# Applying Human Centered Design in the development of digital tools for disaster response

The objective of the thesis is to analyze how Human-Centered Design (HCD) can be applied in the development of digital tools for humanitarian response. In order to achieve this, the reseach aims to (A) understand the factors that enable and hinder the implementation of HCD, to (B) translate these into required elements for HCD implementation, to (C) understand the needs for HCD in the development of response technology and to (D) make a proposal for the implementation of a human-centered product development process for 510.

The context of disaster response is incredibly complex due to its chaotic nature and the large number of variabilities per disaster. This complexity makes it difficult for developers of digital tools for disaster response to understand the context of the products they develop. However, a lack of understanding of the use context can result in the development of ill-suited products that do not fulfill the user needs.

HCD is a method to generate a better understanding of the user and the use context through the perspective of the user. It is an approach that is rooted in the belief that the people who face the problems are the starting point when developing a solution.

AN INITIATIVE OF THE NETHERLANDS RED CROSS

510 is a Netherlands Red Cross initiative that develops accessible digital tools for humanitarian response across the world. 510 aims to incorporate a HCD approach to their product development.

From the research,
three factors on the
implementation of HCD
are defined. The three lessons
are translated into three
elements of embedded
HCD

### Factor 1. HCD is already practiced in many ways

It is found that HCD is already practiced throughout the product development in many ways. A lot of information on the user, their tasks and their context is already available within the projects and stakeholders are involved throughout product development.

#### **Element 1. A clearly defined role for HCD within 510**

HCD is not starting from scratch but rather finding what is already done and what is still needed for the organization. This is why the first element of embedded HCD is defining a clear role for the HCD team.

Factor 2. HCD is interactive with the existing development HCD is applied in varying ways across projects. Whereas the HCD team has worked on developing methodologies, there was limited room for documentation. Because of this, it is unclear to 510 staff when the

methods should be applied and how they will bring value to the project.

#### Element 2. An embedded HCD workflow

In order to be structurally included in product development, HCD needs to provide overview for the rest of the 510 team. A workflow is proposed of HCD methodologies that is linked to the larger 510 development process.

### Factor 3. Everyone within 510 has a role in the implementation of HCD

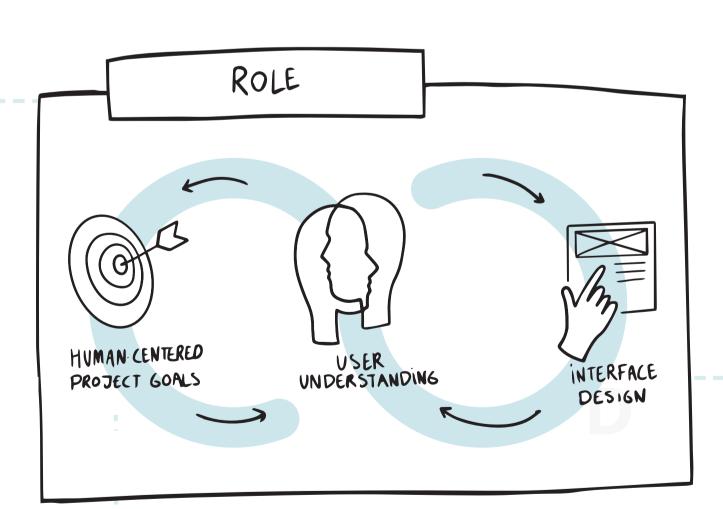
Whereas applying HCD methods is the responsibility of the HCD team, implementing an HCD approach requires a shift within the entire team.

