



IRIS

Integrated and Replicable Solutions
for Co-Creation in Sustainable Cities

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Launch of T.T. #5 Activities on Citizen Engagement and motivating feedback

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Executive Summary

The ambitions of this transition track #5 'Citizen engagement and Co-creation' consist of: design and demonstrate feedback mechanisms and inclusive services for citizens to achieve that citizens are motivated to (1) save energy, (2) shift their energy consumption to periods with abundant renewables and (3) use shared e-mobility instead of private cars.

To achieve these objectives, five measures will be developed and implemented in the demonstration area 'Kanaleneiland-Zuid' in Utrecht. These Measures are:

- Measure 1: Community building by Change agents
- Measure 2: Campaign District School Involvement
- Measure 3: Co-creation in Local Innovation Hub
- Measure 4: Campaign Smart Street Lighting
- Measure 5: VR New Home and District Experience

This document describes for this transition track the scope, how the work is organized, the involved parties, the elaborated measures, link to other transition tracks and work packages, monitoring and KPIs.

Involvement and support of citizens is a key factor in the IRIS project. This is even more relevant for the activities in Utrecht, since all integrated solutions are planned to be implemented in the same challenging district. Citizens in the demonstration area have other problems on their minds than sustainability, problems that concern primary necessities of life, such as sufficient income to live on a monthly basis, criminality, nuisance caused by waste, insecurity caused by traffic situations.

After 24 months, a lot of work and effort has been put into the citizen engagement activities. In the challenging district Kanaleneiland-Zuid, it was a good start to discover whether design thinking principles could be applied to a Smart Street Lighting campaign. Also involving primary schools and intermediate vocational education schools proved to be successful. With the children of the primary schools, we are able to get in contact in a natural way with the parents who live in the apartment buildings of Bo-Ex. Transition Track #5 focuses on citizen engagement and tries to increase the amount of involvement and support amongst citizens and tenants for sustainability topics.

The main drivers of this transition track are still actual, the solutions which have been suggested are still applicable and increase the energy efficiency and awareness within the district of Kanaleneiland-Zuid. The main barrier is the involvement and support of citizens and tenants. Citizens in this district often have other problems to process such as obtaining enough income to feed my household, criminality, rats, traffic safety and parking problems. A sustainable house or shared mobility with V2G charging infrastructure is not on top of their mind.

Especially related to the refurbishment of apartment buildings of Bo-Ex, it has proven to be difficult to create engagement built upon mutual trust. The distrust in housing corporation Bo-Ex amongst tenants is high and it is hard to find reasonable solutions. The distrust is strengthened by the plans of other housing corporations in the district who act in the same area and offer their tenants more value for money according to the tenants of Bo-Ex.

But also getting citizens to attend workshops or information meetings about planned activities has proven to be challenging. This usual 'pull' strategy works in other districts and other target groups, but is unsuccessful in this district.

The performed activities, experiences and lessons learned have been evaluated and led to clues to set up a different approach. This reconsideration of strategy and approach has been conducted by the involved IRIS Utrecht partners Bo-Ex, Municipality of Utrecht, HKU, LomboXnet and Utrecht Sustainability Institute. The change of tactics consists of a 'push' strategy towards the citizens. The first activity in which this will be tested is in the implementations of HEMS Eneco Toon.

In the coming months we will focus on implementing the HEMS Eneco Toon within the apartment houses of the tenants of Bo-Ex, starting with a pilot in apartment building Columbuslaan II. We will visit the 48 houses one by one and talk to the residents. In addition to introducing the Eneco Toon and its benefits, the main purpose of the conversation is to be in touch and to understand what motivates or demotivates the people. An independent social consultant will conduct the interviews on behalf of Bo-Ex in order to get a better picture of the reasons for mistrust and possible barriers that need to be overcome before a refurbishment can be prepared.

By getting in contact with these people and gaining a better insight in the target group, we aim to create a better relationship and more engagement. This is key in the Utrecht demonstration activities, especially to get support of the tenants for the refurbishment plans, an important anchor of transition track #1 and dependencies with a couple of measures within this transition track.

Finally, the following table shows briefly the insights per measure:

Demonstrator	In a nutshell
#1 Community Building by Change Agents	<u>Brief summary</u> : The main objective is to inform the community and tenants of the apartment buildings about the measures of the IRIS project and their purpose. Secondary objective is to create a network of engaged citizens, that can act as change agents for the rest of the community.
	<u>Expected impact</u> : Change agents from the district are not distrusted by the others and can influence tenants and citizens without liability.
#2 Campaign District School Involvement	<u>Brief summary</u> : The main objective is to involve parents through the primary schools' (Kaleidoscoop, Da Costaschool and Schatkamer) children. Professional school MBO Utrecht will be involved by providing training and possibly jobs to youngsters living in the district, while installing and maintaining the integrated smart solutions in the demo district.
	<u>Expected impact</u> : More acquaintance by children with the subject of sustainability, a positive vibe within youngsters about the IRIS-initiatives who will involve and help their parents.
#3 Evaluation and co-	<u>Brief summary</u> : The main objectives are to create an innovation hub within the district of Kanaleneiland-Zuid and to develop a personal interface of



Demonstrator	In a nutshell
creation	HEMS and/or apps.
	<u>Expected impact</u> : More fame and a better reputation of the local innovation hub, and a HEMS with an appropriate interface for the tenants of Bo-Ex.
#4 Campaign smart street lighting	<u>Brief summary</u> : The main objective is to organize a process of co-creation where people can think about and work on feasible solutions for smart street lighting.
	<u>Expected impact</u> : A high level of co-creation which results in a warm welcomed product which is adopted by the district involved.
#5 Virtual Reality Platform	<u>Brief summary</u> : This activity focuses on a virtual reality platform for apartment buildings to other new buildings so households can experience their future 'new' home, including infotainment and interactive training about the new smart energy and mobility services they may expect.
	<u>Expected impact</u> : With a better view on the future situation, tenants are equipped better to make their choice and support the plans of the refurbishment.

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List of Abbreviations and Acronyms

Abbreviation	Definition
CIP	City Innovation Platform
DoA	Description of Action
EU	European Union
FC	Follower City
HEMS	Home Energy Management System
IS	IRIS Solution
KPI	Key Performance Indicator
LH	Lighthouse
LHCSM	Lighthouse City Site Manager
MaaS	Mobility as a Service
PoR	Programme of Specification
PV	Photovoltaic
RES	Renewable Energy Sources
SoA	State Of the Art
TT	Transition Track(s)
WP	Work Package
XR	eXtended Reality

1 Introduction

1.1 Scope, objectives and expected impact

Objective of this deliverable is to provide a detailed overview of the activities for Transition Track #5 within the Utrecht demonstration. This deliverable is relevant for other organizations, since the subject of citizen engagement is generally known and everywhere a topic of attention. The challenges with tenants who are faced with low-income, language barriers and other social problems are notorious in The Netherlands as well abroad. At last, the need for replicable and scalable solutions regarding the way to achieve the energy-transition is quite a big issue.

1.2 Contributions of partners

The activities within TT#5 are discussed and prepared by housing corporation Bo-Ex, HKU as designer of citizen engagement processes, the owner of public areas and involved in all kind of matters in the district of Kanaleneiland-Zuid the Municipality of Utrecht and Utrecht Sustainability Institute (USI) as overall coordinator and linking pin with other work packages and initiatives. Chapter 4 describes the involved parties and their roles and responsibilities.

1.3 Relation to other activities

The following figure shows the relation between the activities in TT#5 as described in the deliverable and the activities within other transition tracks and other work packages.

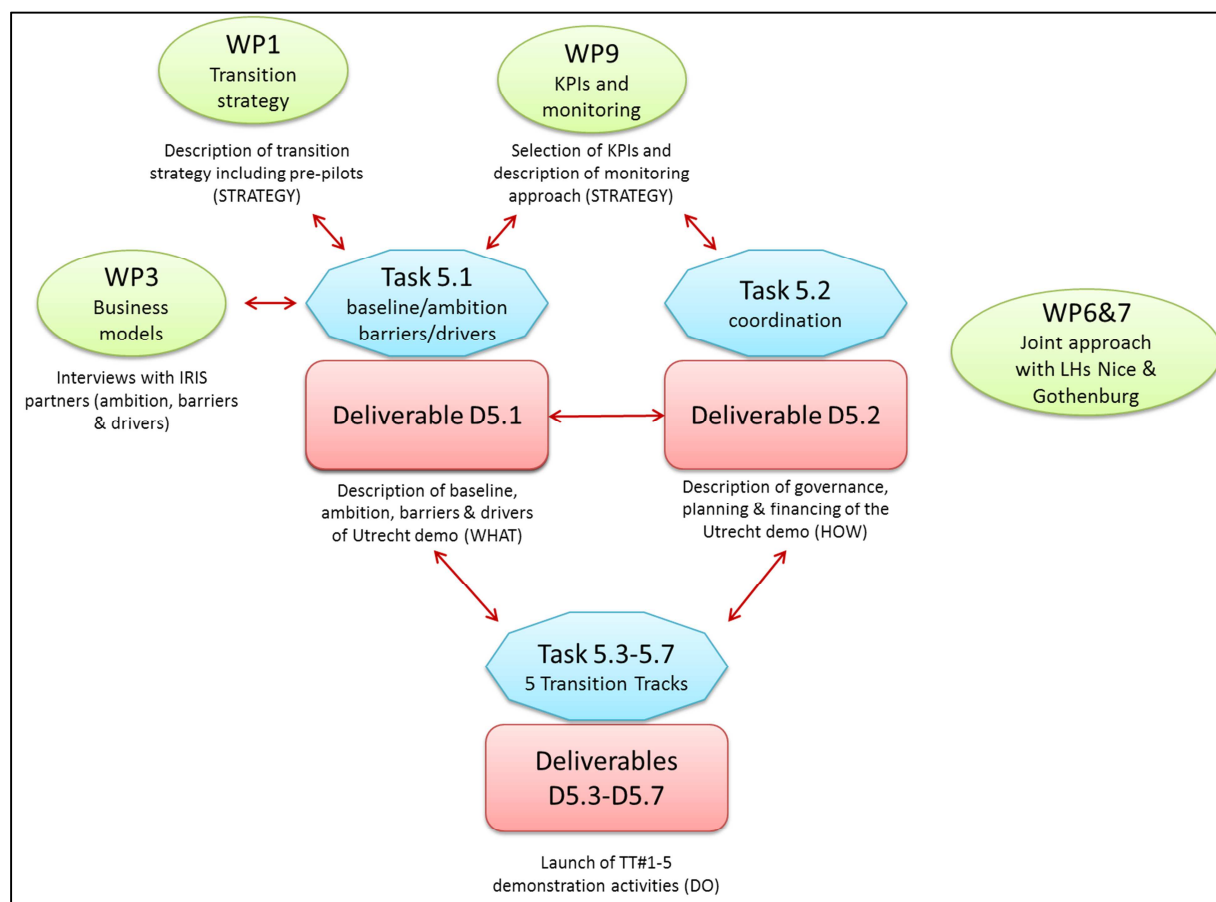


Figure 1 Relation of this deliverable with other deliverables and work packages

1.4 Structure of the deliverable

This document contains the overall starting points for TT#5 activities, which consists of a description of the demonstration in a nutshell, the baseline for TT#5 and the organisation of work.

