IRIS

Integrated and Replicable Solutions for Co-Creation in Sustainable Cities

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0.3	15/02/2018	Addition of lessons learned section
0.4	22/02/2018	Addition of step-model approach for Citizen Engagement Ladder
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0.6	26.05/2018	Addition of material from LH Nice, FC Foscani
0.7	15/06/2018	Draft with main sections completed
0.8	29/06/2018	Addition of materials from FC Vaasa and FC Tenerife
0.9	05/07/2018	Final draft for internal review and feedback
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Disclaimer

Executive Summary

The objective of this report is to provide a basis for a planning framework (that will be further described and elaborated in detail in D1.7) to steer the IRIS activities around co-creation and Citizen Engagement for the duration of the IRIS project.

Within the IRIS project, Transition Track #1.5 is focused on Citizen Engagement and the primary objective is to sufficiently raise awareness and learning among key stakeholders and within the participating LH and FC cities by introducing pragmatic and effective co-creation mechanisms to critically assess proposed solutions in a timely manner.

Through the establishment of an approach to citizen engagement that incorporates recent outcomes from approaches to design and systems thinking, an integrated approach to designing relational experiences for citizen engagement has been developed, called the **Citizen Engagement Ladder**, and this involves six key phases, namely:

- Phase 1: Awareness-raising
- Phase 2: Mapping
- Phase 3: Scoping
- Phase 4: Co-creation and Design Scenarios
- Phase 5: Touchpoints and Influencers
- Phase 6: Feedback Loops

This multi-perspective approach is called the *Citizen Engagement Ladder* and during the first 9 months of the IRIS project the approach has been developed and tested with the participating LH cities. One of the key outcomes from this approach is to provide stakeholders with the tools to determine the most appropriate citizen engagement activities for each of the proposed Integrated Solutions. Rather than seeking to deploy standard citizen engagement co-creation activities in a horizontal manner, the approach means that choices can be made on how best to deploy resources in order to have the highest impact within the participating smart cities and communities.

This work has involved testing and piloting materials with local stakeholders and stakeholder groups and hosting several awareness-raising sessions. Following this work, a template has been developed wherein all the participating LH cities will describe in considerable detail their citizen engagement activities for each of the Integrated Solutions to be deployed. These results will be reported in D1.7.

Thereafter, and based on these detailed descriptions, citizen engagement activities can be fully integrated within broader deployment trajectories. In addition, a number of KPIs for citizen engagement have also been formulated and integrated into wider validation frameworks (see D1.1).

It is hoped that with this iterative open innovation approach, the engagement and influence of citizens will be both considerable and sustainable, with measurable outcomes within the project lifecycle.

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List of Acronyms and Abbreviations

Abbreviation	Definition
FC	Follower City
LH	Lighthouse
SCC	Smart Cities & Communities
CE	Citizen Engagement
CEL	Citizen Engagement Ladder
IS	Integrated Solution
CEL	Citizen Engagement Ladder
TP	Touchpoint
CCI	Cultural and Creative Industries
EIP-SCC	European Innovation Platform on Smart Cities & Communities
SCIS	EU Smart Cities Information System

1. Introduction

1.1. Scope and objectives of the deliverable

The objective of this report is to provide a basis for a planning framework (that will be further described and elaborated in detail in D1.7) to steer the IRIS activities around co-creation and Citizen Engagement for the duration of the IRIS project. A further objective is to put focus and selection on those IRIS solutions that are most suitable and effective for co-creation with citizens and to provide capacity building to the LHs and thereafter FCs with regards to citizen engagement strategies for the chosen IRIS solutions.

The document thus provides an overview and contextualisation of citizen engagement activities at a European level and a short description of the lessons learned from these approaches and previous citizen engagement activities in each LH. An explanation of the step-model citizen engagement approach developed by HKU for IRIS is also provided, with information about the co-creation workshops undertaken in each LH.

An in-depth description of the citizen engagement activities that will be undertaken in each LH during the IRIS project, with some provisional descriptions of the applicability and suitability of these activities for FCs, is provided in Deliverable D1.7 (M12).

1.2. Structure of the deliverable

The deliverable has the following sections:

- Introduction
- Methodology
- Citizen Engagement in European Cities: lessons learned from existing policy and initiatives
- Citizen Engagement in IRIS Cities: lessons learned from existing methods and activities
- Citizen Engagement Ladder: explanation of approach to citizen engagement in IRIS
- Citizen Engagement Co-Creation Workshops
- Initial Field Guide for Citizen Engagement for IRIS Integrated Solutions
- Planning and next steps
- Conclusion

1.3. Relation to Other Tasks and Deliverables

These detailed descriptions of the citizen engagement activities in each LH in this document will also provide the basis for the required interactions with parallel IRIS activities. These connections will be further elaborated in D1.7. The IRIS plan will then be adjusted accordingly, especially with regard to the placement of the foreseen infrastructure, and merged with existing local plans. The overall outcome from Track 1.5 will be a plan for each demonstration area, where each IRIS pilot is placed in the larger context of a development plan for the area. The data gained from these inputs can be used both in relation to the technical solutions in ***WP5-7***, the business cases in ***WP3*** but also in relation to legislation and replication ideas in ***WP8***.

2. Methodology

2.1. Approach to gather information for citizen engagement planning and activities

The purpose of this document is to update and gather more detailed information for each of the LHs with regard to:

- the citizen engagement activities already undertaken;
- the lessons learned within each LH on the activities and approaches already undertaken and identify any commonalities from this process;
- the formulation of a coherent approach to citizen engagement that can be applied in the different LHs and FCs during the project
- the running of co-creation workshops to explain the citizen engagement approach and identifying suitable citizen engagement activities for each of the IS in the LHs

In this manner we aim to build on lessons learned from existing citizen engagement methods and activities as well as providing a sound basis for the collective IRIS citizen engagement activities. This includes a clear description of the citizen engagement method that will be adopted during the project and a clear mapping to IS in LHs, based on discussion and feedback. In this way, we provide a clear and carefully considered description of the citizen engagement approach and when combined with the detailed activities and planning for each of the IS in LHs in D1.7, a sound basis for the citizen engagement and co-creation activities throughout the project so that the citizen engagement activities are integrated alongside the broader demonstration activities in each LH in a feasible and measurable manner.

Methodology for collecting information in the document

The initial work under WP1 Track 1.5 was split into 5 phases, in order to involve different stakeholders from LHs and FCs in each phase, and have a number of iterations towards collecting and finalising the required information. The phases are described below.

Phase 1 (M01-M06)	Collection of existing information on citizen engagement initiatives and approaches and lessons learned for Demonstration areas from LH

For each of the LHs, information was collected on previous and existing citizen engagement activities and methods and with some additional insights into the lessons learned from these approaches.

Phase 2 (M01-M09)	HKU as task leader interacted with LHs to refine and consolidate information received and to summarise and find commonalities from the lessons learned from existing citizen engagement activities and approaches

Based on these descriptions, and through ongoing discussions and meetings, HKU analysed and sought to find commonalities from the lessons learned from previous and existing citizen engagement approaches as input to the formulation of a project-wide citizen engagement approach.

Phase 3 (M03-M12)	HKU initiated a series of co-creation workshops with LHs in order to introduce the Citizen Engagement Ladder approach to be used with each of the proposed local solutions so that suitable citizen engagement trajectories can be developed locally

In parallel, HKU (with support from WP3 expertise in scenario planning) used this information as the basis for a series of co-creation workshops with each LH. The purpose of these workshops is to map suitable citizen engagement methods and activities with each of the proposed IS. The first workshops were held with LH Utrecht (March 2018) and thereafter in LH Gothenburg (May 2018) and LH Nice (May 2018). A further two-day co-creation workshops is scheduled for mid September 2018 in order to support the LHs in preparing the detailed citizen engagement trajectories for each IS and this will be described in D1.7. It is also anticipated that HKU will continue to provide active support for these activities during the project in order to steer co-design and co-creation decisions, gather feedback, monitor progress and refine the citizen engagement approaches as necessary and based on real-life activities.

Phase 4 (M07-M12)	LHs then began holding local stakeholder workshops and meetings in order to provide more detailed information for each IS, outlining the citizen engagement goals and activities, their relationship to business model goals and communication activities, target groups, key stakeholders, monitoring progress and achieving KPIs

In order to have an agreed structure and planning in place, each LH has been asked to describe in more detail the citizen engagement activities for each of the IS. This will involve a description of items such as:

- The different types of citizen engagement activities to be deployed for each IS
- A description of the stakeholders involved and the responsibilities
- Detailed scheduling and planning based on the wider IS deployment
- Types of outputs and outcomes that will be generated
- Risks involved and possible mitigation
- Agreement on related KPIs for Citizen Engagement

During this process being undertaken by LHs, FCs will also use the information gathered to complete a provisional description for citizen engagement trajectories within FCs. This activity will be continuous and FCs will be introduced to the same methodologies and approaches used on the co-creation workshops for LHs. For FCs, the materials will be made available to run co-creation workshops if relevant and to also provide some provisional descriptions of the citizen engagement activities that could be adopted in their cities. A workshop for FCs has been scheduled in M12.

Phase 5 (M09-M12)	HKU will finalise the two relevant deliverables, D1.6 and D1.7

D1.6 is the first of the two relevant deliverables. During this process, detailed discussions have been held during the bi-weekly WP1 Teleconferences, bilaterally with LH and FC stakeholders and during the larger project plenary meetings.

3. Citizen Engagement in European Cities

3.1. Context of Citizen-focused policies

Over the last 5 years there has seen a growing interest in ***societal and citizen engagement*** in so far as this relates to the deployment of Smart City infrastuctures and systems. It is important, however, to consider the wider context in which this occurs, namely that of open innovation.

The recent Moedas Report examines the importance of Open Innovation in the European context. This means that *"a specific innovation can no longer be seen as the result of predefined and isolated innovation activities but rather as the outcome of a complex co-creation process involving knowledge flows across the entire economic and social environment."* This observation has significant consequences for current and future innovation activities and is highly influential in shaping the Horizon Europe Framework Programme that will follow H2020. The report identifies the key actors in these open innovation processes, closely mirroring the Quadruple Helix approach (see Figure 1 below) but crucially aligning the role of the Citizen alongside these descriptions.

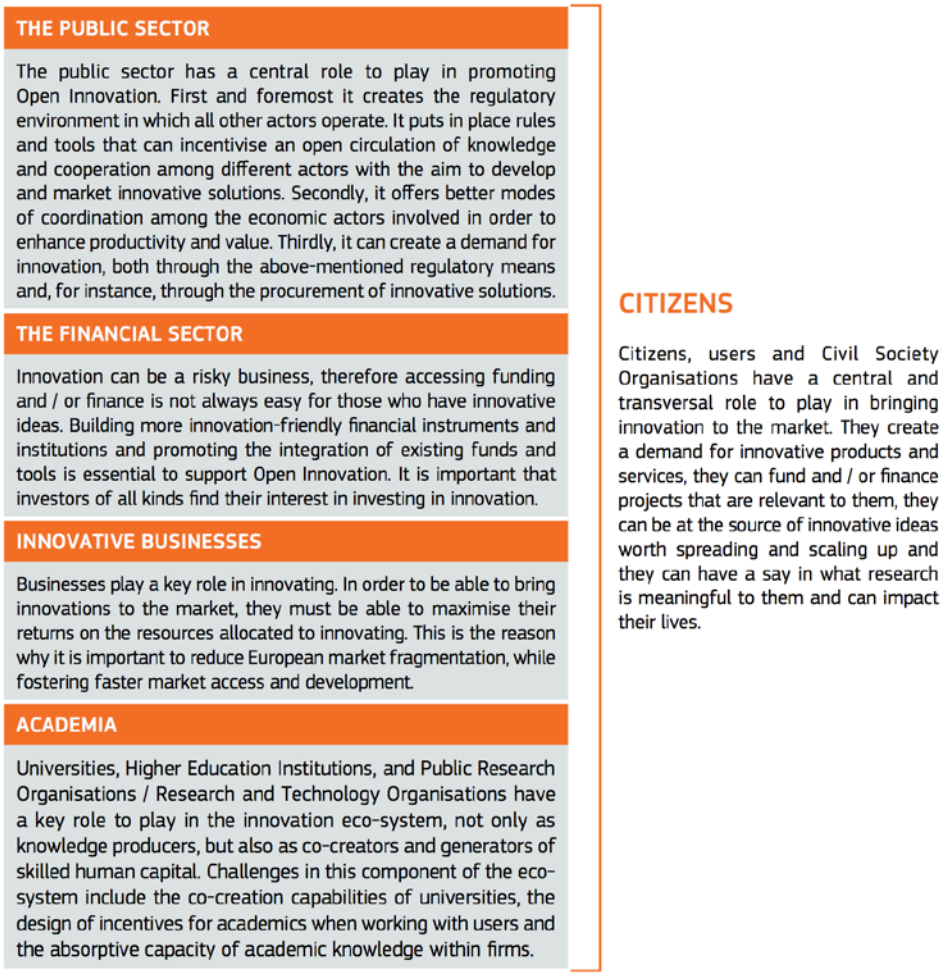

Figure 1*: Key actors in Open Innovation processes*

The Moedas report will likely give considerable weight to Open Innovation in the forthcoming FP9 Programme:

"It is important to look beyond the current thinking to ensure that an innovation-friendly policy environment and an ecosystem which recognises the value of a broad approach to innovation are supported. This should include users in the innovation process and fostering the circulation of ideas and knowledge for innovation.

In the future, in addition to supply side measures, there should be more focus on addressing proactively the needs of European businesses so as to enable them to grow, engaging with knowledge users and citizens, and capitalising more efficiently on the knowledge base available in Europe. This would mean, for instance, engaging more with citizens, users, investors, businesses and business associations in a ***structured dialogue****, and not only with universities and research-performing organisations."*

The Lamy report[1] builds on the Moedas report and seeks to provide recommendations to maximise the impact of the EU Research & Innovation programmes. The Lamy report recommends that:

EU innovation policy must be based on a definition of innovation that acknowledges and values all forms of new knowledge – technological, but also business model, financing, governance, regulatory and social – which help generate value for the economy and society and drive systemic transformation." [and notes that] *"Modern R&I policies and programmes with the highest potential for promoting breakthroughs are those that resolutely* ***push and pull cross-disciplinary, cross-sectorial, cross-institutional and cross-border collaboration, responsive to market opportunities and societal expectations****. The EU level is uniquely placed to remove borders of all kinds. "*

The area of social innovation has also seen considerable growth in recent years with a variety of European and national policy initiatives intended to balance approaches focused on technological innovation. The creation of experimental spaces such as Living Labs although these spaces are still relatively new in SSH and the Arts institutions. These spaces help to prepare students for real-life environments and to build up multidisciplinary and cross-sectoral knowledge partnerships. having said this, earlier optimism has given way to a realisation that there are few 'magic bullet' solutions to complex social problems. A recent provocation from Indy Johar[2] recognises this complexity and notes that:

"This future of social innovation requires us to also recognise change in this world cannot be designed as a strategy written for one organisation but has to consist of the investment in growing a movement of change, or shared intent, a mission which is an open invitation to take part and innovate together; a shared language and understanding of interdependent issues; and the distributed collective intelligence and agency of a movement. This is a future which fundamentally asks us to rewrite the models of change — from hard power to soft power, from command and control to protocols, mutual accountability, investment & system leadership."

Similarly, the SIX Network recently produced a report[3] on participatory systems change, noting that:

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[1] LAB-FAB-APP: Report of the independent High Level Group on maximising the impact of EU Research & Innovation Programmes (2017) , DG Research & Innovation

[2] Indy Johar (2017) 10 Provocations for the Next 10 years of Social Innovation, see https://provocations.darkmatterlabs.org/massive-change-10-provocations-for-the-next-10-years-of-social-innovation-df4756ed8629

[3] Simon Fraser University's Centre for Dialogue. (2017). *Participatory Systems Change:A Primer.* Retrieved from http://www.sfu.ca/dialogue

> *"Addressing many of today's most pressing problems—from climate change to unsustainable borrowing to rising inequalities—requires both **engaging broad public audiences** and **working with complex systems of institutions, actors and drivers** to mobilize solutions. Over the past thirty years, advances in the field of public engagement have enabled citizens to meaningfully affect government decision-making, while evolutions in systems approaches have created new opportunities for experts to understand and intervene in complex systems. Yet, until recently **there has been little interaction and exchange between these two fields.**"*

While there is some scepticism about the perceived success of social innovation initiatives, there is no doubt that the public sector remains a core participant within innovation processes. Figure 2 below[4] visualises just how extensive this role can be and just the depth of engagement that may be required. For example, from the Smart Cities & Communities perspective, the public sector and related organisations have a pivotal role to perform if technological innovation is to be successfully balanced alongside social innovation and with enhanced citizen involvement. By way of example, a recent DG Energy report[5] noted that:

> *"Communities have a specific role to play in smart initiatives; yet, the evidence from the best practice examples shows that in most cases there is only a traditional form of citizen involvement strategy in place, involving promotion, recruitment of participants and community participation to a limited extent. However, in-depth case studies confirmed that citizens and communities are not given a strategic role in the development and execution of integrated SCCs, and that the relevant communities are emerging as a key success factor for a sustainable business model. Different opportunities to involve communities in collaborating, co-creating and co-developing solutions can be leveraged, spanning from increasing communication to creating initiatives bonding smart city actors together."*

The breadth of citizen involvement echoes that proposed by the Moedas report above and the development of Smart Cities and the related deployment of Internet of Things technologies has proved to be progressing rather slowly at least in part due to inadequate attention to the Citizen Focus perspective. Indeed, the European Innovation Partnership on Smart Cities & Communities[6] has recently initiated a '**Manifesto on Citizen Engagement & Inclusive Smart Cities**' that seeks to tackle these issues directly. This is perhaps a very clear example of the imbalance between technological and socio-cultural innovation.

[4] NESTA (2017) Public Sector Innovation Competency Framework, see https://www.nesta.org.uk/blog/what-are-skills-and-attitudes-successful-public-problem-solving

[5] European Commission DG Energy (2016) Analysing the potential for wide scale roll out of integrated Smart Cities and Communities solutions (p78)

[6] See https://eu-smartcities.eu/content/eip-scc-manifesto-citizen-engagement-inclusive-smart-cities

Figure 2*: NESTA Public Sector Innovation Competency Framework*

Discussions around the ***sociology of scientific knowledge and the ethics of innovation*** are also rapidly broadening, and it is clear that the Horizon Europe Framework Programme will likely take many of these issues on board. Among several key recommendations of the 2016 report[7] from the FET Advisory Group (FETAG)[8], it was suggested that '*Opening up new policy questions and identifying new societal needs'* is a central imperative. It is becoming clear that the depth of societal engagement required in shaping new innovative solutions will only increase and we are often poorly equipped to deal with these deeper levels of stakeholder engagement and the complexity that arises when seeking to balance diverse and competing perspectives. This is especially important for creative microSMEs that are often well-placed to locate value chains and growth trajectories but are poorly served from the knowledge and data perspectives.

The FETAG report also recommends '*Developing and promulgating new social 'technologies' and defining a more holistic approach to technology governance.*' This is of particular relevance to policy makers as:

> *"in an increasingly complex world, it becomes ever harder to evaluate public policies to see whether they are actually working as intended, or even to determine whether some observed change is in fact the result of the application of a policy initiative."*

This is indeed becoming apparent from the early results from deployment activities within Smart City environments. This can be seen, for example, in the EU Smart Cities Information System (SCIS) database[9], where by far the bulk of the challenges around Energy are mostly in this 'Social' category.

Citizen Focus[10] is the European Innovation Partnerships on Smart Cities and Communities' (EIP-SCC) Action Cluster promoting citizen engagement, their empowerment and participation in ameliorating their urban environments. The Action Cluster has been active in the EU arena since 2014, promoting networking efforts with key stakeholders and policy makers"

> *"In a time of urban transformation and digitalisation of smart cities, too little attention is sometime given to citizens. Citizen Focus Action Cluster strongly believes in citizens as fundamental actors for the regeneration and development of smart cities. Civic engagement, empowerment, participation and co-creation are at the basis of our advocacy approach since we acknowledge that citizen voice can be pivotal in providing the demand-side pressure on government, service providers and organisations needed to encourage full response to citizen needs. It also ensures the setup of a trusted and sound relationship with local governments and a source of democratic legitimacy and transparency. In the context of smarter cities, citizens understanding of concrete problems and challenges can help local governments prioritise and respond consistently to inhabitants' need."*

Central to the Citizen Focus approach are:

- Civic engagement, empowerment and participation
- Inclusion of citizens and disadvantaged communities

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[7] Gilbert, N. et al. (2016) The need to integrate the Social Sciences and Humanities with Science and Engineering in Horizon 2020 and beyond , FETAG

[8] Future and Emerging Advisory Group (FETAG), see https://ec.europa.eu/digital-single-market/en/future-emerging-technologies-advisory-group-fetag

[9] https://www.smartcities-infosystem.eu/lessons-learned/energy/social

[10] https://eu-smartcities.eu/clusters/3/description

- The power of people to transform places and outcomes (smart housing, smart urban solutions, participatory budgeting, and crowdsourcing)
- Civic Leadership - benefiting from citizen engagement actions to deliver solutions
- Social Housing and transition to low carbon communities
- Learning and sharing from the world-wide frontrunners in citizen engagement

Since 2014, Citizen Focus has been actively engaged in the EU arena, promoting and participating to mutual learning and networking efforts with key stakeholders and EU and national policy-makers. Main collective achievements to date:

- Inclusive Smart Cities: a European Manifesto on Citizen Engagement - endorsed by more than 120 public and private sectors representatives. Click here to endorse!

- Preliminary analysis of citizen engagement measures implemented in selected Ambassador Cities - on-going

LH Utrecht has also been involved in these activites, and the City of Utrecht was recently nominated as an Ambassador City for Citizen Engagement. IRIS Co-ordinator Haye Folkertsma noted[11] that:

> *"Design and demonstration of feedback mechanisms and inclusive services for citizens to achieve that they are intrinsically motivated to (i) save energy, (ii) shift their energy consumption to periods with redundant renewables, (iii) use electric vehicles and (iv) change the vehicle ownership culture towards a use or common mobility assets culture. Demonstrated solutions include game-theory based engagement methods and instruments ranging from co-creating infotainment apps, local school campaigns, offering training on the job to students living in the district by partaking in the demo activities, competitive energy games using the home energy management system, energy ambassadors creating local energy communities, to crowd-funding creating a sense of being part of the solution."*

HKU, leading the work on citizen engagement on IRIS, also attended one of the design workshops in 2017 set up by the Citizen City[12] initiative. This initiative emerged within the European Innovation Partnership on Smart Cities and Communities (EIP-SCC). After a few years of conversation about Smart Cities the idea of focusing on citizens emerged, and from this the Citizen City initiative developed. There is a clear need in city governments to engage with citizens and broader society, but currently, government officials in cities tend to find it hard to involve citizens in discussions or in decision making. There are lots of methods and tools and knowledge 'out there' in the market, but project staff in cities don't seem to find their way through the vast amounts of information.

The focus of the design workshop was engaging with city authorities to understand the needs and habits for a useful useable toolkit. In June 2017, the first Citizen City design workshop took place in London, which was co-facilitated together by Marie-Hélène Elleboudt of Faciliyo (Belgium) and Jose Barco of Community CoLab (United Kingdom). It was noted that:

> *"The goal of CitizenCity Social Engagement Toolkit (SET) is to bring existing resources to cities as a purposeful practical utility for city authorities to lead the engagement of citizens toward a co-created city. This toolkit focuses on adoption by city authorities and outcome in city streets. The foundation of the toolkit is an organizing framework, expressed as a structural hierarchy of themes that define and capture excellence in citizen engagement. This will provide a frame on*

[11] https://eu-smartcities.eu/news/interview-recently-nominated-ambassador-city-utrecht-citizen-engagement-example

[12] http://www.freeup.nl/citizen-city-empower-to-co-create-future-cities/

which many existing practices can be placed, in a manner that enables the most appropriate to be made available in a clear and convenient fashion. City authorities use these themes to assess their current situation and map out desired goals. This evaluation will point to specific tools that fit the city conditions. Using this toolkit will create a purposeful and useful access to available learning and technology. The toolkit becomes a platform that enables the city 'demand side' to access the 'supply side' of tool resources.

Involving city authorities as users to help design and develop the toolkit is critical to ensure the toolkit is adopted. The toolkit starts with how city authorities understand and develop insights on their customer base (residents, businesses, visitors); then how they best engage them; and how they can achieve active purposeful participation in co-creation. So definitions and meanings matter very much. It is vital we understand how city authorities will wish to use the toolkit. This will ensure the toolkit is usable and meaningful to cities.

City authorities are critical as users, but other stakeholders and advisors are also involved in creating the toolkit to ensure the toolkit delivers impact. The toolkit must promote many forms of engagement, touch on diverse issues, and connect with society in an inclusive manner. Building a toolkit that effectively bridges to such a diverse range of tools requires the bringing together of many perspectives and understandings. CitizenCity goes beyond teaching co-creation. Instead the goal is to "co-create the tools of co-creation".

Work is underway within the Citizen Focus strand of the EIP-SCC on the formulation of a Social Engagement Toolkit and IRIS has indicated its willingness to participate in piloting and validating this initiative.

The work of the EIP-SCC is ongoing, for example at the recent Citizen Focus Action Cluster Meeting in Sofia on Societal Engagement, where the topic of Building Capacity & Practice in Cities & Communities remains a core part of the agenda. A number of KPIs have been developed for this category within other projects, such as CityKeys and SCIS. We know that these issues are becoming widely recognised as critical for the successful deployment of Smart City solutions, and Gartner[13] recently described citizen engagement as 'critical':

"The way forward today is a community-driven, bottom-up approach where citizens are an integral part of designing and developing smart cities, and not a top-down policy with city leaders focusing on technology platforms alone"

There is clearly considerable discussion underway ata European level on Citizen Engagement. This has helped to inform the method we are using on IRIS, where the Citizen Engagement processes have been divided into different stages/modules, with strong and often sequential dependencies. Such a structured and transparent approach being piloted by IRIS is intended to support Citizen Focus in general at a European level.

We have also taken several of these issues on board in the formulation of new KPIs covering the Citizen Engagement perspective for the IRIS project. Just as with the earlier work on CityKeys and SCIS (and the ITU FG SCC), it is wise not to try to reinvent the wheel but rather to build on existing initiatives and efforts. The work of the Citizen Focus group in EIP-SCC mentioned above is ongoing. In this respect the EIP-SCC Manifesto is very useful in helping us to shape some possible KPIs for IRIS, as well as helping to ensure that the IRIS outcomes can be easily mapped and made understandable in the broader European context. To this end, a long-list of possible ***KPIs for citizen engagement*** has been prepared. Several of these mirror the recommendations of the EIP-SCC Manifesto, thereby effectively instrumentalising some of these issues. Similarly, we have proposed to extend the list of

[13] https://www.gartner.com/newsroom/id/3866764

stakeholder groups to explicitly include citizens, representative citizen groups and citizen ambassadors. This is described in the KPIs being formulated in D1.1.

