendix 1). The public good concepts created by the five teams of the event are available online on the blog of this thesis (Nasibova, 2013c).

4.3.2 Participatory Design Workshop

The participatory design workshop was held with three representatives of different organisations working with street people in Western Cape: Straatwerk, Haven Night Shelters and Carpenter’s Shop. Brief descriptions of organisations can be found in table 5 of section 4.1.3. At the time that the workshop was held these organisations were leading the process of formation of the collaborative Street People Forum and therefore were an extremely interesting group to study. The forum was to have regular meetings in a specifically designated space at the Carpenter’s Shop premises. The workshop was held at

Figure 12: Open Design Hackathon Process. Left: One of the Five Presentations of the event; Right: Brainstorm Between Two Teams
the same place, which was the most natural environment for the forum. Street People partially used examples of Street Children’s forum, Youth Forum and other similar collaborative initiatives as benchmarks for defining what collaboration would mean for their sector.

Based on the information gathered from interviews with participants and official documents of the forum, according to the characteristics of CoP, the Street People forum can be described as following (Wenger, 2011):

a. **Domain:** public good of street adults, main areas of concern being: law enforcement; accommodation; health and rehabilitation; training, employment and occupation.

b. **Community:** managers and practitioners of 30 different CSOs working with street people.

c. **Practice:** monthly meetings, collective strategy building, lobbying and legislation, joint case management, best practices sharing, opportunity sharing.

The collaboration of the Street People forum is mainly rooted in face-to-face meetings, however, extends to digital channels as well. Along with email and phone, the forum is considering utilizing a special online tool Delstat (discussed in chapter 1 section 1.4) for what they call “Joint Case Management”. Table 6 characterises these tools according to CSCW classification.

The intent behind the participatory design workshop was many-fold: first of all, after interviewing representatives of three different forum organisations individually it was important to bring them together to observe their interaction; secondly, to tap deeper into their values around the topic of collaboration; lastly, to start co-construction of the system together with them.

Figure 13: The Cover and the Timeline From the ODH Teamwork Handout
A set of reflective tools was prepared to be used at the workshop, including storyboard scenarios (Carroll, 2000; IDEO, 2011), positioning and card-sorting exercises (Friis and Gelting, 2011; IDEO, 2011) and finally, a lightweight prototype (Buxton, 2007; Leinonen, 2010; Muller, 1993). All of these tools can be found in the appendices of this thesis.

The workshop was planned and executed according to the following structure:

1. Agenda and ice-braking

The participants were already familiar with the goals of the workshop from the invitation emails sent to them prior to the event. In the beginning of the workshop these goals were summarized and the workshop schedule was introduced briefly. All the workshop participants have known each other quite extensively. Therefore introductions were unnecessary. As an ice-braking exercise they were asked to speak about their hopes and worries for the session that was about to happen.

2. Mapping of relationships through a positioning diagram

2.1 As the first exercise the participants were asked to draw a diagram where they would place their organisation in the middle and write names of all organisations they work with around it.

2.2 A table of 14 words was introduced that were written on post-it notes. These words were extracted from all the previous interviews - the words through which interviewees referred to the character of their relationships with other organisations, e.g: partner, adaptive, challenge. Some of the post-it notes were left blank inviting the participants to come up with their own words. The workshop participants used these words for describing relationships they have illustrated on diagrams (Figure 14, bottom right image).

2.3 After mapping and naming the relationships the participants were asked to put all the diagrams in the middle of the table in a way that made them visible to everyone and to discuss about collaboration. Participants were guided to discuss subjects, channels and qualities of their collaborative connections.

<table>
<thead>
<tr>
<th>CSCW tools of Street People forum</th>
<th>CSCW Characteristics</th>
<th>Time/Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inf. Sharing</td>
<td>Communicatio n</td>
</tr>
<tr>
<td>Email</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Phone</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Delstat online tool</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6: Street People Forums CSCW Tools Classification  (1=Yes; 0=No)
3. Reflecting on possible scenarios of the collaborative online system use

To introduce an hypothetical idea of collaborative ICT system two sketched storyboard scenarios were shown to participants (Figure 15, Appendix 2). Next a discussion was held about the scenarios – participants reflected upon what they felt about the scenarios in general, what were the things they could relate to and what weren’t, why would these scenarios work and why wouldn’t they, how would they change these scenarios if they could?

4. Prioritizing possible activities of the online system through card-sorting (Ehn, 1988; Friis and Gelting, 2011; IDEO, 2011)

4.1 A set of 20 activities that could be utilized as functions of the designed online system were written out on small pieces of paper and given to each participant. These were the actions extracted from the interviews – those already happening in collaborative actions between organisations or those desirable. Examples of the activities include: sharing of human resources, discussion about opportunities in funding, identification of gaps in service provision.

4.2 The participants were asked to prioritize the activities in terms of interest and usefulness specifically for their organisation. Blank pieces were provided to ask participants that they would like to add. Then they were asked to place the activities in the middle of the table on the vertical scale – from most important on top to least important on the bottom. This exercise is similar to the organisational Kit Game in Pelle Ehn’s Utopia project (Ehn, 1988) – a simple game with small pieces of paper illustrating various tools, played by people working in a newspaper production.

4.3 A discussion was held about the priority order, about how similar and how different it was for the different participants.

5. Feedback on the lightweight prototype

5.1 Lastly the first hypothesis of the online system – a lightweight prototype was shown to the participants. It was intentional to have the wireframes as lightweight as possible to provide the participants with space for interpretation. The lightweight prototype was created using “indigo” wireframing and storyboarding software (free at the moment of writing) (InfraGistics, 2013) built up on sketches from the research logbook and dedicated prototyping sessions (Figure 16). Printed versions of the main screens were given to them with invitation to write and sketch, while a live click-through prototype was shown on the screen. It is important to mention that this exercise was in no way intended as usability testing but rather an exploration to provoke and gather the right questions.

5.2 A general discussion about the hypothetical system and its realization was held.

6. Closing discussion

6.1 Participants were invited to express anything else that was on their minds in regards of previous discussions.

6.2 A closing discussion about what they felt about participation in the workshop rounded-up the event.

Overall, the workshop went well and provided a lot of interesting and significant insights. It was useful to have a small number of participants, as I had, to be facilitate and document the workshop at the same time.
Figure 14: Participatory Design Workshop With Street People Forum Representatives

Figure 15: Card-sorting Exercise and Storyboard Scenarios Used in the PD Workshop
Figure 16: Sketches and Wireframes of the Lightweight Prototype
Most of the exercises of the workshops were carried out as planned except the card-sorting prioritizing of functions. Trying to provide equal participation opportunities I prepared a set of same activities for each of the participants. Each of the participants was asked to prioritize the functions on a vertical scale in the middle of the table in their own column. What happened, however, was that most of the columns got mixed and it was impossible to tell whose scale was where. This could have been avoided by, for example, simply colour-coding the paper of functions for each of the participants or reducing the amount of considered functions.

An interesting finding was that all of the participants mentioned that they have arranged these functions in order of interest for their own organisations. If they were to arrange these in terms of the collaborative Street People forum, the order, they all agreed, would have been different.

More interesting findings of the workshop include: lack of bird-view on CSOs activities and collective effort; need for a universal online system supporting the forming CoPs (e.g. one of the participants was so enthusiastic about the system, he carried the card-sorting exercise with system functionalities away with him after the workshop ended); and lastly the workshop participants came up with several great concrete functionality ideas (e.g. “smart calendar and discussion mechanisms” described among other functions in the next chapter of this thesis).

4.4 Phase 4: Analysis and Documentation, Concept Scenarios and Prototyping

The data gathered in the previous three phases were analysed and built upon in the concluding fourth phase of this project. Through visual information mapping and two methods of synthesis, concept mapping and insight combination (Kolko, 2009), described earlier in chapter 3 section 3.3, were applied for turning information into actionable insights (Figure 17). The insights and findings from the synthesis along with findings of the whole study were reflected in a design concept and six concept scenarios accompanied by the middleway prototype wireframes. In parallel with these activities, the research process of all four phases was captured into the current thesis document.