From chapter 6, the five Measures within TT#5 are explained and the achieved results reported.

Chapter 11 summarizes the KPIs and chapter 12 contains the ethical requirements we have to deal with, when rolling out the activities and monitoring.

The last two chapters contain the output to the other work packages as well as a conclusion and next steps.

2 Demonstration in a nutshell

2.1 Ambitions for TT#5

The *DoA states* that Utrecht has the ambition is to design and demonstrate feedback mechanisms and inclusive services for citizens to achieve that citizens are motivated to (a) save energy, (b) shift their energy consumption to periods with redundant renewables and (c) use shared e-mobility instead of private cars.

This implies that Utrecht is working on the design of a careful citizen engagement process entailing public engagement at an early stage in order to accommodate wishes and concerns from the citizens. This citizen engagement process has a few key benefits:

- The integrated solutions are designed with user needs and possibilities (e.g. language) in mind
- Because the integrated solutions fit the prospected users living situation better, adoption is higher and it maximizes the chance of long-term frequent interaction with the solutions, after the “newness” has faded.
- The citizen engagement process itself increases awareness in the target area and raises public support, both benefiting initial adoption and sustained use.

Table 2 lists the envisioned activities from the DoA that will be employed to enhance citizen engagement for the integrated solutions.

Measures/Activities	2017	2018	2019	2020
Measure 1: Community building by Change agents	specification	co-creation	iteration	iteration
Measure 2: Campaign District School Involvement	specification	co-creation	iteration	iteration
Measure 3: Co-creation in Local Innovation Hub	specification	co-creation	iteration	iteration
Measure 4: Campaign Smart Street Lighting	specification	co-creation	iteration	iteration
Measure 5: VR New Home and District Experience	specification	co-creation	iteration	iteration

Table 2 Ambitions TT#5

2.2 Demonstration area

The demonstration area for *all five transition tracks* is situated in the district of Kanaleneiland-Zuid in the city of Utrecht and the neighbouring area Westraven, as showed in the next figure. This is a residential area of 64 hectares situated in the Utrecht Centre-West area, just southwest of the historic city centre and the Utrecht Central Station. The district is surrounded by two large canals (hence ‘canal island’), one of which is used intensively for freight transport (Amsterdam-Rhine Canal).

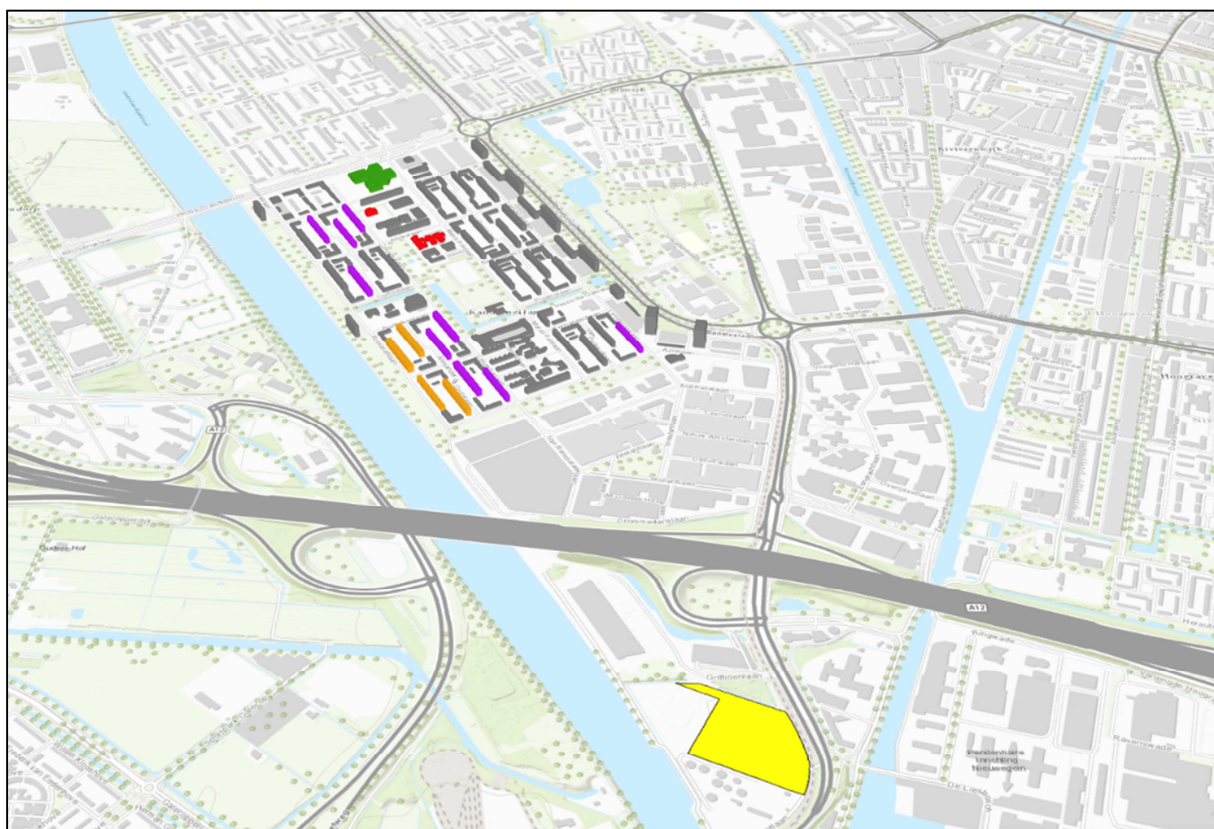


Figure 2 Location of the demonstration district Kanaleiland Zuid and Westraven (yellow hatched).

Source: Utrecht op de Kaart <http://kaartenutrecht-gemu.opendata.arcgis.com/>

2.3 Integrated Solutions in TT#1

The Utrecht LH district Kanaleiland is a challenging district, characterized by mainly social housing and schools. It is a densely populated district, home to in majority low-income and multicultural families. This calls for demonstrating extensive and innovative citizen engagement methods, resulting in citizens who understand, trust, use and feel ownership of the integrated energy and mobility solutions offered in their homes and district.

Citizen engagement is an important transition track in Utrecht and comprises of four integrated solutions (IS):

- IS-5.1: Co-creating the energy transition in your everyday environment.
A multi-functional hub for co-creation, user-driven innovation, dissemination and communication in the demo district, will be established. An XR-experience built upon a 3D-model of the district will be co-created with children from primary schools leading to a gamified interface to the citizens.
- IS-5.2: Participatory city modelling
Apps and an XR-experience are used to engage citizens in the urban planning of Utrecht.
- IS-5.3: Living labs (homes)

A new approach towards the implementation of HEMS Eneco TOON and the adoption of the device will be tested and implemented in the apartment houses of the 12 apartment buildings that will be refurbished (TT#1)

- IS-5.4: Apps and interfaces for energy efficient behavior

A combination of evaluating the usage of HEMS Eneco TOON and the gamified scenarios with the XR-experience will benefit the energy efficient behavior.

Figure 3 shows the links between the activities within TT#5 and the other activities within Work package 5. The figure reveals that many of the activities within TT#5 are an integral part of the Utrecht demonstration, especially with the transition tracks 1 and 4.

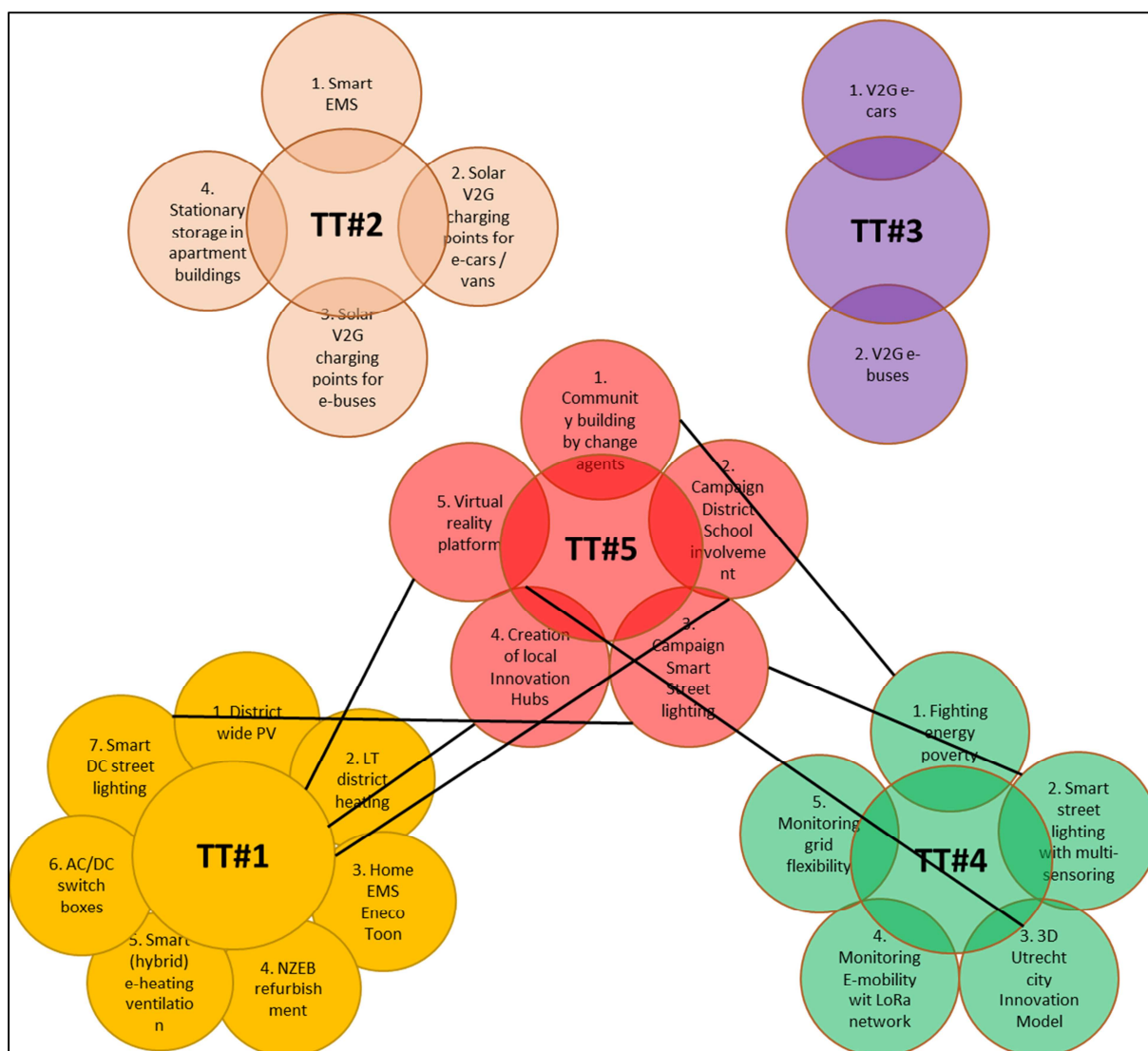


Figure 3 position of TT#1 within WP5

2.4 Integration of Demonstrators

The demonstrators in TT#5 have direct and strong relationships with the demonstrators in the other four TTs. The citizen engagement activities build upon and showcase the demonstrators implemented in the other TTs. The other way around, the citizen engagement activities contribute to the communication, adoption and co-creation of solutions.

