Cookbook: ideation tools to create successful (smart city) ventures

Smart Lighting Challenge

Abstract

Citizen Engagement is a method of involving residents. One component is involving residents in the design process regarding the solution to their perceived problem. In the Smart Lighting Challenge this was done through Design Thinking. This technique aims to lead to solutions that solve the problem in a manner that complies with citizens' needs and desires. Design Thinking consists of two phases: discovering the problem and the creative process. In three sessions, various residents of the Kanaleneiland-Zuid neighborhood and experts participated, to co-create designs in which smart lampposts were used to create a safer neighborhood. The highest rated idea was submitted to the traffic specialists of the municipality of Utrecht, to further develop the solution into a detailed plan.

Dish: co-creation | 0.8 FTE 3M preparation + 2M execution €3.000

> Recipe for: 5 ideas

IRIS smart cities













The Ingredient List

• Budget

• €3.000 out-of-pocket costs

• Time

Preparation (12 weeks):

- Problem definition
- Understanding the neighbourhood
- Selecting and briefing of sessions' participants

Event (2 weeks):

• Three Design Thinking sessions: 1 evening per session

Resources

Types of organizations involved

- Organization by Municipality of Utrecht (4 x 0.2 FTE)
- Design Thinking process guidance by HKU

Types of roles involved

- Organizing team
- Design Thinking experts
- Neighbourhood residents
- Entrepreneurs in the neighbourhood

Location(s)

Location for Design Thinking sessions

The Preparation Method

• **Preparation** (= **Planning**)

In the Smart Lighting Challenge the technique Design Thinking was used by a team of trainees of the municipality of Utrecht to involve citizens in the design process of finding one or more solution(s) to perceived problems in their neighborhood. This technique is a six step process, divided into two phases, and aims to generate solutions that solve the perceived problem and comply with the neighborhood's needs and desires.





The first phase is all about finding the right problem that needs to be solved. During this phase, it is required to collect and analyze as much information as possible regarding the problem. This involved talking to experts and engaging with the problem holders. After all the information and observations are carefully analyzed, a design problem can be defined.

The design problem sets the stage for the second phase: finding the right solution. During this phase, participants ideate about possible ideas to solve the design problem. Next, a few ideas are chosen and turned into prototypes – inexpensive, minimalistic versions of a product or service which can be tested within the team, or with the problem holders. The last two steps are iterative: results of the testing phase can be use to improve the prototype, which can than again be tested. Alterations and refinements can be made until the final product or service is ready for deployment.



Although the Smart Lighting Challenge indeed performed the six steps of the Design Thinking process, in terms of sequence of steps, the execution was not aligned with the sequence that this method proposes. The main factor being that the design question (Define) was already formulated before having executed the Understand and Empathize-phases.

During the preparation of the Smart Lighting Challenge, before actually executing the six steps of Design Thinking, a design question was formulated by the owner of the problem, the municipality of Utrecht: 'How can we create smart lampposts that contribute to a better/healthier/safer/finer neighborhood for residents and entrepreneurs in Kanaleneiland-Zuid?'. As this design question already assumes a solution (smart lampposts), assumes that the municipality is the problem owner (and not the local residents), and leaves the problem undefined, potentially, a problematic foundation for the Design Thinking process was laid.



After determining the design question, the neighborhood was visited. The representatives of the municipality of Utrecht reached out to various central residents in the neighborhood, to invite them and their network to the Ideation-phase of the Smart Lighting Challenge. They carefully made a selection of people they wanted to approach, so the final group would be a representation of the neighborhood's residents. Unfortunately, it was particularly hard to involve the young and residents with a migration background.

Next, the organizing team decided to prepare and organize three three-hour sessions, which all focused on different parts of the Design Thinking process. For every session, a goal and desired output were determined. To allow the three sessions to go well, facilitating roles were divided among the organizing team. This was crucial for efficiently organizing a process with no clear output.

The desired output of the first session was to collect wishes, needs, and dreams of residents and entrepreneurs in the neighborhood. The goal of the second session was to have participants co-create new concepts that fit the needs of Kanaleneiland-Zuid's residents. In the third session, concepts of the second session and collected wishes and needs of the first session were matched.

• Serving instructions (= Event)

Realistically, the dish that was served during the Smart Lighting Challenge, consisted of steps Understand (first step), Empathize (second step), Ideate (fourth step), and in part Test (sixth step). During the Smart Lighting Challenge, the design question (third step) was already formulated during the Understanding-phase. As the local residents were listened to after the design question was defined, this poses the risk of local residents feeling unheard of. Also, prototyping and testing (fifth and sixth step) were done in the months after the event.