In the following I describe the findings extracted during this phase that are relevant to the outcomes of this project. I present answers to the first part of the research question of this thesis proposed in chapter 1 section 1.1: “What are design challenges and opportunities for collaboration in public good sector in Cape Town, South Africa...”. The answer to the second part of the research question, “... how could this collaboration be supported through an ICT system?” and the outcomes themselves – design concept and six concept scenarios with a prototype are presented in the next, fifth chapter.
(a) **Identified challenges and opportunities for collaboration in individual activism**

In section (a.1) I discuss overall opportunities and challenges of jam/hackathon setting in terms of collaboration and in section (a.2) I concentrate specifically on the biggest challenge in individual activism in Cape Town – cultural and societal divide.

**(a.1) Cultural mixing and networking in Open Design Hackathon settings.** The empirical study of the Open Design Hackathon jam and the observations of such initiatives as “Promenade Monday” (described in chapter 4 sections 4.1.2 and 4.1.3 of this thesis) indicate that collaboration in individual activism is possible in Cape Town but there are a lots of challenges associated with this matter. An unconference event (Egan Warren and Riehle, 2012; Follett, 2006) like the Open Design Hackathon is a great trigger for activism. However, along with the main objective of the jam – collective creation of concepts - the strength of such hackathon is much greater in the very act of bringing people together. The networking and the connection that people make in such events is immediate while the practical value of the created concepts can only be determined with time passing (Lange and Waal, 2012). Thus in public good sector, jams can be utilized with the agenda of *networking and inspiration.*

However the location of such gathering in Cape Town might play a crucial role in the audience reach. Wherever the location is set it will mostly gather people of the immediate social and territorial community. One of relevant cases I observed in Cape Town was a public good...
initiative for empowering citizens to do their own projects (100in1, 2013). The initiative gave citizens a good ground of weekly meeting space, structure, and support for building public good interventions. The meeting space was located in the center of the city and subsequently gathered mostly people from the central area. As mentioned earlier, this might be explained by the cultural divide and lack of safety in public transportation, especially in after-office hours. A similar situation happened in the Open Design Hackathon that was organized as part of this research: only around 30 percent of the participants were from other organisations and communities than the hosting RLabs, Bridgetown. These observations indicate that events such as hackathons are most luckily to gather people of immediate and close-by geographical locations. Thus static location hackathons are likely to have more effect in strengthening local community participation than in cross-cultural and cross-community bridging.

(a.2) This challenge of cultural and societal divide in collaboration is not only a challenge on economy and geography, but more a challenge of mindsets. As Lewin discusses about the intergroup relations and infers that “so-called minority problems are in fact majority problems, that the Negro problem is the problem of the white, that the Jewish problem is the problem of the non-Jew...” (Lewin, 1946, pp. 44–45) Over half a century later challenges of humanity remain the same: the collective impersonation of Lewin’s “white” and “non-Jew” are more present than ever. In the same way the strategic tool (raising confidence and self-esteem of the minority groups) that Lewin suggests for the improvement of intergroup relations is applicable to present.

One of the factors that could contribute to the rise of such self-esteem is shifting those in disadvantaged communities from passive role of accepting aid/help towards active role of self-developing and supporting the community around them. It was great to see a lot of CSOs working exactly in this direction, trying to shift the mindset of assisted individuals from “being helped” to “being proud” of what they accomplish in the e.g. skills program. This efforts also go inline with what Freire argued in his “Pedagogy of the oppressed”: the problem with treatment of individuals by the majority of CSOs around the world is the one of the “banking model” (1970), where an individual gets treated as an empty vessel to be filled with aid. Instead, the individual should be put into an active role of doing, deciding, making choices and in all of that, being only supported by the organisations.

Today few of disadvantaged individuals feel that they are in that position of choosing, one of the reasons for that being the lack of awareness about the opportunities in public good services available for them. It was great to find that one of the CSOs interviewed during this research was actively working on creating a mobile service that will bring awareness and choice to disadvantaged youth. I argue that awareness can also serve as empowerment for an individual through exposure of inspirational cases and stories.

Another opportunity in building cross-cultural bridges is involvement of community leaders of poorer areas of the city. These people play very important role in the life of the community - people respect and rely on them, listen to their advice and generally follow their guidelines. If community leaders would be open for cross-community collaboration, people will follow.
(b) Identified challenges, opportunities and collaborative practices of studied CSOs and collaborative CSO forums (CoPs)

In the following, in section (b.1) I discuss overall insights about CSO work that are most crucial to this thesis. In section (b.2) I concentrate specifically on identified existing collaborative practices between CSOs.

(b.1) Identified challenges and opportunities of studied CSOs and collaborative CSO forums (CoPs)

Importance of social bounds: It was identified that in CSO communication and collaboration processes, personal relationships play a crucial role. Several of the interviewees noted that an oral agreement that is based on a personal relationship usually works much better and lasts longer than a signed many-page official paper contract.

Another important aspect of social bounds is trust. Information from a trusted person is valued more than any other source (e.g. news about plans for reconstruction from a trusted person or a friend of a trusted person are values much higher than an officially published plan of the same reconstruction). Trust is also a fundament of collaborative CSO forums. Here, along with other activities, workers of a CSO can share their experiences with each-other – for example, if a social worker of one organisation is stuck with some particular case and doesn’t know what to do he would share the case and ask for advice. Multiple interviewees of this study noted that it takes a strong social bound and a relationship built on regular face-to-face meetings to create an environment that is comfortable enough for such sharing. Workers support each other through advice and protect each-other from professional “burnout”.

Lack of dialogue with government: As noted by one of interviewed CSO workers, the government often has an obscure vision of the CSO’s work and the scales of problems CSOs are addressing. This leads to the introduction of top-down polices that are often incompatible with on-the-ground reality. One of the studied CSO forums through collective lobbying managed to influence governmental policies in regards to the subjects of their work-children. The government rarely interacts with CSOs outside of such actions and therefore from its side also has a lot of scepticism towards CSOs’ work.

A channel for dialogue is needed. As one case study has shown, simple small face-to-face events where the two sides can meet and talk can be very effective.

Asymmetry in ICT, but rapid adaptability: Access for ICT resources varies largely from an organisation to organisation. Two CSOs working under the same roof could be at the two extremes – one using latest windows system on multiple working stations and another using no computers at all. Such contrast reflects differences in professionalism of the personnel and funding of CSOs. One of the interviewees noted than a CSO without a computer would usually use their neighbour CSOs computer for maintaining online presence in order to get funding. Local Internet Cafes also serve as a resource for CSOs and individuals. One interviewee working in an internet cafe in the Langa township noted that this cafe serves as an office to many of the customers.

It was also observed that in case of acquiescence of new technologies, adaptability rates are very high. There is no fear of new systems but instead curious exploration. This can be partially explained by a historical habit of Africa in
terms of adapting things often enforced by the “Western”
culture.

The interviewed CSOs use ICT mostly for internal
organisation, in search for funding and communication.
The strategies of ICT use and software preferences vary
largely. CSOs heavily rely on phone calls, emails, MS
Word and MS Excel packages. Delstat, described in
chapter 1 section 1.4, is also used but by only few of
the organisations due to a subscription fee or simple
unfamiliarity. Static web pages and various social media are
used as channels for raising awareness and funding.

**Burdensome amount of digital profiles:** “Not another
system” - said participants of the workshop described in the
previous chapter. CSOs realise the need of being present
on social media and different systems for raising awareness
and funds, however, they rarely have enough time to
update these profiles. For example, one of the interviewed
organisations has a webpage, a Twitter-feed, and profiles on
Facebook, Give and Gain and Greater Good (described in
chapter 1 section 1.4). Updating these systems takes away
time from the core work of CSO and therefore has a low
priority and often results in nothing but additional stress.