Lessons learnt from one citizen engagement activity is important for the next activity. All steps should build and lead towards trust and support for the changing home and district environment.

2.5 Deviations according to the Grant Agreement

Deviations to the Grant Agreement in terms of other involved parties and/or other activities have not been taken place. We're still on track. But, some of the activities have been elaborated different than the original thought. For example, the plan of approach for implementing the Home EMS Eneco Toon have been changed due to new insights, the VR-experience has been changed into a XR-experience.

The following table shows the deviations of this transition track at this moment:

Type of deviation	Measure	Deviation
Specification of the demonstrator	M#1 Community building by change agents	Instead of employing three change agents, a professional citizen engagement consultant will be contracted and continuation of school activities is planned.
	M#3 Evaluation and co-creation	The user interface of HEMS Eneco Toon cannot be changed and thus it is not possible to co-create towards a redevelopment of the interface. We adjusted the approach to adoption of the Eneco Toon by the tenants. A different strategy towards the tenants is developed and will be tested and implemented in December 2019.
	M#5 Virtual reality platform	XR-experience instead of VR-experience
Ambitions of the demonstrator	n/a	
KPI targets of the demonstrator	n/a	

Table 3 List of deviations to the GA

Further explanation of these deviations can be found in the chapters of the mentioned measures.

3 Baseline / Drivers and Barriers

3.1 Baseline

The Municipality of Utrecht has established the “Utrecht Participation Standard” as a method for municipal officials to involve residents, entrepreneurs, organizations and professionals as much as possible and as early as possible in plans and projects of the municipality. This standard included 5 steps:

- Mapping the stakeholders: who are they and what is their interest and influence;
- Determining the desired level of participation: informing, consulting, advising or co-producing;
- Resolve which stakeholders should be asked for input at which level of participation;
- Produce a plan and determine what suitable moments are to invite those involved;
- Decide which means of communication and participation tools are most suited.

This standard is already applied in numerous projects in the district of Kanaleneiland-Zuid. Experiences from previous projects will be used in designing the citizen engagement process for the IRIS project. This requires amongst others good knowledge on specific issues that play among households:

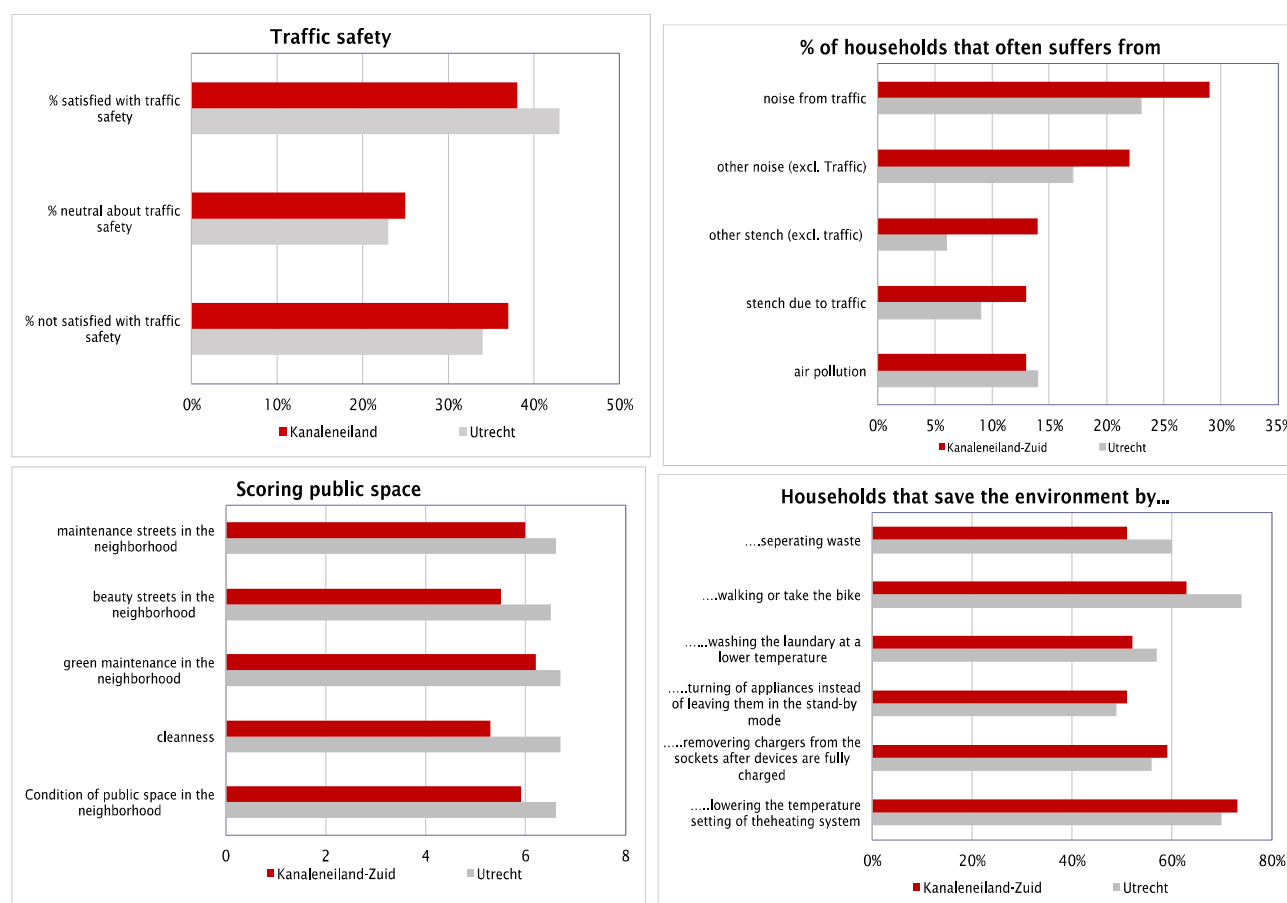


Figure 4. Overview of the issues that play for households in Kanaleneiland-Zuid compared to Utrecht
Source: WistUData

3.2 Drivers and Barriers

The main drivers and barriers consist of citizen engagement, which is needed for successful co-creation processes. For that reason, any solutions proposed can be deployed in real-life and economy terms, only if the underlying multidisciplinary expertise of cities, citizens, industrial partners, city decision makers and knowledge centres get extensively integrated as well. The diversity in stakeholders and the crucial role of citizens as enablers require co-creation of attractive and inclusive services that support people in their own motivations to engage, express ownership, and change behaviour.

4 Organisation of work

To facilitate the citizen engagement process and IRIS communication in the district, a citizen engagement coordinator has been appointed funded by the IRIS project by the city of Utrecht. The appointed coordinator is familiar with the district Kanaleneiland-Zuid and the local problems and challenges. Tasks of the coordinator are:

- Operate as the instigator of the IRIS Platform;
- Organize meetings, including practical matters.
- Create a program of series of meetings and let them evolve in consultation with the IRIS Platform
- Recruit new participants for the IRIS Platform
- Operate as the intermediary between IRIS project (partners) and resident participation.

4.1 Key partners

The measures that will be executed as part of the WP5 demonstration activities are detailed in close consultation with IRIS partners from the Utrecht ecosystem and are recorded in program of specification for every measure. Key partners in TT#5 are:

Organization	Task and responsibility
Bo-Ex	Landlord/owner of the apartment buildings and coordinator of TT#1.
Energie-U	Consultants familiar with energy transition and the impact for citizens.
HKU	Design thinker on citizen engagement.
Municipality of Utrecht	Responsible of public street lighting and WP5-leader.
Utrecht Sustainability Institute	Lighthouse City coordinator and Work package coordinator.

Table 4 overview of involved parties in TT#1

In order to elaborate and prepare the activities, the transition track leaders of WP5 Demonstration area Utrecht have bi-weekly meetings. In this meeting, so called coordination team meeting, the leaders together with the WP5 coordinator from USI discuss the schedule, progress and challenges. Besides, six times a year, a project group meeting is organized with all WP5 involved parties as well as the involved parties within other work packages come together. In this meeting we discuss the progress on a higher level and lift out a topic which is relevant for all parties e.g. citizen engagement in other sectors.

4.2 IRIS citizens platform

For the duration of the IRIS-project, the IRIS citizens platform, consisting of citizens and other stakeholders with a close connection to the district of Kanaleneiland-Zuid, is formed to increase the connection between the project and the inhabitants of the district. The citizens platform is involved in the design stage of the citizen engagement process for each of the measures where level 3 or 4 on the citizen engagement ladder is applied. When measures are implemented into the concept- or prototype phase, the IRIS citizens platform will be consulted to give their feedback. This way, the IRIS citizens platform will help to keep the measures focused on the goals that were defined in the design stage and

helps to implement the measures in such a way that improves adaption, since it fits the day to day needs and abilities of the citizens of the district where they are implemented. The group is also consulted on the general project progress, impact in the district and feedback in general.

4.3 IRIS citizens platform composition

Ideally, the IRIS citizens platform consists of the same members for the 5-year duration of the project. This is not an achievable goal and a realistic expectation for a volunteer platform. The available time and interest that citizens and other stakeholders is limited and will also fluctuate depending on the personal interest in the topics (measures) that are discussed in the various co-creation workshops and other meetings. Therefore, the IRIS citizens platform is set up in such a way that participants are free to join co creation workshops and other meetings as they please, as long as they accept the ground rule that if something was discussed in a previous workshop it will not be re-discussed unless significant new information is discovered.

The objective is to compose a group, which reflects the demography of the target district, complemented by professionals active in the field (e.g. social workers) with a lot of “customer empathy”. In reality, the group composition will be skewed towards higher educated, more Caucasian and older than average, because these groups are more likely to be willing to participate. This is something to be aware off, but not an insurmountable problem. Input from other demographics will be sought via other means: e.g. youth workers can represent younger people, street interviews can add viewpoints and cooperation with primary education and community college will also improve representation and reach.

4.4 IRIS- citizens platform member recruitment

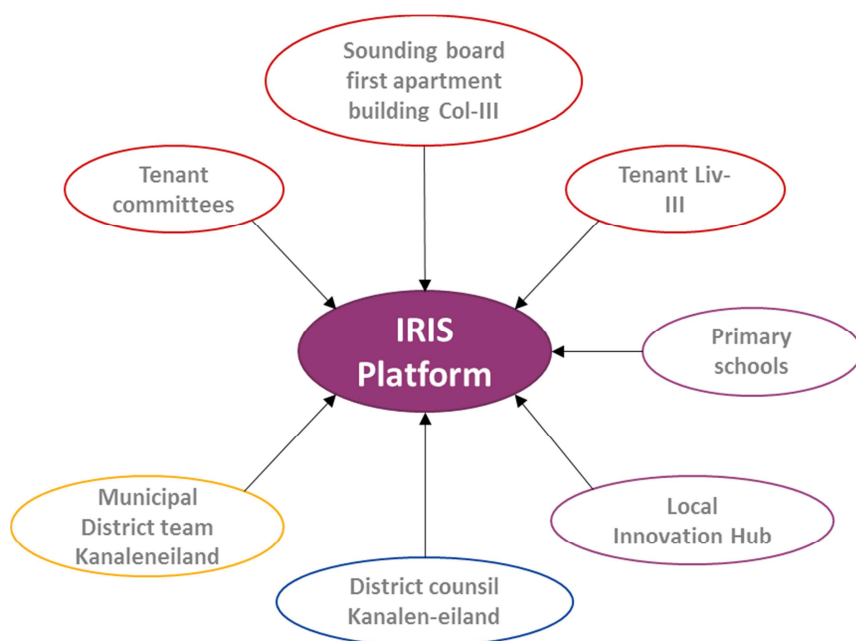


Figure 5. IRIS Co-creation platform

The IRIS citizens platform is formed with residents and stakeholders living and/or working in Kanaleneiland-Zuid. Residents and stakeholders are invited to join through a variety of channels, including media and website, newsletters (e.g. from Bo-Ex), through schools, and through face-to-face conversations with key figures. Platform participants are invited to spread the word and invite interested co-residents and stakeholders from their personal network.