3.2. Broadening the approach to citizen engagement

In order to broaden the approach to citizen engagement, there is a need to harness and emphasise the myriad ways in which cultural and creative impulses can contribute to co-designing contexts and environments that put the needs of people, and in particular '*people as citizens*' at the forefront of policies and decisions that will shape us in the years to come. It is becoming clearer that the *breadth of citizen involvement* that is required, if we are to achieve greater balance between competing interests, is substantial. In this section background information regarding the approach taken to citizen engagement is provided.

The importance of ***understanding context in the widest sense*** cannot be exaggerated. We live within immersive environments and increasingly connected digital lives. Some have suggested that context in the sense of situation is becoming more important, with Michel van Dartel[14] noting that:

> *" Anticipating a turn towards more attention for the situated nature of humans in the domains of art and design, I have argued that this turn will challenge these fields to develop methods that better incorporate the implicit information present in the use and experience contexts, but also that it will bring exciting conceptual opportunities for exploring human situatedness through art and design."*

Regarding the specific contribution of the Arts to Social Innovation contexts, a number of issues arise, as illustrated by Jesper Christiansen writing for NESTA:

> *"However, for innovation labs, there is a real **risk of becoming technocratic instruments** that act as 'filters' for people's responses to political initiatives. The unwanted consequence often is that innovation labs become 'delivery agencies' **without sufficient mandate to challenge or influence problem definitions or hypotheses for creating change**. In other words, the overall (political) intent and/or framing of problems remains unchallenged by the work of the lab. Whether innovation labs are applied as projects or as more permanent structures within or outside public sector organisations, they are all fighting to create large-scale impact and obtain executive ownership. But in this process of getting institutional acceptance, the risk is that the very virtues and design principles that made innovation labs relevant in the first place will be lost. This is where art exhibitions and artistic expression become relevant inspirational sources for the work of innovation labs.:*

Christiansen argues that:

> *"Labs should be more in the business of **problem-searching than problem-solving**; **characterising and posing the challenges rather than merely promising to solve already defined ones.** A significant part of building government capacity is about redesigning public policy to work as platforms for creative exploration of new understanding and to enable new imaginative (political) horizons. This, in my view, is the actual art of the lab."*

These issues are gaining currency and a lively discussion is already underway on how Labs might be re-imagined. This discussion is relevant for those working on citizen engagement related activities as the lab is often the locus of these initiatives. Similarly, those working in the area of policy innovation

[14] Michael van Dartel (2016) Aesthetics in the Wild, Avans

have noted a greater need for creative experimentation with for example Alex Ryan, from the MaRS Solutions Lab[15] recently noting that:

> *"We need design, as well as the time and space for experimentation, at the fuzzy front end of policy development. We need to innovate on how government sets the rules of the playing field."*

A number of factors need to be considered if the citizen engagement activities are to be rendered more meaningful and directive towards the successful deployment of Smart Cities and related initiatives, and at the intersection between policy and service innovation. These factors are considered below and include:

- the relationship between citizens and technology
- the need for both design and systems thinking
- co-creation and fostering creative experimentation

These sub-sections are included only to provide deeper background reference for those who are interested in this area.

3.2.1.The shifting dynamics between citizens and technology

One issue in the deployment of IoT and Smart City initiatives based on context-aware technologies, is that often the people using them, the visible citizens of these only partially visible cities, are rarely context-aware people. This presents a nice challenge. If citizens are to become more engaged, they need to be more aware of their environment and context. How can we 'upscale' citizens (via intermediaries on different levels) to become more context aware within such immersive environments and in so doing broaden and increase levels of engagement?

When we speak of digital transformation, both on the level of policy and research, we have tended to adopt a rather narrow concept of technology-as-infrastructure and many initiatives relating to Smart Cities have adopted this narrower conception of innovation. This has been helpful in the early stage of our collective journey into digital societies, developing frameworks and governance approaches in core fields of ICT-based economic development (with the expansion of, for example, broadband and satellite networks, mobile communication standards). However, ***such a narrow focus on infrastructure does not help us comprehend the far-reaching cultural, economic, and social implications of these infrastructural developments***. What is more, it has led policymakers to hold on to an ***infrastructure-centric*** notion of innovation that makes it nearly impossible to develop research and governance frameworks to support and structure the open innovation dynamics that characterise the next stages of digital transformation. Which is why it is time to shift from an exclusive focus on the "digital" to a more open conceptual idiom that allows us to engage - more precisely and more practically - with these multi-layered dynamics. This chimes with the idea mentioned above whereby a shift is needed to reinforce problem-searching.

This in turn will require some consideration of ***value-based economies***. The rise of new automakers featuring electric vehicles serves as a key example. Customers do not simply embrace a product based on a rational comparison of its qualities. They do so also because some of these products powerfully tap into collective desires and imaginaries related to sustainable futures and new mobility paradigms. That ***innovation is not only a matter of engineering, but of storytelling*** is old news for the cultural and creative industries sector. But in Europe's emerging experience economies, the ability to integrate individual actors and objects in the larger communicative contexts of networks

[15] https://www.marsdd.com/bio/alex-ryan/

and systems is considered a key measure of success by most technological platforms. And what citizens and companies actors learn from the CCI is a better comprehension of how meaning is made in such enmeshed contexts. This is crucial as *we* ***increasingly expect goods and services to embody and indeed advance cultural and social values.***

Here, CCI offer more than support in meaning making. They offer **paradigms of valuation**. Take for example peer-to-peer, best known perhaps as the logistical paradigm underpinning platform economies. What is often forgotten is that **p2p is first and foremost a cultural logic of cooperation**. It is from the dynamics of cooperation that new models for creative labour have been developed - from crowd-based approaches to work and finance to the "distributed ledger" technologies sustaining virtual currencies and smart contracting systems. Across the EU, a majority of citizens are already aware of collaborative platforms and are in principle willing to act as service providers. Users appreciated in particular that collaborative economy services are easily accessible and cheaper than traditional services, and that products or services can be exchanged, rather than paid for. We must acknowledge that **the ethos of cooperativism shapes** not only the organisation of collaborative research and development, but also **the design of socio-technical systems** to address the growing interest of consumers in transparent and trusted data-driven digital economy models.

3.2.2. From design to systems thinking

Many of the applied research and innovation activities currently pursued have a strong basis in what has become known as 'design thinking', following the many pragmatic instruments that are continuously developed and can be deployed in a variety of different application areas. While these approaches have undoubtedly proved successful, resulting in many diverse fields such as service design, experience design, participatory design, reflective design, value-creating design, and so forth, there is a widespread perception that further development is needed if the larger challenges are to be met successfully. Similarly Design Research has grown exponentially over the last 10 years and has been widely applied in many sectors and industries, though not always in a comprehensive manner. The value of these approaches lies in their ability to contribute significantly to the making process as distinct from earlier applications of design aesthetics.

Recent reports have pointed towards the Importance of moving beyond design thinking and considering systems thinking:

> *"Systems thinking is a context for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots."*

These suggestions perhaps reflect the initial emergence of design thinking in the field of artificial intelligence and cybernetics and providing a complementary approach to business and analytical thinking. A recent report[16] (July 2017) by the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) in the UK provides several valuable and practical pointers in this direction. As the introduction notes:

> *"But design thinking alone will not be enough. The core insight of this paper is that solving our most complex problems will require augmenting design thinking with a system thinking approach as the basis for action. While design thinking has proved itself to be successful in the realm of creating new products and services, the challenge is how to support innovations to enter and actively shape the complex systems that surround wicked social challenges."*

[16] Rowan Conway, Jeff Masters and Jake Thorold, (2017) From Design Thinking to Systems Change: How to invest in innovation for social impact, RSA, London

The report examines the broader issue of investing in innovation for social impact and suggests a need for:

> *"…a human-centred industrial strategy, one that takes tackling the real problems faced by ordinary people as a core metric of success rather than solely economic growth. This strategy should be enabled by a combination of design methodologies and systems thinking, working together to unleash the empowering potential of innovation….While design thinking alone provides a compelling process for idea development, it fails to recognise that without due consideration of systemic complexity and power dynamics, even the best ideas can lie on the shelf unused, and thus without impact. The design-led approach provides strong insights on users but remains two-dimensional; think like a system, act like an entrepreneur provides a third dimension: systemic understanding and impact."*

The report argues for '*thinking like a system and acting like an entrepreneur*' and assuming considerable knowledge already exists on design thinking, the following section looks in more detail at suggestions for systems thinking. The report notes a 'linear fallacy', namely that:

> '*It is a mistake to assume that just because human centred design processes create innovations that meet human needs, that their diffusion into a system will follow a linear route that mirrors that of consumer markets'*

As is well-known, the route from innovation to scaling is fraught with many problems. There can be many different reasons for an innovation to hit such barriers: it may be too early for the marketplace or it may require complementary complex changes in other areas or it may generate hostility among stakeholders:

> *"Policy resistance comes from the bounded rationalities of the actors in a system, each with his or her (or "its" in the case of an institution) own goals. Each actor monitors the state of the system with regard to some important variable - income or prices or housing or drugs or investment - and compares that state with his, her, or its goal. If there is a discrepancy, each actor does something to correct the situation. Usually the greater the discrepancy between the goal and the actual situation, the more emphatic the action will be...Such resistance to change arises when goals of subsystems are different from and inconsistent with each other."*[17]

And as Figure 3 below illustrates, *'…when innovations designed to address social challenges hit barriers to change, they can 'bounce' of the system sending the innovation back to square one.'* The report argues that to counter this immune response:

> *"innovators should not just focus on user needs (although this is key to developing effective solutions), they must also comprehensively map the system which they hope to change, employing a range of techniques to appreciate the complex dynamics at play. This is what is referred to by 'systems-centred design': design that actively considers and the particular dynamics of existing systems and looks to innovate in ways that are relevant to them or, more ambitiously, actively influences them. "*

[17] Meadows, DH. (2010) Thinking in systems: a primer. Earthscan.

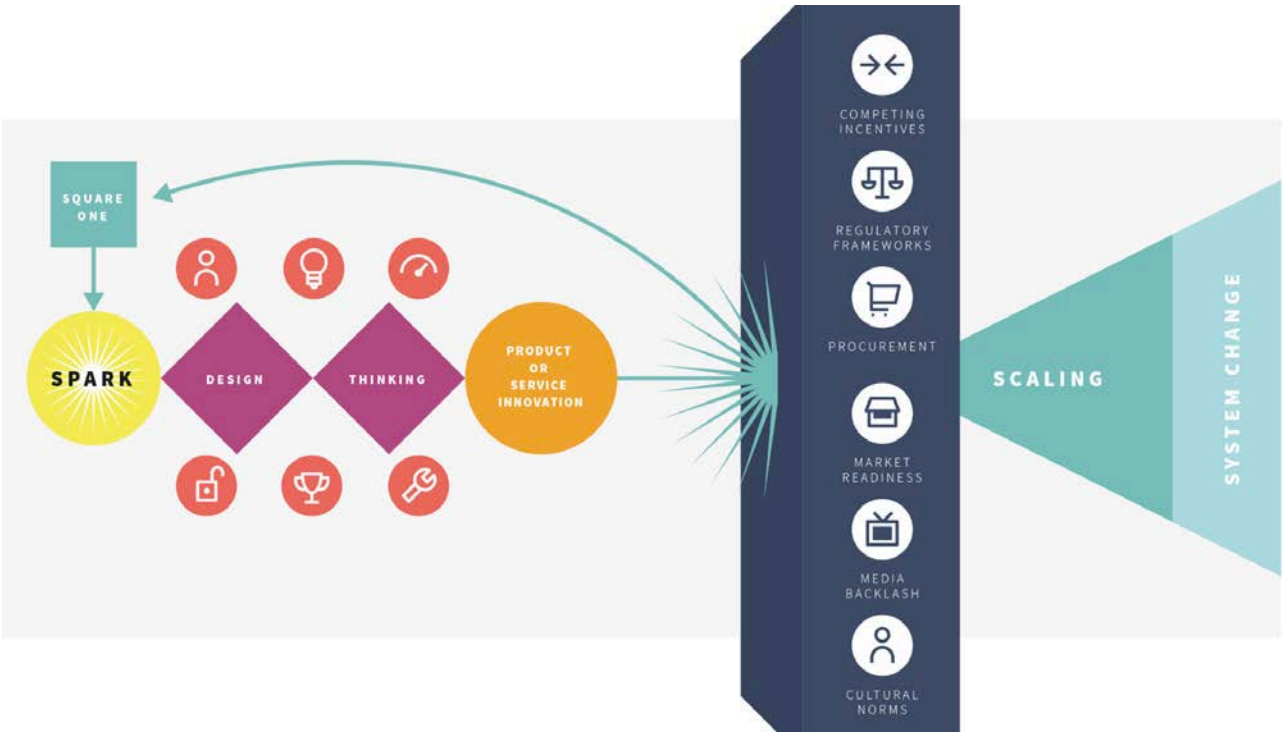


Figure 3*: The System Immune Response*

While this argument may seem rather simplistic, it is remarkably important and there is no shortage of initiatives and projects that fail simply because they do not take these factors into account. Central to understanding this approach is recognising that different types of problems require different methods of system analysis. The starting point is to understand the dimensions of the problem being addressed in terms of:

- The type of problem;
- The problem situation; and
- The power dynamics in play.

The report refers to Knowledge Management theorist Dave Snowden who uses a sense-making framework he calls Cynefin, see Figure 4 below, where problems lie within either ordered or unordered systems.

Ordered systems	Unordered systems
Simple problems In this problem situation there are fairly straightforward relationships between cause and effect, and there is a right answer if it can be found. The approach to take is the tried and tested – follow best practice.	**Complex problems** Where the relationships between cause and effect are not obvious. To make progress in solving or managing the problem expertise will help, combined with experimentation. Snowden calls for 'safe fail' experiments, generating rapid feedback to enable adjustment. Experiments that succeed should be amplified; experiments that fail should be dampened.
Complicated problems Here there are still relationships between cause and effect, but they are much harder to understand. There are solutions to the problem, but there might be more than one. Technical expertise is required, following good practice.	**Chaotic problems** Here there is an absence of cause and effect. Immediate action might be needed to stabilise the situation. If immediate action is not needed to stabilise the situation, this domain may be ripe for successful experimentation and innovation.

Figure 4: Cynefin Sense-Making Framework

By carefully considering the type of problem and the type of system they are dealing with, innovators can better understand the approach and instruments that might usefully be deployed. The next task is to consider the problem situation:

> *"The situation in which the problem is located is a further analysis that thinking systemically will require. Leadership theorist Ronald Heifetz[18] distinguishes between technical problems – where the solution is bounded and finite, and just needs to be correctly applied to the problem – and adaptive problems – where learning is required and the solution must be co-created by service and service-user. In understanding how to apply this distinction Heifetz describes three problem situations:*
>
> - *In Type I situations the problem is clearly defined, the solution to that problem is known, and the challenge lies in matching and applying the solution to the problem.*
> - *In Type II situations, the problem is clear, but the solution is unclear. To solve the problem, some kind of learning is required. This may be the development of a new technical 'fix' to solve the problem, or it may require adaptive work, involving all parties to the problem in a shared journey towards the solution. No party can 'solve' the problem alone.*
> - *In Type III situations, both the problem and the solution are unclear and require learning to understand and resolve. Technical fixes are not available. Adaptive work is required."*
>
> This again emphasises the breadth of engagement and co-creation and learning that may be necessary to bring about the desired result. Very similar conclusions can be reached when examining the literature around the implementation of Quadruple Helix (Q4) and smart specialisation (RIS3) approaches.

[18] Heifetz, RA. (1994) *Leadership Without Easy Answers.* Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

Lastly, the report refers to Cultural theory[19] to offer an additional understanding of power dynamics. Cultural theory divides a social system into four domains: hierarchical, solidaristic, individualistic and fatalistic:

Domain	Explanation
Hierarchical	Refers to hierarchical forces such as authority, strategy and regulation; the top-down laws, institutions and levers that government and institutions have at their disposal to compel people to act in certain ways.
Solidaristic	Emphasises belonging, values and the ideas of justice and fairness as important motivations for citizens.
Individualist	Speaks to the power of self-interest (enlightened or otherwise) to drive change and innovation.
Fatalistic	Sees social problems as intractable and efforts at change unlikely to deliver intended outcomes, or irrelevant. Can exist in any of the above systems.

Figure 5: Cultural Theory Domains

Using cultural theory can help to match the correct type of intervention to the problem based upon the dynamics of the system:

> *"By going beyond user research and undertaking the thinking like a system part of the process, innovators develop a depth of understanding of the broader ecosystem they are looking to enter. Systems thinking un- veils the frictions that inhibit change, the veto points and countervailing forces that combine to create this system immune response. A product of this kind of this process may be that certain interventions are jettisoned because the possibilities for change are revealed to be highly limited. In their place may be new ideas and problems previously unconsidered, yet seemingly with a feasible route to achieving impact. "*

Lastly, the report suggests that on order to overcome these problem situations and complex dynamics, there is a parallel need to take practical action, much like the mindset of an entrepreneur or a hacker, in so far as this involves seeking the right opportunities to gain the greatest traction.

3.2.3. Co-creation and fostering creative experimentation

The notion of Generative Design is useful in so far as we require systemic design principles for the complex social environments that will be encountered in different contexts. Figure 6 below[20] locates generative design within a research-led to design-led trajectory and between expert and participatory mindsets and this is of importance in terms of analysis-synthesis bridge models.

[19] Hood, C. (1998). The Art of the State: Culture, Rhetoric and Public Management. Oxford University Press, Oxford.
[20] Sanders, L., (2008) An Evolving Map of Design Practice and Design Research, see http://www.dubberly.com/articles/anLevolvingLmapLofLdesignL practiceLandLdesignLresearch.html

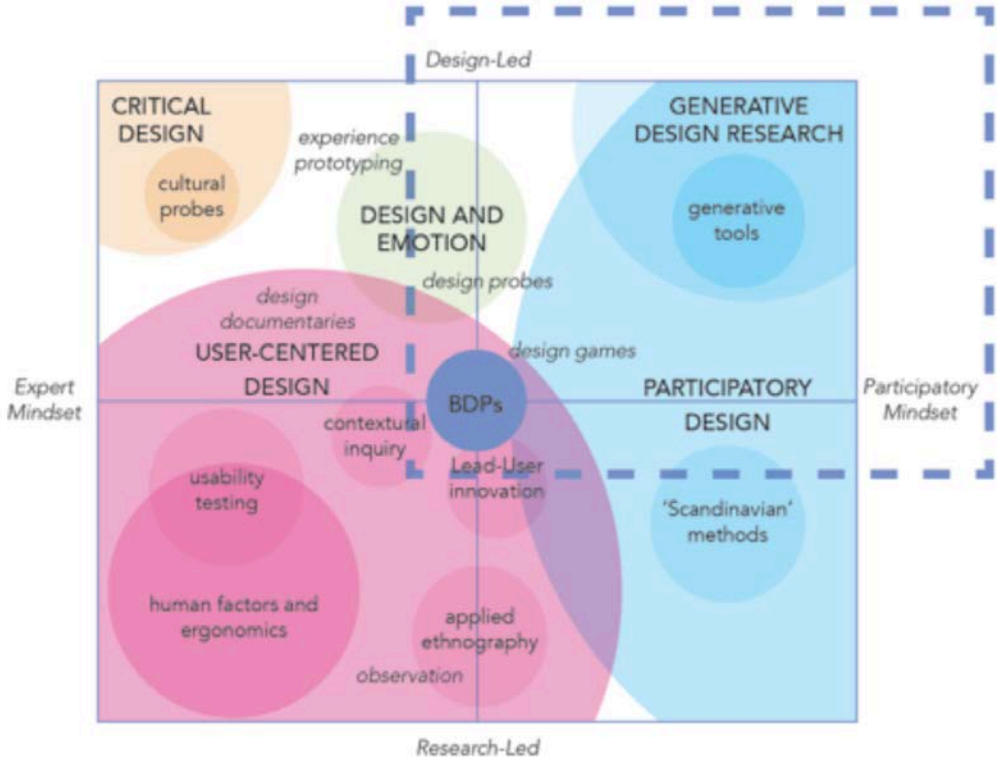


Figure 6: Context of generative design research

This can be a useful frame through which to consider the ongoing shift at a European level. Indeed, the opportunities offered by this shift are considerable as it is likely that the Horizon Europe programme will largely embrace the consequences of a design-led approach to research and innovation and associated impacts. At a European level, the role of applied research and the multiplicity of methodologies that can be deployed, assuming the right contexts are chosen, are of some significance. When considered through the lens of the Moedas report it becomes clear that those organisations already operating within Open Innovation 2.0 (or even 3.0) environments stand to offer a great deal to those who are only beginning to undertake these kinds of methodological shifts. At a sectoral level however, there is little consolidation and organisations tend to work in isolation, which is unfortunate as the opportunities to share the workload rarely arise and many organisations have only limited resources for such pioneering work.

A recent report by the Rathenau Institute on Living Labs[21] provides some welcome pointers for the future of co-creation and applied research environments. The report considers the concept of Living Labs and their performance in practice. The report also considers the added value of Living Labs and how they can be used to further social goals and transitions. The report considers co-creation to mean that *"citizens and social organizations work together with knowledge institutions, companies and governments on solutions to social issues*." The report then provides an interesting overview of four types of cooperation initiatives and argues that co-creation with citizens or end users is limited to the fourth base type and argues that *"Living labs are therefore not commonplace. In fact, they are still in their infancy as a new means of developing knowledge for social goals."*

[21] Rathenau Instituut (2017) Living labs in Nederland: Van open testfaciliteit tot levend lab, see https://www.rathenau.nl/nl/publicatie/living-labs-van-open-testfaciliteit-tot-levend-lab

Table 1: Explanation of the four basic types of cooperation initiatives

	Open scientific research facilities	Fieldlabs of the manufacturing industry	Commercial urban testing facilities	Living Labs
Nature of cooperation in research and innovation	Collaboration between knowledge institutions and companies using the scientific research facilities of the knowledge institute.	Co-operation between companies and with knowledge institutions and regional government to learn about the application of new (digital) technologies in production methods.	Collaboration between companies, local government and often knowledge adjustments to test (proto types of) innovative products and services in a lifelike situation with end users.	Cocreation of knowledge institutions, companies, governments, social organizations and ordinary people to find solutions for complex social tasks and transitions.
Added value as a policy instrument	Typical instrument for science and innovation policy. To stimulate knowledge valorisation through public-private cooperation. Companies have access to knowledge and research facilities from public knowledge institutions.	Typical instrument for industrial policy. Strengthen industry competitiveness by learning collectively about the application of new (digital) technologies in production processes. Training of students and staff.	Typical tool for (local or regional) innovation policy. Strengthen regional innovation ecosystems through a triple helix collaboration. Companies have access to test environments to test and demonstrate innovative solutions.	Typical instrument for transition policy and research and innovation policy aimed at social challenges. Suitable for integrating social issues integrally.
Typical Experiment Location	On a university campus or at a public knowledge organization like TNO.	On an innovation campus or a business park.	An urban area where end users are in the wild and can serve as a test market.	The nature of the problem determines the location of the experiment.

The report concludes:

> *"That small-scale experiments on location can contribute to a broader social transition is not self-evident. A coordinated effort of living labs is needed for this. The challenge is to do experiments in several places and for a long time that build and learn from one another. The learning process in living labs must be part of a location-transversal vision and approach. In order to be able to use living labs effectively as a transition instrument, a multi-level approach is needed in which local authorities, government and / or the European Commission are involved in addition to local authorities."*

Geoff Mulgan puts much of this into perspective in a recent article, where he notes that while many good initiatives have been undertaken, there undoubtedly remains ***'an insufficiency of creative experimentation***'. He suggests that universities do R&D on everything else but not on themselves.

They experiment with new ways of creating knowledge or teaching but don't do so systematically, or with effective synthesis of knowledge, in the way that happens in fields like biotechnology, medicine or computing. Indeed, he notes that no country has explicitly prioritised innovation in university models and **most of the radical innovations in recent years have come from outside the system**. In this hiatus, we have challenge-based approaches, partially encouraged and supported by EU calls, e.g. moonshots for FP9. One response to these pressures is a new kind of learning, or to be more precise, the rediscovery of some very old models. The main insight he offers is that learning may happen much faster, and more intensively, through engagement with real-world problems, and through **embedding learning in relationships.**

The main insight he offers is that learning may happen much faster, and more intensively, through engagement with real-world problems, and through embedding learning in relationships. This is because practice and theory feed each other; there is a clearer line of sight between what is learned and how it can be used; and peer pressure encourages greater commitment. At a more fundamental level these approaches focus on questions first, rather than answers. They look for important, challenging questions, and then pull together the relevant knowledge and disciplines needed to answer them. In this respect they echo much older traditions of learning that we surely have to re-discover. This emphasis on paying far more attention to problems resonates strongly with the RSA report mentioned above.

But we sometimes struggle with putting the internal infrastructure in place to deal with these new realities. This is precisely where undertaking EC funded and similar research and innovation can help because:

- The approach is challenge-based
- The approach is collaborative and participative
- The approach deals with real-world problems
- Participating can help to build that extra layer at a local level
- Participating can help formulate and choose stratagems and plan scenarios

Section 5 below will describe in more detail an approach to citizen engagement that seeks to take on board many of the issues described the above tour d'horizon.

3.2.4. Citizen engagement initiatives in the IRIS project

The recent EC DG Energy report (2016)[22] *Analysing the potential for wide scale roll out of integrated Smart Cities and Communities solutions* contains 2 key recommendations that are directly relevant for the proposed co-creation and citizen engagement activities within the IRIS project, namely:

> ***'Enable community empowerment for the development of sustainable business models.***
>
> *Communities have a specific role to play in smart initiatives; yet, the evidence from the best practice examples shows that in most cases there is only a traditional form of citizen involvement strategy in place, involving promotion, recruitment of participants and community participation to a limited extent. However, in-depth case studies confirmed that citizens and communities are not given a strategic role in the development and execution of integrated SCCs, and that the relevant communities are emerging as a key success factor for a sustainable*

[22] DG Energy (2016) *Analysing the potential for wide scale roll out of integrated Smart Cities and Communities solutions* (p78)

business model. Different opportunities to involve communities in collaborating, co-creating and co-developing solutions can be leveraged, spanning from increasing communication to creating initiatives bonding smart city actors together."