**Organic development and adaptability of CSOs’ work,
but lack of progress tracking and overview:** “We are not
in a disaster relief situation, we have to deal with much
more complex structures” - noted one of the interviewees
of the study. Indeed, the work of a CSO in a normal,
non-disastrous environment faces complex, multi-level
challenges that are fought in long-term and sometimes
never-ending battles. This creates one of the biggest
challenges – predicaments of long-term planning: for
many CSOs the factors influencing their work in anything
further than several months are hard to predict: the
amount of people with the addressed need can fluctuate,
funding might drop or completely disappear. Unexpected
factors like governmental policy change or unfortunate
incidents with subjects of CSOs’ concern also largely
influence CSOs’ work. Due to these reasons the work of
the CSOs feels very organic, continuously responsive to
changes around it. Some interviewees expressed that this
organic development can have negative implications too:
for some CSOs with a long tradition organic becomes a
habit rather than a necessity, which leads to constant shift
of effort focus and overly poor results.

At the moment, outside of CSO forums, only approximate
guesses can be made about the overall collective impact
of CSOs of a particular area and specialization. Most
organisations don’t have enough resources or time to track
the individual impact of their work. Also there is a little
understanding of density of efforts in relations to need
in an area, which leads to unnecessary overpopulation of
CSOs in one area and complete lack of public good efforts
in another.

**Diverse goals, scales and structures of CSOs;
Collaboration at different levels with different
stakeholders:** It was important for this research to study
CSOs of different scales and goals. It became obvious
that in Cape Town alone there is a whole palette of CSO
specializations, structures, scales, goals, and ways of
working. Even CSOs working with similar goals, located
nearby and working with basically the same people can
differ greatly. It was also found that CSOs usually work and
collaborate with many different parties at different levels:
companies, governmental units, donors, and other CSOs.
In order to be attractive to a wide range of organisations,
the designed system has to be flexible enough to cater for all the different needs.

(b.2) Identified collaborative practices of studied CSOs and CSO forums

To discuss collaborative practices observed during the fieldwork in Cape Town I will first classify different types of collaborations between CSOs and then describe the particular practices within the frame of this classification.

During the field research, I determined few denominators that seemed most crucial in the formation of the nature of collaboration:

a. Same (assisted) people vs. different (assisted) people – reflect whether the subjects of assistance between two or more organisations are the same people or not. For example, two CSOs working in the same building and with the same community can address completely different people – one could work with pre-school children and another with female youth. Stoll in her research discusses the opposite denominator – “Same (assisted) people”, referring to such collaboration type as “victim-centric mode” (Stoll et al., 2010). CSOs of Cape Town refer to this mode as “joint-case management”.

b. Same services vs. different services – illustrates whether the services provided by CSOs are alike or not. For example two or more CSOs all teaching welding skills to young men.

When intersected, these denominators determine 4 types of collaboration between CSOs:

1. same people, same services
2. same people, different services
3. different people, same services
4. different people, different services

Another important factor is whether or not the collaboration happens in CoPs or based on some other premise such as proximity, personal connection, funding opportunity, etc.

1. Collaboration in CoPs
2. Collaboration outside of CoPs

The denominators mentioned above are used in table 7 to categorize the list of collaborative practices encountered during this research. As described in the table, two types of collaborations have not been observed in this study: a) Same People, Same Services in a CoP; b) Different People, Different Services in a CoP.

The following collaborative practices were encountered through interviews, observations and workshop exercises of this study:

- **Awareness** – sharing of general information about organisations and projects. Example: pre-school children’s sports CSO giving a presentation about their programs to other CSOs.

- **Tacit knowledge sharing** – sharing and discussions about common practices, best practices and pitfalls. Example: a social worker from one CSO advises a social worker of another CSO on how to help young women deal with rape traumas.

- **Sharing of digital documents and tools** – sharing of intake evaluation forms, track progress forms etc. Example: 30 CSOs of Youth CoP putting all of their evaluation forms in one shared PDF.
• **Sharing of physical resources** – sharing of spaces, furniture, equipment, human resources. Example: two CSOs in the same building sharing a copy machine.

• **Sharing information on opportunities, discussions** – sharing of opportunities in funding, exposure, programs etc. Example: (1) a night shelter CSO sending a daily email to neighbour soup kitchen and healthcare CSOs about availability of spaces for that day; (2) a worker of educational CSO spotting an agricultural grant online and sending it to a friend who works at a Gardening CSO.

• **Sharing documentation of meetings** after the CoP meetings.

• **Legislative formulation, lobbying** – discussing between CSOs and together with government about existing and future polices of the relevant sector, lobbying for change. Example: Street Childrens forum through lobbying affect in a legislation change, which resulted in more effective and more human treatment of street children.

• **Alignment** and development of joint strategies, standards (Code of Conduct), guidelines and evaluation criteria. Example: a CoP of CSOs developing joint strategic goals for the next year, three years and five years.

• **Joint case management** through phone, email, MS Excel, MS Word, Delstat tool (described in chapter 1 section 1.4) – information sharing and discussion about same assisted people. Example: (1) two CSOs from Youth Development CoP: a youth home organisation and a sports organisation, working with the same young man discussing his attendance to the sport classes on the phone. (2) three CSOs working with the same person using Delstat to track his progress.

• **Mutually beneficial participation** in a practice other than joint-case, often organized by a third party. Example: city government organising an awareness and donation campaign about people on streets. Six different street people-assisting CSOs sharing the money gained from the campaign.

• **Social interactions** – all interactions between CSO workers that can seem not tobare any professional benefit but factually forming the most important core of collaboration – trust. Example: (1) workers of two different CSOs hugging to great each other at a meeting; (2) a social worker sharing a devastating experience and social workers of other organisations sharing similar stories in return, supporting and encouraging the worker.

• **Being an expert on the topic for the public** – information, education, referral and advice for the public, media. Example: a newspaper-making an article on homeless children contacting the Street Children forum for comments.
<table>
<thead>
<tr>
<th>In CoPs</th>
<th>Outside of CoPs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Same People, Same Services</strong></td>
<td>(none identified in this study)</td>
</tr>
<tr>
<td>Although collaboration in such category theoretically might exist, it has not been observed in this study. It might happen that a CSO does not have the capacity to deliver e.g., as many student placements as necessary for the community. In that case, another CSO might work nearby providing a similar service and also be part of the same CoP.</td>
<td>Competition for funding, lack of awareness and alignment in work can characterize relationships of CSOs in this category. As one of the study participants mentioned, “It would be more useful for a homeless person to have one soup kitchen, one sleeping shelter and one life skills development program in his/her area instead of having five soup kitchens but no other opportunities”. The only collaborative practice in this category that was observed is: - mutually beneficial participation</td>
</tr>
<tr>
<td><strong>Same People, Different Services</strong></td>
<td>The majority of CSOs of the collaborative constellations studied in this research belong into this category: Street Children’s forum, Youth Development forum and Street People forum belong to this category. Widest spectrum of collaboration practices have been observed: - awareness - tacit knowledge sharing - sharing of digital documents and tools - sharing of physical resources - sharing information on opportunities - documentation of CoP meetings - legislative formulation, lobbying - alignment and development of joint strategies - joint case management - mutually beneficial participation</td>
</tr>
<tr>
<td><strong>Different People, Same Services</strong></td>
<td>Some of CSOs in the forums would deliver the same service but work with different geographical areas of the city and therefore with different people. The spectrum of collaboration includes: - awareness - tacit knowledge sharing - sharing of digital documents and tools - legislative formulation, lobbying - alignment and development of joint strategies - mutually beneficial participation</td>
</tr>
</tbody>
</table>

Table 7: Classification of Identified Existing Collaborative Practices Between CSOs (part 1/2)
In this section I present an overview list of the quantity of data incorporated in the current research.

As described earlier in this chapter, overall, I have interviewed representatives of 15 different civil society organisations and collaborative initiatives of the public good sector, 1 collaboration expert, 1 experienced cross-organisational social worker and 1 government representative of Cape Town. These interviews were captured into over 35 hours of sound recordings. About 30 individual activists participated in an unconference participatory action research event and 3 CSO workers took part in the PD workshop. I also received and studied over 200 pages of additional internal documents from several of the interviewees - strategies of organisations, transcripts of collaborative meetings, email discussion threads of collaborative activities as well as plans for ongoing and future collaborative activities and systems. 32 benchmarks presented earlier in this study have been most influential to this work.