5 Methodology: Engagement Ladder

Within the IRIS project the Engagement Ladder is used as a reference tool to determine the *possibilities* for citizens to influence decision-making, articulating their needs, challenges and problems. This ladder distinguishes 4 levels of engagement.

- Level 1 of the Engagement ladder consists of IS that have no touch point. These integrated solutions will be implemented with the support of concise communication strategies, informing citizens on the impending changes in their environment.
- Level 2 of the Citizen Engagement Ladder implies the involvement of citizens in actively contributing to the storytelling about the IRIS changes in their own neighbourhood, as part of the communication strategies. These citizens will have a higher level of engagement in being able to effectively communicate the IRIS integrated solutions and objectives from their own citizen perspective.
- Level 3 of the Engagement ladder contains the integrated solutions that allow citizens some kind of agency, control or steering of the integrated solutions. For this we introduce the notion of active touch points. Through these active touch points, citizens should be able to influence the outcomes of the KPI's of the IRIS project through their own behaviour.
- Level 4 of the Engagement ladder contains those integrated solutions where there is an existing touch point that can be adapted, modified, simplified or enhanced within the possibilities of the IRIS project or integrated solutions where new touch points will and shall be developed.

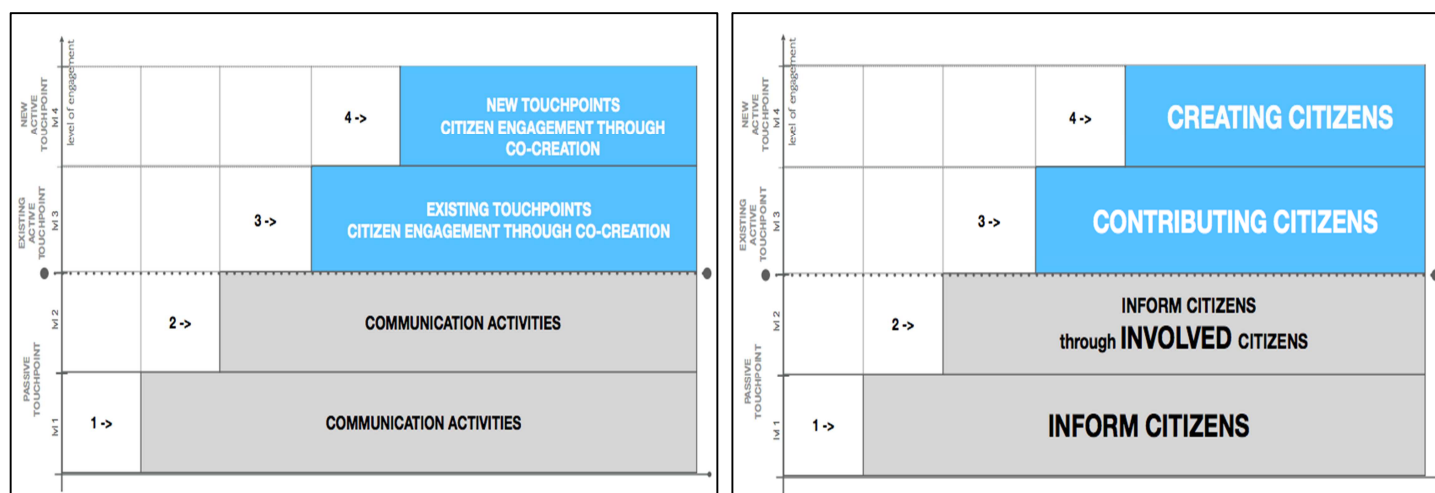


Figure 6 Activities and solutions on the different steps

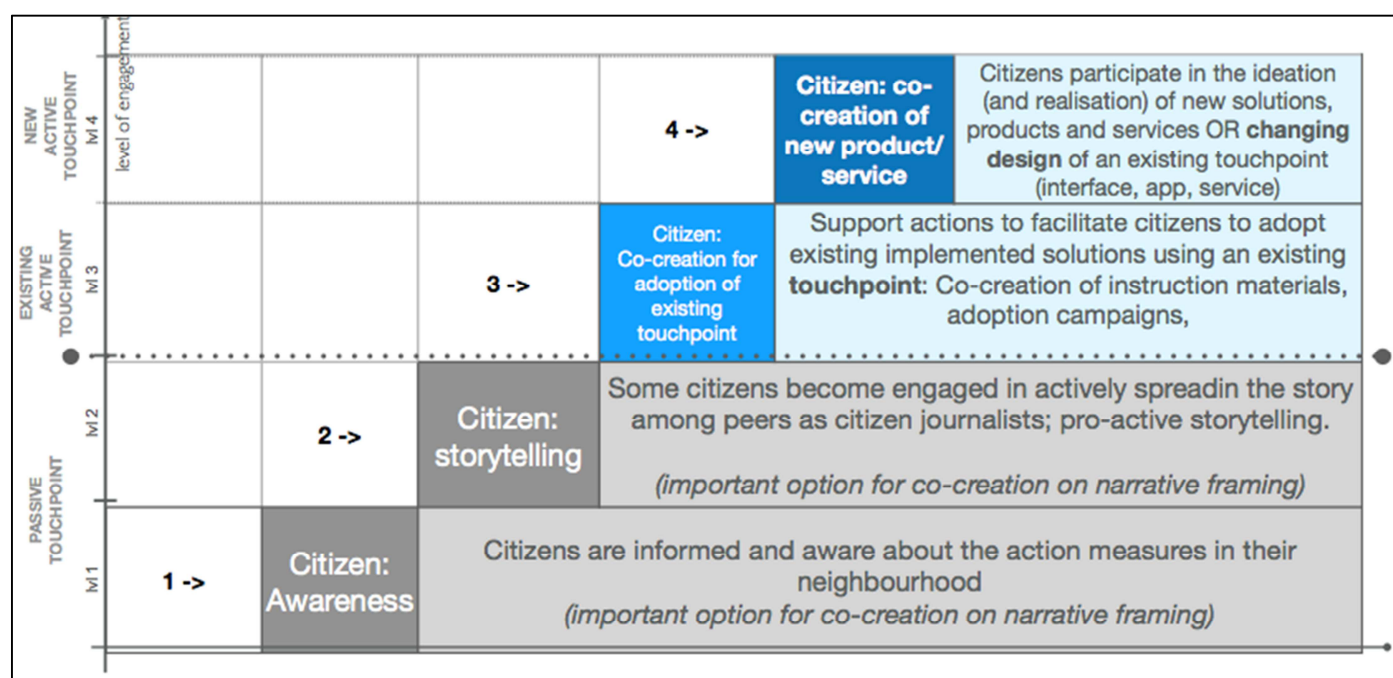


Figure 7 outline of the citizen engagement ladder with possibilities for involvement of citizen in the implementation of the IRIS measures

Detailing of the approach for each step on the ladder

- **Informing citizen (level 1):** Citizen awareness needs to be for the whole IRIS project. Therefore, a key communication message needs to be developed. Guiding principle in the communication are:
 - Focus on the impact of measures on the day-to-day life of citizens and how the measures can help in the challenges of everyday life in an underprivileged district.
 - Due to the sub-average language and education level of a substantial part of the population, information will spread through word of mouth
 - Add content and information to existing channels for citizens rather than the creation of new and unknown channels
 - To increase knowledge of the principles behind the integrated solutions, existing educational materials will be used in combination with physical examples in the district to increase awareness and understanding of the technologies involved.

- Multichannel approach: website, (existing) educational materials, information through local partners, schools and where necessary door to door information in writing will be used to complement one another.
- Informing citizens through citizen journalism (level1/2): Citizen storytelling will be applied for tor amongst other integrated solutions placed on level 2. Existing volunteer district news networks will be key for the citizen journalism approach, in addition, cooperation with the local primary and community college is in the early stages.
- Contributing and creating citizens (level 3 and 4). The HKU developed a quick scan tool that can be used to map planned measures to be implemented against required citizen engagement activities. This results of this mapping for Utrecht is presented in Figure 8. For the measure placed on level 3 and 4 the HKU developed a co-creating process based on a design thinking approach. This approach will be applied in Utrecht for the integrated solutions on level 3 and 4. A provisional overview of anticipated citizen engagement activities is elaborated in Annex I.

Integrated Solutions Mapping Exercise								
Citizen Touchpoint/ Service Design co-creation		Monitoring Grid Flexibility		4 ->	Citizen: co-creation of new product/service	Smart hybrid street lighting	TOON smart meter	Datadienst Fighting Energy Poverty
Citizen Touchpoint Adoption		Monitoring emobility with LORA network		3 ->	Citizen: Co-creation for adoption of existing touchpoint	Electrical charge points for e-car : location vs usage	ACDC homebox	VR new home and district experience
						Smart Heating ventilatie gedrag	Electrische V2G Car en App WeDriveSolar	3D Utrecht City Information model
Citizen Storytelling		2 ->	Citizen: storytelling	solar panels in demo area	Solar verhicle to grid charging for e-bus	NZEB refurbishment		
Citizen Awareness	1 ->	Citizen: Awareness	electrical maintenance vehicles Bo-Ex	District Energy Management System	Stationary energy storage garage boxes	low temperature city heating	Community building by change agents	

Figure 8 Result of the mapping exercise for Lighthouse city Utrecht

5.1 Change of tactics in Utrecht demonstration

Involvement and support of citizens is a key factor in the IRIS project. This is even more relevant for the activities in Utrecht, since all integrated solutions are planned to be implemented in the same challenging district. Citizens in the demonstration area have other problems on their minds than sustainability, problems that concern primary necessities of life, such as sufficient income to live on a monthly basis, criminality, nuisance caused by waste, insecurity caused by traffic situations.

After 24 months, a lot of work and effort has been put into the citizen engagement activities. In the challenging district Kanaleneiland-Zuid, it was a good start to discover whether design thinking principles could be applied to a Smart Street Lighting campaign. Also involving primary schools and intermediate vocational education schools proved to be successful. With the children of the primary schools, we are able to get in contact in a natural way with the parents who live in the apartment buildings of Bo-Ex. Transition Track #5 focuses on citizen engagement and tries to increase the amount of involvement and support amongst citizens and tenants for sustainability topics.

The main barrier is the involvement and support of citizens and tenants. Citizens in this district often have other problems to process such as obtaining enough income to feed my household, criminality, rats, traffic safety and parking problems. A sustainable house or shared mobility with V2G charging infrastructure is not on top of their mind.