The approach, involving targeted communities and ambassadors in the formulation of individual deployment trajectories, addresses exactly the recommendation by providing citizens with a strategic role through multi-stakeholder co-creation involvement where the co-ownership that is generated addresses issues around intrinsic motivation, a core concern given the often partial uptake of integrated solutions for energy efficiency. Naturally this is also highly relevant for user and customer acceptance and ultimately the success or otherwise of the individual integrated solutions and their associated business models. Experience from serious games and behaviour change studies shows clearly that even the most perfectly engineered solutions will fail unless key issues are addressed as early as possible in the implementation process. The open innovation-based approach suggested does exactly this by providing the technological implementation trajectories with three key validation points:

- The first point is problem validation (WP1), where re-framing processes occur in order to ensure that the problem is shared and validated by all stakeholders including the citizens and to provide an initial link to the likely user-acceptance of the solution being developed.
- The second point is design validation (WP5, WP6 and WP7), to ensure that the solution meets the defined design requirements in relationship to citizen acceptance. Throughout the design process, iterative design stages with direct user involvement through user testing of early prototypes helps to identify key design parameters enhancing or negatively affecting the user experience.
- The third point is business validation (WP3), to ensure there is a clear understanding of the future exploitation, dissemination and usage scenarios and financial underpinning of the exploitation trajectory, for example as a formal part of treatment packages a home based personal purchase and service.

The technological implementation process will also show convincing evidence that the intended impact can be expected to materialise once the full integrated solution is deployed, with measurable outcomes in order to reject or accept the course taken for the solution under development. In this way the full benefits of this open innovation approach can be realised even on a highly granular level with locally applied integrated sub-solutions.

Whereas design-driven open innovation methods are often involved only after a phase of problem identification, parametrisation, and specification, the use of co-creation methods for stress-testing citizen engagement for each integrated solution enables the co-creation design perspective to frame the entire solution space from a different citizen-centered perspective. The same report (op.cit. p79) also recommends that initiatives:

"Create an open innovation ecosystem between different experimentation set- ups.

The multiple roles residents could play in regional and urban living labs is under-utilized. Emphasis is often set on the innovative technological aspects but not on innovating the engagement process, with almost no co-ordination between experimentation projects. Coherently, there is no coordination in the development of principles, rules, standards and guidelines that other cities may benefit from. Different city experimentation set-ups could form an innovation ecosystem consisting of citizens, ICT companies, research scientists and policy-makers. The challenge in this layer is to create a collaborative approach to innovation ecosystems based on sustainable partnerships among the main stakeholders from business, research, policy and citizen groups, and to achieve an alignment of local, regional and European policy levels and resources. Municipal authorities should cultivate an innovation ecosystem across the city and among its suppliers, including: publishing city-level procurement policies, ensuring that changes following reviews are known; publishing and updating a

pipeline of major city procurement opportunities, to allow enterprises to plan in advance; involving suppliers in the definition of products, respecting transparent procedures and ultimately enhancing competitiveness. "

Within the project the proposed co-creation based approach would essentially perform this function, though to a greater or lesser degree in different cities who are at different stages of development in this area. As it is feasible to establish separate fully functioning hubs in each city, a core hub in Utrecht has been established and from there we spread the outcomes and experiences to the 2 other LH cities and to the FCs. This means that many of the piloting and trialling activities are performed in Utrecht, with the other LH cities participating as required either in an active or observational capacity depending on the nature of the activities. However, it is our intention that taken together this integrated approach will provide an open innovation framework that provides strategic governance through practical modules and materials that can be customised to the characteristics and requirements of different city ecosystems, national guidelines and other relevant considerations. Furthermore, the project is confident that this approach clearly embodies and seeks to instrumentalise the recommendations made by the recent European Manifesto on Citizen Engagement formulated by the EIP-SCC cluster.

4. Citizen Engagement in IRIS Lighthouse and Following Cities

The ambition of Transition Track #1.5 is to develop innovative new services for citizen engagement in the context of existing services, to allow citizens a) active participation in their cities urban development plans, b) becoming actuators for their energy planning taking benefit of any available waste energy stream (heat/electricity), and c) becoming involved in shared decision-making among different stakeholders at city level, through online platforms that make it easier for them to learn more about any open development issue expressing their opinions and sending feedback.

This section contains a short overview of the previous and existing citizen engagement activities in each of the LHs and FCs. This information is not exhaustive and is presented to indicate the approaches that have already been deployed.

4.1. Citizen engagement activities in LH Utrecht

Utrecht's 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 district calls for 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 district.

4.1.1. Activities undertaken

IS-5.2: Participatory city modelling

The Utrecht municipality wants to involve residents, entrepreneurs, organisations and professionals as much as possible and as early as possible in plans and projects of the municipality. To this end, the municipal council has established the "Utrecht Participation Standard" as a method for municipal officials. This standard included 5 steps:

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

An example of a *co-production exercise* in the area of energy and climate policy was the creation of the city's Energy Plan for the period 2016-2030. This plan was drafted to practice the so-called aleatoric democracy, an idea based on work by David van Reybrouck published in his book "Against elections". The objective of this socio-political innovation of aleatoric democracy was to draft the municipal energy policy plan that gives voice to the 'silent majority' of people that are all stakeholders in the energy transition process but would otherwise not be represented in the policy making.

The city randomly selected 10,000 citizens who were invited by letter, of which 863 sent a positive reply. From this last group 200 participants were selected by lot (see Figure 7 below). In the end 165 randomly selected citizens participated in successive talks on 3 Saturdays from 10:00 -16:00. Analysis showed that the participants represented a good cross section of the Utrecht population. Next to the citizen 30 experts and 21 interested groups joined the talks.

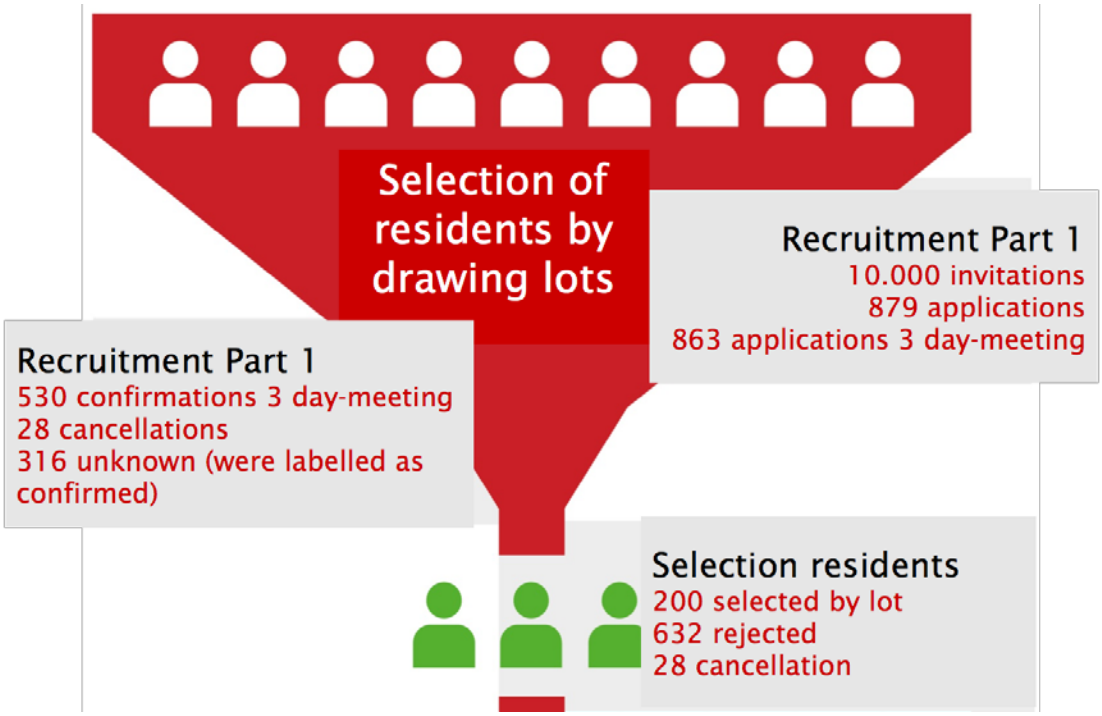


Figure 7: Recruitment and selection process for participant in the Energy City Talks

The assignment for the participants was: produce a new energy plan for the city of Utrecht that includes an answer to the question: What are the necessary steps for Utrecht to become 100% climate neutral as soon as possible? Figure 8 below provides an overview on the way the production process was organised.

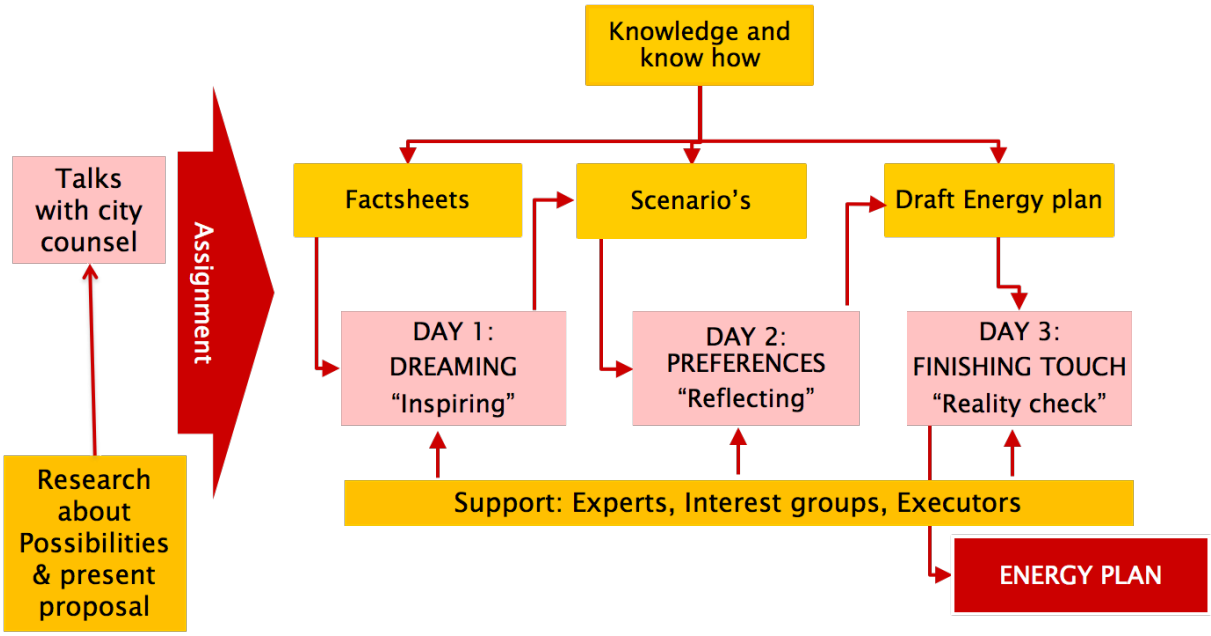


Figure 8: Organisation of production process of for the Energy plan

An example of *informing/advising exercise* are the *"*Smart Living" (Slim Wonen) gatherings. These gatherings (see Figure 9 below) are alternatingly organised in different districts by the municipality

and various partners meetings. On these evenings local residents can receive personal advice on how they can make their home more energy friendly.

Figure 9: Impression on a « Smart Living » gathering in the district of Overvecht

4.1.2. Lessons learned

A number of key lessons were learned from the city talks and these have been taken into account:

- Citizens without a background in energy issues are very well capable of producing an energy plan and making a well-balanced decision.
- As a result of Energy talks, participants became enthusiastic about energy issues and turned into energy ambassadors.
- The talks resulted in improvement of cooperation between various stakeholders in the city.
- It was/is hard to keep participants involved in the process, as the political decisions making process was lengthy.

These lessons are being incorporated into the discussions around the Citizen Engagement approach being developed in the IRIS project.

4.2. Citizen engagement activities in LH Gothenburg

One good example from Gothenburg of creating a dialogue with citizens is “Min Stad” (“My City”), a service from Gothenburg City. An interactive 3D map where you can see Gothenburg from a real-life helicopter perspective. Based on different categories, you can create insights on how to experience culture, sports, biking, meeting friends and so on. You can also share a story about your favourite spot in Gothenburg. Min Stad will raise creativity, discussion and debate about the city's potential.

4.2.1.Activities undertaken

The City of Gothenburg works with different types of civil society dialogues in various operations and processes in the city. Within urban development, a public tool called Min Stad (“My City”) (minstad.goteborg.se) has been developed. In Min Stad, citizens have the opportunity to read others’ or create their own contributions and suggestions regarding urban development. Furthermore, the city presents information in the tool, such as planned urban development projects and anniversary efforts (the city's 400th anniversary). Residents also have the opportunity to upload self-contained stories about events or places. The tool has been around since 2012 and is a cloud service constituted by a web portal built around a 3D map as well as an app for mobile platforms. Posts from Min Stad are loaded into the Urban Business Office's internal operating system and are managed as general conditions and inputs regarding the detailed planning process. On the other hand, there is no requirement or any possibility that posts are treated as a legal opinion within the planning process. In order to get there, a study needs to be conducted that highlights the possibility of including this type of input in the process.

The purpose of Min Stad (see Figure 10, Figure 11 and Figure 12 below) is to increase the involvement of the citizens of Gothenburg in urban development issues, increasing knowledge about urban planning and creating an open debate. The service is aimed at anyone who has an interest in urban development issues: residents, politicians, civil servants and architectural firms, etc. The service is made up of a web portal at www.goteborg.se and is based on a photorealistic 3D urban model where local residents interactively explore the city, create posts and publish their own thoughts, ideas and suggestions in 3D dimensions.

Facebook is used to manage login and identity for those who want to create an entry in the Min Stad web portal. Once you have posted a post in the portal, it will instantly pop up with friends on Facebook and all those who follow the page via Facebook or Twitter. The integration of social media in Min Stad results in a large spread of each individual post and of the portal itself.

If you encounter an exciting area in the city there is also the opportunity to get information and see historical pictures, from Gothenburg City Museum, from selected places.

There are many categories in the menu for those who want to put their suggestions in the model. Among other things, you can choose between living, working, walking, cycling, driving a car, meeting, experiencing culture, tearing down and preserving. The selected icon is placed at the current location along with the written entry. Those who are a bit more advanced can also build small three-dimensional models, such as buildings.

Figure 10: The Min Stad Smartphone app

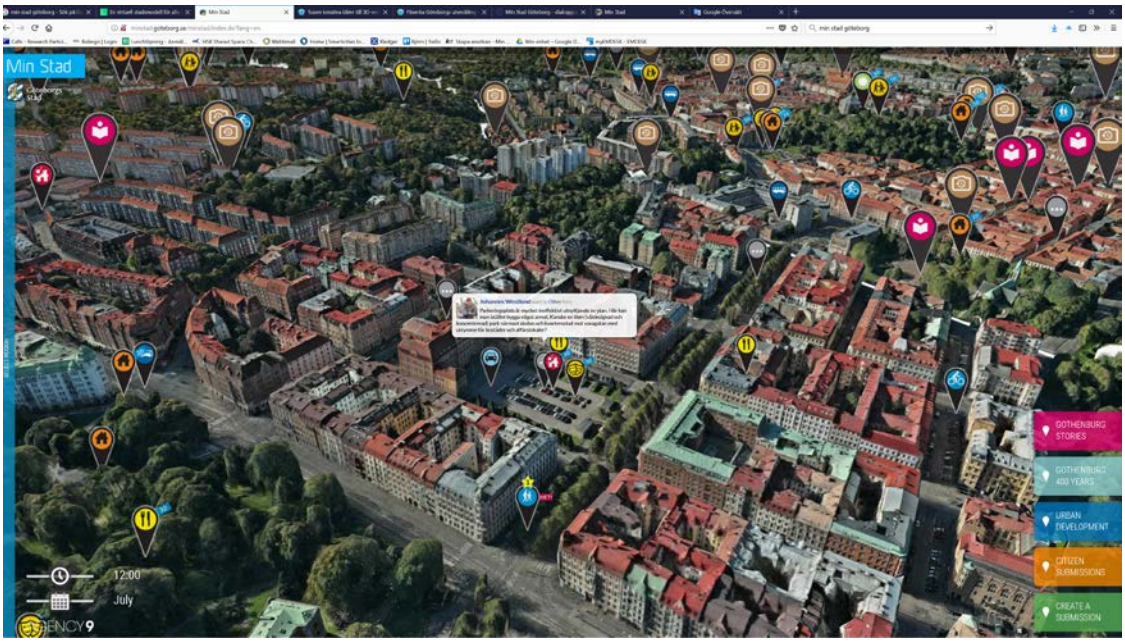


Figure 11: The Min Stad website

Figure 12: The Min Stad website with citizens' comments

4.2.2.Lessons learned

Overall, Min Stad has become very popular and thousands of suggestions and comments have been entered since its inception. The e-service Min Stad got the Gold Link 2013. My City has been internationally acclaimed and was awarded in 2012 with the Excellence Award at the Geospatial World Forum in Amsterdam.

A possible development trail for Min Stad and perhaps the strongest development opportunity for the tool if the ambition is to develop it into a dialogue tool between the municipality and the citizens is to open the possibility that parts of the planning process's civil dialogue can take place through Min Stad. Such a development opens the possibility of reaching a new user group that is unprecedented today, but it also involves a number of different deliberations and issues that need to be addressed.

In the Swedish planning process, the prerequisites for, and the possibilities of, civil dialogue are relatively controlled. Dialogue can take place in many different ways and involve many different people and professions. However, in order for the individual's opinion to be given a legal status, it is in principle required that it be provided with a written opinion in which the proposer's identity is ensured. An opinion in any of the planning process is a prerequisite for the individual at a later stage to be entitled to appeal a decision taken if it is considered directly affected by proposed changes.

Today, consultation with the public is taking place in the planning process through the presentation of traditional drawings, maps and text documents published on the municipality's website and exhibited at different locations in the city. This happens at some specific stages, where citizens are invited to dialogue and can also comment. During the planning process, the municipality may also choose to hold public meetings in various forms inviting the public to receive information and convey views directly to the city's officials. However, the views expressed in this way are not official in the opinion of the law but must be supplemented by a letter that is diarised by the municipality. Today's civil dialogue is characterized by a high degree of one-way communication, where the municipality collects a large amount of facts and information presented as a static material for citizens to absorb. There are obvious problems that the material is both difficult to access and that it is aimed at certain groups in society. The scope for dialogue is also greatly restricted by the fact that the viewpoint

pickup takes place only on specific occasions, usually over a period of six plus three weeks for planning projects that take two to three years.

Within IRIS, the possibilities for developing Min Stad into an active dialogue tool will be explored. The goal is to spread information more efficiently in a new channel, to reach new user groups and to explore how far the dialogue can be made between the municipality and citizens within the current legislative framework. A first step may be to help citizens find a good form for how data is presented and to link new forms of information into the current dialogue process. In a further development, the Min Stad tool can be developed to present more complex information while allowing the citizen to not only write comments but also modify the proposal presented by the city and / or create own suggestions in the form of models, sketches or the like.

Furthermore, there exists a knowledge gap, in the meaning that the public are not sufficiently aware of how planning and decision processes in the city work. This sometimes creates unrealistic expectations on the level of influence and feedback possible. Conversely, if the Min Stad application becomes more influential, there is the issue of balancing the influence of powerful lobby groups with that of non-organised private individuals.

4.3. Citizen engagement activities in LH Nice

The ambition of LH Nice is to include game-theory based engagement methods and instruments ranging from co-creating infotainment apps, local school campaigns, offering training on the job to students living in the district by partaking in the demo activities, competitive energy games using the home energy management system, energy ambassadors creating local energy communities, to crowd-funding creating a sense of ownership. Implementation of an optimal intermodal route calculation based on citizen engagement algorithms, will allow the achievement of an optimal intermodal route calculation, i.e. taking into account all modes of transport (public and private) available in the urban space.

Metropole Nice Cote d'Azur (NCA) approaches citizen engagement in a horizontal manner in each one of its projects.

An "Economic Development council", composed of 7 committees and totalizing a list of more than 100 hundred experts and key local stakeholders, gathers on specific work session on demand. Citizen engagement is addressed in a transversal way, focusing on the citizens as end-user of public policy and projects deployed. From an operational perspective NCA, being involved in different European and cooperation projects, observes that public authorities/municipalities are more and more frequently asked to demonstrate their approach in term of citizen engagement. This is taken as a good opportunity to ensure a good compliance with modern standards in term of citizen engagement.

This led NCA to launch in 2018 a task force aiming at "Inventing new ways of citizen engagement: how to integrate the citizen from construction to the evaluation of projects". The approach consists in 3 phases:

- a diagnostic of citizen engagement governance (strengths/weaknesses analysis, in-depth understanding of the population need and behaviour) year,
- involvement of key players (Directors) for the co-creation of citizen engagement strategy
- co-creating a "citizen engagement action plan".

Aware of the increasing uses of digital devices, NCA deployed different Civic Tec services in order to fit with citizens needs and manners, and which are complementary with traditional tools (districts committees, surveys...). Finally, both current and further digital services deployed aims at being in compliance with the City Innovation Platform.

4.3.1.Activities undertaken

Putting the scope on IRIS, Nice Ecosystem selected two fields covered by Transition Track 5 "Citizen Engagement and co-creation", namely:

1) IS 5.1: Co-creating the energy transition in your everyday environment: Prepilot Feedback on Nice Grid

NICE GRID (http://www.nicegrid.fr/) run from 2012 to 2016 and was part of the six demonstrators of the GRID4EU project, paving the way for the smart grids of tomorrow.

Funded by the European Commission with € 25 millions, this project, whose cost is estimated at € 54 millions, was one of the first European projects in the field of smart grids. It contributed to test the potential of smart grids in the field of renewable energy integration, development of electric vehicles, networks automation, energy storage, energy efficiency, islanding and active demand management.

KEY FIGURES

- **6 European electricity distributors** involved in the project

(Distributing more than 50% of the electricity fed in Europe)

- **27 partners** (manufacturers, energy suppliers, research institutes, universities)
- Project duration: **4 years** (November 2011 – January 2016)
- Project Coordinator: **Enedis**
- Technical Project Director: **ENEL**
- President of the General Assembly: **IBERDROLA**

Figure 13: NiceGrid Project

1. Challenges: incorporating a strong photovoltaic generation, storage units and communicating devices with the commitment of consumers: 300 household, 12 business clients, and the town of Carros (part of Metropole of NCA).
2. Experimentations: - From consumers to prosumers

   Involve the Carros clients with an active energy management through the control of their production-consumption-storage balance. A panel of offers was designed.

   - solar districts
   - Peak demand reduction
   - Islanding district

   See full experimentations : http://www.nicegrid.fr/en/experimentations/
3. Technologies: The Linky Smart meter

   The Linky smart meter is at the heart of the NICE GRID project, enabling in particular to retrieve historical data and to control customer's domestic appliances

   See full description: http://www.nicegrid.fr/en/technologies/

2) IS 5.1: Co-creating the energy transition in your everyday environment: Prepilot Feedback on CUSA project

Veolia has been developing solutions for many years to promote citizen engagement in order to boost the efficiency of urban services (water, waste and energy management). The CUSA solution enables inhabitants to manage their consumptions of sanitary hot and cold water, space heating and

electricity. The solution is also aimed at generating savings for landlords (time, money, insurance reduction) in order to reach the appropriate business model.

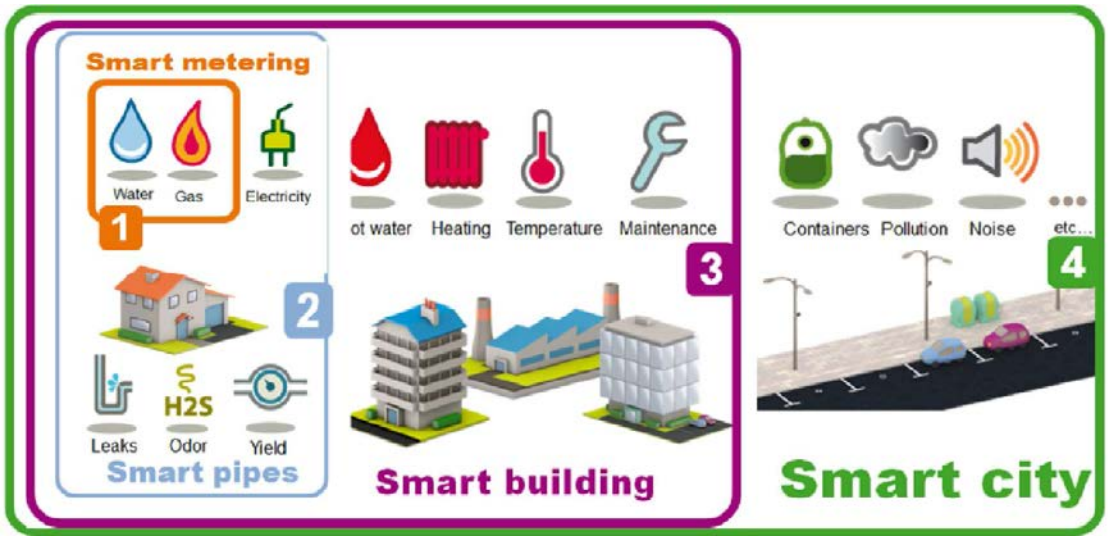


Figure 14: CUSA Project

This solution is based on three pillars:

Smart metering: change behaviour regarding utilities consumption needs to measure these consumptions and present it to the citizens in order for him/her to understand the link between behaviour and consumption

Display and apps: it enables the inhabitant to monitor and analyse their energy and water consumptions with the help of the coaches, and define adapted savings targets

Individual coaching: a personalized support will be delivered by Equitia (a specialized company in behaviour change strategies) and Adam (a non-governmental organization very present in the neighbourhood) to the tenants. The goal of this support is to explain to the inhabitants the project and how to use the display panels in order to get full benefits from it

The Nice CUSA pre-pilot included:

- smart metering (hot water, cold water, space heating, inside temperature) and data collection through wireless sensors network mesh; implemented by m2ocity (now Birdz),
- data collection from Linky electricity meters implemented by ENEDIS;
- dedicated application supplied by KTC :
    - for tenants, which were implemented through web, tablets, smart phones and TV network;
    - for social landlord;
- individual coaching of tenants through behavioural strategies experts (Equitia) and local social non-governmental organization (neighbourhood NGO Adam), individual reporting to monitor savings for tenants and landlord.

Figure 15: Some views of the tenant and landlord portal (apartment in Aliander building)

The main innovative element is the 3 pillars approach of the solution, in which individual coaching by the NGO is guaranteeing the appropriation by the citizens and the efficiency of the solution.

Smart metering and dedicated applications are necessary to help the end-users to link their utilities consumptions and their behaviours, but coaching is essential to reach the end-users appropriation of the solution and the savings targets.

The coaching process which was implemented in the framework of the CUSA pre-pilot is including 4 main steps.