The research process was documented in the research blog (Nasibova, 2013b) with, overall, 30 posts at the time of writing of which 15 reflect upon the interviews, 3 upon the workshops, and the rest on the process of the study.

4.5 Data of the Research

This table demonstrates that the most fruitful and effective collaboration happens between organisations with following criteria: (1) CoP of organisations providing different services to the same people in same location and (2) CoP of organisations providing similar services but to different people in different locations. The joint criteria for both of the groups – CoP – forms the fundament to the concept of the system designed in this study.

<table>
<thead>
<tr>
<th>In CoPs</th>
<th>Outside of CoPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different People, Different Services</td>
<td>The chance of CSOs of this category meeting each other is very low but possible e.g., if the local government is gathering all CSOs of the area for an event. Collaboration has been observed at the level of:</td>
</tr>
</tbody>
</table>
| (none identified in this study)                                         | - mutually beneficial participation  
                        and, when coordinated by a 3rd party (e.g. government).  
                        - alignment and development of joint strategies |
| Collaboration does not occur in these circumstances as there is no shared interest for CoP to form around. |                                                                                  |

Table 7: Classification of Identified Existing Collaborative Practices Between CSOs (part 2/2)
5 Design Concept and Scenarios

The chapter presents a description of the designed concept: The PlanetHero system for collaboration in public good.

The design concept is based on the research findings of the whole research period, particularly Phase 2 and 3 (Chapter 4, Sections 4.2 and 4.4) as well as the ideas from the storyboards (Appendix 2) and the lightweight prototype used in the participatory design workshop of Phase 3. The majority of the fundamental ideas of the concept, however, were developed during Phase 4.

This section opens by presenting a summary of the design concept, consisting of a brief description followed by CoP and CSCW characterization, along with an outline of the main system affordances that directly answer the Phase 4 insights. Next, six concept scenarios (Carroll, 2000) are presented through textual description and middleway prototype wireframes.

As mentioned earlier, chapter 4 presents answers to the first part of the main research question of this thesis (“What are the design challenges and opportunities for collaboration in the public good sector in Cape Town, SA…”) while answers to the second part of the question and its sub-questions, “...how could this collaboration (the public good sector in Cape Town, SA) be supported through an ICT system?” are discussed in the current, 5th chapter. Sub-questions:

- What other stakeholders are involved with the system?
  - discussed in section 5.1.2 within the CoP characterisation of the designed system
5.1 Description of the Designed System Concept

The proposed design concept is called PlanetHero – a collaborative system for individuals and CSOs working towards social and economical transformation for public good. This system will empower functional and social collaborative interactions, dialogue with government, strategic planning and numerous other operations in the public good sector. In a nutshell, PlanetHero is a large CoP and CSCW system for those whose practices and interests relate to public good.

At the beginning of its development, PlanetHero will first and foremost support groups whose collaborative practices have been identified as the most fruitful at the end of section 4.4, chapter 4: (1) CoP of organisations providing different services to the same people in the same location and (2) CoP of organisations providing similar services but to different people in different locations. In answer to the second part of the main research question of this thesis (“...how could this collaboration (the public good sector in Cape Town, SA) be supported through an ICT system?” (Chapter 1, Section 1.1), findings from this research have confirmed that the PlanetHero system could indeed only support collaboration of existing CoPs with physical connection but not serve as a base of collaboration. With a complex organic structure, PlanetHero helps respond to the wickedness (Rittel and Webber, 1973) of the problems that public sector deals with.

This section presents five key elements and seven key affordances of the system, describes the system through CoP and CSCW characteristics and closes by briefly discussing the choice of the “PlanetHero” theme.

5.1.1 Key Elements

The system is based on nodes of three main levels of granularity: (a) individuals, (b) projects and (c) organisations. The nodes can be connected (for example, (a) individual John working in the (b) project LightDrop for (c) CSO NewLife) or not connected: (a) individual John can be registered in the system without affiliation to any organisation but would in that case have a correspondingly limited access to information and functionality. Across these three levels are (d) groups of individuals, projects or organisations that can be created with a separate identity and activities. For example, a collaborative forum of Youth Development CSOs in Cape Town can create a closed group for the member organisations to be able to discuss in privacy. The idea of membership in a group is similar to Google’s concept of “Circles” (Google, 2013) – every node of the system can be present in several groups of different topics and levels
simultaneously. The last dimension to the system is **affordance bricks (tools)** that allow for flexibly-adaptive design (Barab et al., 2004). Some affordance bricks are present by default in every node profile while others can be selected by users from the big pool of existing bricks. As mentioned earlier, the code of the system is open to the public so that everyone can create their own new system affordance bricks. Figure 18 illustrates the correlation of the key elements of the designed concept system.

5.1.2 CoP Characterization

Defined according to CoP criteria, PlanetHero can be characterised as:

**a. Domain:** social and economical transformation for public good in the whole spectrum of orientations: charitable orientation, service orientation, participatory orientation, empowering orientation (Frandsen and Lawry, 2009).

**b. Community:** (1) public good initiatives at different scales: individual activist initiatives, community-based organisations, citywide CSOs, national CSOs, international CSOs; (2) general public; (3) authoritative voices (e.g. community leaders) and government officials; (4) donors.

**c. Practice:** functional collaborative practices: awareness; tacit knowledge sharing; sharing of physical resources; sharing information about opportunities; discussions; legislative formulation, lobbying; alignment; joint case management; mutually beneficial participation; being an expert on the topic for the public (discussed in chapter 4 section 4.4.); social practices; internal management and operations, progress tracking; joint strategies building; dialogue between the ground workers and policy makers; support and encouragement; need and opportunity mapping.

With the given complexity of the system it is rather critical to consider the development curve of PlanetHero’s audience and practices. Who would be the first to use the
system? How would they be motivated to use it considering the initial lack of content? And finally, how would their usage attract more audience to PlanetHero?

This study indicates that the audience who needs the system and who could benefit from it the most at its initial development stage is existing cross-organisational collaborative CoPs in same or similar physical location (discussed at the end of the section 4.4 in chapter 4). PlanetHero would become the pivotal point for their interactions and identity while providing them with tools to manage those practices that already exist between them more effectively. Their knowledge and experiences would form the fundamentals of content in the system, which in turn would attract a further audience.

5.1.3 Affordances

The practices of the CoP mentioned above form the main affordance principles of the system:

- support of functional collaborative interactions for CSOs and individual activists
- support of social interactions and social bonds
- tracking of progress and the overall strategic picture
- adjustability to personal preferences and needs (affordance bricks); time-efficiency, smartness and intuitiveness; support of collaborations at different levels
- availability on different platforms; simple, minimalistic design
- enabling dialogue with government
- support of cultural bridging

Table 8 describes the affordance principles and the insights they are based on. It also includes examples of concrete functions of the PlanetHero system that could provide such affordances.

5.1.4 CSCW Characterisation

PlanetHero can also be characterised as a CSCW system that caters mostly for “asynchronous same place” and “asynchronous different place” modes of interaction – which implies the use of the digital system at the time of convenience in the same or in a different locality. In the future the system might also support synchronous operations such as live chat functionality or collaborative simultaneous work on google documents. The system also supports information sharing, communication and articulation. Appropriation processes can only happen once the system is in use.