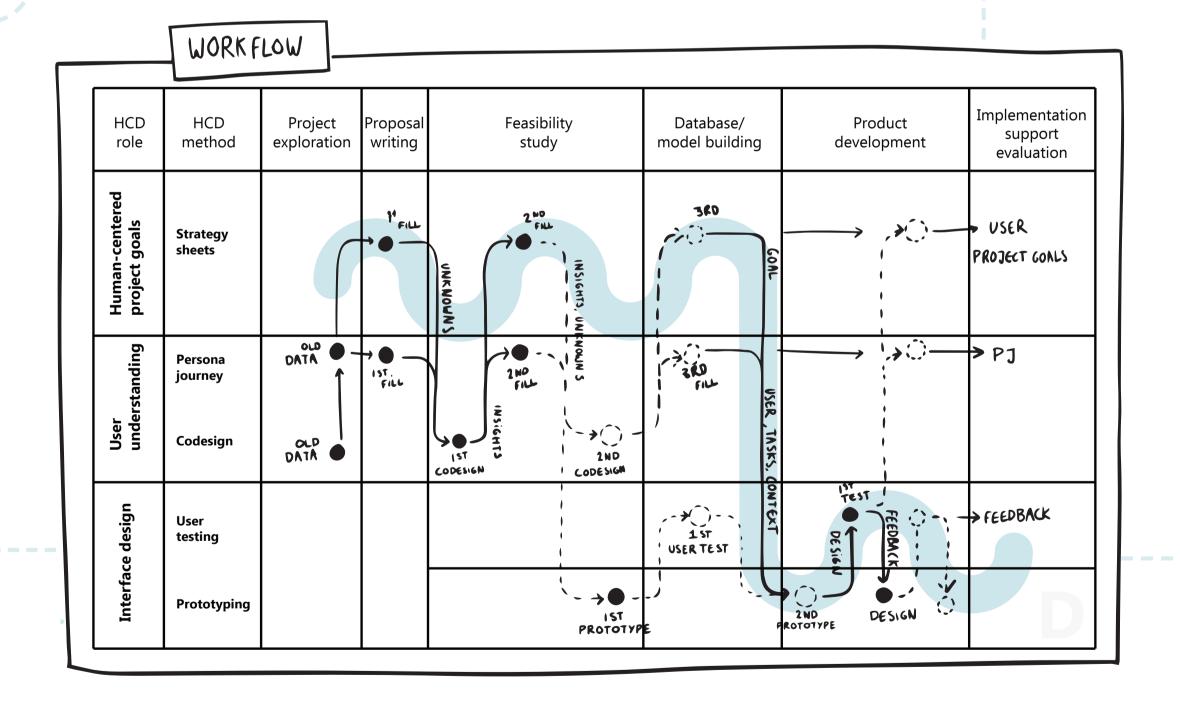
## Element 3. A communication plan that helps the HCD team guide 510 in implementing HCD

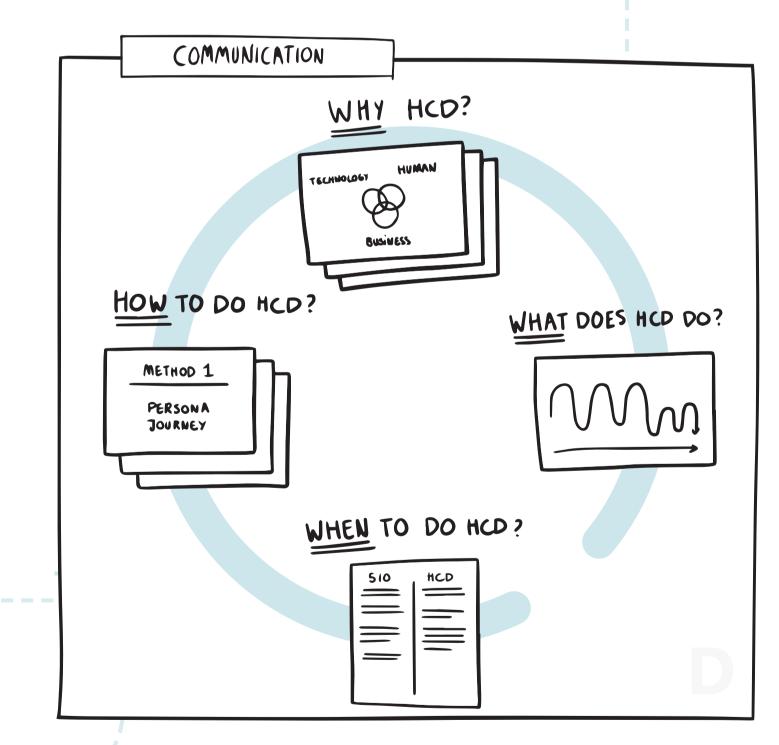
The HCD team is not only responsible for performing HCD activities but is also responsible for guiding the rest of 510 in the implementation of HCD. To support this, a communication plan for the HCD team is proposed.

The needs for HCD in 510 are found

Identified needs for HCD in the development of digital tools for humanitarian response are supporting the formulation of humancentered project goals, generating an understanding of the user and their direct context and the design of usable and suitable products.







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