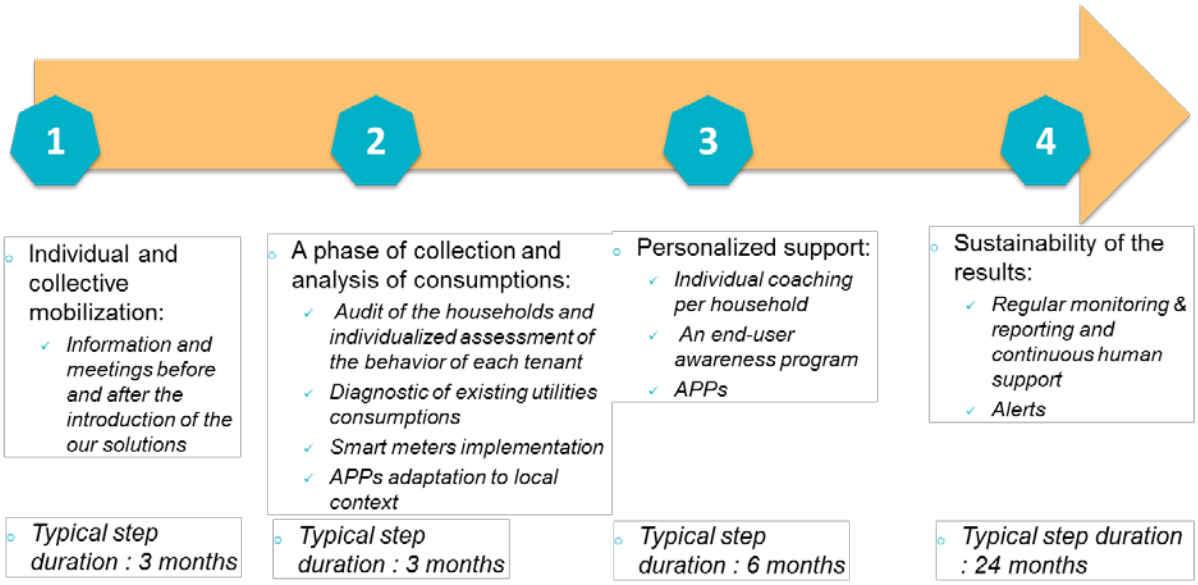


Figure 16: CUSA 4 Main phases

The role of the coaching phase is shown in the figures below.

- Role of the coaching:
  - *Commit tenants to the solution;*
  - *Assess utilities consumptions baseline for each tenant;*
  - *Define savings targets for each tenants;*
  - *Train each tenants to applications;*
  - *Continuously support tenants to reduce their utilities consumption using real time profiles provided by tenants app*
  - *Inform tenants of new tips or actions that can be easily implemented to make more utilities savings;*
  - *Promote resources conservation;*
  - *Design efficient tools for tenants to be more committed to the solution;*
  - *Utilities savings follow-up.*

Figure 17: Role of Coaching

- Support by coaching experts specialized in behavioral strategies:
  - ✓ *Presentation to the landlord/manager;*
  - ✓ *Visit to enlist the tenants;*
  - ✓ *Initial audits to set-up baseline (including adapted audit kit);*
  - ✓ *Information kits of services and web interface;*
  - ✓ *Follow-up meetings with tenants;*
  - ✓ *Educational games;*
  - ✓ *Good practices sheets;*
  - ✓ *Training to meters readers.*

- Examples of behaviors or actions than can be easily implemented:
  - ✓ *Reduce drinking water consumption by appropriated strategies;*
  - ✓ *Lower temperature of shower of bath can save energy;*
  - ✓ *Close the tap when brushing teeth, soaping or shaving;*
  - ✓ *…*

Figure 18: CUSA Support from experts and possible actions

The CUSA pre-pilot is including 186 dwellings; it was started in 2014 and finished at the end of 2017.

The Table 2 presents a detailed description of the different Components having been integrated in the past to form the specific Solution, along with their main technical specifications:

Table 2: CUSa Pre-pilot Components

Main Component	Technical Specifications	Area of the pre-Pilot
Monitoring devices (followed by required specification and number of devices):	The monitoring devices for the Tower 31 consist in Homerider following smart 868 MHz meters or sensors: • 106 cold water meters with radio heads, • 106 hot water meters with radio heads, • 106 inside air temperature sensors, • 106 electricity meters trackers. The monitoring devices for the	 Tower 31 Construction date: 1970 106 dwellings

	Alandier building consist in Homerider following smart 868 MHz meters or sensors: • 80 cold water meters with radio heads, • 80 hot water meters with radio heads, • 80 inside air temperature sensors, • 80 electricity meters radio heads trackers, • 80 heat meters radio heads trackers	 Alandier building Construction date : 2014 80 dwellings
Ancillary Equipment Type #N (solar balconies, followed by required specifications):	Several radio wave Homerider repeater were installed in order to improve the quality of the radio signal	Repeater outside a building 

The figure below shows some of the monitoring devices implemented in the the Alandier building.

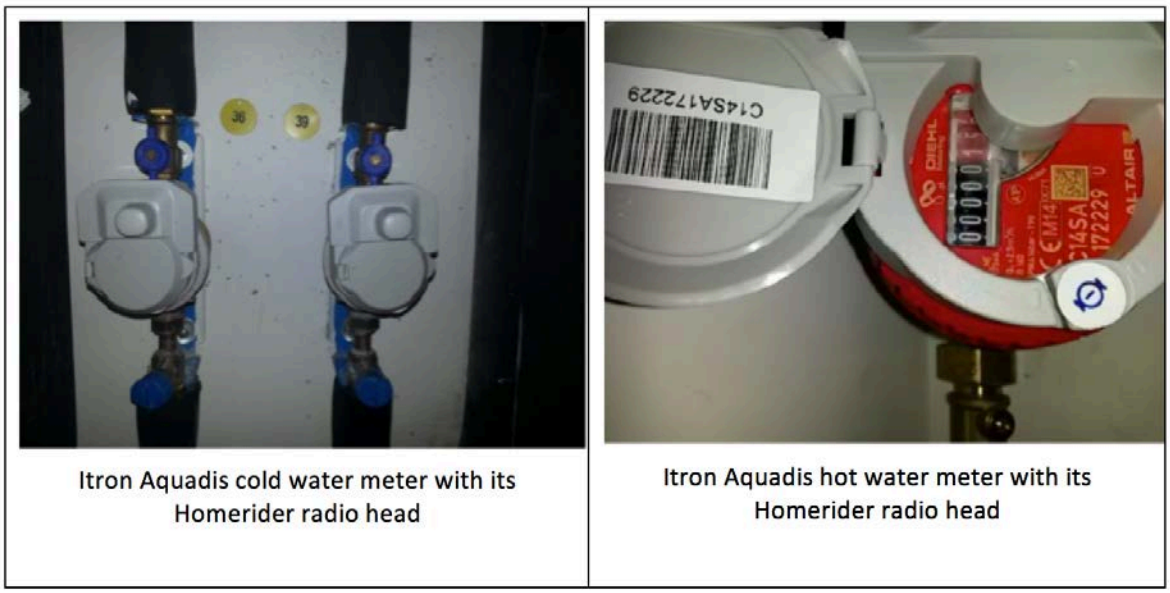


Figure 19: Examples of monitoring devices used in Alandier building

3) IS 5.2: Participatory City Modelling _ Prepilot

The most ambitious test operated so far in term of "Participatory City Modelling" is the one-year test established from November 2016 with the Civocracy start-up (https://www.civocracy.org/nicecotedazur).

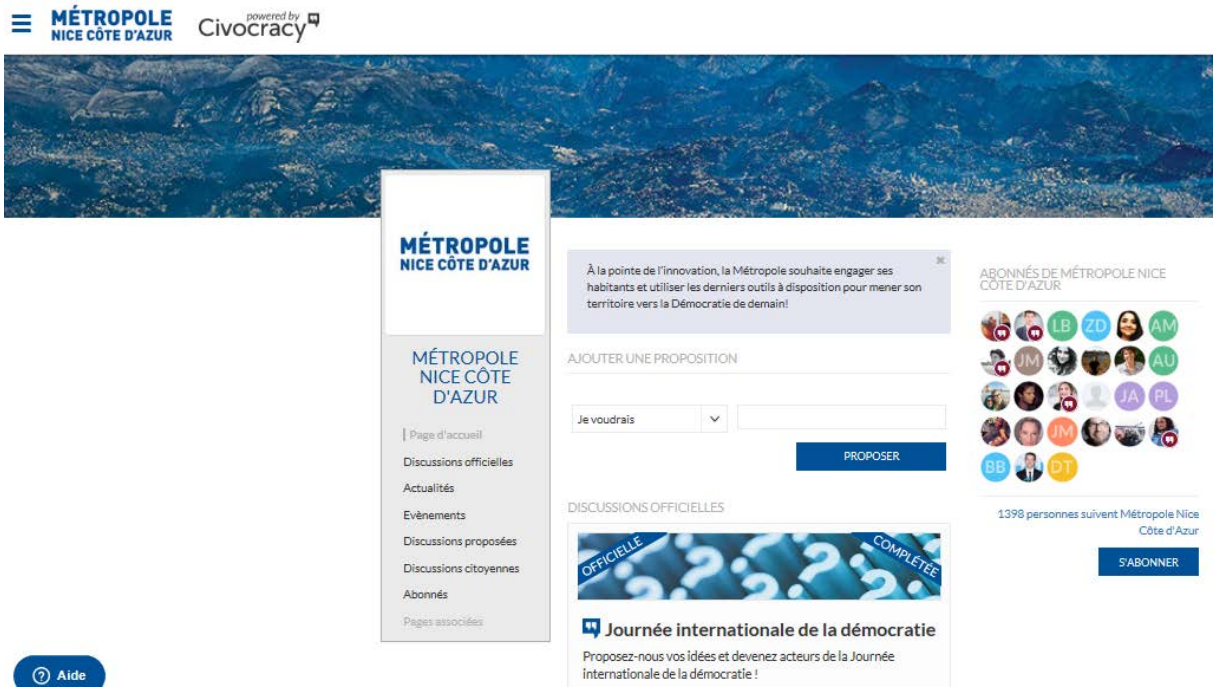


Figure 20: Civocracy portal

Civocracy is an on-line platform on which NCA can launch open discussions with its own community with the aims to integrate citizen feedback in the decision-making process.

The main conclusions were:

-This test phase enabled NCA to launch 5 consultations:

- In your everyday life, what are the digital services you would like to access?
- In the middle and high country, which remote services would you find useful?
- What noises annoy you the most in the city?
- What digital services would make your tram journey more enjoyable?
- Citizen in the smart city: how to be engaged in local life at the time of the digital era?

- Number of visit during the test phase: 8702 on the NCA web page

- Number of Membership (in the territory of NCA): 1296

- Number of consultation proposed by citizens: 283 (almost one a day)

- Number of discussion complying with Civocracy policy: 9

This experimentation is considered as a starting point of the engagement of citizen through Civitech. NCA considers a 2nd test-phase whilst letting the opportunity to identify other Civitech solutions.

4) IS 5.4 Apps and interfaces for energy efficient behaviour PrePilot 1: Feedback on CITYOPT project

PACA – Provence Alpes Côte d'Azur - is one of France's most fragile regions for electricity supply. CITYOPT aimed at analysing which conditions would motivate customers to modify their behaviours, within a CITYOPT energy community.

The Nice Ecosystem partners involved were NCA, CSTB, EDF. 140 volunteer families took part of the experiment with the aims to control consumption peaks and limit CO2 emissions by agreeing to reduce their energy consumption.

CITYOPT explored existing demand response schemes, as well as new customer engagement schemes such as social networks or community driven actions.

This experiment was innovative because it allowed families to have a quick return on the scale of their eco-gesture at the level of their neighbourhood, using an attractive application, easy to use for everyone.

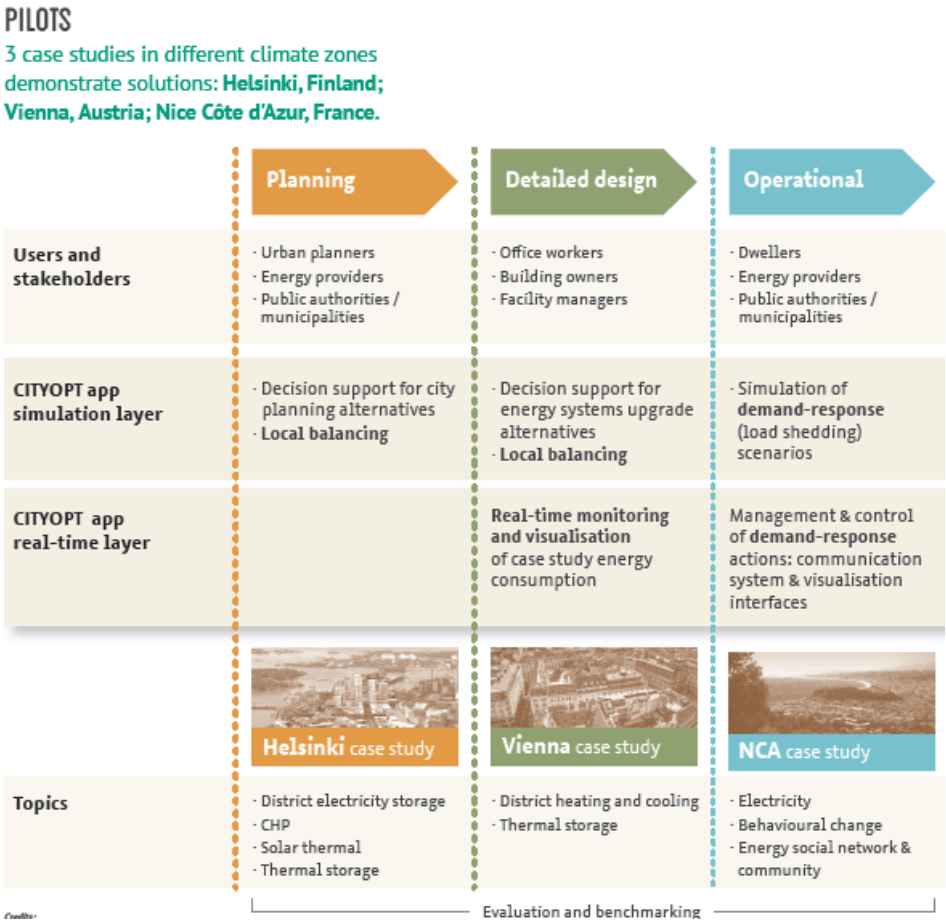


Figure 21: CITYOPT Pilots

Participants received a mail one day before a solicitation to reduce its energy consumption. Once connected to the apps families:

1. Confirmed on the CITYOP application its intention to participate in the mission of reduction of the consumptions until the time of beginning of the alert,
2. Defined its strategy to reduce electricity consumption between 18h and 20h, for example: lower if necessary, the set temperature of its electric heating, limit the use of its most powerful electrical appliances (oven, electric hob, iron, washing machine ...) and move its uses before 18h and / or after 20h,
3. Reduced electricity consumption between 18h and 20h

The experiment started in November 2015: the families received 25 requests from the energy supplier (EDF) to reduce their energy demand during the consumption peaks which are between 18h and 20h.

The participants also benefited from a tool called "Pic Simulator" which allowed them to quantify the impact of each of their gestures on the consumption between 18h and 20h and the impact of these gestures if the whole region PACA participated in this way.

The main conclusions of the experiment were:

- 140 volunteer participants equipped with smart electricity meters
- 25 alerts operated
- An average saving of 300 Wh / participant in the niche from 18h to 20h
- The 140 participating families reduced by 28% their electricity consumption from 18h to 20h

4.3.2.Lessons learned

The various pre-pilots described above (CITYOPT, Civocracy, NiceGrid, CUSA) provided the Nice Ecosystem with a large scope of complementary citizen engagement experiences.

The lessons learned during this set of projects, combined with the Citizen Engagement Ladder approach developed by HKU partner (see below), lead NCA to pay a specific attention to the co-creation of the three Integrated Solutions (IS) Integration Solutions that will be deployed within the IRIS Demonstration activities (T6.7 activities), and which will nourish the catalogue of NCA citizen engagement services.

Work is underway on integrating the outcomes and results from these pre-pilots and incorporating them in the citizen engagement activities for the IS that will be developed. This will be described in D1.7.

4.4. Citizen engagement activities in FC Vaasa

In general terms, the City of Vaasa is Level 1 and 2 of the Citizen Engagement Ladder (see Section 5 below) and undertaking first activities on Ladder 3. City of Vaasa is looking for IRIS solutions to take steps to ladder 4.

The Law on Municipalities describes basic responsibilities and a framework for communication for the Municipality. Municipalities have to inform its citizens, users of the services, associations and other groups from services, finance, issues under preparation, planning, decisions and impacts. Municipality also have to inform how citizens can participate and be engaged to activities.

Vaasa approved a citizen's engagement program in 2017. The main goals of this programme are:

- implement new methods together with citizens for engagement
- citizens engagement and co-creation will complement local democracy
- the strategy of Vaasa will enable new methods for engagement and co-creation.

Vaasa is implementing several methods for communication:

- Vaasa's internet-pages (www.vaasa.fi) and social media (facebook, twitter, instagram, Pinerest, Youtube, blogs).
- broadcasts and videos on city council meetings
- Leaflets, City newspaper (4/year), brochures,
- City is using e-feedback application for comments and proposals together with feedback forms, feedback desks, internet questionnaires and social media.
- Meetings and workshops for different groups and projects.

Urban planning participation and engagement is regulated by the planning and construction laws and it is in the centre of the whole process. Together with regulated methods, also a maptionnaire-application for feedback for citizen´s related to land use planning is being used.

There are different groups, (elderly people, disabled citizens, youth, immigrants) which are active between elected city boards and all citizens. There are also 35 active district and village associations.

The citizens engagement program set up several activities how Vaasa should improve its citizen engagement and co-creation processes and methods.

Vaasa is preparing utilization of e-services for Citizen´s. Most of those services relates to decision making for example building permits or other permits provided by the City.

4.4.1.Activities undertaken

One examples of activities that Vaasa has undertaken to move to the Citizen Engagement Ladder Level 3 is the Runsor Express Bus (Mona with help of Lotta).

Ravilaakso land development planning project implements active participation and engagement throughout the project in addition of official events required. Project includes several subprojects as, energy, art, public services and functions, commercial spaces, communication, mobility and parking. Under each subproject different events as expert workshops, stakeholder workshops, public events, questionnaires etc. are organized to involve citizen, local businesses and 3rd sector to the development of the new district. A web-page is under construction that should create a portal of activities, events, information and discussion for the time period the area is under construction but also to continue after that.

4.4.2.Lessons learned

Main lessons learned during the preparation of Citizens engagement activities are:

- Low participation on local elections,
- Low awareness on methods for engagement,
- Development of methods is scattered around city organization, processes and communication are not clear,
- Lack of analysis of feedback and utilization of it,

Program sets up several activities for the city to implement to make improvements. Some relevant to IRIS solutions are:

- Low threshold district meetings and events in early stages of preparation of decisions for example new services or public spaces, schools etc.
- Improve knowledge on participation and engagement tools and methods,
- Pilot projects for citizen engagement

4.5. Citizen engagement activities in FC Alexandroupolis

Alexandroupolis does not have sufficient know-how on the use of citizen engagement tools, but a significant portion of the local population suffer from energy poverty. Taking benefit of available energy streams already in operation in the area, the Municipality can take benefit of the build-up of know-how from IRIS and try to minimize their poverty through citizen engagement and co-creation activities for the reduction of wasted energy.

4.6. Activities in FC Santa Cruz de Tenerife

Santa Cruz de Tenerife is already opening the city to participation by several approaches regarding e-government and transparency. Similarly, Santa Cruz de Tenerife is developing a participatory process since 2007 with citizenship and there eight Tagoror (district participatory groups). From this point, the city is willing to improve the scope of citizenship participation applied on key issues such as energy management by means of ICT technologies.

4.6.1. Activities undertaken

The municipality of Santa Cruz de Tenerife works with its citizenship through different ways in order to develop a participatory government. There are 6 regular organs to promote participation.

- City Social Council
- City Social Services Council
- City Women Council
- City School Council
- City LGTBI Council
- Special Commission of Suggestions and Claims

In addition, there are another level of participatory organ according to national regulation. Santa Cruz de Tenerife has an extra citizenship representative and participatory organ, called Tagoror. There are five Tagorores, one for each city district. These Tagorores are mainly working for citizens to tell how to improve their Districts on a structured basis.

Furthermore, in 2018 Santa Cruz de Tenerife has started an open and participatory development of the Organic Municipal Regulation of Citizen Participation in order to improve channels and procedures as well as to engage people with the city development.

Additionally, the municipality of Santa Cruz de Tenerife has implemented the Participatory Budget. An initial amount of 500.000 € for neighbours, of the five Districts, to decide what type of small community improvements are more important to be done. It is planned to continue this experience in coming years and grow the amount if the initial results are positives.

Finally, in order to create a robust participatory tissue, it is important to count on active associations and other citizen entities, for this reason the municipality of Santa Cruz de Tenerife annually opens a call for subsidies aimed to help the development of own activities of the municipal citizens entities

On the other hand, the municipality of Santa Cruz de Tenerife uses other regular channels to communicate with citizenship as well as to disseminate information such as social networks, website, e-mail, letters and other means of communication.

4.6.2.Lessons learned

It has been learned that for a wider and more regular participation it is important to count on a more continuous and automatic system to provide relevant information/data to citizens and means to interact with city managers. Therefore, in this sense Santa Cruz de Tenerife is working of defining what type of information and what means are to be used in the coming years.

4.7. Citizen engagement activities in FC Focsani

Focsani is highly interested in enhancing the level of citizens' trust and understanding, to start and change behaviors, thus challenging them to co-creation and rational use of energy resources. The city will learn from the LH's demonstrations and competences in citizens and stakeholders engagement field.

4.7.1.Activities undertaken

The Municipality of Focsani has implemented and continues to develop a strong relationship with its citizens. Every year there is a meeting with the logo "Tell what you want for your city". These meetings aim at increasing the involvement of citizens in the city life. The issues raised by citizens at these meetings are the following:

- Analysing Municipality's budget and making proposals for improving it in the following year;
- Problems identified by citizens in different city's districts, e.g. streets infrastructure issues, parking issues, wastes issues, etc.;
- Coming up with different project proposals that are analysed by the Municipality for further implementation.

There are also different media information channels used by the Municipality of Focsani for informing citizens on different issues, such as:

- Leaflets, flyers, Foscani magazine
- Municipality of Focsani internet web site; e-mail
- "Citizen's telephone line";
- The Major's letter available on the Municipality's web site;

There is also a communication centre that aims at:

- Facilitating the flow of information to and from citizens;
- Provide direct access to the database;
- Shortening of document trails;
- Reducing redundant activities;
- Creating a friendly environment for relation with citizens.

For Focsani youth there is a Local Council of Youth of Focsani Municipality. The Council is dedicated for young citizens and let them to actively participate in decision making process at the level of Focsani Municipality.

4.7.2.Lessons learned

The following lessons learned from the citizens engagement in Focsani Municipality activities are relevant for our role as an FC in IRIS:

- Citizens are willing to get involved in Focsani Municipality's activities;
- Citizens can point out at different problems/issues in different city's districts, the issues that sometimes are not identified by the Municipality;
- Citizens can come up with different project proposals that can if interest for the Municipality of Focsani;
- The communication centre was a step forward towards improving the relationship between Municipality and citizens of Focsani;
- The involvement of young people in Municipality of Focsani activities is a good thing since they came up with different projects for youth.

4.8. Conclusion

It can be seen form the descriptions above that a wide variety of approaches have been undertaken within the LH and FC cities. This has proved to be a useful basis upon which to introduce the CEL approach described below in Section 5.

5. IRIS Citizen Engagement Ladder

While the benefits of the IRIS approach in terms of deploying Integrated Solutions are clear to many of the stakeholders, these solutions often encounter many barriers, of which some of the most important are:

a) that citizens have heavily individual profiles, with corresponding customs, needs and indeed preferences

b) that the local average climate conditions (e.g. sunny days or not) for each city will differ greatly

c) that there are energy or mobility related technical barriers (e.g. grid stress due to energy peaks in offer and demand)

d) that the local citizens wealth status differs, as does their intention to invest and pay for services

e) that the local industrial and city key stakeholders' willingness to invest in new technologies also varies and there is a need to critically assess whether the new proposed technologies will make profit for them and/or their citizens respectively

f) that regulatory or legal city-specific barriers exist

g) that there is a perceived lack of interest by society in general in being part of these innovative solutions

For these reasons, any proposed solutions 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 are extensively integrated as well.

This diversity in stakeholders and the crucial role of citizens as enablers, requires us to make use of co-creation methods in order to create attractive and inclusive services that support people in their own motivations to engage, express ownership, and change behaviour. This problem has already been clearly identified elsewhere as crucial to the success or failure of these types of initiatives. With IRIS we have therefore chosen to seek an innovative approach for citizen engagement and co-creation.

5.1. Overview of approach

From Section 3 above, it can be seen that there does not exist any one single "off-the-shelf" approach for Citizen Engagement within Smart City driven initiatives. There is, however, a wealth of literature and practice on design-driven approaches to co-creation and stakeholder engagement. Coupled with extensive experience on the field of applied game design at local, national and pan European levels, HKU has formulated and begun to validate an approach to Citizen Engagement that has been designed to avoid the pitfalls often found in similar initiatives.

5.2. Key considerations

Perhaps the most important issue to be considered when formulating this approach was that of varying levels of knowledge and experience on the part of the diverse types of stakeholders who are brought together within the IRIS project for the purposes of addressing how best to undertake citizen engagement activities. Whilst there are often many communication professionals involved in these types of activities on behalf of municipalities and other actors, there are relatively few professionals who are well-versed in what we is often called 'design thinking'. The relative lack of familiarity with

design and systems thinking on the part of those implementing policy and related activities means that it is important not to assume that such expertise exists within a local eco-system or even that the need for such expertise is shared by all the relevant stakeholders. This calls then for an approach that assumes a need for awareness-raising and capacity-building in this area if effective co-creation activities are to be implemented. Furthermore, even where this experience and expertise exists at a local level, there remains a need to provide clear descriptions of methods and tools and a need to carefully consider which of a multiplicity of methods would be most appropriate and most likely to succeed given the local context and the specific issues that are being addressed. A further consideration is that many 'middle-sized' Smart Cities do not always have such easy access to these kinds of skillsets and similarly there may be geographical or cultural constraints when considering their deployment. For these reasons, and based on experience in similar initiatives, it was decided to establish an approach to Citizen Engagement that would be useful for all cities, regardless of their previous experience. This is especially important within the strategic objective of enabling FCs to benefit from the work of the LHs.

5.3. Six phases of the Citizen Engagement Ladder

This section describes the six phases involved in this step-model approach, with a short explanation for each phase. The six phases are:

1. Awareness raising
2. Mapping
3. Scoping
4. Co-creation and Design Scenarios
5. Touchpoints and Influencers
6. Feedback Loops

Figure 22 below shows the iterative relationship between the different phases.