Especially related to the refurbishment of apartment buildings of Bo-Ex, it has proven to be difficult to create engagement built upon mutual trust. The distrust in housing corporation Bo-Ex amongst tenants is high and it is hard to find reasonable solutions. The distrust is strengthened by the plans of other housing corporations in the district who act in the same area and offer their tenants more value for money according to the tenants of Bo-Ex.

But also getting citizens to attend workshops or information meetings about planned activities has proven to be challenging. This usual 'pull' strategy works in other districts and other target groups, but is unsuccessful in this district.

The performed activities, experiences and lessons learned have been evaluated and led to clues to set up a different approach. This reconsideration of strategy and approach has been conducted by the involved IRIS Utrecht partners Bo-Ex, Municipality of Utrecht, HKU, LomboXnet and Utrecht Sustainability Institute. The change of tactics consists of a 'push' strategy towards the citizens. The first activity in which this will be tested is in the implementations of HEMS Eneco Toon.

In the coming months we will focus on implementing the HEMS Eneco Toon within the apartment houses of the tenants of Bo-Ex, starting with a pilot in apartment building Columbuslaan II. We will shift the touchpoint to door-to-door contact by visiting the 48 houses one by one and talk to the residents. In addition to introducing the Eneco Toon and its benefits, the main purpose of the conversation is to be in touch and to understand what motivates or demotivates the people. An independent social consultant will conduct the interviews on behalf of Bo-Ex in order to get a better picture of the reasons for mistrust and possible barriers that need to be overcome before a refurbishment can be prepared.

By getting in contact with these people and gaining a better insight in the target group, we hope to create a better relationship and more engagement. This is key in the Utrecht demonstration activities, especially to get support of the tenants for the refurbishment plans, an important anchor of transition track #1 and dependencies with a couple of measures within this transition track.

6 M#1: Community building by Change agents

6.1 Approach

In a low-income multicultural district like Kanaleneiland-Zuid, a very significant portion of the population has not finished primary education and has very low written language skills, in any language. As a consequence, people get their information through word of mouth, rather than through written information whether on paper or digital. There are of course also residents who do have better language skills and have no problems consuming written information. Some of them have grown into an informal community or apartment block leader role: they inform their neighbours of current events when they meet in the stairway and when a resident is looking for information, these neighbours are consulted first, before or even instead of professional channels such as the municipality, social workers or the housing corporation. The same citizens regularly visit meetings and events in the neighbourhood for social reasons and to keep track of what is happening in the community. This measure therefore means to inform these community and apartment block leaders of the measures of the IRIS project and their purpose. By informing these community leaders, they can act as change agents for the rest of the community.

6.2 Detailing of the activities

A first step in each demonstration district is to identify *change agents*. As part of the first citizen engagement activities for the design of smart street lighting in June 2018 a first mapping exercise was performed by interviewing local housing corporation Bo-Ex, the municipal district office, district cops and other local enforcement professionals and accompanying them on their rounds through the district. The contacts they have provided have been visited individually and via this snowball method almost all the key formal and informal influencers in the district were involved in the preparation of the citizen engagement process. The existing local news agencies, including local Internet and regional TV network 'U in de Wijk' (English: 'You in the district') and the local volunteer district newspaper developed a keen interest in the project and will be our main partners in the citizen journalism implementation. Next steps:

- The recently formed group of change agents will regularly be consulted and be extended for next citizen engagement activities and regularly consulted e.g. when formulating the communication messages for citizens, follow-up of progress on the integrated solutions that they provided their input for (so far this is the smart street lighting, more integrated solutions will follow later in 2018).
- Where applicable, change agents active in the existing volunteer district new networks will be involved as Citizen Journalists: 'U in de Wijk' and the district newspaper have expressed their keen interest.



6.3 Planning and progress

Throughout the duration of the entire project the network of change agents will be maintained, informed regularly by visiting community events and Bo-Ex meetings with tenants. Figure 9 shows the programme for the scheduled activities for this measure.

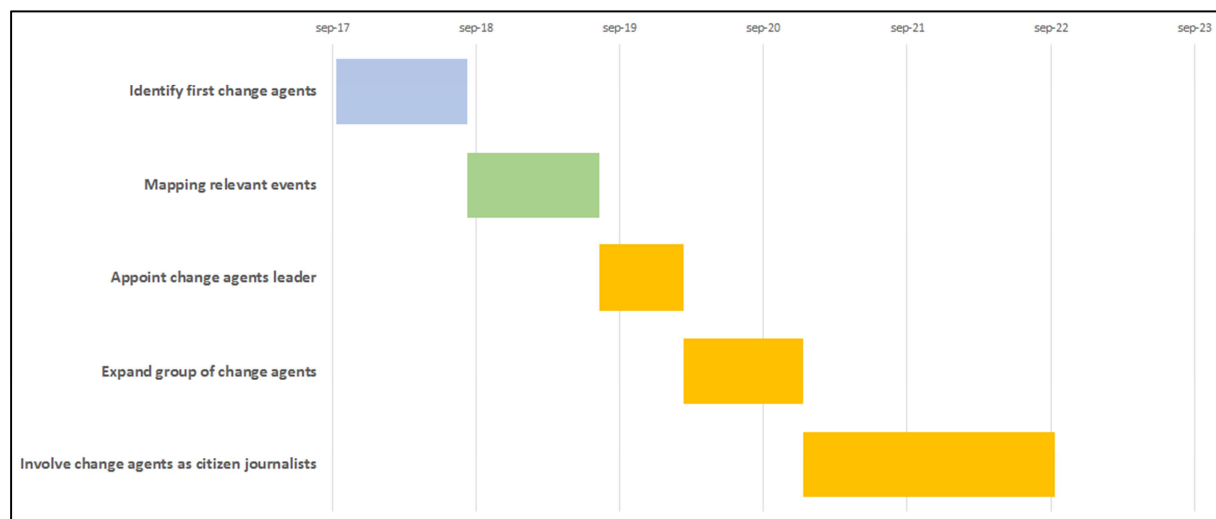


Figure 9 Timing of activities measure 1 - Community building by change agents

6.4 Linkage to other TT

This activity is certainly linked to the other activities in the other transition tracks within the Demonstration Area Utrecht. The change agents are involved in one or more of the planned activities such as the refurbishment of the apartments buildings, the implementation of electric V2G-vehicles, smart street lighting poles et cetera.

6.5 Monitoring

Monitoring of this Measure consists of collecting data regarding the amount of change agents, the motivation of the change agents to fulfil this role, amount of people reached by the change agents and the general. With this data, we know why people chose to change agent and the impact of these agents.

6.6 KPI's

The relevant Key Performance Indicators for this Measure consists of:

KPI	Why?	Definition	Baseline	Target
1. Ease of use for end-users of the solution	Assess the level of difficulty to use a solution	a smart city solution that is easy to use and understand will be more likely adopted	NA	4 on the scale of 1-5 (Likert)



		than a difficult solution		Scale)
2. Advantages for end-users	The extent to which the project offers clear advantages for end users	solutions which have a higher level of advantages to end users will be more likely to be adopted than solutions which have negative or no advantages.	Anticipated advantage before implementation of the measure	4 on the scale of 1-5 (Likert Scale)
3. Local community involvement in planning/implementation phase	public involvement during the planning/implementation stage is essential to provide developers with input to ensure that the project will perform as intended	The extent to which residents/users have been involved in the planning /implementation process	NA	4 on the scale of 1-5 (Likert Scale)

Table 5 KPI's for this Measure

6.7 Risk management

The main risks regarding this Measures are:

- Social: no concerns about this initiative within citizens
Mitigation measure: decide to follow another route to find change agents when scouting expedition fails.
- Social: the message of the change agents is adverse to the IRIS initiative and ambitions
Mitigation measure: contract the change agents under conditions and follow and evaluate the activities and expressions of the change agents

6.8 Progress achieved up to M24

During the first 1,5 year we've done a scouting expedition to find and contract change agents within the district of Kanaleneiland-Zuid. The result of this expedition was disappointing: no volunteers were willing to fulfil the role of a change agent. Even a challenge amongst MBO students to do some small exercises like making vlogs about the renovation didn't succeed. Recently we've decided to change plans and contract a professional who is acquainted in this district and familiar with the problems that tenants are faced with. In the pilot for installation and instruction of the HEMS Eneco Toon (see deliverable D5.3) we start a pilot with this change agent to come into contact with tenants and interview and help them. See paragraph 5.1 for this 'change of tactics'.



6.9 Conclusions

Regarding this Measure, a lot of effort has been done to find change agents who live in the district. Still, we didn't succeed in this expedition and changed plans. In November 2019 we start a pilot with a professional change agent during the implementation of Eneco Toon. If this succeeds, we can appoint this agent for more IRIS related activities and build a team of people who can act as agents.

The 'change of tactics' described in paragraph 5.1 shifts a 'pull' strategy to a 'push strategy. If successful, this could be a major lesson learned for other smart cities. The strategy leads to 1) shifting the touchpoint to door-to-door contact 2) low effort design approach for the citizens 3) taking the Eneco Toon out of the refurbishment package for zero-state measurements, raising awareness of current energy-consumption and costs 4) building threshold for refurbishment acceptance.



7 M#2: Campaign District School Involvement

7.1 Approach

Three schools in the demonstration district will be involved in the IRIS project. To involve children and parents through the primary schools Kaleidoscoop, Da Costaschool and Schatkamer children and their parents will be involved. Professional school MBO Utrecht will be involved by providing training and possibly jobs to youngsters living in the district, while installing and maintaining the integrated smart solutions in the demo district. The premise is that by targeting children and local students their families, living in the district, might familiarize themselves and develop an emotional relationship with the energy solutions their sons and daughters are realizing in their own neighbourhood.

7.2 Detailing of the activities

- Primary schools: two existing sustainability and technology workshops with associated lesson boxes and teacher manuals are being developed to match the technical content of the IRIS project. Next guest lecturers will conduct workshops at both schools. Afterwards on one of the schools, teachers should be able to carry out the workshops independently. At both schools it will be discussed and investigated how in the coming years the activities within the framework of the IRIS project can contribute to a structural approach to science and technology education in their curriculum.
- High schools: Students within the 2nd and 3rd year of the institution of MBO-Utrecht course Bouwkunde (English: 'building engineering') are involved in the IRIS project. This involvement consists of elaborating plans and proposals for several items within the building and citizen process. In groups, the students are requested and challenged to make plans for technical and social items:
 - technical: the most efficient design for PV-panels on the roofs of the apartment buildings, options as requested by tenants (e.g. the enlargement of the kitchen/bathroom), solutions to minimize energy/heat losses;
 - social: inquiries for tenants about the process and communication during and after the refurbishment, assisting citizen engagement activities, making video logs (vlogs) about the tenants, impact on the environment and the impact of the construction works to inform and involve people. The first study year (2018-2019), 3rd years students will be elaborating plans for a period of a half-year. After this half study year, the results and assignments are evaluated and improved for further study years.

7.3 Planning and progress

Figure 10 shows the programme for the scheduled activities for this measure.

