# How ICT can be used to improve information supply to homeless people

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**Abstract**

In an increasingly digital world, municipalities are struggling with the problem of hard-to-reach population groups within the municipality. For the municipality of Amsterdam, the current state of this problem, the so-called digital gap, was examined. For one of these hard to reach groups, the group of poor and homeless, will be studied how information provision can be promoted. This is done by means of an action research within the ICT4D framework.

## Introduction

The world is digitising today and both municipalities and governments are digitising along with it. This brings with it many new functionalities, although there are also groups that lag behind technological and digital progress. Another consequence is a digital gap that can be seen as a growing problem (Rhoades, Wenzel, Rice, Winetrobe, & Henwood, 2017; Roberson & Nardi, 2010; Vrije Universiteit Amsterdam, 2017). Interviews with the municipality and the report of the Vrije Universiteit in cooperation with OostWest have shown that the municipality has difficulties reaching certain target groups. One of the target groups that is difficult for the municipality of Amsterdam to reach is the group of very poor and homeless people, according to interviews. This group also indicated in interviews that they had difficulty finding useful information on the internet. In particular, it concerns information about food supplies, important addresses and telephone numbers and information about assistance offered, for example on legal or municipal issues. This group does not always have the same skills as an average internet user (Carvajal, Moreno, Sánchez-Segura, & Seffah, 2013), which brings new challenges in providing information digitally in a sustainable way. Because of the growing gap, the municipality has taken action to do something about it. For example by organising an event (PACT Amsterdam) to exchange knowledge and bring different parties together to address the problem. There are several challenges to discover and solve, because who are the people who are affected by

this problem, and what do they actually want?

## State of the art

From the Vrije Universiteit in cooperation with OostWest a research has been done from which an advisory report has emerged (Vrije Universiteit Amsterdam, 2017). Among other things, it concludes that many minima are only digitally reasonable to a limited extent and cannot manage sufficiently in today's society. It also appears that a large group of digibetes are lagging behind the rest of the Netherlands, according to various reports. This is also described in the report "De sociale staat van Nederland 2017" of the SCP. The report focuses primarily on a group of Amsterdam children, adults and parents living in poverty, precisely because developments affect them in particular and their learning ability is limited. In recent decades, several researchers have investigated how mobile phones can improve the quality of life for people living in relative poverty or homelessness (Le Dantec et al., 2010; Sey, 2010). They have also found that technology plays a role in the way homeless people connect with their family and friends. According to other research, technology also plays a very important role in creating the social ties needed for cooperation in neighbourhoods and cities (Roberson & Nardi, 2010). As been said by Roberson and Nardi the needs of homeless for survival and involvement in social worlds beyond their immediate communities were a source of motivation in the use of digital technologies making technology a powerful but not obvious part of the culture of homelessness in our field sites. American research showed that almost every adult homeless person had access to a mobile phone (Rhoades et al., 2017). From this they conclude that mobile applications can be very promising to support target groups such as the homeless and the very poor in, for example, health care. Scottish research has shown that it is very well possible for homeless people to be digitally included, for example by using a mobile phone. This study indicates that this does not immediately mean that they are no longer socially excluded. The study has shown that access and use of ICT can lead to everyday practices and facilitate contact with homeless subcultures (Claire, 2006). However, it appears that access to ICT alone

is not always enough because the road to social and digital inclusion is a complex one. For example, certain skills will be needed and the will to learn them is necessary Clair stated. In its 2018 coalition report, the municipality of Amsterdam included a section on "Democratie en de Digitale Stad". This section states, among other things, that attention will continue to be paid to people who have difficulty with digitisation, in the form of digital services and participation. In addition, access to data is considered important, which means that all residents have access to important information. The manifesto "Tada, duidelijk over data" will also be implemented. Among other things, the manifesto forms a manual to deal with the possibilities of digital technologies and fair access to these technologies to reduce the existing knowledge gap. The existing, worldwide literature has shown, among other things, that there is still much to be gained in the digital field in supporting disadvantaged groups and homeless people in, among other things, information facilities (Claire, 2006; Roberson & Nardi, 2010; Vrije Universiteit Amsterdam, 2017). From volunteers of Saint Egidio, a foundation that is committed to a weekly food supply for the poorest of the poor, came the story that they were frequently asked the same type of practical questions by homeless and less fortunate people. Questions like where can I get a meal tomorrow, how often can I come here to eat, where can I get free coffee or gloves were the majority of the questions. Questions that often had an answer, information that is still often passed on from mouth to mouth. It is believed that this type of information could reach a much larger target group if it does not depend solely on foundations such as Saint Egidio to be distributed. Especially since it has been shown that access to the internet is often not the problem, it could be a useful solution to make this type of information available in a simple application that can be reached via the internet. After this field research, contact was made with the municipality of Amsterdam, where a conversation has now taken place with an employee of the department responsible for the digitisation of the municipality of Amsterdam. They currently have several projects underway as a result of research from the Vrije Universiteit (Vrije Universiteit Amsterdam, 2017). Examples of these projects are community centres with computers, computer lessons for adults at

primary schools and digital buddies for the elderly. It became clear that there are currently no projects that are aimed at providing information to the homeless and the less fortunate and that this problem could not currently be given the highest priority out of the municipality, partly due to a lack of personnel. Not much research has been done on specific usability methods aimed at interfaces for homeless and less fortunate people who have different digital skills than those that the average user-interface designer considers as basic skills. At the moment, this particular usability type is something that the research institute TNO is doing research into, a research that is trying to be included in this research.