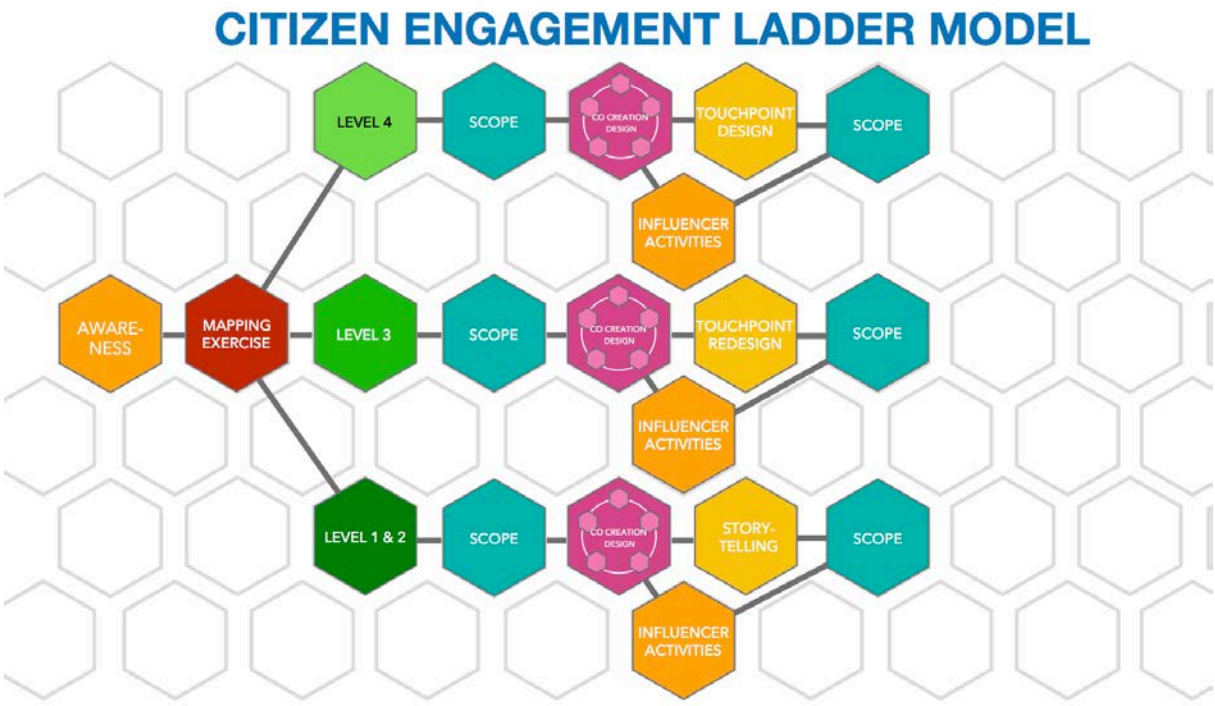


Figure 22: The Phases of the Citizen Engagement Ladder Model

A core consideration in formulating these phases was the need to provide a clear delineation between the different activities involved and the points where there are dependencies between these activities, as well as those phases that require the adoption of an iterative approach.

5.3.1. Phase 1: Awareness-raising

The awareness phase is intended to create a shared framework of thought, language, definitions and models that can be shared amongst the many stakeholders participating in the project, both at a local as well as at a European level. Some of the initial generic shared definitions discussed and agreed are as follows:

- *Citizen Engagement*

"Citizens play a critical role in advocating and helping to make public institutions more transparent, accountable and effective, and contributing innovative solutions to complex development challenges" (source: Worldbank)

"…implies the involvement of citizens in a wide range of policymaking activities, including the determination of levels of service, budget priorities, and the acceptability of physical construction projects in order to orient government programs toward community needs, build public support, and encourage a sense of cohesiveness within neighborhoods" (source: UN)

Furthermore, citizen engagement requires possibilities for citizens to influence decision making, articulating their needs, challenges and problems.

Whenever integrated solutions are planned to be implemented out of necessity without possibilities for citizens to influence its arrival, outcome or to master its use, it is related to communication and not to citizen engagement. This distinction is a critical component of the Citizen Engagement Ladder.

- *Design & Systems Thinking*

A creation process based on Design Thinking (Stanford) whereby all user stakeholders are actively involved from inception to realisation of a new idea, through iterative design sprints.

This involves using well established processes and interventions taken from the world of design to put a user at the centre of decision making, problem identification and product and service design solutions, tailored to actual existing needs.

An information package has also been developed to address some key notions and definitions. Some key terminology used includes citizen engagement, active and passive touchpoints, influencers, design thinking, and co-creation. This package is provided in section 6.X below and will be further elucidated during the project within the proposed Field Guide described in section 7 below.

5.3.2. Phase 2: Mapping

Phase 2 consists of a mapping exercise of all the proposed integrated solutions in each LH city on the Citizen Engagement Ladder model.

In this phase we categorise the various integrated solutions in ***four steps of increasing citizen engagement levels***. The main criteria for division in various categories ties in with the notion of touchpoints (see Figure 23 below).

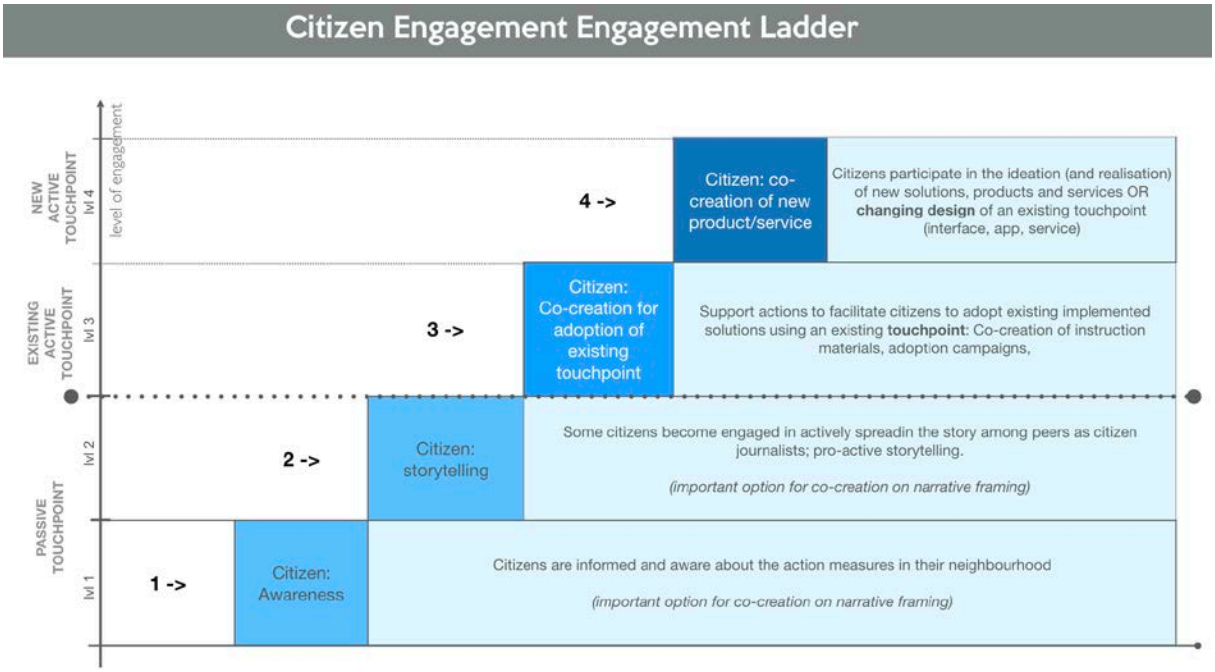


Figure 23: The 4 levels of the Citizen Engagement Ladder Model

These different levels are described in more detail below:

- **Level 1** of the Engagement ladder consists of IS that have no touchpoint. 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 touchpoints***.

  Through these active touchpoints, citizens should be able to influence the outcomes of the KPI's of the IRIS project through their own behaviour. Examples of active touchpoints are charging stations for electric vehicles; smart meters in their homes to control energy consumption or apps / web-based services to give access to IRIS integrated solutions. Integrated solutions that fall into level 3 engagement consist of existing touchpoints which cannot be redesigned, altered or modified based on citizen input. Citizen engagement activities will focus on the proper understanding, usage, and adoption of the use of these touchpoints to positively contribute to the projects KPI's. This will probably lead to the development of supportive materials, information and instruction packages and other solutions to increase the likeliness of adoption of these integrated solutions.

  Another aspect of level 3 integrated solutions are those where, upon implementation, existing touchpoints change in a way that might have a notable impact on daily life activities. A change of the energy management system in a housing estate away from natural gas as a source might change the cooking stove as a touchpoint, requiring new skills and techniques (and cooking utensils) to prepare food. This might need additional solutions to ensure proper transition and usage of these new technologies.

- **Level 4** of the Engagement ladder contains those integrated solutions where there is an existing touchpoint that can be adapted, modified, simplified or enhanced within the possibilities of the IRIS project or integrated solutions where new touchpoints will and shall be developed. Smart data platform services are an example. In these situations, citizen engagement, through co-creation processes have the potential to shape the solutions to best fit the needs and requirements of the citizens regarding these integrated solutions.

The mapping with the Citizen Engagement Ladder is thus a quick scan tool used across all Lighthouse cities to map the measures against required citizen engagement activities. In this way, key groups of stakeholders can map the various activities as described in the IRIS project on a city basis. This also allows the LH cities better to distinguish between communication-led and citizen engagement and co-creation-led activities.

5.3.3. Phase 3: Scoping

Knowing the actual citizens in your demonstration area is vital to ensure adoption and proper usage of the proposed integrated solutions. Technology push might easily lead to citizen disengagement and it is essential that this issue is tackled coherently from the earliest possible moment in order to avoid the typical types of problems that arise within Smart City initiatives.

It is widely understood that contextual lived experience is a gap in evidence. As the recent report on policy innovation from the Brookfield Institute[23] suggests:

> *There are systemic barriers to doing the kind of deeper public engagement (e.g., field research, ethnography, co-design) that enables policymakers to access the lived experience and needs of people impacted by the issue…There is also an epistemological bias towards evidence that is quantifiable (e.g., statistics) and reliable (e.g., worked in other places), which means that much of the evidence is derived from desk research and divorced from the lived experience."*

Undertaking such in-depth ethnographic field research is both time-consuming and expensive and it is unrealistic to expect this to be undertaken extensively in the context of Smart City initiatives. Equally, where existing data on local neighbourhoods already exists, or can be generated during the lifetime of an initiative, it is still important to assess the extent with which the local stakeholders are familiar with these sources of information.

The scope model questions each Integrated Solution on a number of key items to map the suffiency of available insights and data on a number of citizen focused themes to identify any critical gaps in the necessary information needed to move to the next phase.

During the project, tools will be developed for each city to scope this for each stakeholder, so they can together build an overall comprehensive picture. Any blind spots or missing data or information now needs to be filled by desk research or collective decision making to come up with answers to the missing questions.

This phase will be instrumentalised using applied game design, with the first prototype being deployed during the LH co-creation workshops (see section 6 below).

The scope model was developed originally for the analysis of initial design concepts. It is used at the HKU during game design lessons to help students and professionals with the design of applied

[23] Brookfield Institute (2018) Exploring Policy Innovation: Tools, Techniques + Approaches p 12

games. The scope model is based on asking questions that seek to understand the design space by identifying:

- the goal of the design;
- who the design is for;
- where will the target audience use/encounter the design;
- how much time does the target audience need to invest in the design to accomplish the design's goal;
- how does the design work to accomplish the goal;
- and why does the design create a desire from the target audience to engage with the design.

The scope model is used to consider Analysis, Research, Validation, and Communication.

- *Analysis* with the scope is a way to look at an integrated solution and ask if it is appropriate? A scope analysis requires the creation of a scope model, which identifies the design space of the integrated solution.
- *Research* is using the scope to identify areas where research is needed or has not been done, which helps to determine the risk of developing the integrated solution.
- *Validation* is the use of the scope at the end of a project to identify if the initial criteria were achieved. The criteria can be used by citizens to judge the success of the project.
- *Communication* is the way scope model criteria to establish the results needed from an integrated solution, which differs from defining progress based on features implemented.

The scope model was first introduced into the IRIS project in LH Utrecht. From this pilot workshop and in local IRIS Utrecht meetings, the scope model was refined and improved to better suit citizen engagement. This initial workshop was designed to have stakeholders assess the applicability and usefulness of the scope questions. These questions were further refined during subsequent workshops in LH Gothenburg and LH Nice.

The primary objective of the Scope Model is to allow stakeholders to become more aware of the design of their integrated solutions. Another objective is to identify the holes in the design research that is the basis of any integrated solution.

To create a scope model requires: answering the scope questions with multiple stakeholders, discussions, and research. The result is a bullet point list that identifies the design space.

The current version of the Scope Model contains the following questions. These questions are focused on the citizen engagement perspective in the project. Their main purpose is to verify if all necessary information about citizens is readily available within the consortium.

If not, this means additional data must be acquired through live meetings with actual citizens. The questions are based on good practise in design-driven innovation projects. The answers on all questions together form the SCOPE model. This model ensures a proper checkpoint for any integrated solution to meet citizen demands (see Table 3 below).

Table 3: IRIS Scope Model Questions

Focus Area	No.	Scoping Question
CITIZEN FOCUS	101	Provide a short typology of the demo area (indicators; housing type, citizen groups, social economic status division, origin, education level)

Focus Area	No.	Scoping Question
	102	Provide a qualitative description with underpinning of the citizens dreams, ambitions, beliefs and values
	103	Provide a qualitative description with underpinning of the actual needs of the end citizens
	104	Provide a qualitative description with underpinning of the challenges that face the end citizen (e.g. social, education, economic or cultural)
	105	Describe -if relevant - any specific characteristics of the demo are that might influence communication with the citizens.
	106	Provide a qualitative description with underpinning about how the residents' groups experience their built environment (living conditions)?
CITIZEN FOCUS ON IS *(REQUIRED FOR EACH IS)*	201	Provide a qualitative description with underpinning of the resident group (s) that benefit from integrated solution [xxx]
	202	Provide a qualitative description with underpinning which stakeholders - outside the residents - benefit from integral solution [xxx], and in which way.
	203	Describe - if relevant - which behavioural change - of residents or other stakeholders - are involved with the introduction of integral solution [xxx] after implementation
ENVIRONMENT FOCUS ON IS *(REQUIRED FOR EACH IS)*	301	Give a description -if relevant - of possible spillover effects of integral solution XXX on surrounding areas?
	302	Are there specific features of the demonstration area that may affect the implementation of integral solution [XXX]?
	303	Provide a qualitative description of expected benefits for residents or other stakeholder of integral solution [XXX] in the demonstration area
BEHAVIOURAL FOCUS ON IS *(REQUIRED FOR EACH IS)*	401	Describe how much time you require the residents to spend on participating in the design and validation of integrated solution [XXX]
	402	Describe how much time you think integral solution [XXX] will disrupt residents per week in their traditional behavioural pattern
	403	How much time do you expect residents to interact per week with the active touch point of integral solution XXX (per week)?

Focus Area	No.	Scoping Question
IMPACT FOCUS *(REQUIRED FOR EACH IS)*	501	Describe the expected impact and desired result of integral solution XXX in terms of success
	502	Describe the criteria that residents use to describe the success of integral solution XXX
PRODUCT/ SERVICE	601	Briefly describe how integral solution [XXX] will result in a sustainable 'service' or system in which residents participate
	602	Describe which functionalities for the active touchpoint you think are essential for successful implementation
	603	Briefly describe what information control or what action control residents have about integrated solution [XXX] via the active touchpoint
	604	Describe which elements of integral solution [XXX] can generate true interest or enthusiasm among residents (reduction of costs, specific experience, ease of use etc.)

At this stage, we examine the extent to which the problems have been identified and described. We also try to identify the extent to which the different problem types are understood. And lastly, we stress-test the levels of understanding of the local power dynamics by hierarchical representatives (e.g. municipality). Using cultural theory can help to match the correct type of intervention to the problem based upon the dynamics of the local context. We can then match the problem types with the power dynamics and assess the extent to which the participants have sufficient understanding of the underlying structural issues and contextual dynamics to successfully tackle them. It should then be possible to guide them to working on the problems they are most likely to solve, prioritising them in terms of ease and difficulty.

These scoping questions have been trialled and tested in LH Utrecht and are currently being deployed in LH Gothenburg and LH Nice. As this is an iterative process, it is expected that the questions will be further refined during the project lifecycle. Once the detailed descriptions of the approaches to be deployed for each Integrated Solution is prepared (see D1.7), each LH will use this scope model to further develop the citizen engagement activities during the project.

5.3.4. Phase 4: Co-creation and co-design

Based on the outcomes of the mapping exercise and the scoping exercise, there follow three scenarios:

- **Scenario 1:** If an Integrated Solution lacks an active touchpoint nor has a indirect impact on an existing touchpoint, it is mapped as a level 1 or 2 solution. This means the primary task around this solution is proper communication.

  The co-creation activity and design should focus on the proper narrative or storytelling for the specific neighbourhood. Together with citizens, the communication responsibles will sit down with citizens to co-create the best way to communicate the integrated solution. What framing of the narrative, the message, best meets the needs and frame of reference for the citizens. Economic framing like cost reduction? Contributing to a bigger cause? Ease of use and comfort?

The results of the co-creation can than inform the communication strategy and the narrative frame for the citizen journalists to help spread the word.

- **Scenario 2**: If an integrated solution is mapped as a level 3 solution, it means there is an existing active touchpoint. This might either be adapted and modified to optimise its future use and adoption, or support material might be designed to ease citizens to adopt the solution. The design of these materials could easily be subject of co-creation and design sprints.
- **Scenario 3:** If an integrated solution is a level 4 type solution, it means there will be a new service which will get a touchpoint in the project which does not yet exist; a number of NEW apps or webservices will be developed in the project and without an existing interface, this would clearly be more suitable for citizen engagement co-creation

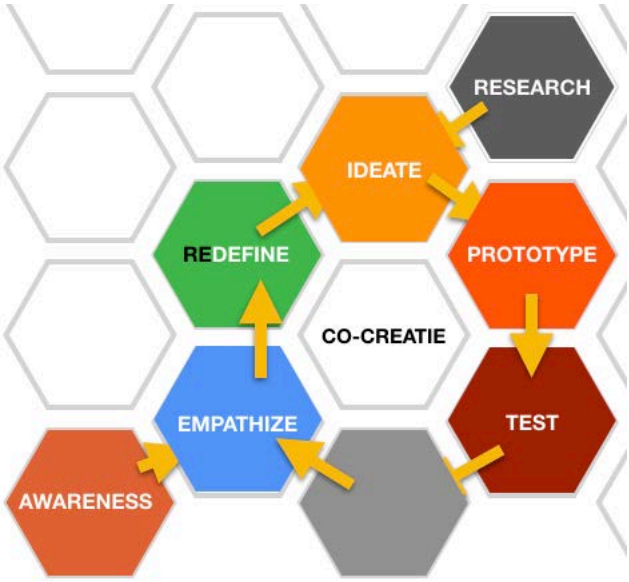


Figure 24: Iterative Co-creation Cycle

To support cities in performing these activities, we use an extension on the Standford model of design thinking, offering a field guide to support the actual co-creation activities (see Section 7 below). These activities will roughly fall into two different kinds in Phase 5.

5.3.5.Phase 5: City activities on touchpoints and influencers

The term **touchpoint** refers to all of the contact points between the customer and the service provider, which involves an interaction with a human need in specific time and place (Risdon 2013).

Figure 25: Touchpoint

It is important to note that creating a touchpoint does not automatically mean use of the service; actual use demands a more profound interaction with the actual user groups in the design of a touchpoint. For this reason, it is important to distinguish between passive and active touchpoints.

- *Passive Touchpoints*
  Passive touchpoints are those where citizens can learn about a measure, be informed, be instructed etc. But these touchpoints do not put the user in active control of a measure, hence the term passive touchpoint. Examples of these: information letters; leaflets; meetings; blogposts; articles; …
- *Active Touchpoints*
  Active touchpoints are those where citizens can take active control of a measure and use it, configure it, change it, adopt it etc. Usually this implies some kind of interface. Examples: a physical object, a controller, an interactive display, an app, an interactive web interface…

A key category of activities focuses on the touchpoints themselves and ensuring they are self-explanatory, easy to understand, easy to use and easy to learn. This should be undertaken from an inclusive design perspective to include all types of users in a neighbourhood, with special attention to citizens with a lower social economic status or multicultural background.

A second category of activities develops strategies to involve key stakeholders in the neighbourhood to become key influencers to help citizens to adopt an integrated solution. An example could be to set up a project with a local school to trigger children to involve their parents in the project if they do not engage themselves to the level intended by the project partners.

These activities focus more on actions and events instead of pure materials and interfacing.

The notion of an 'Influencer' is also a key component of this phase. Influencers are considered individuals in a community that can exert influence on the behaviour of other individuals through peer pressure based on a social position from with they can exert that influence (see Figure 26 below).

Figure 26: Examples of Influencers

5.3.6. Phase 6: Feedback loops and revising scope model

The final phase is stress testing all design related co-creation activities against the scope model to ensure proper alignment with projected project outcomes. It is a validation exercise to ensure all activities undertaken are still within the intended design space as defined collectively in Phase 3.

5.4. Validation of the citizen engagement ladder approach

With these 6 phases, the CEL approach has sought to re-structure co-creation and citizen engagement activities in such a manner as to offer all the stakeholders involved a basis for achieving

greater impact. Naturally, this is an approach that is iterative and that needs to be customised for each of the Integrated Solutions.

In order to ensure the validation of this approach during the IRIS project lifecycle, and to provide usable, transferable and quantifiable outcomes, a number of related Key Performance Indicators have been developed. These are described in more detail in D1.1. In this way we seek to provide LH and FC with a highly flexible and customisable approach to co-creation and citizen engagement with complementary performance indicators.

6. Citizen Engagement Co-Creation Workshops

Following the elaboration of the Citizen Engagement Ladder approach as described above, a number of activities were undertaken in order to trial the approach and the related materials. This involved initial testing in LH Utrecht, followed by activities in LH Gothenburg and LH Nice.

An introductory presentation was created for these co-creation workshops and covering the key themes and explaining the overall methodology. This is a lengthy document and is included as an appendix to this deliverable in order to illustrate in more detail the explanation of the approach (see Appendix 1).

6.1. Citizen Engagement Workshops in Utrecht

Two citizen engagement meetings were held in Utrecht with the purpose of pre-testing methodological components prior to their further deployment for integrated delivery to Goteborg and Nice

The first meeting took place on January 30 2018. This was the first testrun for the Citizen Engagement Ladder approach and parallel presentation of the Design Thinking Methodology. The workshop was presented by HKU.

In order to present the Awareness Phase, the meeting started with a presentation in which we build a collective frame of understanding how to go about citizen engagement in the context of the IRIS project. Irrespective of prior experience, we need a common frame of reference, terminology and definitions to be able to collaborate and communicate effectively.

In introducing the Ladder Model Phase, the approach is to map all planned Integrated Solutions onto our model. This will help clear up which of these integrated solutions have an intrinsic need for citizen engagement in terms of co-creation. The end result of this phase will be a division of the integrated solutions into four categories. Only category 3 and 4 allow for co-creation and citizen engagement activities. Category 1 and 2 level solutions will require solid communication but no co-creation activities. This will help stakeholders to focus their energy and resources on the proper Integrated Solutions and reduce some of the workload by avoiding mapping the wrong methods onto the planned activities.

In preparation for this phase it was suggested that the group of citizen engagement stakeholders could put each Integrated Solution on a separate paper card to easily put it on the poster containing the four categories of activities. Additionally, participants could add a YES or NO on these cards if citizens are able to control, operate, influence or change the working of the Solution. As an example: if you put solar panels on a roof, and citizens have no direct access to these panels and cannot control their operation (since they are part of the grid), you put a NO on the card containing these panels as Integrated Solution. If you put a Smart Meter into households (like in Utrecht), you put a YES on the card containing this measure, since citizens can actively operate the solution in their daily life.

The second meeting was held on March 6 and was a second testrun of the CEL model and presentation of the Scope Model by HKU.

The SCOPE model phase was the focus of this testrun. The scope phase is a series of questions, a checklist, to build up a comprehensive picture how well the design space has been designed for the proposed solution. The focus of this model is to put the Citizen at the centre of the process. The SCOPE model consists of 6 sets of check questions. Section 1 are questions valid for the entire Demo Area in your city. Section 2-6 are additional check questions used for each Integrated Solution. Since

the introduction of the Integrated Solutions is spread in time during the project, this work is also phased over time.

Issues around co-creation and design thinking approaches were also presented. Based on the outcomes of the mapping exercise and the scoping exercise, three scenarios are possible as outcomes.

- If an Integrated Solution lacks an active touchpoint and has an indirect impact on an existing touchpoint, it is mapped as a **level 1 or 2 solution**. This means the primary task around this solution is proper communication. The co-creation activity and design should focus on the proper narrative or storytelling for the specific neighbourhood. Together with citizens, the communication stakeholders will sit down with citizens to co-create the best way to communicate the integrated solution. What is the best framing of the narrative, the message that best meets the needs and frame of reference for the citizens. Economic framing like cost reduction? Contributing to a bigger cause? Ease of use and comfort? The results of the co-creation can than inform the communication strategy and the narrative frame for the citizen journalists to help spread the word.
- If an integrated solution is mapped as a **level 3** solution, it means there is an existing active touchpoint. This might either be adapted and modified to optimise its future use and adoption, or support material might be designed to ease citizens to adopt the solution. The design of these materials could easily be subject of co-creation and design sprints.

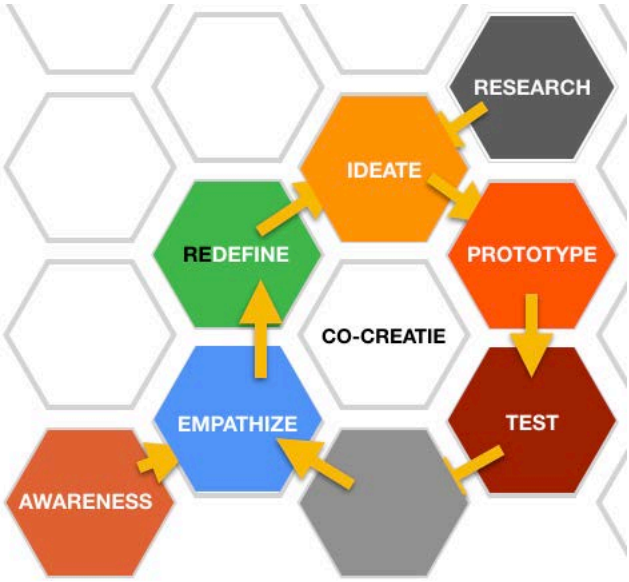


Figure 27: Co-creation iteration cycles

To support cities in performing these activities, we will use an extension on the Standford model of design thinking, offering a field guide to support the actual co-creation activities. These activities will roughly fall into two different kinds.