Session 1: Collecting (Understand, Empathize)

At the beginning of the process, attention was paid to managing expectations of all participants. During this session the organizing team talked with residents, professionals, and entrepreneurs from the neighborhood. They processed this information in real time into so-called narrative sheets. To get the discussion going and to stimulate the thought process of the participants, thirty photos of the neighborhood were shown. These pictures were on the table and functioned as the session's conversation starter. Also, participants were asked about their dream for Kanaleneiland – information that could later be used in the process. Next, participants wrote down quotes, anecdotes, and interesting details about the neighborhood that formed the basis for the 'narrative' that was developed.



The result of the session was a filled out narrative sheet, that formed the basis for the second session. The narrative sheets did include a design question by local residents, however, they did not align with the design question already posed by the municipality of Utrecht.

Session 2: Design (Ideate)

The information gathered in the collection session formed the basis for the design session. In the design session, a multidisciplinary group of content experts, designers, creatives, and civil servants joined together. New ideas and concepts were worked on in three groups according to the Crazy Eight methodology. This is a brainstorm methodology in which eight ideas are drawn in 30-second instalments on an A3 sheet. The ideas were potential solutions for problems that were collected in the collecting session. Of the Crazy Eight designs, each group picked the best ideas for further development and a pitch. No tangible prototypes were designed.



Session 3: Pitch (Test)

Testing the concepts put together in the design session is the last step of the first iteration of the Design Thinking process. By testing the ideas the outcomes are validated with the end user. A Dragons' Den session was organized for this. During this last session the designers presented their ideas from the design session to the neighborhood experts from the first session. Each design group presented two concepts in 3 minutes. In the session, the end users were allowed to ask questions. After the presentation the audience could 'invest' in ideas: end-users were given fictitious money to determine the value of the ideas. The ideas can be found in the table below:

| Concept | Explanation | Implementation for use | Residents | Theme |
|---|--|--|-----------|--|
| Free wi-fi | Making specific locations more attractive for loitering teenagers by introducing wi-fi | Pleasant living | + | Free wi-fi |
| Sound sensor for signalling unsafe situations | Better security in the neighbour- hood due to brightly lighted areas | Security | + | Social interaction, giving teenagers a place to hang out |
| Sound and Light: Bring your own music, music lights to the beat signalling unsafe situations | Lights that adjust themselves to the music | Pleasant living and amusement | - | Security |
| App interface with a lamppost for various applications, attractive to youths | Controlling the post with a phone | Pleasant living and amusement | - | Social interaction, giving teenagers a place to hang out |
| Speakers for playing music | Playing music with the lamppost | Pleasant living and amusement | - | Social interaction, giving teenagers a place to hang out |
| Tinder light app: match- making | Finding and meeting each other by the lights' colours | Pleasant living and amusement | - | Social interaction, giving teenagers a place to hang out |
| Mood lighting: dim your lights | Create a pleasant or unpleasant ambience for teenagers to hang out in | Pleasant living and reducing public nuisance | + | Security, public nuisance |
| LEDs for showing the way | Bringing the social functions to the attention of the residents | Promotes social interaction and physical activity | - | Social interaction, road safety |
| App for planning routes | Plotting your route and following it by the LEDs in the posts | Pleasant living and amusement | - | App for planning routes |
| Telephone/ communica- tion function | Creates social interaction in the neighbourhood | Reduces social isolation | - | Social interaction |
| Lighting configuration for projecting a zebra crossing | Practical solution for preventing unsafe traffic situations | Unsafe traffic situations | ++ | Security, traffic |

This, however, resulted in a heated discussion between local residents about the usefulness and necessity of smart lighting, and its relation to the societal issues they had posed during Session 1. Whereas the project team was surprised by this, in hindsight, it could have been expected since the design question was defined before understanding and empathizing with the local residents.

Execution

The idea that received the highest 'investment' was a lamp post with a special lighting configuration for crosswalks, lighting up when someone wants to cross the street, to prevent unsafe traffic situations. This idea was then submitted to the traffic specialists of the municipality of Utrecht, to further develop the solution into a detailed plan. They made three visual prototypes of the original idea, which were presented to the residents of the Kanaleneiland-Zuid neighborhood, who could then choose the final design.



• Review (= Evaluation)

- As the design question, the third step of the process, was done first, this resulted in a mismatch of expectations between the municipality and local residents. Also, it should have been made more clear that the events during the Smart Lighting Challenge would only focus on Understanding, Empathizing, and Ideation, as Prototyping and Testing would happen in the months after the event.
- Take preconditions and limitations into consideration and manage expectations of participants regarding these preconditions and limitations. In the IRIS project, goals are set with regard to sustainability, (technological) innovation and meeting the residents' needs, whereas sustainability isn't always a priority for residents.
- A good location is essential for the creative process. For the design sessions its best to choose a creative location with lots of space.
- It is important to involve residents that a representational for the residents in the neighbourhood. It is particularly hard to reach youth and people with a non-western background.