## Problem statement

There has already been an exploratory field study with poor people at Saint Egidio which has shown that the target group has an explicit desire to make the digital information provision for their important needs easily accessible. This applies to information from both the municipalities and institutions within the municipality. The maze that the Internet and search engines can already be for the advanced user of the Internet was often too high a threshold for these people to pass. By talking to this target group it became clear that many people here often have questions that either remain unanswered, or are only answered when they are at a foundation or for example the army of salvation. They indicated more than once that they would only receive information that was very useful to them too late, and that this was seen as a loss. In the 2018 coalition agreement, the municipality of Amsterdam has indicated that the information facility for the population must be as easily accessible as possible. In a conversation they indicated that they were also absolutely open to listening to suggestions to increase this accessibility. The wishes of both the target group and the objectives in the field of information supplies of the municipality of Amsterdam will be tried to meet by means of the following research question: How can the poor and homeless be provided with information? This main question will be answered by the following supporting subquestions:

- Who are the information providers?
- Who are the information seekers?
- What information is requested?
- What is the best way to transmit this information?
- What barriers exist and what can be done about them?

## Methodology

The research question will be answered by doing an action research. Action research has been defined by Avison as an: "iterative approach, combining theory and practice (Avison et al., 1999; Baskerville  Wood-Harper, 1996). There are various formulations of action research, but at its simplest it consists of two steps: collaborative analysis by the participants, leading to the formulation of theory; followed by collaborative change with studying of results. Action research is strongly focused on action and change, operates over reasonably short time spans, and involves substantial collaboration and participation". To put the action research into a framework, the ICT4D framework developed within the VU University is used. The aim of this framework is to give less fortunate target groups the necessary tools via ICT to overcome the problems they encounter (Gyan, 2016). This framework consists of 5 different phases. How these phases will be expressed in this project will now be briefly described.

- **Context analysis** To get a feel for the problem itself, the size and the different parties that have something to do with it, it was decided to start this project with hearing different stories. In December 2018 the municipality of Amsterdam organized an event (PACT Amsterdam) for the second time on the theme of the digital divide within the municipality. After attending the event new insights were gained. Here was also made contact with a commercial company (Lost Lemon) that researches low literacy and improves the information provision by municipalities for the less fortunate. After having been with them twice, it is clear

that they would like to contribute and can, among other things, make their target groups available for the tests that this research will require. There has also been a field study at a foundation that organizes dinners for the poorest in Amsterdam, Saint Egidio. By helping here during the dinner a lot of useful information has emerged. This information came both from the volunteers and from the people who came to dine. There is also a contact person within the municipality of Amsterdam who has already been spoken to. Further semi-structured discussions will be planned with these parties during the course of the project.

- **Needs assesment** A frequently heard complaint from the target group was that they had the opportunity to access the internet, but had no idea where to start collecting reliable, valuable information. A conversation with an employee of the municipality of Amsterdam showed that the municipality would like to improve the information provided to the poor in the city, and is open to suggestions. Both groups and also Lost Lemon will be approached more often in the continuation of this research to better map the needs.

- **Requirements engineering** The requirements will be formulated at a later stage. At this moment it is not yet clear on which information will be focused first and in which form it can best be delivered. We need to look explicitly at usability methods in which theories about user-centered design (Millot, 2014) can be tested on the target group.

- **Engineering** Based on the requirements, a prototype or perhaps a product will be developed which can be tested with the target group. At this moment it is not yet clear in which form this will be developed, this will have to be clear from further research. Testing the prototype will yield new results with which the cycle can be followed again to iteratively improve the application.

- **Sustainability analysis** In order to leave a sustainable solution for both the target group and the municipality of Amsterdam, the first step is to listen carefully to the needs of different parties. These will be developed later in this

project and discussed in the context of sustainability.

## Project plan

Below is an initial time schedule for the course of this project. To do interviews and to test the prototype some cooperation of another party is needed. This creates a certain degree of dependency, which could lead to some changes in this planning during the course of the project. The research takes place within a larger research group within the domain of the digital divide in Amsterdam. There are similarities between the different research within this research group led by Anna Bon. The progress of this project, and other projects about the digital divide in Amsterdam can be followed via a website specially built for these projects, https://www.digitize.amsterdam/. All progress and usable content will be posted here.

| Tasks | jan. | feb. | mar. | apr. | may. | jun. |
|---|---|---|---|---|---|---|
| | | | | | | |
| Doing interviews with the targetgroup, institutions and companies | ■ | ■ | ■ | | | |
| Create needs assesment | ■ | ■ | ■ | ■ | | |
| Requirements engineering | | ■ | ■ | ■ | ■ | |
| Prototyping/ engineering | | ■ | ■ | ■ | ■ | ■ |
| Sustainability assesment | | | | ■ | ■ | ■ |
| Testing prototype | | | | ■ | ■ | ■ |
| Paper | | ■ | ■ | ■ | ■ | ■ |
| Thesis presentation | | | | | | ■ |

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