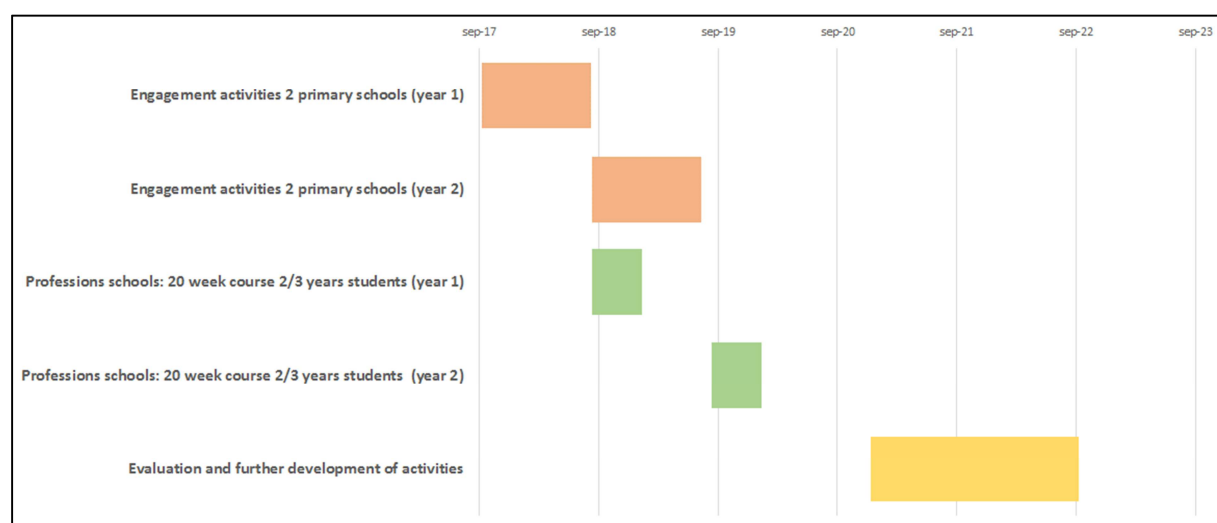


Figure 10. Timing of activities measure 2 - Campaign District School Involvement

7.4 Linkage to other TT

This activity is linked to the activities of TT#1 within the Demonstration Area Utrecht. The output of the students contributes to the successfulness of obtaining support from the tenants of Bo-Ex for the plans of the refurbishment of the apartment buildings. Besides, the activities on the Primary schools contributes to the awareness of children and their parents regarding sustainability and a better understanding of the reason and impact of the planned refurbishment of the apartment buildings.

7.5 Monitoring

Monitoring of the Measure consists of the amount of activities and children on as well the Primary as well the High schools involved in this project. Besides, the impact of the awareness of the tenants of Bo-Ex is measured with inquiries.

7.6 KPI's

The relevant Key Performance Indicators for this Measure consists of:

KPI	Why?	Definition	Baseline	Target
1. People reached	Gain insight in effect of effort to engage full extent of target group	Percentage of people in the target group that have been reached and/or are activated by the project	NA	80%

Table 6 KPI's for this Measure

7.7 Risk management

The main risks regarding this Measures are:

- Social: tenants of Bo-Ex with children on the mentioned schools, can accuse Bo-Ex to misuse children to influence parents and others to support plans.
Mitigation measure: invite the parents of the children and tell them the story and the benefits of this initiative for themselves and their children.

7.8 Progress achieved up to M24

In the last 24 months, a lot of activities has been executed. The activities on the primary schools were successful. Even the director of one of the schools was surprised by the involvement of the children and their parents. The primary school activities will proceed in the coming years.

The activities with students from the profession school MBO-Utrecht were not all that successful, but there's space for improvement. Successful were the internships of students within Bo-Ex. These two students worked on the plan of the refurbishment of Columbuslaan III. One of the students even decided to apply on a job within Bo-Ex. The course for the 3rd year students in the school year 2018-2019 didn't bring that much (not much added value for the IRIS project), but it was nice to do and we've learned from it for the course for the 3rd year students in the school year 2019-2020.

7.9 Conclusions

Regarding this Measure, the activities taken out on the primary schools were quite successful, for the activities with the profession students of the MBO-Utrecht there's space for improvement. Because of the (potential) successes we succeed with this initiative in the coming years.

8 M#3: Evaluation and co-creation

8.1 Approach

This Measure consists of two sub-measures:

1. Create a local innovation hub
2. Citizen co-creation to develop a personal interface of HEMS and/or apps

Regarding the first mentioned sub-measure: a multi-functional hub for co-creation, user-driven innovation, dissemination and communication in the demo district, will be established in the local innovation hub. This hub provides room to facilitate conversation between local stakeholders, including residents, but will also be used as a meeting place for actual solution design and implementation, allowing for better results and creating faster and more targeted improvements. The hub will e.g. be used to organise the co-creation sessions/workshops for the integrated solutions listed on level 3 and 4 of the engagement ladder.

Regarding the second mentioned sub-measure: the HEMS Toon gives tenants insight and feedback on their energy consumption and savings. The potential value of the Toon is quite high, but there's also a risk of prejudice. If the tenants don't adopt the HEMS Toon, the energy consciousness will be not increased and the HEMS Toon will not be a sustainable solution.

8.2 Detailing of the activities

The activities related to the Measure Local innovation hub consist of finding the best location for mentioned activities. This location is 'Het Krachtstation' (English: 'The Powerstation') in the district of Kanaleneiland-Zuid. This former school building is located in the district near the bus station and near the office of Bo-Ex. In this building, several companies and start-ups coming from this district has been established in the past years. Besides, this building has enough facilities to welcome people and organize meetings and workshops. To become a local innovation hub, not only a good location is required, but also a high attractiveness and low threshold for people to visit this building is necessary.

The activities related to the HEMS Toon consists of develop a process and/or product which helps the tenants to use the HEMS Toon.

8.3 Planning and progress

Figure 11 shows the programme for the scheduled activities for this measure.

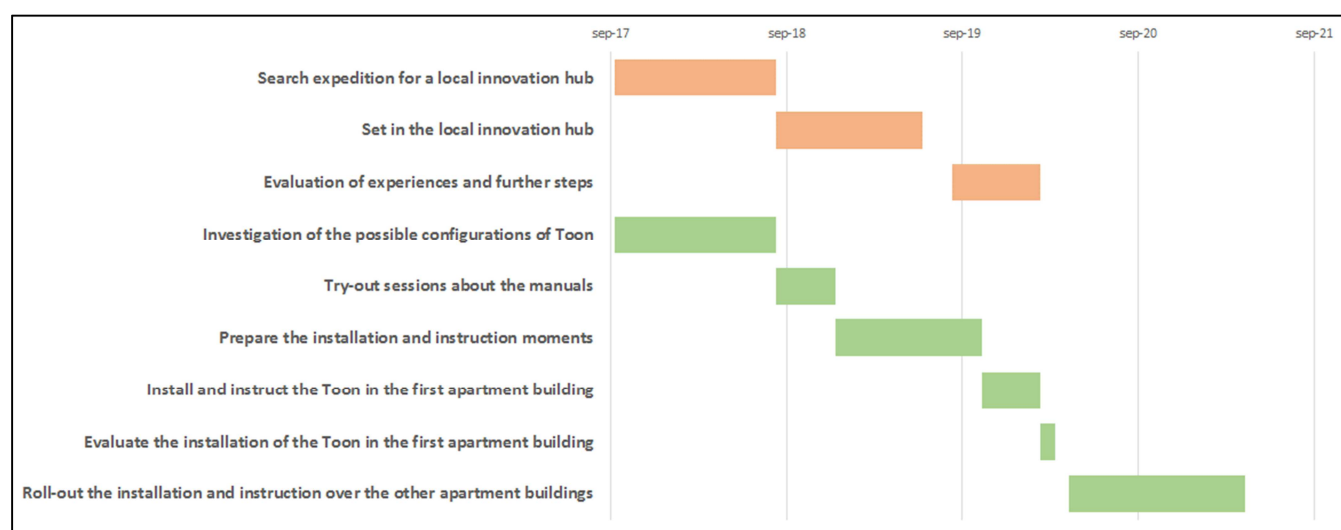


Figure 11. Timing of activities measure 3 –Evaluation and co-creation

8.4 Linkage to other TT

This activity is actually related to all the Transition tracks, since many of the meetings and workshops related to the different activities has been and will be organized in the local innovation hub.

Besides, the HEMS Toon will give input (data) to the City Innovation Platform (TT#4).

8.5 Monitoring

Monitoring of the Measure consists of the acknowledgement of this location as an innovation hub among people from the district.

8.6 KPI's

The relevant Key Performance Indicators for this Measure consists of:

KPI	Why?	Definition	Baseline	Target
1. Ease of use for end-users of the solution	Assess the level of difficulty to use a solution.	A smart city solution that is easy to use and understand will be more likely adopted than a difficult solution.	N/A	4 on the scale of 1-5 (Likert Scale)
2. Advantages for end-users	The extent to which the project offers clear advantages for end users.	Solutions which have a higher level of advantages to end users will be more likely to be adopted than solutions which have negative or no advantages.	N/A	4 on the scale of 1-5 (Likert Scale)

3. Local community involvement in planning/implementation phase	Public involvement during the planning/implementation stage is essential to provide developers with input to ensure that the project will perform as intended.	The extent to which residents/users have been involved in the planning /implementation process.	N/A	3 on the scale of 1-5 (Likert Scale)
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Table 7 KPI's for this Measure

8.7 Risk management

The main risks regarding this Measures are:

- Social: tenants and citizens don't find the Local innovation hub
Mitigation measure: make it attractive for people to come to the innovation hub.
- Social: tenants don't like / refuse the HEMS Toon because they distrust Bo-Ex and/or Eneco
Mitigation measure: inform the tenants well beforehand, try to set in ambassadors from this district to increase the confidence.

8.8 Progress achieved up to M24

In the past months, both sub-measures have been evaluated.

The local innovation hub is a central place in the district. But we also know that there must be something attractive for citizens and others to come to this place. It's not the most approachable place in the district, so effort is required when citizens are invited to come and participate.

In the past 24 months, we discovered that the HEMS Eneco Toon has a solid interface. It's not possible to adjust the interface for (only) these 644 households. E.g. equip the Toon with other languages to come towards the background of the multi-cultural tenants is not feasible. Besides, we've discovered that the manual for new clients is well designed. The manual is short and contains a lot of pictures and pictograms to support the client. In our opinion, the current device and manual are prepared well for the specific target group in Kanaleneiland-Zuid. The main objective is to help the tenants with the installation and adoption of the HEMS Toon. We do not invite tenants in the innovation hub or at Bo-Ex' office to instruct them because after a certain number of information gatherings, the turnout rate is very low. Therefore, we instruct the tenants at their home and adjust the instruction to their needs.

In order to accommodate the adoption process of the Eneco Toon, we changed our tactics, as described in paragraph 5.1

8.9 Conclusions

Regarding this Measure, a lot of effort has been done. The coming period will give an answer to the question: have we developed the right process to install the HEMS Eneco Toon for every tenant?

It is an important change of tactics that we have conducted in the last few months of the second year of the IRIS project. It will prove whether a personal door-to-door contact increases the engagement and whether working with a professional social consultant as a familiar and continuously recurring face leads to more trust. And eventually to more commitment and consent with the planned transition activities, especially the refurbishment activities.

9 M#4: Campaign Smart Street Lighting

9.1 Approach

A campaign for smart street lighting is closely linked to the development of a data-service for smart street lighting and is incorporated in these activities. This activity is the first IRIS Citizen Engagement activity and the first engagement part was held June 2018.