The characterisation of the system in table 9 contrasts with table 4 or 6 by illustrating how wide the range of PlanetHero’s affordances is in comparison to any of the tools of the public good sector identified in this study.
<table>
<thead>
<tr>
<th>System Affordances for practices and Insights they are based on</th>
<th>Description of the affordance and concrete interface function, tool and tenet examples</th>
</tr>
</thead>
</table>
| **System Affordance:** support of functional collaborative interactions for CSOs and individual activists | The system should first and foremost support the collaborative interactions of CSOs and individual activists that have been identified in this study. Currently these interactions are performed through different channels and PlanetHero system would benefit the users by centralising them and maintaining their history. (These interactions were discussed in detail in chapter 4 section 4.4.b.2)  
- awareness about each-other - through [profile pages of organisations, projects and individuals as well as system recommendations](#)  
- tacit knowledge sharing - through [discussion forums and private messaging, through timeline feature of projects](#)  
- sharing of digital documents and tools - through [profile page tools Section or message attachment](#)  
- sharing of physical resources - through [agreements in private or public discussions](#)  
- sharing information on opportunities, discussions - through [private messages and discussion forums](#)  
- sharing documentation of meetings - through [a dedicated meeting documentation thread in the profile of the group](#)  
- legislative formulation, lobbying - through a [discussion forum](#)  
- alignment on strategies, practices and opportunities- through discussion, messaging and special real-time resource opportunity/need tool (described later)  
- joint case management - through an [integrated Delstat joint-case management tool](#)  
- join in projects mutually beneficial participation - through [discussion forums and automatic system recommendations](#)  
- expertise on the topic for the public - through [profiles of organisations, projects, individuals; through open discussions](#)  

The system will also help organisation [scheduling](#) through integrated [smart calendar](#) (described below) and [integrated doodle service](#). Through this tools the system will also encourage, support and connect individual citizen activists; bring them into groups locally, share experience and inspire. |

Table 8: Designed Concept PlanetHero System Affordances (part 1/4)
### Table 8: Designed Concept PlanetHero System Affordances (part 2/4)

<table>
<thead>
<tr>
<th>System Affordances for practices and Insights they are based on</th>
<th>Description of the affordance and concrete interface function, tool and tenet examples</th>
</tr>
</thead>
</table>
| **System Affordance:** support of social interactions and social bounds | Although this affordance is part of the list of existing collaborative interactions of CSOs discussed right above, with its level of significance it deserves to be in a separate position. Importance of loose social interactions for increase of productivity has been discussed by many, including (Root, 1988) in CSCW. And since in the context of CSO in South Africa the role of social interactions is crucial, the system should have mechanisms for supporting that:  
  - **private messaging**  
  - **public messaging**  
  - **discussions**  
  - fun interactions for showing support or gratitude: *giving each other signs* (**badges**) of appreciation and nominations, *thumbing up posts* and other gamified elements  
  - **human-language copy that will make it more welcoming**  
Also the system should support feeling of **safety in trust zones** - therefore clearly distinguishing e.g. “private” discussions from public. |
| **System Affordance:** tracking of progress and overall strategic picture | **Mapping** tools of the system will support building overview and bigger picture together, **structured discussions** and voting polls will help building common sets of goals and objectives together.  
Various **visualization tools** will allow tracking own progress as well as contribution on a bigger scale. (e.g. a graph: together we shelter 3000 women this month) Timeline feature of projects, maps and visualizations will allow tracking personal and overall progress.  
**Mapping resource opportunity and needs** tool will allow to see people’s **needs** in overlay with **service provision distribution**, as well as help funders to make strategic decisions. |
| **System Affordance:** adjustability to personal preferences and needs (affordance bricks); time-efficiency, smartness and intuitiveness; support of collaborations at different levels | The system should be intuitive in use, learn from the behaviour of its user, adjust and recommend accordingly. As one of the participants of the workshop said it should be “Resource and tool repository of factual information… and cut away clutter”.  
The system should be **adjustable** - this feature can be explained through a metaphor of Lego bricks – if every functional affordance of the system is a brick, then every user of the system can start from default lego composition, take away unnecessary and add what’s needed to... |
<table>
<thead>
<tr>
<th>System Affordances for practices and Insights they are based on</th>
<th>Description of the affordance and concrete interface function, tool and tenet examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on insights: burdensome amount of digital profiles; organic development; diverse goals, scales and structures of CSOs; collaboration at different levels with different stakeholders</td>
<td>make it truly useful to her. If people’s work practices don’t intersect with the information spaces, they may remain outside of those spaces and distanced from the information technology. The affordance bricks would allow each of the users to create space for meaningful practices. Similar idea is present in smartphones - where devices come with several default applications to which a user can add. The code of the system would be open to public – so anybody could create their own brick that could be added to the system. This corresponds to ideas of “flexibly adaptive design” (Barab et al., 2004) according to which instead of creating a perfect design for a particular community the aim is a flexible design with affordance for local adaptations. Another feature related to adjustability is support of open and closed, <strong>public and private</strong> – it is important to support collaboration of users at different levels and to allow choice for e.g. private discussions along with public profiles (Stoll et al., 2012). Organisations and individuals are interested to tell about what great things they do on a global level, and also learn from the doings of others. However, they have to be very selective with sensitivity of data and what has to be kept private. The system should also automatically - <strong>bring relevant info/discussion closer</strong> and push irrelevant away. The tools available on the system should be smarter than already existing - they should built upon all the used digital media and capitalize on personalization. E.g. one of the tools that participants of the participatory workshop came up with is a <strong>smart calendar</strong>. The calendar would have a long-term view (e.g. monthly tasks) and short-term view. It would also notify a user about e.g. 1st days of funding application and then one month before deadline, with all the essential information: where the grant is a form, what kind of documents are need. Another smart solutions would include: <strong>A digital media profiles deck</strong> page - where all the different digital profiles of the organisation would be collected and easy to update Or a similar hybrid of <strong>project space</strong> that would connect all the digital data of the project stored online e.g: dropbox folder, facebook group, google hangout links. The system would also maintain a snapshot history of the project development. The system should also support individuals and organisations at different levels of development - for example, support official registration processes - providing clear...</td>
</tr>
<tr>
<td>System Affordances for practices and Insights they are based on</td>
<td>Description of the affordance and concrete interface function, tool and tenet examples</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>System Affordance:</strong> availability on different systems; simple, minimalistic design</td>
<td>instructions for registering as an NGO and space to saving documents in a &quot;NGO registration like 1-2-3&quot; tool. Another smart tool discussed by participants of the workshop is support for constructive discussions. In words of participants, to “help avoid endless talk and meaningless spin-offs”. The tool could direct discussants to consider positive and negative sides of suggested ideas, and develop action steps. Building on what organisations are doing already - sending daily/weekly emails with available opportunities, a real-time resource opportunity and needs tool would make it more dynamic. For example, a shelter 1 has N amount of available beds for the next 3 days while shelter 2 is overfilled. With the use of the system, shelter 2 will be able to track number of available spaces in real time and to redirect people accordingly.</td>
</tr>
<tr>
<td><strong>System Affordance:</strong> enabling dialogue with government</td>
<td>To allow broader access the system should be accessible on various devices and channels- from SMS “need” submission to majority of functionality on basic feature phones, to laptop browser windows and life events. The interaction with the system should remind of interaction with wall clocks – with a complex mechanism inside the interface is so fast and easy to read.</td>
</tr>
<tr>
<td><strong>System Affordance:</strong> support of cultural bridging</td>
<td>The system should provide a place for dialogue of people, activists, CSOs and government; to create two-way exposure – of the latest governmental policies and plans from one side, people’s needs from another and CSOs and activists work from third. Mapped needs and projects would allow government to see CSOs work and utilize that information.</td>
</tr>
<tr>
<td><strong>System Affordance:</strong></td>
<td>Availability of the system on different systems would ensure access for broader audience. The Lego-brick adjustability will support personalization towards particular pastes and ways of working. Suggesting mechanisms will support cross-cultural collaboration and inspire to move from passive to active role. Community leaders will get physical letter invitations to be encouraged to get involved in discussions.</td>
</tr>
</tbody>
</table>

Table 8: Designed Concept PlanetHero System Affordances (part 4/4)
### 5.1.5 PlanetHero Theme

The proposed PlanetHero theme is foremost inspired by the interviews with CSO workers – people who are brave enough to fight in the endless war of the public good sector. The commitment these people show towards their work, regardless of everyday hardships, is inspiring. One of the biggest challenges they mentioned in the interviews is the professional burnout that happens from losing hope in what one does. Not everything works out – some infants saved in birth die from poverty, found and raised children return to streets, drug rehabs turn back to drugs or crime. PlanetHero would be there to celebrate the workers and remind them of all the great things and little wins they achieve every day – of the surviving infants, of children and drug youth succeeding in becoming happy and free adults.