City activities on touchpoints

One key category of activities will focus on the touchpoints themselves and ensuring they are self-explanatory, easy to understand, easy to use and easy to learn. This should be undertaken from an inclusive design perspective to include all types of users in a neighbourhood, with special attention to citizens with a lower social economic status or multicultural background.

Involving key influencers

A second line of activities will develop strategies to involve key stakeholders in the neighbourhood to become key influencers to help citizens to adopt an integrated solution. An

example could be to set up a project with a local school to trigger children to involve their parents in the project if they do not engage themselves to the level intended by the project partners. These activities will focus more on actions and events instead of pure materials and interfacing.

The participants at the meeting were:

- Carolien van Hemel: Sustainable Thinking UU
- Arno Peekel: Municipality Utrecht
- Martijn Broekman: Boex.
- Chris Verhoeven: Municipality Utrecht (Communication)
- Joppe van Driel: Municipality Utrecht (Communication)
- Willem-jan Renger: HKU
- Ina van der Brug: HKU
- Mirjam Harmelink: Municipality Utrecht
- Ragnhild Scheifes: Sustainable Thinking UU
- Wim Beelen: Municipality Utrecht

Additionally, in Utrecht as a testrun of the approach, an initiative in the demonstration area Kanaleneiland on smart street lightning was used. In three design sessions (June 20, 25 and 26), professionals and citizens from this area, worked together in co-creation to come from an idea to a prototype, the visual material shown below.

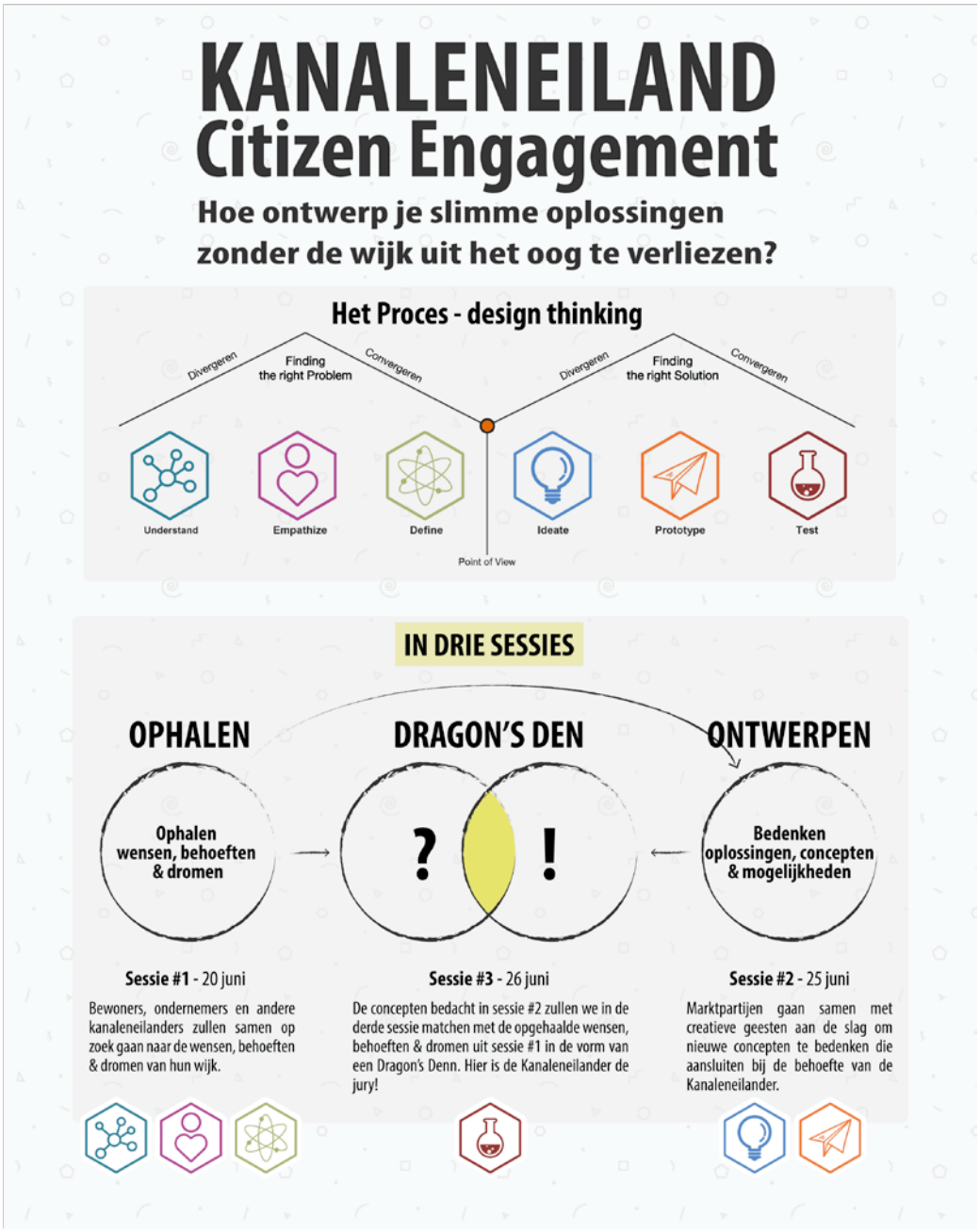


Figure 28: Utrecht session overview

The process consisted of three sessions: a pick-up session, a design session and a Dragons Den session.

- **Session # 1** Prior to the collection session, we shot some 30 photos of streets, houses, objects, rubbish, places, parks, etc. in Kanaleneiland. These photos functioned as a conversation starter. Everyone chose one and told why. Then there was some discussion. That discussion was recorded on Post-its with the Narrativesheets as a guide. In this way, there were global Themes with a number of stories (narratives) including quotes, subjects and a number of first HKW questions.

- **Session # 2** The design session was undertaken with a professional design team. Here entrepreneurs, creative people and municipal officials came together to make designs together. Firstly, the different Narrative sheets were grouped per group and then brainstormed about new concepts. This was done using Crazy eights. (comes from the Google Design Sprint). The crazy Eights were again input for more extensive storyboards (2pp). Then two were chosen per team and worked out on an A2 sheet.
- **Session # 3** The Dragons Den was somewhat simple: The designers get 3 minutes to pitch for each concept. Then the residents are allowed to decide which ideas they think are good and which are not. They did this by using fake money per person. (€ 100, € 200 and € 500) this gave you an overall assessment of which ideas were valued.

6.2. Citizen Engagement Workshops in Gothenburg

The workshop in Gothenburg was held on 14 May 2018 and was based around the following items.

- **Awareness Phase**: Building a collective frame of understanding how to go about citizen engagement in the context of the IRIS project. Irrespective of prior experience, we need a common frame of reference, terminology and definitions to be able to collaborate and communicate effectively.
- **Ladder model:** Presenting and working with the Ladder model. We use our Ambition ladder model to map all planned Integrated Solutions onto our model. This will help clear up which of these integrated solutions have an intrinsic need for citizen engagement in terms of co-creation.
- **Scope model:** Presenting and working with the scope model. A brief introduction of the SCOPE model to help you identify a potential lack of understanding of your end users demands and to be able to demarcate the Solution Space within which the citizens can actively participate in the process.
- **Design Thinking Methodology** Presenting and working with the Design Thinking Methodology (following the explanation piloted in Utrecht).
- **Testrun of a scenario (scenario exercise)** In both cities we choose one particular integrated solution to explore the cocreation process as a process. In Gothenburg we discussed the Min Stad solution.

Figure 29: Images form Gothenburg Workshop

In addition to the design team from HKU, the participants at the meeting were:

- Eva Pavic: JSP
- Bjorn Westling: JSP
- Anna Olofsson: HSB
- Malin Boseus: RISE
- Rickard Malm: HSB
- Kim Lantto: Goteborg City
- Stefan Lyden: Goteborg City
- Susanne Ollila: Chalmers
- Baldessarelli Giada: Chalmers
- Katarina Nodstrom: JSP
- Peter Selberg: Riksbyggen
- Ulrika Wahlstrom: IMCG
- Anna-Karin Dahlin: IMCG
- Karin Weijdegard: JSP
- Julia Bengtsson: Goteborg City
- Arvid Tornqvist: Goteborg City
- Emma Lund: Trivector

6.3. Citizen Engagement Workshops in Nice

The workshop in Gothenburg was held on 22 May 2018 and was based around the following items.

- **Awareness Phase**: Building a collective frame of understanding how to go about citizen engagement in the context of the IRIS project. Irrespective of prior experience, we need a common frame of reference, terminology and definitions to be able to collaborate and communicate effectively.

- **Ladder model:** Presenting and working with the Ladder model. We use our Ambition ladder model to map all planned Integrated Solutions onto our model. This will help clear up which of these integrated solutions have an intrinsic need for citizen engagement in terms of co-creation.
- **Scope model:** Presenting and working with the scope model. A brief introduction of the SCOPE model to help you identify a potential lack of understanding of your end users demands and to be able to demarcate the Solution Space within which the citizens can actively participate in the process.
- **Design Thinking Methodology:** Presenting and working with the Design Thinking Methodology. (See the written explanation above, at the Utrecht meeting report).
- **Testrun of a scenario (scenario exercise):** In both cities we choose one particular integrated solution to explore the co-creation process as a process. In Nice we discussed an Urban Environment Monitoring Platform.

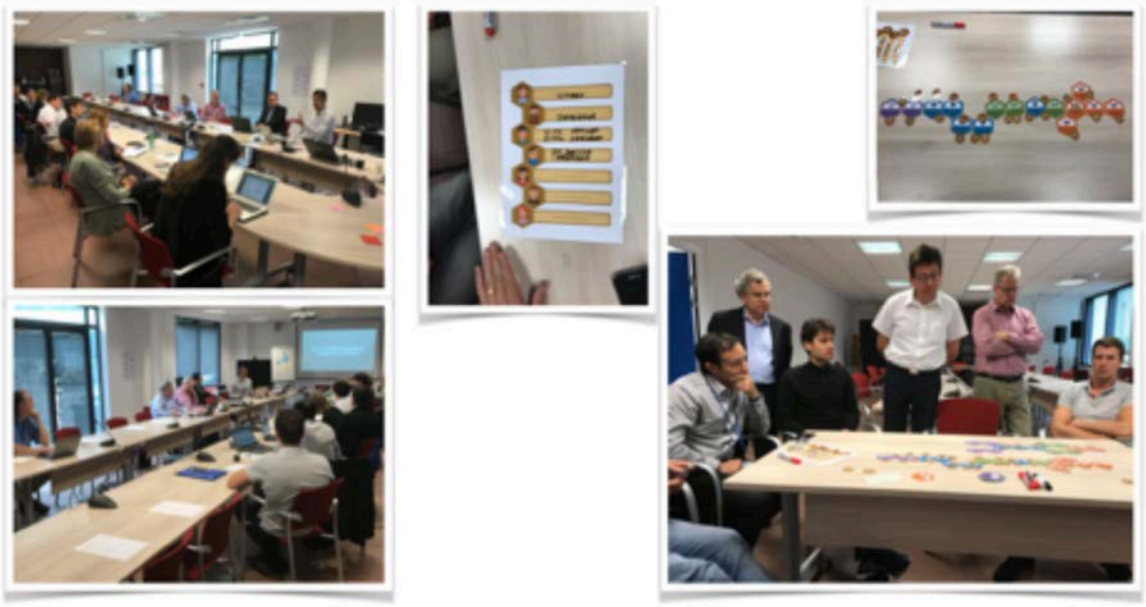


Figure 30: Images form Nice Workshop

In addition to the design team from HKU, the participants at the meeting were:

- Jean-Charles Maleysson: NICE (NCA)
- Philippe Maillard: Veolia
- Laurianne Alouchiche: UNS
- Marco Baudino: GREDEG
- Marc Bourdeau: CSTB
- Alain Chateau: NICE (NCA)
- Lionel Chaudanson: NICE (NCA)
- Letitia Foerster Arruda: GREDEG
- Jackie Krafft: UNS
- Dimitri Metodiev: IMREDD
- Sebastien Groll: IMREDD

6.4. Templates for Citizen Engagement Activities for each Integrated Solution

Following the in-depth co-creation workshops, each LH is currently undertaking a detailed examination with all relevant stakeholders of each Integrated Solution using the most appropriate co-creation approaches and methodologies.

A template was circulated in order to collect the information gathered from these activities and to ensure that detailed and structured planning and reporting is undertaken during the following years of the IRIS project. The detailed outcomes will be included in D1.7.

The following fields are included in this template for each Integrated Solution:

- **Name of integrated solution**
- **Type of Citizen Engagement activity**
- **Organisation(s) responsible for this activity**
- **Organisation(s) with design thinking expertise involved**
- **Main objectives**
- **Description of activities involved**
- **Types of associated materials generated**: (eg pics, videos etc)
- **Possible risks**
- **Stakeholder Groups involved** *(please choose which to include)* Group 1: Distribution System Operators (DSOs), Group 2: Consumers (End-users), Group 3: Technology and Services Providers, Group 4: Policy-Making Bodies and Governance, Group 5: Citizens Group, 6: Representative Citizen Groups, Group 7: Citizen Ambassadors
- **Related Citizen Engagement KPIs:**
  - Improved flexibility of service delivery following citizen feedback phases
  - Increased awareness of energy consumption issues
  - Awareness of economic benefits of reduced energy consumption
  - Number of innovative ways found to implement Smart City Integrated Solutions in neighbourhoods using the Citizen Engagement Ladder approach
  - Local citizen involvement in planning AND/OR design AND/OR implementation AND/OR validation phases
  - Increased citizen awareness of the potential of smart city projects
  - Number of city officials and urban experts trained to conduct the meaningful and ethical engagement of citizens
  - Provision of a localised multi stakeholder co-creation and co-production Field Guide for Citizen Engagement activities
  - Participation of citizens, citizen representative groups and citizen ambassadors in the co-creation of local/micro KPIs for Citizen Engagement for Smart Cities
  - Number of active ‘touch-points’ identified where citizens have a degree of agency and interaction with solution
  - Measure extent to which privacy by design has been ensured

By way of illustration, the following draft example of a completed template is included below:

Name of integrated solution: Smart e-mobility in Gothenburg, EC2B

Type of Citizen Engagement activity: Level 4, co-creation of new service using a new, active touchpoint

Responsible organisation(s) for this activity: Trivector Traffic

Organisation(s) with design thinking expertise involved: To be identified

Main objectives:

The main objective of the citizen engagement activities planned for the integrated solution on smart e-mobility in Gothenburg is to involve citizens in the design of a new mobility service.

Within T7.5 of the IRIS project, EC2B ("Easy to be" or "Easy to B", phonetically written), a new mobility service concept connected to accommodation, will be implemented which offers customers an attractive alternative to owning their own car, allowing easy access to a variety of transport modes (e-cars, e-bikes, public transport etc) in connection to where customers live or work and make their everyday choices for transport. In a first step, the service is developed and offered to the residents in the 132 apartments in Riksbyggen's Brf Viva. In a second step, a version designed for work places is developed and implemented with building owners and employers in the Johanneberg science park and campus area. A variety of electric vehicles and public transport suppliers already active in the district will provide the transportation services. An innovative feature of the service is that it will include mobility management elements, where users at strategic points in time will receive personal advice on how to achieve a more sustainable travel pattern, taking their specific needs into account. The service will be augmented by an ICT system (a Mobility as a Service/MaaS platform), displaying the different transport options available, handling booking, payment, etc, but also involve guidance and "nudging" features steering users towards greener transport options as well as giving access to a sharing community among users. The core task of T7.5 is to develop the content of the service and the advisory module as well as to coordinate implementation of the service with the actors involved, including property developer, transport service providers and IT developer. Engagement of citizens/future users is an integrated part in the process of designing and further developing the service.

Description of activities involved

During the first year of the IRIS project, activities have already started with a group of future users of the EC2B service being invited to a series of design workshops where the content of the service has been discussed. All future residents of the 132 apartments that are part of the first phase of the pilot were invited to the workshops, and around 10 % of them attended the three workshops that have been carried out so far (Q4 2017 and Q1 2018). During the first workshop, focus was on the Empathise phase of the SCOPE model, where we tried to understand the needs of the future users. At the two subsequent workshops, focus was on the Ideation phase, where Trivector presented first ideas of the design and content of the service, and workshop participants were invited to provide feedback. Based on this feedback, the service offer was further refined. The group of future users will be invited to a fourth workshop in Q3 2018 where we will collect feedback on a first prototype of the advisory part of the service being developed.

Once the service is launched and is being used (from Q4 2018), user feedback will be collected through the possibility to provide comments via the app through which users interact with the service, i.e. the active touchpoint.

Types of associated materials generated: (e.g. pics, videos etc)

Pictures from workshops, communication lead from Gothenburg to be invited to future citizen workshop to write news post

Possible risks:

1. Not enough participants in citizen engagement activities
2. Participants not representative of sample population

Stakeholder Groups involved (please choose which to include)

Group 1: Distribution System Operators (DSOs) 2: Consumers (End-users) YES Group 3: Technology and Services Providers Group YES 4: Policy-Making Bodies and Governance " Group 5: Citizens Group YES 6: Representative Citizen Groups Group 7: Citizen Ambassadors

Related Citizen Engagement KPIs: (tick ones which are relevant). Not yet decided.

- Improved flexibility of service delivery following citizen feedback phases
- Increased awareness of energy consumption issues
- Awareness of economic benefits of reduced energy consumption
- Number of innovative ways found to implement Smart City Integrated Solutions in neighbourhoods using the Citizen Engagement Ladder approach
- Local citizen involvement in planning AND/OR design AND/OR implementation AND/OR validation phases
- Increased citizen awareness of the potential of smart city projects
- Number of city officials and urban experts trained to conduct the meaningful and ethical engagement of citizens
- Provision of a localised multi stakeholder co-creation and co-production Field Guide for Citizen Engagement activities
- Participation of citizens, citizen representative groups and citizen ambassadors in the co-creation of local/micro KPIs for Citizen Engagement for Smart Cities
- Number of active 'touch-points' identified where citizens have a degree of agency and interaction with solution
- Measure extent to which privacy by design has been ensured

6.5. Conclusions and Future WP1 Workshops

In general, the participants in the workshops in each of the LH Cities have reported positively on their experiences and on the content of the sessions. It is however recognised that considerable work is needed to identify, describe and structure the citizen engagement activities within the context of each of the Integrated Solutions.

In order to provide feedback and support for the LH cities in undertaking this task, a two-day workshop has been scheduled for M11 in Utrecht. This workshop will consider the co-creation activities already undertaken and stress-test the outputs for each Integrated Solution. All those working on these activities have been invited to attend. This workshop will provide a critical feedback loop prior to the final descriptions to be included in D1.7. As noted above, the scope model questions answered for each Integrated Solution on a number of key items map the suffiency of available insights and data on a number of citizen focused themes to identify any critical gaps in the necessary information needed to move to the next phase. This process will also be assessed.

7. Conclusions

During the first 9 months of the IRIS project, the importance of co-created citizen engagement activities has had considerable emphasis, both at a strategic management level and at the local level in LH cities.

HKU designed the **Citizen Engagement Ladder** approach following in-depth consideration of complementary activities in related Smart City and other ICT-driven projects, participation in the related EIP-SCC activities, and an extensive tour d'horizon of related approaches and methodologies.

This approach involves extensive awareness-raising among project stakeholders and capacity building on related issues. LH cities are currently following this approach with local stakeholders and stakeholder groups in order to raise awareness of the importance of citizen engagement in the deployment of Integrated Solutions.

This deliverable has described the different phases of the Citizen Engagement Ladder and reports on the results and lessons learned from the preliminary workshops and related activities. Main lessons learned include:

- a need to understand the depth of citizen engagement that is required if Smart City initiatives are to be considered successful
- a parallel need to broaden the use of design-based approaches with those of systems thinking
- a need to provide greater structure and phased iterations for citizen engagement activities
- a need to distinguish between activities that involve traditional communication approaches from those requiring co-creation approaches and to factor this into the planning schedule as early as possible
- a suggestion to instrumentalise the EIP-SCC Manifesto by including the recommendations within KPIs developed in Smart City initiatives

Based on the Citizen Engagement Ladder approach, between M07 and M12 each of the proposed Integrated Studies are being considered in detail to ensure that citizen engagement is fully integrated in the proposed solutions throughout the duration of the project. For each of the Integrated Solutions, detailed descriptions of these activities and the initial scheduling will be provided in D1.7.

In order further to ensure sustainable commitment to citizen engagement, a number of KPIs have been formulated for this topic and incorporated in the longer list of KPIs for the IRIS project (see D1.1).

In the next phase, HKU will additionally develop a Field Guide for Citizen Engagement. In this Field Guide we will both capture lessons learned in the project, as well as provide templates and decision-making support in executing the citizen engagement activities in more detail. Although this is not a formal deliverable for the project, it is a resource that will clearly be useful and replicable.

Part of the function of the Field Guide is to capture the emerging knowledge base in IRIS regarding CE activities and make this available to new people getting involved in the project.

Given the size of the IRIS project, its partners and future participants, people involved in the project might switch roles or tasks, so maintaining a level of collective understanding regarding the innovative approach is important.

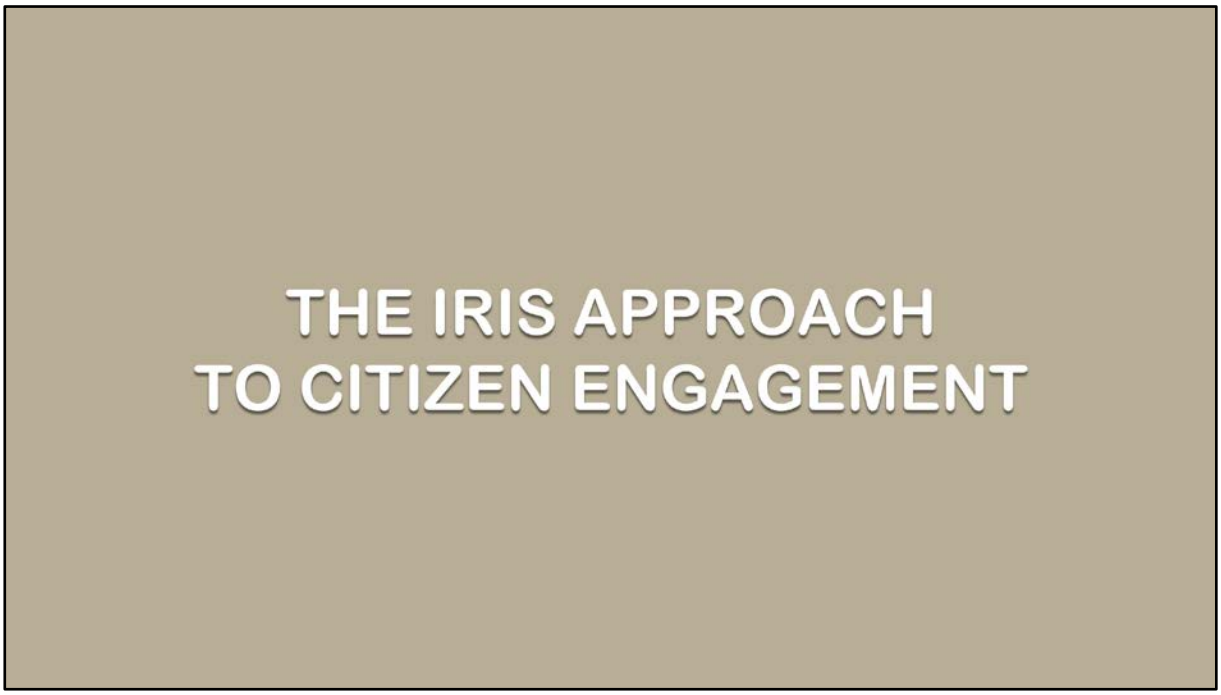
We are considering a collection of short knowledge clips, accessible online, so newcomers to the project can step in and quickly retrace the methodology and its operational implications on short notice on their own initiative.

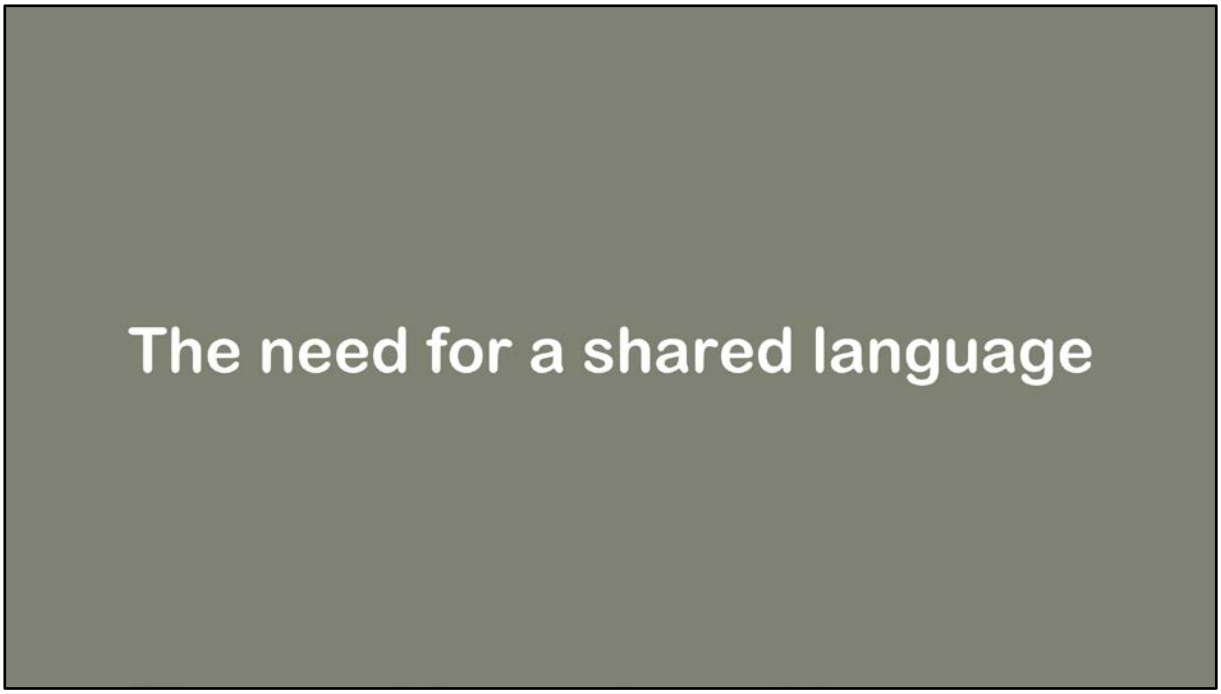
We also plan to share some formats with supportive materials how to organise, schedule en perform key CE activities based on a particular task.