The outcomes of the first part of this have been reported exhaustively and shared with the other lighthouse cities. In this report we summarize these outcomes and the next steps.



Figure 12 Design thinking scheme

9.2 Detailing of the activities

Within this campaign we've followed the principles of design thinking. This principle defines two main steps: first finding the right problem and after this finding the right solution.

In June 2018 these steps have been executed together with people from the district of Kanaleneiland-Zuid, people from the (data and lighting) industry and other involved people.

To obtain the right solution, three workshops have been held:

- Workshop 1 to gather information and needs from the people from the district (inhabitants, entrepreneurs and professionals);
- Workshop 2 to create new concepts of solutions, based on the outcomes of workshop 1;
- Workshop 3 to match the outcomes from workshop 2 with the involved people.

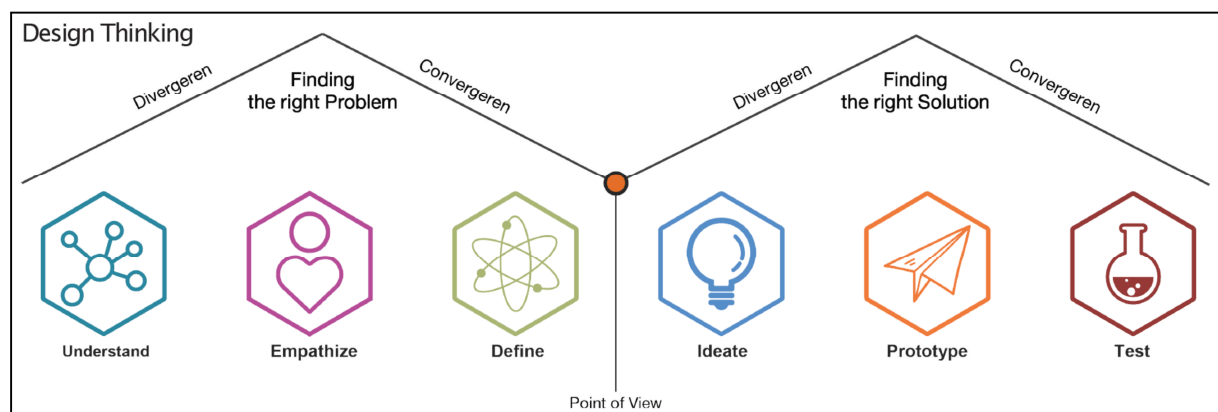


Figure 13 Design thinking model

9.3 Planning and progress

Figure 14 shows the programme for the scheduled activities for this measure.

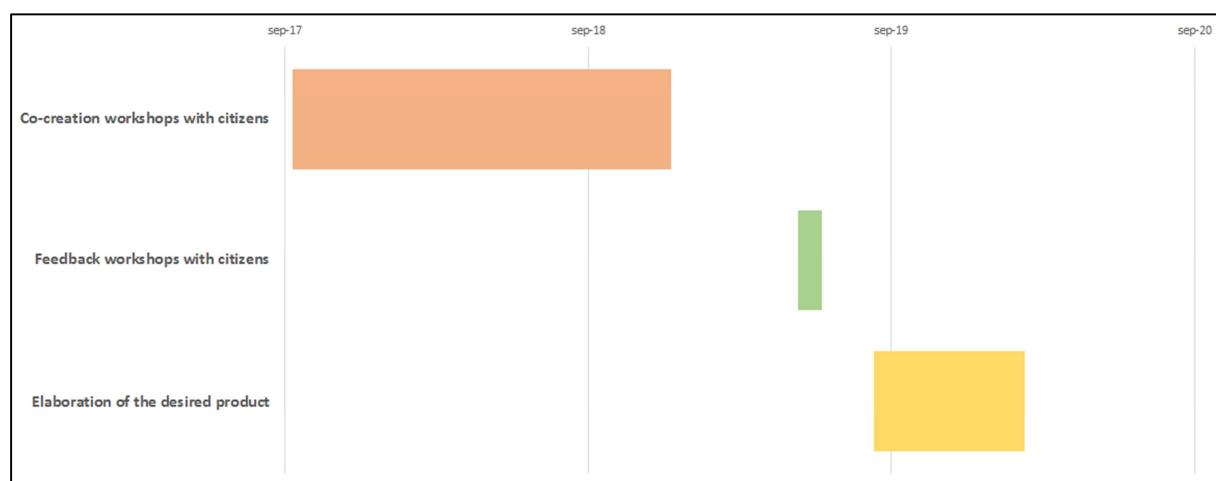


Figure 14 Timing of activities measure 4 –Campaign Smart Street Lighting

9.4 Linkage to other TT

This Measure has a link to the activities within TT#4 (data-solutions) in the Demonstration Area Utrecht. Initially, the idea was to feed the new lighting poles with Direct current energy generated from the PV-panels from the apartment buildings. Because of the high costs for infrastructural works to achieve this objective and the low amount of saved energy, this objective has been cancelled.

9.5 Monitoring

Monitoring of this Measure focuses on the degree of participation among people from the district and the lessons learned from these workshops for other engagement initiatives.

9.6 KPI's

The relevant Key Performance Indicators for this Measure consists of:

KPI	Why?	Definition	Baseline	Target
1 Local community involvement in development process	public involvement is essential to provide developers with input to ensure that the project will perform as intended	The extent to which residents/users have been involved in the design development process	NA	4 on the scale of 1-5 (Likert Scale)

Table 8 KPI's for this Measure

9.7 Risk management

The main risks regarding this Measures are:

- Technical: it's not feasible to realize the desired outcome due to financial reasons
Mitigation measure: manage expectations and involve the supplier(s) in the workshops
- Social: citizens who did not join the workshops agitate the designed product
Mitigation measure: involve citizens beforehand in the objectives and financial contribution of involved parties and the EU.

9.8 Progress achieved up to M24

This Measures is almost completed. This Measure was the first activity and is used as an example within the IRIS partners of design thinking processes with citizens. The feedback we've received from the participants was quite well. The next and last step is to purchase the product and celebrate the result of co-creation with the participants and other citizens.

9.9 Conclusions

Regarding this Measure, we look back on a successful route of citizen engagement! We're happy with the followed processes and outcomes. The only point of attention is to follow-up quickly with purchasing the product before people are uninterested in the outcomes and their part of it.



10 M#5: Virtual reality platform

10.1 Approach

According to the DoA, this activity focuses on a virtual reality platform, extending existing Oculus Rift® VR experiences for apartment buildings to other new buildings so households can experience their future 'new' home, including infotainment and interactive training about the new smart energy and mobility services they may expect.

In an earlier stage, experiments with 3D

visualization have taken place to experience the renewed house of tenants after a refurbishment. This visualization worked well, since almost all apartments are building up the

same and by using pictures (old/new) people could image which new parts/products were installed. On the other side, we've experienced that a certain amount of tenants can't 'read' visualizations: they don't understand a visualization and the linked pictures and descriptions to the visualization.

But, evaluating this tool and discussing the real objective for the Measure (create support for the plans for the refurbishment), we've decided to change plans. Still creating a certain way of reality of the main objective, but the tool will not be virtual reality, but we broaden our scope and try to find the best solution within Extended Reality (of which Virtual Reality is part of).

With XR we identify the mix between analogue and digital, with room for VR, AR, and other mix options. Its increasingly being used as a collective name for innovative applications.

'Extended reality (XR) is a term referring to all real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables. It includes representative forms such as augmented reality (AR), mixed reality (MR) and virtual reality (VR) and the areas interpolated among them.' Source: <https://en.wikipedia.org>



Figure 15 VR experience

Source: <https://www.pebblestudios.co.uk/2017/03/29/our-guide-on-how-to-create-immersive-vr-experiences/>

10.2 Detailing of the activities

The challenge is to find the best way(s) to involve tenants in their current and new house by making use of Extended reality. The approach to find this way(s) is similar to the M#3 Smart street lighting Measure. With this approach, we first gather information from the tenants: what information do they need to obtain a better view on their new home? And which parts of the apartment building and environment are desirable to focus on? And what helps tenants to understand the plan of refurbishment?



Based on the discussions we've had about this Measure, we've chosen for another tool than the Oculus Rift® (or equal VR product). The Oculus Rift do give tenants insight in their existing and new situation. But has also some disadvantages: the glass is heavy to wear the glass can only be used by one person at the time, the glass brings hygienic problems and it cost a lot of effort (time and cost) to create a realistic virtual reality.

The tool we've chosen for to develop brings the following principles together:

- District wide insights;
- Insights in costs and benefits of the energy transition (including refurbishment works) for the tenants / citizens;
- Interaction elements, which can be conducted by more than one person at a time;
- An experience for young and old and independent of languages.

The tool consists of an interactive table with camera and projection screen. This table contains a scale model of the district of Kanaleneiland-Zuid with the twelve apartment buildings of Bo-Ex. People can play with this model: they can add miniature PV-panels on the roofs, put insulation around the apartment buildings, bring in energy storage and so on. Every activity of the person who plays with this model, directly results in insight in energy costs and benefits and environmental consequences. With this model, we develop an easy, accessible experience which can be played by different people at different places.

10.3 Planning and progress

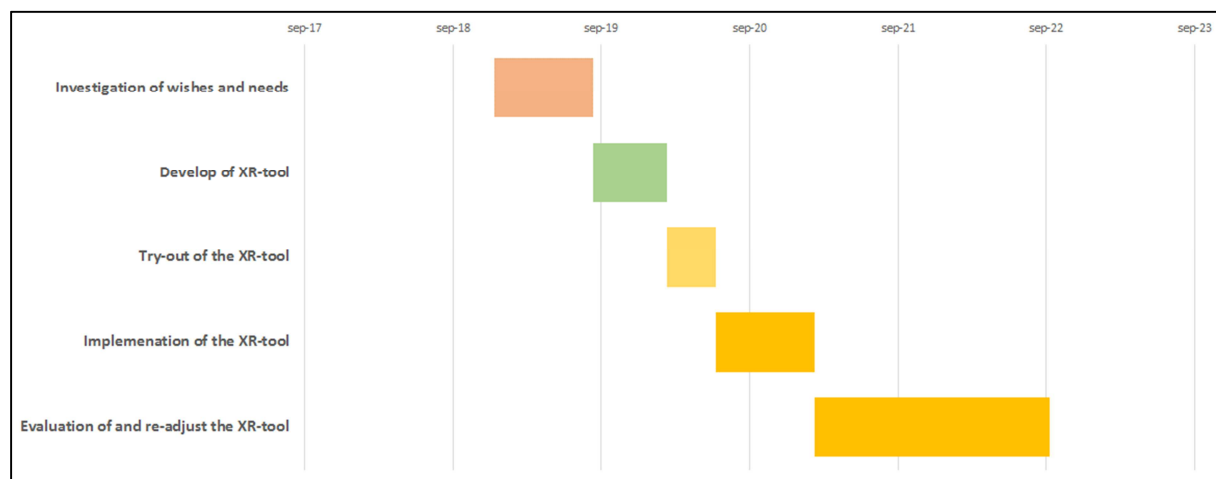


Figure 16. Timing of activities measure 5 - Virtual reality platform

10.4 Linkage to other TT

These activities are mainly linked to the activities of TT#1, in which the refurbishment of the apartment buildings has the focus of attention.