Other benefits of the theme:

- It allows moving away from the frame of organisational definitions and terms. An initiative does not need to be a registered as an NGO or a movement to be great. Every tiny project towards good matters.

- The system is designed to be used internationally, so it is important to build on a metaphor that is widely familiar. Every place on Earth has its own heroes – mythical, fictional or historical. PlanetHero will gather them all in one place.

- PlanetHero is an extremely suitable theme for gamification. Heroes can gradually gain new powers and superpowers, share energy shields with each other, etc.

- Finally, a playful and celebratory theme makes it possible to place the system outside of the regular digital system category, thus turning it into something much more: it’s a system not only for providing effectiveness and efficiency but also for providing inspiration and positive emotions. The preliminary graphics idea of the theme is presented in the figure 19.

![Figure 19: PlanetHero Preliminary Graphics Idea](image)
5.2 Concept Scenarios

This section presents six concept scenarios through text and middleway prototype wireframes. The prototype is at an early stage and does not yet consider usability issues but already illustrates user-level view, affordances and functionalities discussed in concept scenarios. The six scenarios are based on the synthesis of observations and learnings of current research, most of the characters and situations are inspired by real people and stories. All the photographs used in the scenarios were taken during this research. The scenarios contain only some of the affordances of the designed concept – the full list is discussed in the section 5.1.3 of this chapter.

5.2.1 Scenario 1: Empowerment of a Collaborative CSOs Forum

Christine is a 43-year-old worker of a male youth drug rehabilitation CSO NewLight (Figure 20). She operates mostly as a social councillor and teaches life-skills class trice a week. She has got a brief education in psychology and 17 years of hands-on experience. The NewLight organisation hosts 20-22 young men at a time. Some young people leave in less than a month and some stay for up to three years, some recover fast, some leave and return over and over and some never recover.

NewLight is part of the collaborative forum of 32 CSOs dealing with different problems of youth in that area. Christine is a vivid member of the forum – attending every monthly meeting and actively participating in discussions. She enjoys being part of the forum because of the established culture of sharing and support between people doing a similar hard job as her. Christine likes being able to get advice in times when she doesn’t know how to act and also to share her experience and give advice to others.

Christine is happy that the forum is also active in-between the monthly meetings in the PlanetHero system (Figure 21). This allows collectively reacting on the immediate needs of the communities involved. Last month, for example, another rehabilitation organisation from the collaborative forum needed a lot of support, as one of the patients, a young man of 19, was brutally murdered right in front of the centre with several of his friends witnessing it. The social councillor of the organisation, Louise, needed a lot of advice and support to steer the mood of the centre back to a stable condition. As the story of the murder spread across youth homes, sports clubs and other youth CSOs of the area, all organisations had to organize educational discussions with their respective youth communities. During this trying period, the CSOs’ workers intensively used the private discussion board (Figure 22) of the collaborative forum on the PlanetHero system. Here they shared how their discussion sessions went and read about how the discussions worked out for others. Often they directed questions to each other and to Christine specifically as she proudly owns the “wise superhero of the year” badge. Christine in reply gave advice and “support” badges to others. To support Louise, who endured the most stress, Christine wrote her a warm message filled with “support”, “well done” and “hug” badges.

Today Christine is starting to build the annual report of the NewLight. She comes to PlanetHero to use the online annual report form as well as to check the statistics of
NewLight versus the overall statistics of the area (Figure 23). It seems that NewLight is doing a bit better than usual with 70 percent of the patients recovering according to the plan, 21 percent leaving and returning and 9 percent leaving for good. However, the number of drug addicted youth in the area has gone up 17 percent this year and there is not enough space in the CSOs to accommodate all the forthcoming recovery. She highlights the need in the annual report form in order to raise the chances of the government acting upon it. After working on the report for three hours she forwards the link to the director of NewLight, Michael, so that he can start working on his part of the report.

Writing a side note to Michael, Christine remembers that he has asked her to inform the forum about the computer class that the NewLight is going to offer next month. They have 30 computers and only 21 young men at the moment and therefore they could admit 9 more people to the course. Christine writes a notice on the forum’s PlanetHero group page and also places it on the open map of study opportunities for the public. In this way anyone from the public fitting the age and gender criteria could apply to join the course.

Figure 20 (right): Christine, Social Worker
Figure 21: Prototype Wireframe 1: Homescreen, Global View
Figure 22: Prototype Wireframe 2: Collaborative Forums’ Discussion Board
Figure 23: Prototype Wireframe 3: Annual CSO Report Form
5.2.2 Scenario 2: Discovery of Relevant Projects in Geographical Proximity

Mike is an art student of 21 who spends his weekends volunteering at a children’s centre in the Khayelitsha township, teaching drawing and craft classes for 15 children aged five to nine (Figure 24). The children centre is always short of resources and therefore Mike needs to be creative with the materials that the children get to use in their practice. Paper excess from the university printer that’s printed only on one side is good for drawing, old pens are great for making soap bubbles. Every once in a while Mike gets grant funding for which he usually purchases huge packs of crayons, clay and colour paper for the class.

Yesterday Mike heard about the PlanetHero first time from the director of the children’s centre and now at home by his laptop, he is excited to check it out.

He lands on the homepage that presents him with the map of Cape Town. First of all, he zooms into Khayelitsha and searches for projects related to art. Mike finds five different projects – a theatre, a wood workshop, a choir, a dance school and surprisingly, another drawing centre for children (Figure 25). He clicks on the project to read more about it and gets mesmerised by the project’s pictures (Figure 26). All those crafts they do – toys from old blankets, beautiful jewellery from sea shells. He is excited to contact the person who teaches at this centre. Her name is Nicole and it’s possible to send her a private message on the system once registered. Mike registers with affiliation to the children’s centre where he is volunteering and sends a private message to Nicole asking about the time of the classes and if he could come over to see what they do.

After the message is sent Mike looks into his “Personal Dashboard” (Figure 27) with more attention. There are snippets of a few pages and tools – the page of the children’s centre where he is volunteering and two projects of the centre: book reading sessions and math tutoring. There are several other projects going on at the children’s centre but they have probably not yet been added. Mike creates a project called “Art class” and writes a brief description of the class’ activities. He also uploads a couple of pictures of his student’s artwork. At this point the system asks if Mike would like to browse through the available tools and add the ones that could be useful for him. Mike agrees to do so. He discovers a lot of useful things – a planning tool that can help him to plan the curriculum for the art class for the whole next year, a grant application suggester, a smart calendar that can track the different grant application deadlines and a “Daily tips for teachers” tool (Figure 28).

Mike is very happy about the discovery of the system, excited about the possibilities of its use and can’t wait to hear back from Nicole.
Figure 24 (left): Mike, Volunteer; Figure 25 (top): Prototype Wireframe 4: Search for Art-related Initiatives in Khayelitsha
Creative Centre for Children in Khayelitsha

Contact:
Nicole Milner

Figure 26: Prototype Wireframe 5: Art Project Description
Figure 27: Prototype Wireframe 6: Personal Dashboard
Figure 28: Prototype Wireframe 7: Tools
5.3.3 Scenario 3: Mapping of Public Good Efforts and Needs

The social development governmental unit has used the information registration forms and the latest yearly reports of all the CSOs in the Philippi township to map the locations of the organisations in the PlanetHero system. Governmental workers were then sent to check and correct any errors in these locations. At the same time the officials distributed leaflets and stickers (Figure 29) stating that it is now possible for CSOs to create yearly reports using the PlanetHero system and it’s also possible to ask the government officials direct questions through the same channel.

The mapping revealed the interesting fact that most of the CSOs were gathered in one particular area while the rest of the township had no organisations at all (Figure 30). The government officials flagged that need on the system. Subsidies were promised to any initiative in the “empty” area.