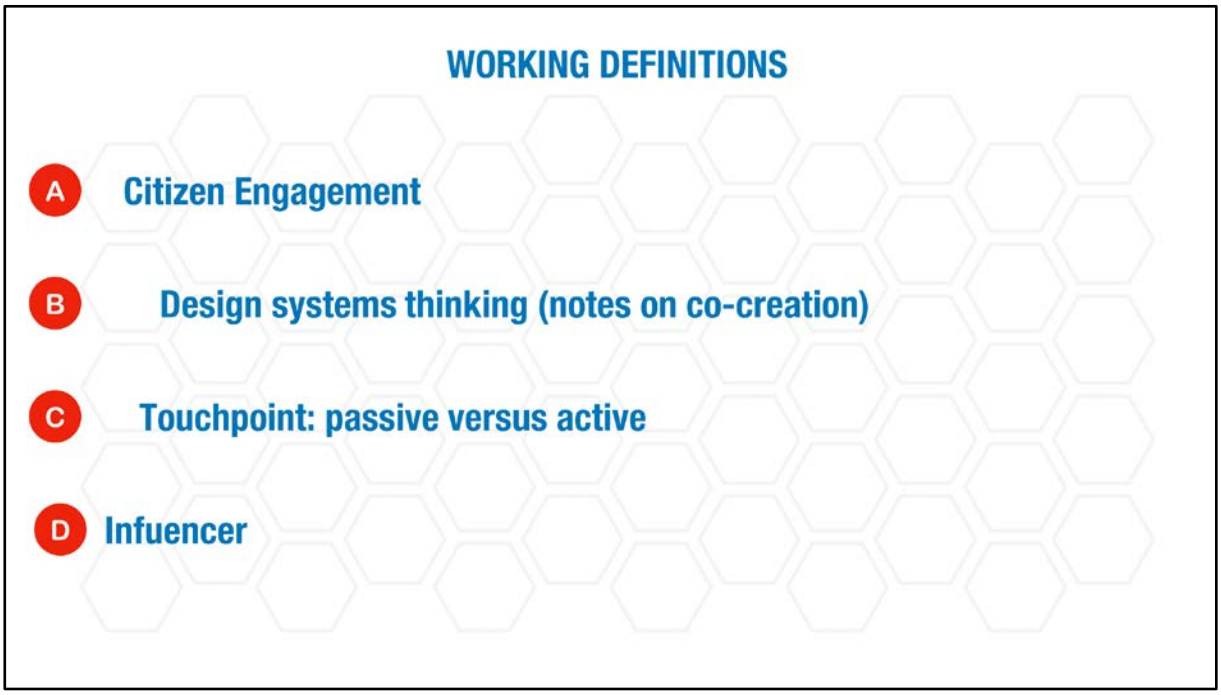
Some integrated solutions require co-creation activities with creatives; some solutions require testing or probing with citizens. We will aim to find a core number of key formats and share them among the LH cities. Hopefully, this knowledgebase and the Field Guide formats will support the process of transferring the Citizen Engagement methodology to other cities interested in this approach.

The conceptualisation and realisation of the Field Guide is planned between September and December 2018, that is between M11-M14.

Annex 1: Presentation of IRIS approach to Citizen Engagement




The need for a shared language


WORKING DEFINITIONS
A Citizen Engagement
B Design systems thinking (notes on co-creation)
C Touchpoint: passive versus active
D Infuencer

WORK DEFINITIONS

A Citizen Engagement: generic definitions

"Citizens play a critical role in advocating and helping to make public institutions more transparent, accountable and effective, and contributing innovative solutions to complex development challenges" (source: Worldbank)

"…implies the involvement of citizens in a wide range of policymaking activities, including the determination of levels of service, budget priorities, and the acceptability of physical construction projects in order to orient government programs toward community needs, build public support, and encourage a sense of cohesiveness within neighborhoods" (source: UN Nations)

WORK DEFINITIONS

A Notes on citizen engagement

Citizen engagement requires possibilities for citizens to influence decision making, articulating their needs, challenges and problems.

Whenever inegrated solutions are planned to be implemented out of necessity without possibilities for citizens to influence its arrival, outcome or master its use, its is relayed to communication!

We define four distinct levels of possible citizen engagement

WORK DEFINITIONS

A Citizen Engagement: IRIS project definitions

Level 4: Citizens help to co-create in the ideation and realisation of new products, services and initiatives to meet the project's KPI's

Level 3: Citizens help co-create adoption strategies to take active ownership of existing active touchpoints to positively contribute to KPI's in the IRIS project

Level 2: (Some) citizens are actively engaged in storytelling about the impending actions and changes in their neighbourhood

Level 1: Citizens are transparently informed and aware of impending actions and changes in their neighbourhood

WORK DEFINITIONS

B 'Design system thinking': IRIS project work definitions

*A creation process based on Design Thinking (Stanford) whereby **all** user stakeholders are **actively** involved from inception to realisation of a new idea, through iterative design sprints. This involves using well established processes and internventions taken from the world of design to put a user in the center of decision making, problem identification and product and service design solutions, tailored to actual excisting needs.*

WORK DEFINITIONS

C 'Touchpoint': IRIS project work definitions

*The term **touchpoint** refers to all of the contact points between the customer and the service provider, which involves an interaction with a human need in specific time and place (Risdon 2013)*

IMPORTANT NOTE: Creating a touchpoints does not automatically mean use of the service; actual use demands a more profound interaction with the actual user groups in the design of a touchpoint.

WORK DEFINITIONS

D 'Passive Touchpoint': IRIS project work definitions

We identify various types of touchpoints.

Passive touchpoints are those where citizens can learn about a measure, be informed, be instructed etc. But these touchpoints do not put the user in active control of a measure, hence the term passive touchpoint.

Examples of these: information letters; leaflets; meetings; blogposts; articles; …

WORK DEFINITIONS

'Active Touchpoint': IRIS project work definitions

Active touchpoints are those where citizens can take active control of a measure and use it, configure it, change it, adopt it etc. Usually this implies some kind of interface.

Examples: a physical object, a controller, an interactive display, an app, an interactive web interface…

WORK DEFINITIONS

'Active touchpoint' examples

WeDriveSolar app

V2G laadpaal

TOON smartmeter

WORK DEFINITIONS

'Influencer': IRIS project work definitions

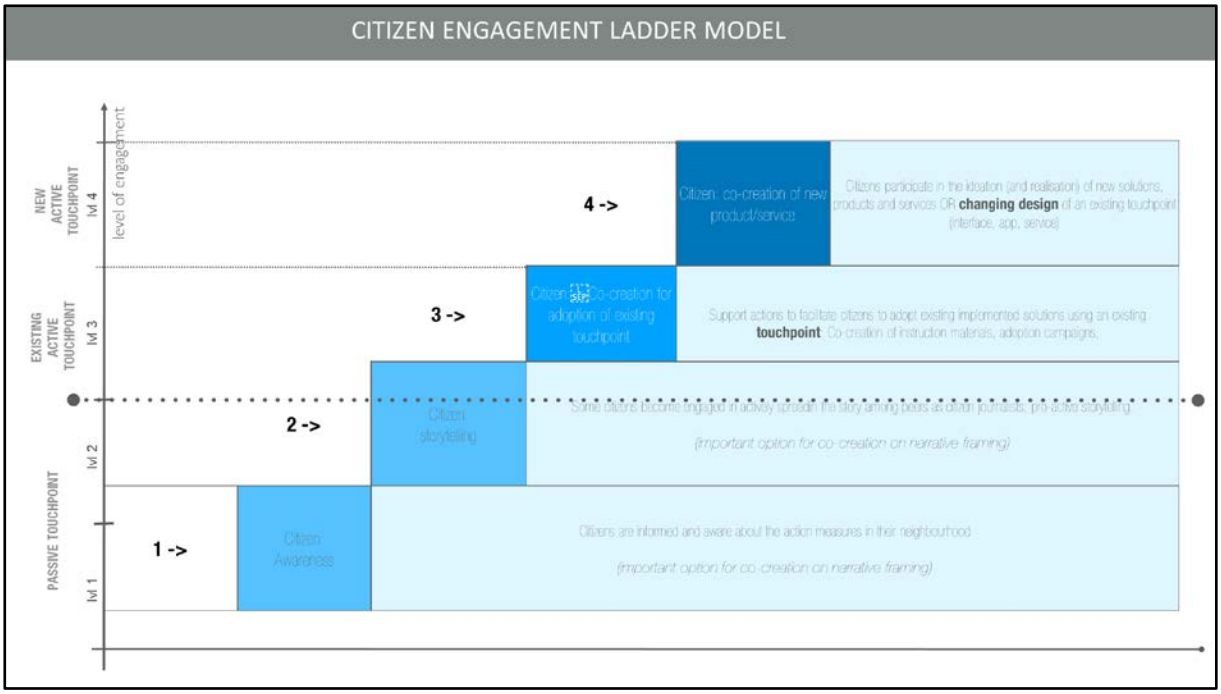
Influencers are individuals in a community that can exert influence on the behaviour of other individuals through peer pressure based on a social position from with they can exert that influence

examples

2

MAPPING EXERCISE

CITIZEN ENGAGEMENT LADDER MODEL



IRIS CITY ENGAGEMENT AMBITION LADDER

Citizen Engagament tailored to IRIS measures.

The Engagement Ladder is a quickscan tool we aim to use in WP1 and WP5 across all Lighthouse cities to map the measures against required citizen enagement activities. We distinguish between 6 levels of engagement.

In the folowing slide we see the ambition ladder model. This is the model on which we will map the various activities as described in the IRIS project per city.

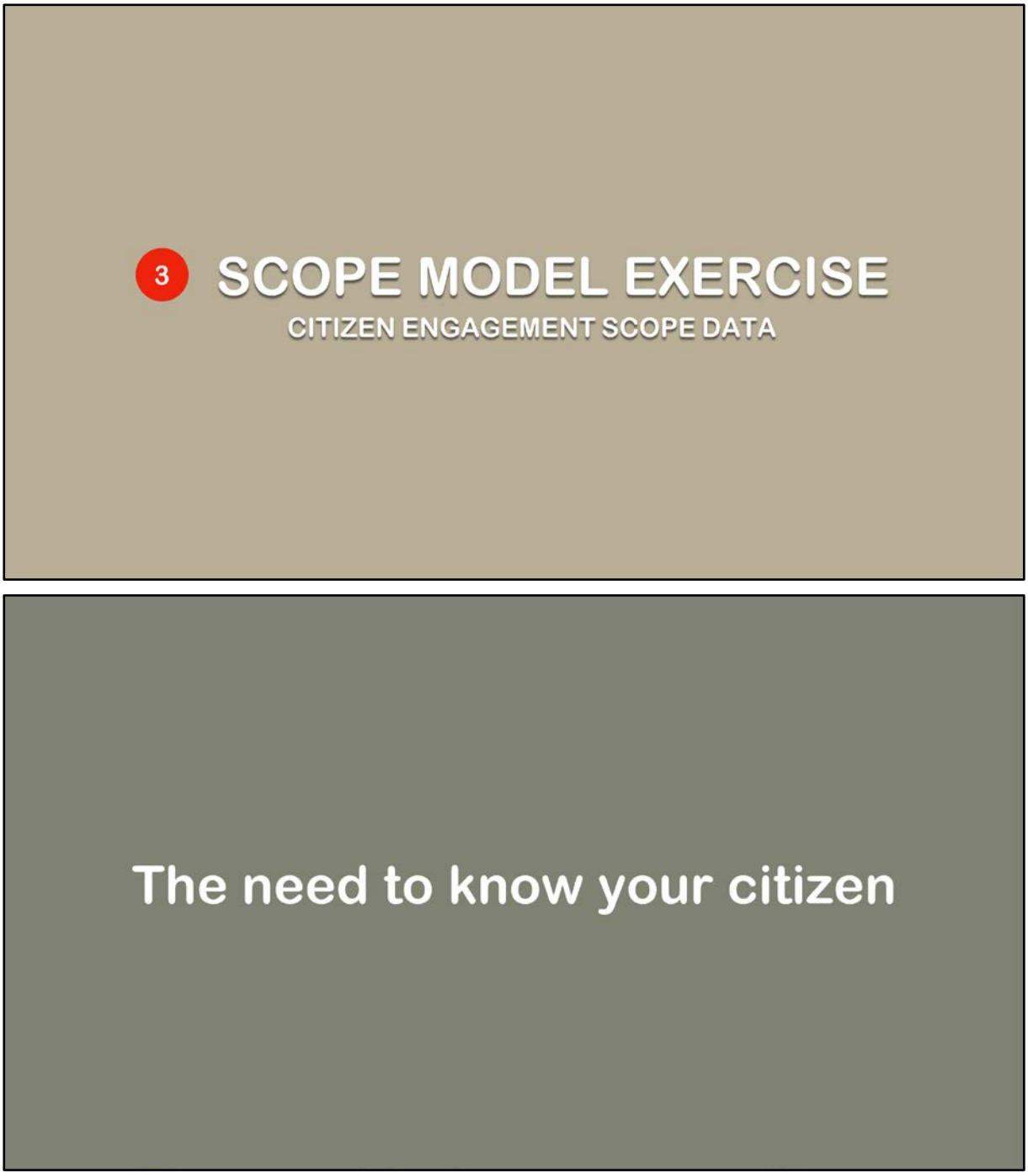
IRIS CITIZEN ENGAGEMENT process map

Citizen Engagament process map

Depending on the plotting of a measurement on the Ambition ladder, we can define the proper citizen engagement activities needed to get the highest contribution of each measure on the project's KPI's.

CITIZEN ENGAGEMENT LADDER MODEL: UTRECHT EXAMPLE

				Integrated Solutions Mapping Exercise					Middelen
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	*Krachtstation as local innovation hub*
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 destrict experience	3D Utrecht City Information model	*local schools / learners as Influencers (campaiging and services)*
					Smart Heating ventilatie gedrag	Electrische V2G Car en App WeDriveSolar	V2G E-bus service / subscription model		*Campaign Smart Street Lighting*
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		


3
SCOPE MODEL EXERCISE
CITIZEN ENGAGEMENT SCOPE DATA
The need to know your citizen

THE SCOPE MODEL

The WHY and HOW

Knowing the actual citizens in your deminstration areas is vital to ensure adoption and proper usage of the proposed integrated solutions. Technology push might easily lead to citizen disengagement

We developed 2 sets of questions you should be able to answer about your citizens. The first set is irrespective of a specific integrated solution

The second set is specific for a particular integrated solution, spread across the project time.

THE SCOPE MODEL

These questions are focussed on the citizen engagement perspective in the project. There main purpose is to verify if all necessary information about citizens is readily available within the consortium.
If not, this means additional data must be aquired through live meetings with actual citizens. The questions are based on good practise in design-driven innovation projects. The answers on all questions together form the SCOPE model. This model ensures a proper checkpoint for any integrated solution to meet citizen demands.

Part 1:
SCOPE overall citizen engagement questions

THE SCOPE MODEL

PART 1 CITIZEN FOCUS

101 Provide a short typology of the demo area (indicators; housing type, citizen groups, social economic status division, origin, education level)

102 Provide a qualitative description with underpinning of the citizens dreams, ambitions, beliefs and values

103 Provide a qualitative description with underpinning of the actual needs of the end citizens

104 Provide a qualitative description with underpinning of the challenges that face the end citizen (e.g. social, education, economic or cultural)

105 Describe -if relevant - any specific characteristics of the demo are that might influence communication with the citizens.

106 Provide a qualitative description with underpinning about how the residents' groups experience their built environment (living conditions)?

Part 2-6: SCOPE citizen engagement questions per integrated solution

THE SCOPE MODEL

PART 2 CITIZEN FOCUS - INTEGRATED SOLUTION [XXX]

201 Provide a qualitative description with underpinning of the resident group (s) that benefit from integrated solution [xxx]

202 Provide a qualitative description with underpinning which stakeholders - outside the residents - benefit from integral solution [xxx], and in which way.

203 Describe - if relevant - which behavioral change - of residents or other stakeholders - are involved with the introduction of integral solution [xxx] after implementation

THE SCOPE MODEL

PART 3 ENVIRONMENT FOCUS - INTEGRATED SOLUTION [XXX]

301 Give a description -if relevant - of possible spillover effects of integral solution XXX on surrounding areas?

302 Are there specific features of the demonstration area that may affect the implementation of integral solution [XXX]?

303 Provide a qualitative description of expected benefits for residents or other stakeholder of integral solution [XXX] in the demonstration area

THE SCOPE MODEL

PART 4 BEHAVIOUR FOCUS - INTEGRATED SOLUTION [XXX]

401 Describe how much time you require the residents to spend on participating in the design and validation of integrated solution [XXX]

402 Describe how much time you think integral solution [XXX] will disrupt residents per week in their traditional behavioral pattern

403 How much time do you expect residents to interact per week with the active touch point of integral solution XXX (per week)?

THE SCOPE MODEL

PART 5 IMPACT FOCUS - INTEGARTED SOLUTION [XXX]

501 Describe the expected impact and desired result of integral solution XXX in terms of success

502 Describe the criteria that residents use to describe the success of integral solution XXX

THE SCOPE MODEL

6 PRODUCT/SERVICE

601 Briefly describe how integral solution [XXX] will result in a sustainable 'service' or system in which residents participate

602 Describe which functionalities for the active touchpoint you think are essential for successful implementation

603 Briefly describe what information control or what action control residents have about integrated solution [XXX] via the active touchpoint

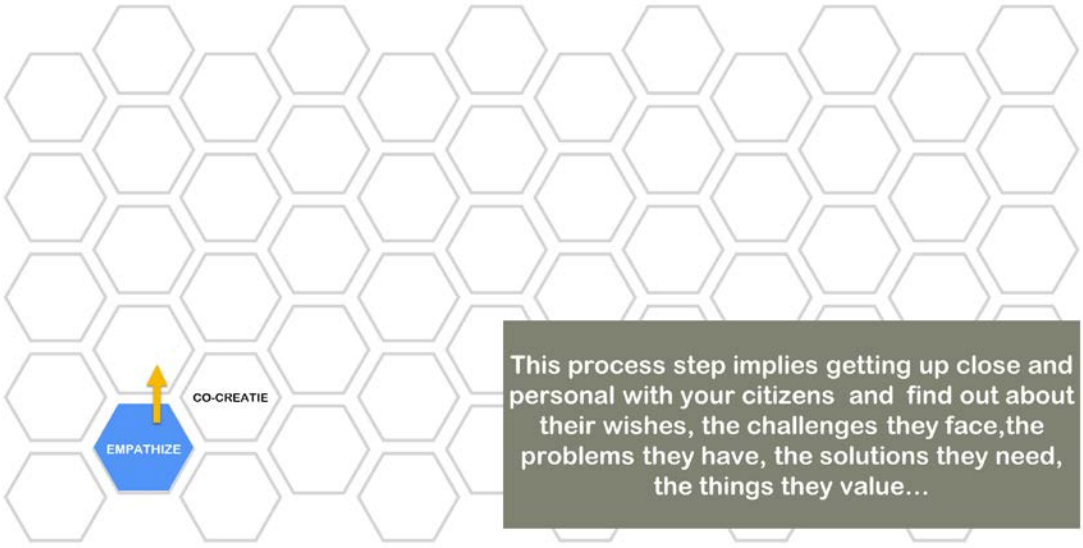
604 Describe which elements of integral solution [XXX] can generate true interest or enthusiasm among residents (reduction of costs, specific experience, ease of use etc.)


4
CO CREATION WORKSHOPS
CITIZEN ENGAGEMENT ACTIVITIES
"… Missing questions means additional data must be aquired through live meetings with actual citizens.
The answers on all questions together form the SCOPE model."

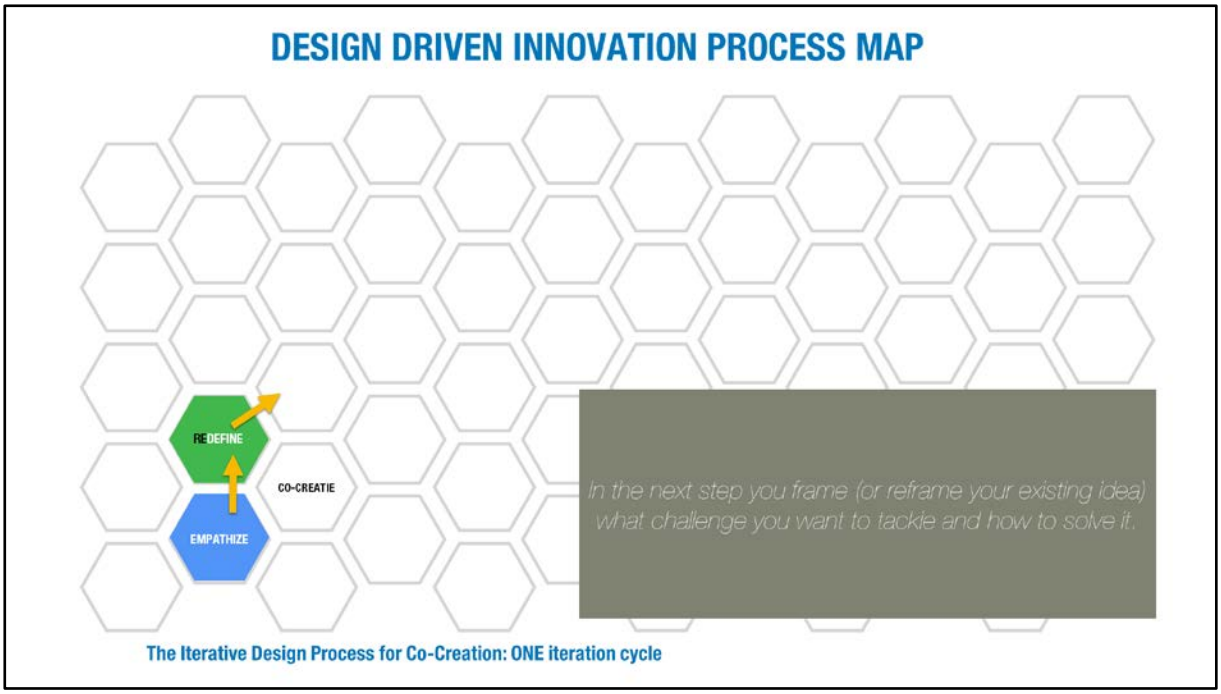
CO-CREATION is a method that will serve several purposes:

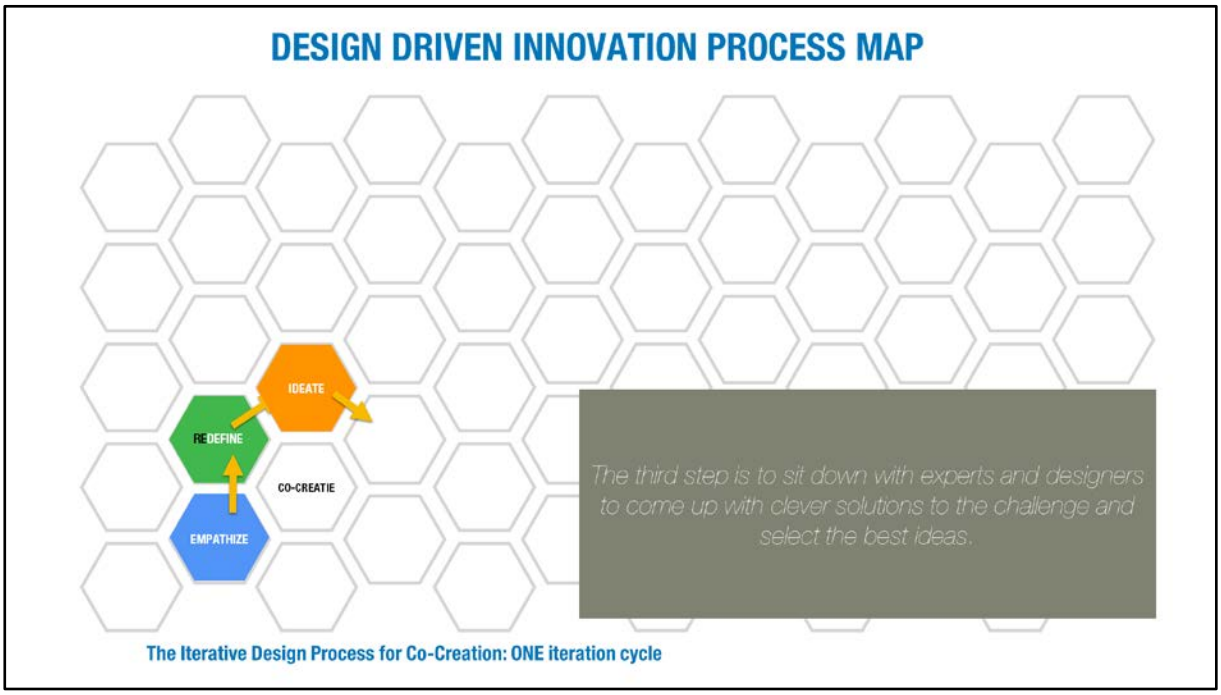
- to identify a perceived need by citizens
- to identify challenges citizens face
- to test solution ideas and directions
- to get user input on design decisions

DESIGN DRIVEN INNOVATION PROCESS MAP

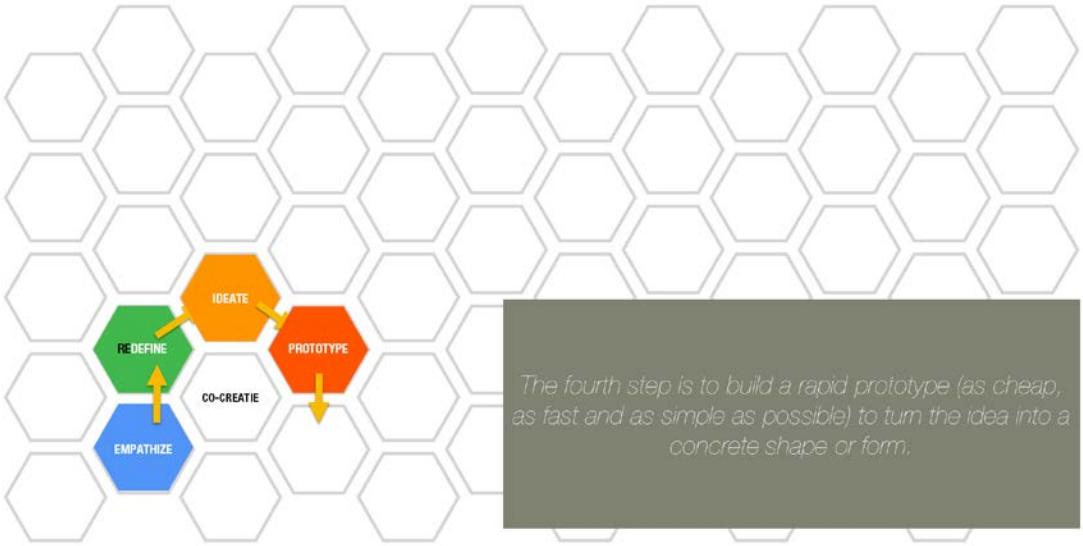


The Iterative Design Process for Co-Creation: ONE iteration cycle


DESIGN DRIVEN INNOVATION PROCESS MAP
REDEFINE
CO-CREATIE
EMPATHIZE
In the next step you frame (or reframe your existing idea) what challenge you want to tackle and how to solve it.
The Iterative Design Process for Co-Creation: ONE iteration cycle