10.5 Monitoring

Monitoring of this Measure focuses on the participation and degree of understandability among tenants regarding the planned refurbishment works.

10.6 KPI's

The relevant Key Performance Indicators for this Measure consists of:

KPI	Why?	Definition	Baseline	Target
1. Ease of use for end-users	Assess the level of difficulty to use a solution	A smart city solution that is easy to use and understand will be more likely adopted than a difficult solution.	NA	4 on the scale of 1-5 (Likert Scale)

Table 9 KPI's for this Measure

10.7 Risk management

The main risks regarding this Measures are:

- Social: people don't trust the (outcomes of the) model
Mitigation measure: explain the background of the XR experience and use information of references

10.8 Progress achieved up to M24

In month 23 we've developed the new idea for the XR experience. In the coming half year, this idea will be developed, tested and created. From month 32, we'll use this game at different places.

10.9 Conclusions

Regarding this Measure, it took some time to discuss what the best solution is regarding this Measure, since the original idea has too many drawbacks. The current idea is supported by everyone within the IRIS team. We of course hope that these enthusiastic reactions will result in the same reactions from the people who will be asked to play this XR experience.

11 Summary on monitoring of KPIs

With reference to the chapters about the five Measures, there are KPI's related to a specific measure and KPI's related to a combination of Measures within TT#1. The reason for aggregating the performance indicators to a higher level is that the specific impact of this Measure is hard to abstract. In this chapter these aggregated KPI's are mentioned

11.1 Expected impact

The expected impact of the measures of TT#5 are:

- Increased environmental awareness amongst tenants
- More people reached in the district of Kanaleneiland-Zuid
- More involvement of tenants and others in the planning and implementation phase
- A high degree of ease of use for end-users of the developed products
- Advantages for the end users of the developed products

11.2 Aggregation of KPIs for each LH city

Each LH city has its own set of KPIs that can be related to the IRIS KPI house; the top level of the house containing the IRIS level KPIs (IL) is however the same for all cities. On solution level (STT1-5), the KPIs may vary between the cities since different solutions are implemented in each city and the cities have different objectives, but in many cases the same KPIs can be found in all cities, thus allowing comparison between the Transition Tracks of the cities. For some Transition Tracks the evaluation of integrated solutions cannot be separated and the KPIs are hence calculated at Transition Track level (TT1-5). The KPIs for each transition track and possibilities to aggregate them are presented in Table 10.

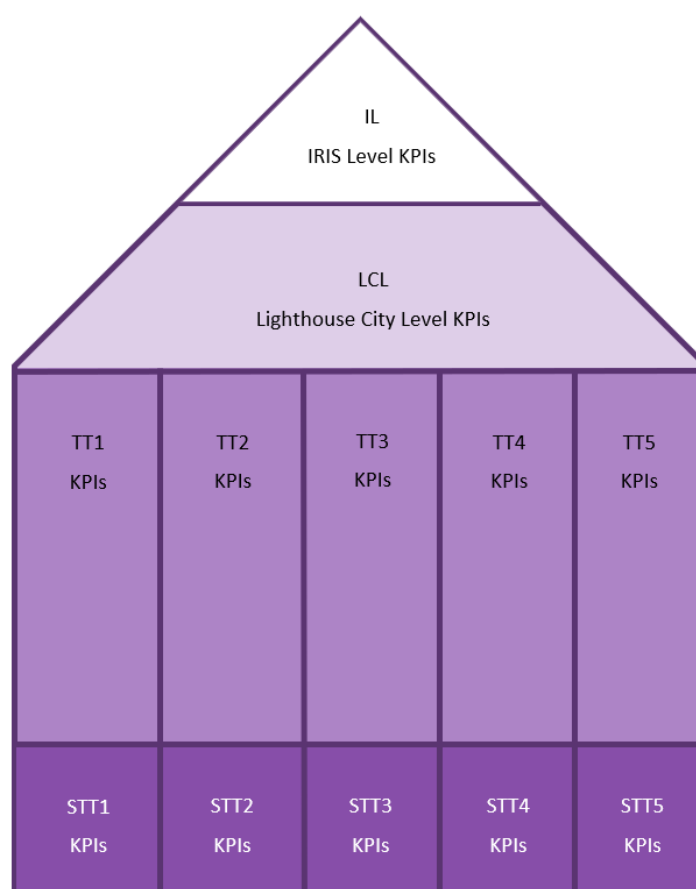


Figure 17 IRIS KPI-house. The KPIs presented in Tables 4-6 are, if possible, aggregated to transition track level (TT1-5) or higher.

The following table shows the KPI's of this transition track and their position in the IRIS-KPI-House.

KPIs	Solution	Position house	IRIS	KPI-
1. Increased environmental awareness	5.1 Community building by change agents	STT5		
2. People reached	5.1 Community building by change agents	STT5		
3. People reached	5.2 Campaign for district school involvement	STT5		
4. Local community involvement in planning/ implementation phase	5.1 Community building by change agents	STT5		
5. Ease of use for end-users of the solution	5.3 Evaluation and co-creation	STT5		
6. Advantages for end-users	5.3 Evaluation and co-creation	STT5		
7. Local community involvement in planning/ implementation phase	5.3 Evaluation and co-creation	STT5		
8. Ease of use for end-users	5.5 New Home & District Experience	STT5		

Table 10. Relation and possible aggregation of KPIs to solutions and the IRIS KPI-house in Figure 17.

12 Ethics requirements

The scope of this deliverable is to show how the IRIS consortium will address the ethical, data protection, confidentiality and privacy aspects related to the processing of personal data collected by IRIS consortium partners for the purpose of executing the project tasks.

12.1 GDPR compliance

The overall Data Protection officer (DPO) is mr. Henk Kerlien from Stichting Bo-Ex '91. Henk Kerlien is involved in the IRIS project in the role of Project Legal Signatory.

The following table shows the GDPR elements per Measure of TT#5.

Demonstrator	Element and description	
#1 Community Building by Change Agents	Data controller:	Stichting Bo-Ex '91
	Personal Data:	Yes: name, address, phone number and e-mail.
	High risk involved:	No
	DPIA:	Not applicable
	Informed Consent Procedure	Not applicable
#2 Campaign District School Involvement	Data controller:	Municipality of Utrecht
	Personal Data:	No
	High risk involved:	Not applicable
	DPIA:	Not applicable
	Informed Consent Procedure	Not applicable
#3 Campaign Smart Street Lighting	Data controller:	Municipality of Utrecht
	Personal Data:	Yes: name, address and e-mail.
	High risk involved:	No
	DPIA:	Not applicable



Demonstrator	Element and description	
	Informed Consent Procedure	Not applicable
#4 Creation of local Innovation hubs	Data controller:	Stichting Bo-Ex '91
	Personal Data:	No
	High risk involved:	Not applicable
	DPIA:	Not applicable
	Informed Consent Procedure	Not applicable
#5 Virtual Reality Platform	Data controller:	Stichting Bo-Ex '91
	Personal Data:	No
	High risk involved:	No
	DPIA:	Not applicable
	Informed Consent Procedure	Not applicable

12.2 Ethical aspects

All activities regarding this transition track are done together with tenants of housing corporation Bo-Ex or other citizens of the district of Kanaleneiland-Zuid. The activities are done with respect to these people and their rights (e.g. for the tenants according to Dutch constitution law). Besides, the experiments within this transition track are only possible and feasible with the explicit allowance of the involved people. We do not force people to join initiatives We know that the relation between citizens and the housing corporation and the Municipality of Utrecht in this district is quite delicate. Therefore, one of our missions regarding this transition track is to launch experimental activities on a save way. So, the experiments we do, may not fear people, increase distrust or lead to other negative outcomes.

13 Links to other work packages

Being a coordinating work package, WP5 has interdependencies with most of the other WPs.

WP3 supports the two expected impacts: Put in practice bankable solutions of IRIS cities' transitions tracks; Reduce the technical and financial risks in order to give confidence to investors for investing in large-scale replication. This transition track within WP5 gives opportunities to bankable solutions. For example the street lighting solution.

WP4 aims at "offering an open, reusable and reliable platform for sharing data, speeding-up innovation, standardization and implementation of smart application." The relevant data from the activities within this transition track contribute to the availability and connectability of data from the houses. With this data, other data solutions and tools can be developed.

WP9 aims to provide quantitative impact analysis for the LHs, which have implemented different SoA IRIS solutions, such as infrastructure, citizen engagement, ICT, energy saving and e-mobility, in order to determine the KPI's as defined in collaboration with the LHs. With the help of the people involved in this work package, the qualitative and quantitative key performance indicators of each Measure have been set up and reviewed.

At last, the results coming from this transition rack are shared with the people involved in WP10. For example, the reports from the smart street lighting workshops have been publishes on the Dutch IRIS website.



14 Conclusions and next steps

After 24 months, a lot of activities and initiatives have taken place and also a lot of lessons have been learned already.

Lessons learned

From the other activities, the following lessons have been learned and are taken into account considering activities in the (near) future:

1. It's not easy to come into contact with our target group, because of language barriers, people have bigger problems to worry about and a natural distrust within a large part of the target group towards institutions such as the municipality and housing corporation.
2. The distrust in housing corporation Bo-Ex amongst tenants is high and it's hard to find reasonable solutions. The distrust is strengthened by the plans of the other housing corporation who act in the same area and offer their tenants more value for money according the tenants of Bo-Ex.

Drivers and barriers

The main drivers of this transition track are still actual, the solutions which have been suggested are still applicable and increases the energy efficiency within the district of Kanaleneiland-Zuid.

The main barriers are primarily the involvement and support of tenants. Tenants in this district often do have other problems to process such as obtaining enough income to feed my household, criminality, rats, traffic safety and parking problems. A sustainable house is not top of their mind.

Without involvement and support, the desired outcomes of this project seem to disappoint. Especially in TT#5 we focus on the citizen engagement and try increase the amount of involvement and support amongst tenants.

Next steps

Considering the lessons learned and results we've achieved, the next steps for this transition track are:

- Change the way of meet up with tenants / citizens: try to get into their 'safe zone' instead of inviting these people in our 'safe zone';
- Focus on the target group and their reasons to support the plan of refurbishment (of the apartment buildings of Bo-Ex).

15 References

- Grant Agreement nr. 774199 — Integrated and Replicable Solutions for Co-Creation in Sustainable Cities (IRIS) Amendment, Reference No AMD-774199-24
- Deliverable D5.1 Baseline, ambition, activities, and barriers & drivers for Utrecht lighthouse interventions, 30 September 2018
- Deliverable D5.2 - Coordination of Utrecht integration and demonstration activities, 30 September 2018
- Deliverable D5.3 - Launch of T.T. #1 Activities on Smart renewables and near zero energy district
- Deliverable D5.4 - Launch of T.T.#2 activities on Smart energy management and storage for flexibility (UTR)
- Deliverable D5.5 - Launch of T.T.#3 activities on Smart e-mobility (UTR)
- Deliverable D5.6 - Launch of T.T. #4 activities on CIP and information services
- Source: Utrecht op de Kaart <http://kaartenutrecht-gemu.opendata.arcgis.com/>
- Source: WistUData <http://www.wistudata.nl>
- Source: VR-experience <https://www.pebblestudios.co.uk/2017/03/29/our-guide-on-how-to-create-immersive-vr-experiences/>