Several days later, Nadine (Figure 31), a woman of 52 living in Philippi replies to the request. Nadine’s niece brought home one of the flashy stickers government officials left at the kindergarten where she teaches. Nadine checked out the url from the sticker through her feature phone and immediately saw the latest information related to Philippi due to the location-targeting feature of the system (Figure 32). Nadine was very excited about the opportunity of getting support for her initiative: already for 3 years Nadine had been cooking a soup for several families living on her street. These families, as most families in Philippi, are poor and alcoholic. It was hurting Nadine to see how rarely children in these families get to eat and she decided to make a deal with them. For a minimal monthly sum of money collected at the days of social support pay she would provide soup for the families for the rest of the month. As she was cooking for several families at once, she was able to buy crops and vegetables at a bulk price. As time passed some of the alcoholic mothers joined her in the cooking process. Nadine felt strongly that this model could be expanded and more families could be fed, but she didn’t quite know how she could proceed with cooking in her own tiny kitchen. So the announcement about Philippi social initiative support came very handy. The subsidy promised by government could be enough to set up several stoves in the backyard and cover them with a shed.

The next day Nadine hears that some government officials are back in the township. They are putting new stickers up with a free SMS number to which everyone is asked to send their “greatest need” in one or two words (Figure 33). On the same day the community leader calls to gather people. Together they create a list of things answering the same question: “What does our community needs most?” These needs get reflected in location-based word-clouds on the PlanetHero platform (Figure 34).

A few weeks later, Nadine gets a visit from a government official. He informs her that her project has been selected as the most relevant and that the government will register her work as a CSO and subsidize the building of the backyard kitchen. It turns out that the greatest need that the people of Philippi expressed through SMS and the community event was “food”.
Figure 30 (top): Prototype Wireframe 8: Uneven Distribution of Public Good Initiatives in Philippi; Figure 31 (right): Nadine, activist feeding her community
Figure 29: PlanetHero Promotional Stickers and Leaflet

Figure 33: PlanetHero Need Gathering Promotional Sticker

Figure 32 (left): Prototype Wireframe 9: Optimised Data on Nadine’s Feature Phone
Figure 34: Prototype Wireframe 10: Crowdsourced Location-based Map of Needs in Philippi
5.2.4 Scenario 4: Accumulation of Public Good Projects in Time

Irene is a 28-year-old worker of a Finnish CSO called VettäKaikille which aims to bring access to drinking water to the poorest population of Africa (Figure 35). Irene has just been appointed to a new project; building 20 water pumps in the Khayelitsha township in Cape Town.

She is very excited about the challenge. Irene opens the PlanetHero system that she uses regularly to get inspired by other public good projects and to share information about her own work. She has been to several African countries before, but never to South Africa – thus she knows very little about Khayelitsha. Irene uses the map to familiarize herself with initiatives in the area. Among many different projects, she notices a collaborative hub of CSOs located at the centre of the township (Figure 36). She notes that they could give practical advice about settling in and building connection with the community.

Curious about projects similar to hers, she types “water” in the search box. What appears on the map surprises her. Many water pump stations appear around the township, a lot of them exactly at places assigned in her project. She turns on the water need overlay to find out that the heat map is hottest around those pump stations (Figure 37). This does not make sense at all. She clicks on one of the pumps to read more information about the project (Figure 38). It then all becomes clear; the project was carried out three years ago by a British CSO. The pumps they put in place were great, except that they used unique technology and left no spare parts or expertise for the locals to maintain them. So once a pump broke down there was no one to fix it and the nearest pump then got twice as many people using it and soon broke down too.

Irene is relieved. Her organisation has learnt this lesson and never starts building before figuring out how to ensure functionality of instalments for at least the next twenty years.

She clicks on the contact details of the old pump project executors to write them an email, asking if they would be interested in meeting up and maybe even collaborating on the new project.*

(*This scenario is inspired by the TED Talk “What happens when NGO admits failure” by David Damberger (2011))

Figure 35 (right): Irene, Finnish CSO worker
Figure 36: Prototype Wireframe 11: Search for All the Public Good Initiatives in Khayelitsha
Figure 37: Prototype Wireframe 12: Map Overlay of Water-related Projects and Heatmap of Water Need
Figure 38: Prototype Wireframe 13: Extinct Water Pump Project Description
5.2.5 Scenario 5: Empowerment of Individual Activists Through Shared Knowledge and Resources

Augustine, 17, is a regular visitor of the internet cafe on the main street of home, the Langa township (Figure 39). He has learnt to use the computer and type when the cafe opened three years ago. Today he notices a new PlanetHero sticker on the wall. He asks the internet cafe owner about it and gets curious about checking the system out online. The first thing he stumbles upon is a familiar arts centre by the name “Sun” that his cousin attends in the neighbouring township (Figure 40). Browsing the history timeline of the centre, Augustine is surprised to find out that the art centre started as a small choir group only five years ago and since then grew into a whole centre with different activities (Figure 41). With his strong voice, Augustine has always dreamed about singing in a choir, but there was never an opportunity to do so. Years ago a guy on his street had a guitar and Augustine learnt to play a bit, but it’s been a long time since both the guy and the guitar suddenly disappeared from the street.

“So what projects are happening here in Langa?” He zooms into his own township and discovers several interesting projects he has never heard about before: a new library on the other side of the township, a centre with free clothes, a welding workshop. None of the projects, however, are related to music or singing. A daring idea gets born in Augustin’s head while he stares at the “Hey Hero, your power is greater than you can imagine!” headline at the top of the PlanetHero page. He clicks in the search box and types “choir”, 27 different projects get listed instantly (Figure 42). He clicks through a few of them to discover a full list of songs and exercises with video explanations. With a broad smile he clicks on the “register a new project” button.
Figure 39 (left): Augustine, Resident of Langa; Figure 40 (top): Prototype Wireframe 14: “Sun” Project Featured on the Front Page
Figure 41: Prototype Wireframe 15: Timeline of the “Sun” arts centre
Figure 42: Prototype Wireframe 16: Search for Choir-related Initiatives
5.2.6 Scenario 6: Crowdsourced Ideas for Greater Public Good

C-labs is a Manenberg-based CSO with the main goal of giving the surrounding community an opportunity in life through life skills training and computer literacy. C-labs has 21 workers that annually educate around two thousand people. A design jam hackathon is held today in the CSO premises (Figure 43). C-labs hopes that through this jam people will not only meet each other and generate public good concepts, but realize how capable they are of doing great things together. Open for everyone, the jam was promoted through social media channels and posters put up in the area. The event gathers 36 people from Manenberg and 19 from other areas. Teams are made up of people with different backgrounds, skills and ideas, most of whom have never met each other before. At the beginning of the hackathon the participants are reminded that all the concepts produced in the jam will be published at the PlanetHero system. The spirit of the jam is open and none of the participants object to this. On the contrary, they are excited to be able to share their ideas. The workers of C-labs have used several jam schedules and handout materials downloaded from the PlanetHero system (Figure 44) to produce their own guidelines that fits this particular situation well: a timeline of the team work and a handout with tips for ideation, prototyping and presentation. These guidelines will later be uploaded to the PlanetHero system with attribution of the sources that C-labs used as a foundation for their production. The guidelines are handed out to the teams who are free to follow them precisely, to adjust them or even to follow a completely different process structure if they prefer so.

After seven hours of hard work the jammers present five amazing concepts. One of them, created by an all-female team is called “I love moving”. The concept addresses the issues of high risk in public transportation for females in Cape Town, especially during dark hours, and suggests a range of solutions – from a social network where numbers of “unsafe” busses are collected to female-driver and female-only transportation. The members of the team agree to start a blog for highlighting and discussing the issue further. They continue working together, and a few days later the blog is up and running with several posts published. They also add a link to the blog on the original post about the hackathon on PlanetHero (Figure 45).

A month after the jam a government official browsing PlanetHero notices the concept along with the blog and forwards it to the ministry of transportation. Three years later, female-only minibuses start operating in Cape Town.

(* “I love moving” is a concept created in the real Open Design Hackathon Jam that was organised as part of this research. Details of the concept are available at the project blog (Nasibova, 2013c))

Figure 43 (right): C-Labs Design Hackathon
Design Jam Materials

Schedule and Planning

Handouts / Printing Materials

Figure 44: Prototype Wireframe 17: Open Repository of Design Jam Materials
C-Labs Design Jam Results

PRESENTATION SLIDES TEAM ONE:
I LOVE MOVING

Figure 45: Prototype Wireframe 18: Post About the Hackathon
6 Conclusions and Future Implications

This thesis investigated collaboration and partnership in the public good sector for individual activists and CSOs. It identified and classified existing practices, challenges and opportunities related to collaboration in the public good sector in Cape Town, SA and built a middleway prototype and six scenarios defining an ICT system that could support such collaboration. Although the prototype is at an early stage, it already illustrates user-level view as well as the affordances and functionalities discussed in the concept scenarios.

Methodologically, the thesis is grounded in the Research-Based Design methodological framework (Leinonen, 2010) consisting of the four stages: Contextual Inquiry, Participatory Design, Product Design and Prototype as a Hypothesis. The experience of the study suggests that the choice of methodology has been beneficial to the study. With any other more narrow approach of human-centred design the roles of the designer and the user are separate (Steen, 2011). I believe that such approach would have produced a concept rather shallow in terms of consideration of contexts and larger systems around the public good sector. On the other hand, if I had started the research directly through PD, I would have lacked the understanding of the research context. Thus, risking the involvement of the wrong stakeholders in the PD process, which could ultimately lead the sessions in wrong directions. For these reasons, I consider the complexity of the Research-Based Design approach vital to this study.

Conceptually this research was rooted in: CoPs (Lave and Wenger, 1991), Unconference Meetings (Egan Warren
Chapter 6: Conclusions and Future Implications


Additionally the thesis contributes to conceptual and methodological studies of CSCW and PD as it (a) lies in the less-explored inter-organizational domain of research (Stoll et al., 2010); (b) considers the ties of PD and free/ open source software as well as open access movements (DiSalvo et al., 2013).

The findings of the research are based on an extensive list of sources and inquiry practices: 15 different CSOs and collaborative initiatives of public good and over 35 hours of interview sound recordings; about 30 individual activists participating in an unconference participatory action research event and 3 CSO workers taking part in a PD workshop; 32 academic and non-academic benchmarks. The entire research process of the thesis is documented on the thesis blog (Nasibova, 2013b).

The main research question of this thesis was: What are the design challenges and opportunities for collaboration in the public good sector in Cape Town, South Africa and how could this collaboration be supported through an ICT system? The first part of the question is answered in section 4.4 chapter 4 and the second part is discussed in chapter 5. In summary, the topic addressed in this thesis is a wicked problem, which means that the challenges and opportunities related to collaboration in the public good sector are virtually innumerable. Examples of opportunities and challenges identified in current thesis include: cultural and societal divide, lack of dialogue between the public good sector and the government, lack of strategic planning, interest in the potential of collaborations but misinformation about what collaboration could actually mean. In a nutshell, the designed concept PlanetHero is a large CoP and CSCW system for those whose practice and interests relate to public good. The key functionalities of the system include empowerment of functional and social collaborative interactions, dialogue with the government and strategic planning in the public good sector.

The findings of this thesis might become valuable assets for researchers of the public good sector. The deliverables, six scenarios and the middleway prototype, form a solid ground for further exploration together with the users of the platform.

PlanetHero is currently being merged with the existing concept Aidbrella (2013), developed by Ilona Mooney-Makinen and Sebastian Piquema. At the time of writing, Aidbrella is in the alpha implementation state. As a team we intend to continue developing this concept through PD and to strive for resources for further implementation. At the moment, a series of joint participatory workshops with representatives of Finnish public good initiatives are planned to be undertaken in 2013-2014. The workshops will follow two tracks – short and long. In the short track, stand-alone PD sessions will be organized where every workshop will engage a new group of participants. This will allow reaching out to wide audiences for exploration, validation and for promoting the system. The long track, on contrary, will engage an invariable group of 5-6 participants throughout a series of monthly workshops. Here, the system will be developed in a continuum of participant exploration and feedback.
The research of this thesis was done mainly in Cape Town, SA and Aidbrella compliments this study with its research into the subject set in Madagascar, Nigeria, USA and Finland. Turning towards the future, it is important to continue the research in geographically, culturally and socio-economically differing areas: both those already reached by this study and those yet unexplored. The first steps in this direction include, among other applications, one to the WDC Cape Town official program which is undergoing a review at the time of writing.
Appendices

A.1 ODH handout
INTRODUCE YOURSELVES

• your name
• what do you do (in one sentence)
• why did you choose this particular problem
• a little-known fun fact about you
DEFINE YOUR CHALLENGE

What is the problem you are going to address today as a team?
Example: high drop-out level in high-schools

Choose a specific user group influenced by this problem. Give as many details as possible.
Example: “Teenage girls in Langa” is better than “Young girls in South Africa”

Formulate the problem into a challenge that includes your user group.
Example: How might we help teenage girls in Langa complete their high-school education?
BRAINSTORM IDEAS

In next half an hour come up with at least 30 ideas that solve your challenge. Think RADICAL! Write every idea on an individual post-it & group similar ideas on the fly.

Consider the rules of brainstorming:

• Defer judgement
• Encourage wild ideas
• Build on the ideas of others
• Stay focused on a topic
• One conversation at a time
• Be visual
• Go for quantity
CHOOSE 3 MOST FAVORITE IDEAS

that you will present to your sister team. Use discussion & voting. **Voting:** Every team member can vote for 4 different ideas by putting a dot on the selected post-its. The post-it that gets most dots is the most favorite.

IDEA 1

IDEA 2

IDEA 3
GET & GIVE FEEDBACK

Now meet up with your sister team and present them your challenge & 3 favorite ideas. Use 5 minutes per idea. Capture their feedback on a separate sheet of paper that you can find on your table (that looks like this:)

```
+ -
?
!```

Switch, now the sister team will present its challenge and ideas.
LUNCH!

HAVE SOME FOOD FOR THOUGHT
DEVELOP YOUR BEST IDEA

1. Based on the feedback you got, **choose the best idea**
2. **Develop it:**
   - vision
   - impact
   - *who* could make it happen? (people, organizations)
   - how could it be economically sustainable?
BUILD YOUR PRESENTATION

Be creative! Use flip-chart paper, prototyping, roleplaying, storytelling. Make sure to cover:

Problem
☐ 1. Describe the challenge that you are addressing
☐ 2. Explain why it’s interesting and important to solve

Solution
☐ 3. Give it a name
☐ 4. Describe it in one sentence
   Example: “Uusi is a mobile service that helps poor people find jobs”
☐ 5. Describe how it works (you could use a scenario or a storyboard)
☐ 6. Explain the impact of your solution, benefits and value to the user
☐ 7. Explain how it could be implemented:
   • who could make it happen
   • how could it be economically sustainable
SHOWTIME!
SOURCES USED IN THIS HANDOUT:

d.school - An introduction to design thinking
http://dschool.stanford.edu/

OpenIdeo: Tips on Brainstorming
http://www.openideo.com/fieldnotes/openideo-team-notes/seven-tips-on-better-brainstorming
A.2 Storyboard scenarios from the PD workshop

1. **Drug Rehabilitation NGO**
   - Many of our patients go straight back to drugs after returning home.

2. **Let’s check out GoodTogether and see what opportunities are there for them!**

3. **Great! So many ways for them to get involved in our city! At the moment there is one NGO starting a cooking course, another giving a class on social media. Oh! And children’s hospital nearby is looking for helpers with cleaning.**

4. **I’m sure our patients will find something interesting for each of them! Feeling how the world needs them will make drugs less important.**
1. African Rainbow Kindergarten

We're running out of toys! Look, most of them are broken!

2.1 Have you checked if there are any donations available on "Good Together"?

2.2 No donations at the moment, but I've found something better.

3.

Yes! A tutorial from another kindergarten that shows how to build fun toys from soda and juice containers!

Better than donations, really?
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