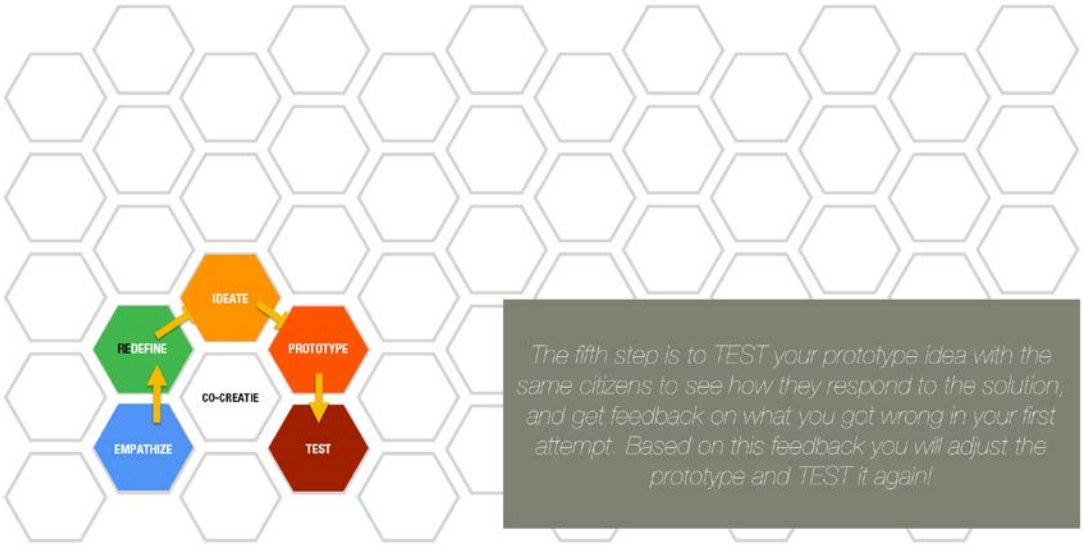

DESIGN DRIVEN INNOVATION PROCESS MAP
IDEATE
REDEFINE
CO-CREATIE
EMPATHIZE
The third step is to sit down with experts and designers to come up with clever solutions to the challenge and select the best ideas.
The Iterative Design Process for Co-Creation: ONE iteration cycle

DESIGN DRIVEN INNOVATION PROCESS MAP



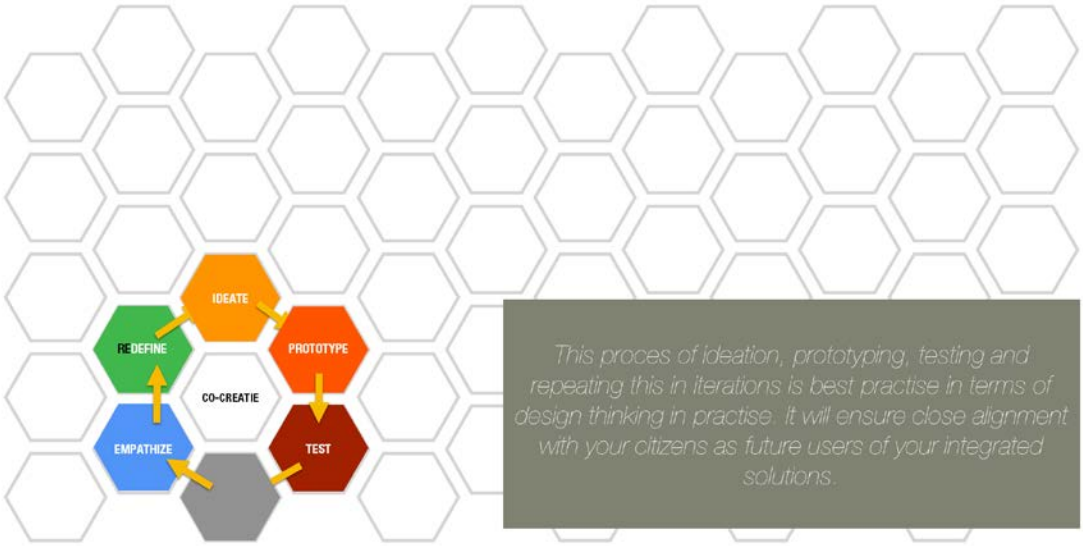
The Iterative Design Process for Co-Creation: ONE iteration cycle

DESIGN DRIVEN INNOVATION PROCESS MAP



The Iterative Design Process for Co-Creation: ONE iteration cycle

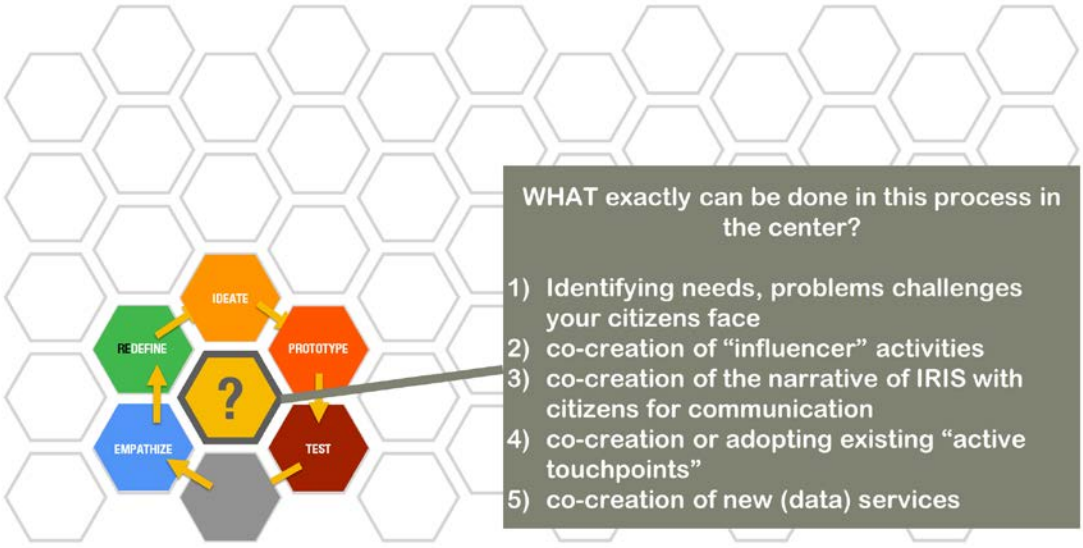
DESIGN DRIVEN INNOVATION PROCESS MAP



This proces of ideation, prototyping, testing and repeating this in iterations is best practise in terms of design thinking in practise. It will ensure close alignment with your citizens as future users of your integrated solutions.

The Iterative Design Process for Co-Creation: ONE iteration cycle

DESIGN DRIVEN INNOVATION PROCESS MAP

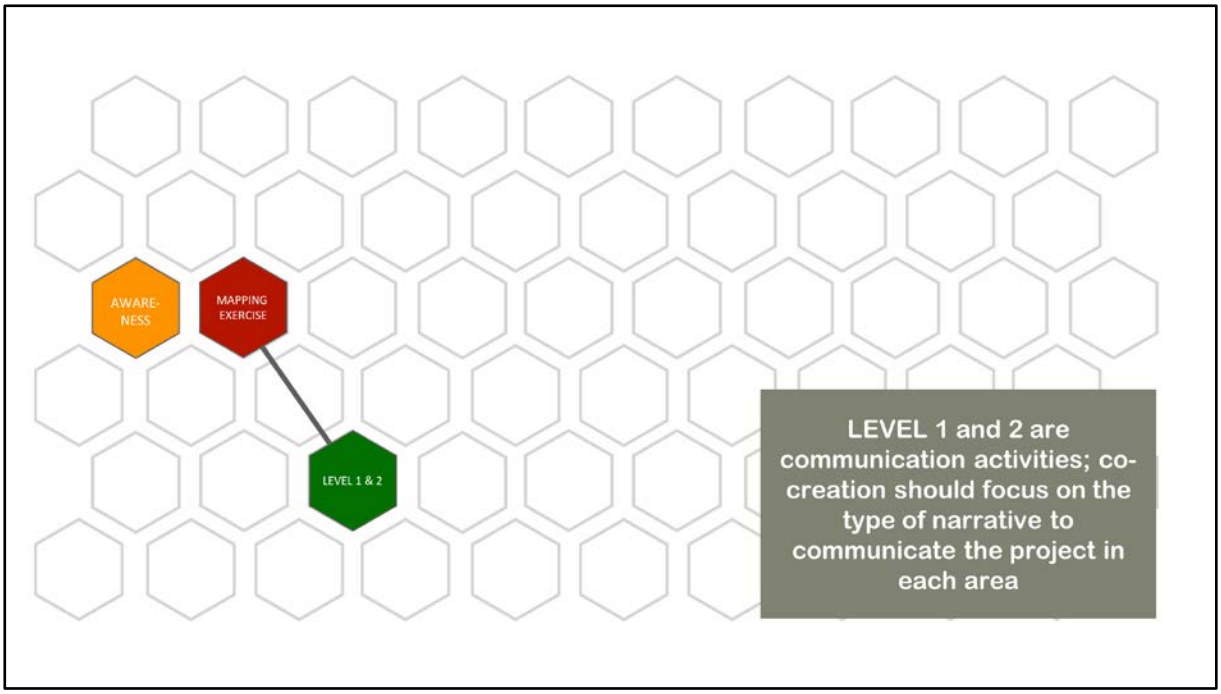


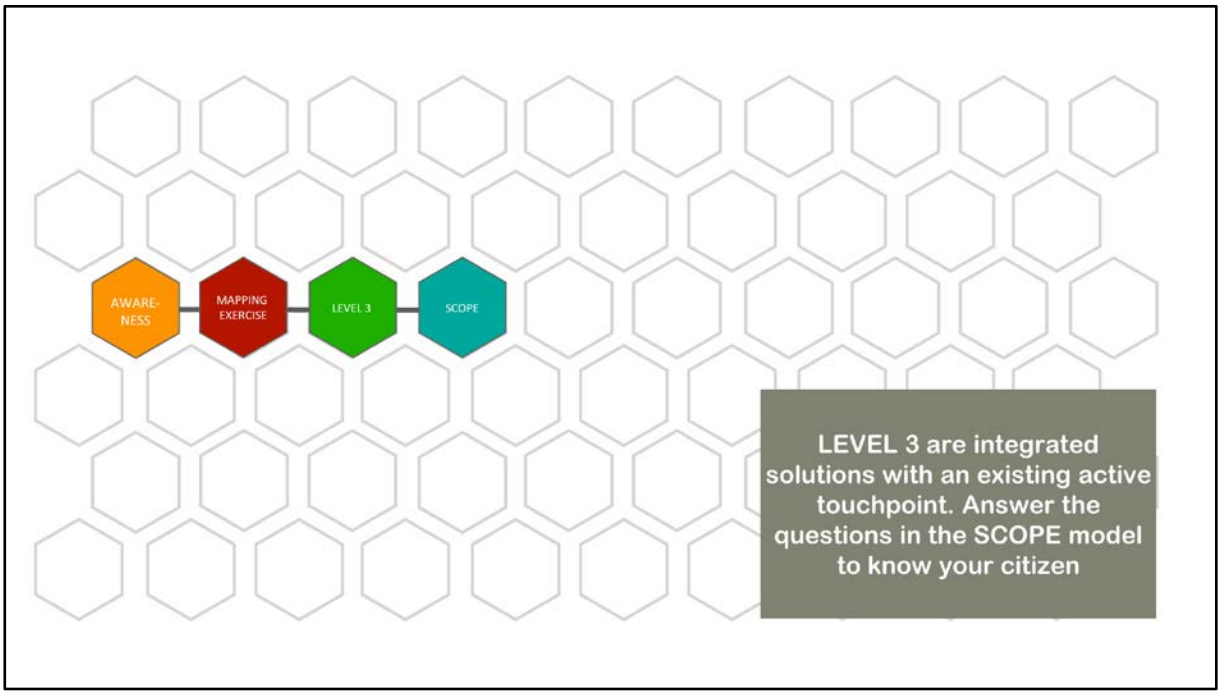
WHAT exactly can be done in this process in the center?

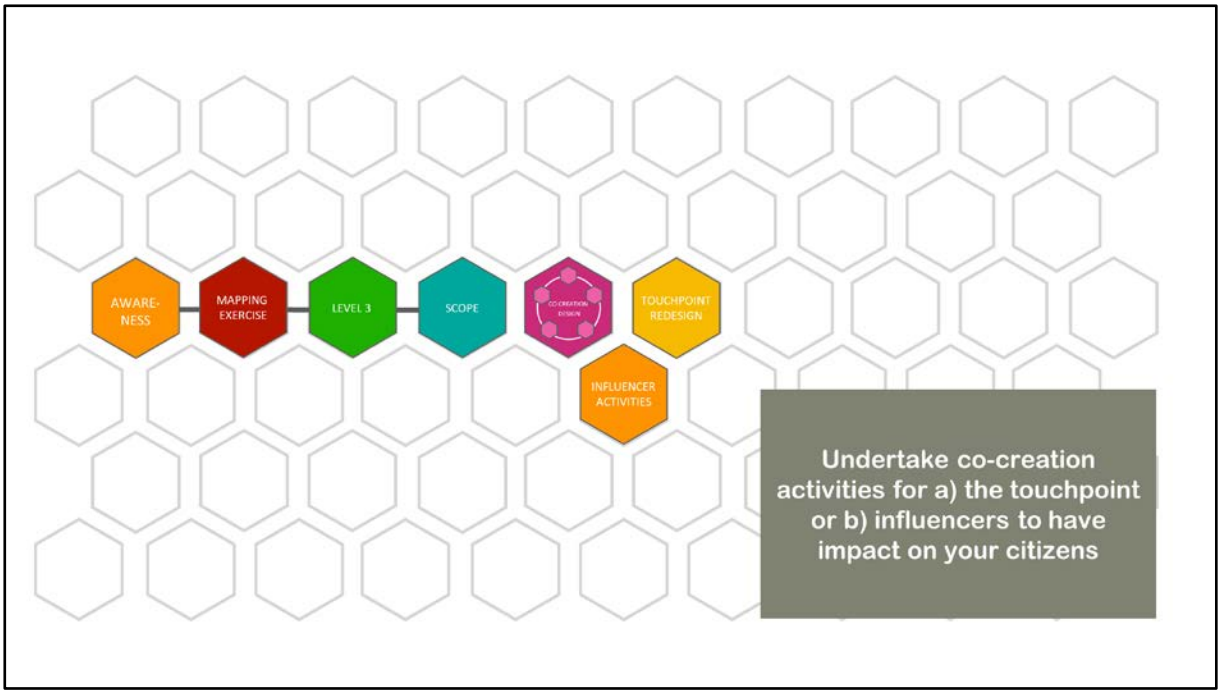
1) Identifying needs, problems challenges your citizens face
2) co-creation of "influencer" activities
3) co-creation of the narrative of IRIS with citizens for communication
4) co-creation or adopting existing "active touchpoints"
5) co-creation of new (data) services

The Iterative Design Process for Co-Creation: ONE iteration cycle

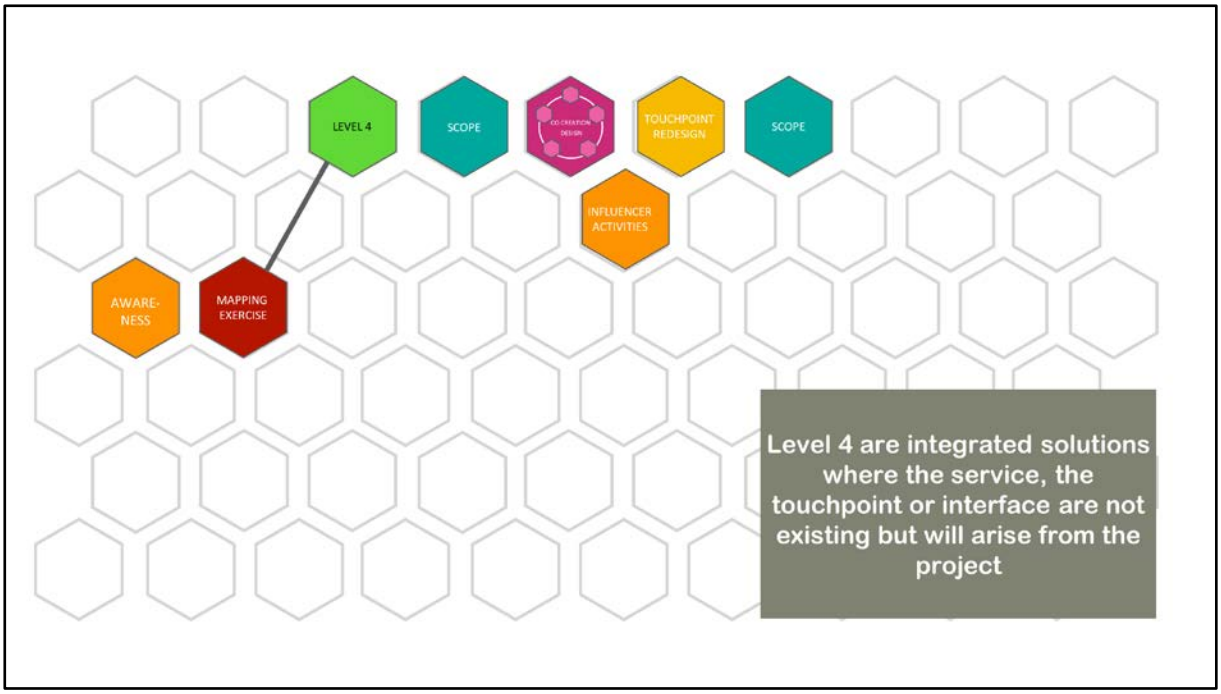
HOW DOES THIS PROCESS LOOK?

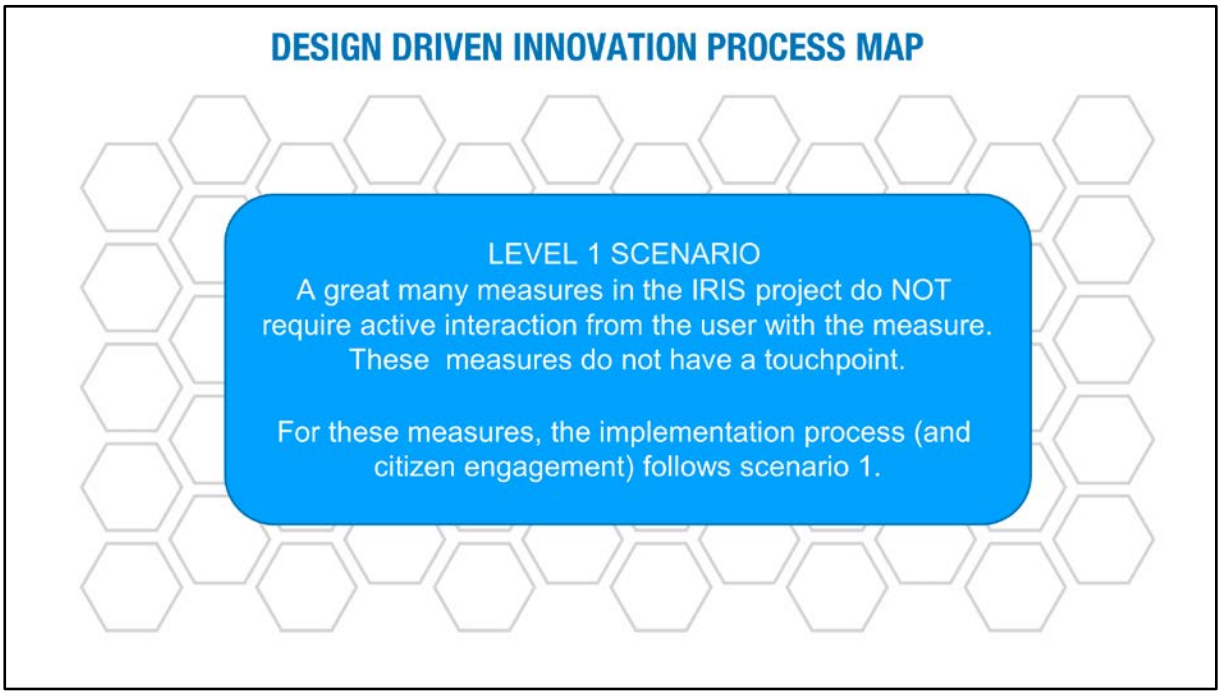

AWARE-
NESS
MAPPING
EXERCISE
LEVEL 1 & 2
LEVEL 1 and 2 are communication activities; co-creation should focus on the type of narrative to communicate the project in each area


AWARE-
NESS
MAPPING
EXERCISE
LEVEL 3
SCOPE
LEVEL 3 are integrated solutions with an existing active touchpoint. Answer the questions in the SCOPE model to know your citizen

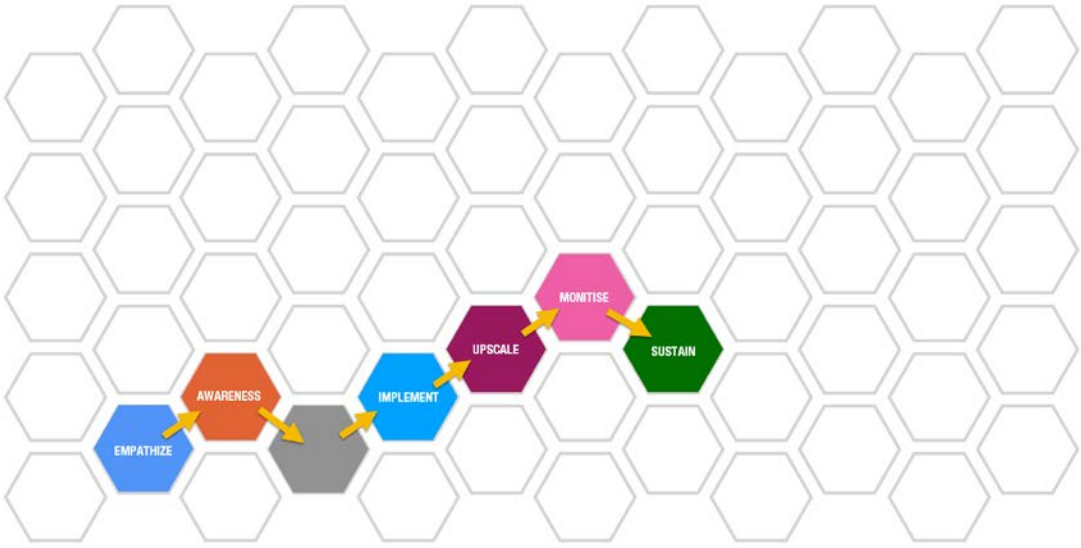

AWARE-NESS
MAPPING EXERCISE
LEVEL 3
SCOPE
CO-CREATION DESIGN
TOUCHPOINT REDESIGN
INFLUENCER ACTIVITIES
Undertake co-creation activities for a) the touchpoint or b) influencers to have impact on your citizens


AWARE-NESS
MAPPING EXERCISE
LEVEL 3
SCOPE
CO-CREATION DESIGN
TOUCHPOINT REDESIGN
SCOPE
INFLUENCER ACTIVITIES
Use the SCOPE model to evaluate whether your solution meets the citizen requirements


LEVEL 4
SCOPE
CO-CREATION DESIGN
TOUCHPOINT REDESIGN
SCOPE
INFLUENCER ACTIVITIES
AWARE-NESS
MAPPING EXCERCISE
Level 4 are integrated solutions where the service, the touchpoint or interface are not existing but will arise from the project


DESIGN DRIVEN INNOVATION PROCESS MAP
LEVEL 1 SCENARIO
A great many measures in the IRIS project do NOT require active interaction from the user with the measure. These measures do not have a touchpoint.
For these measures, the implementation process (and citizen engagement) follows scenario 1.

DESIGN DRIVEN INNOVATION PROCESS MAP

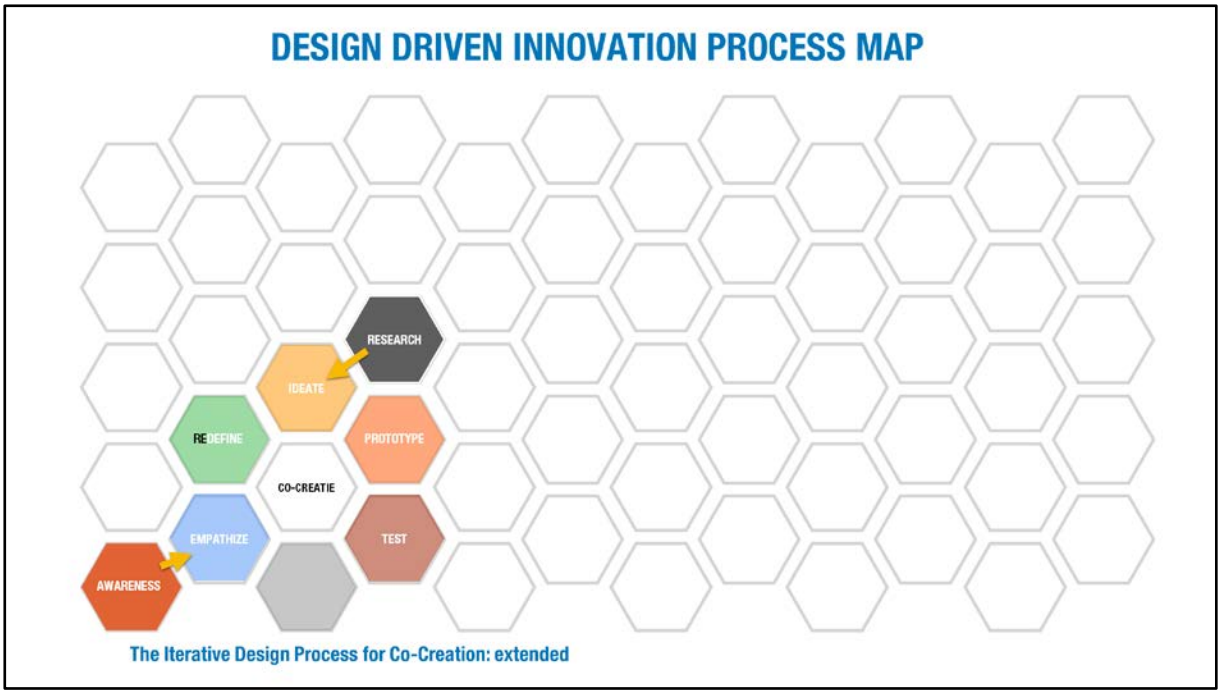


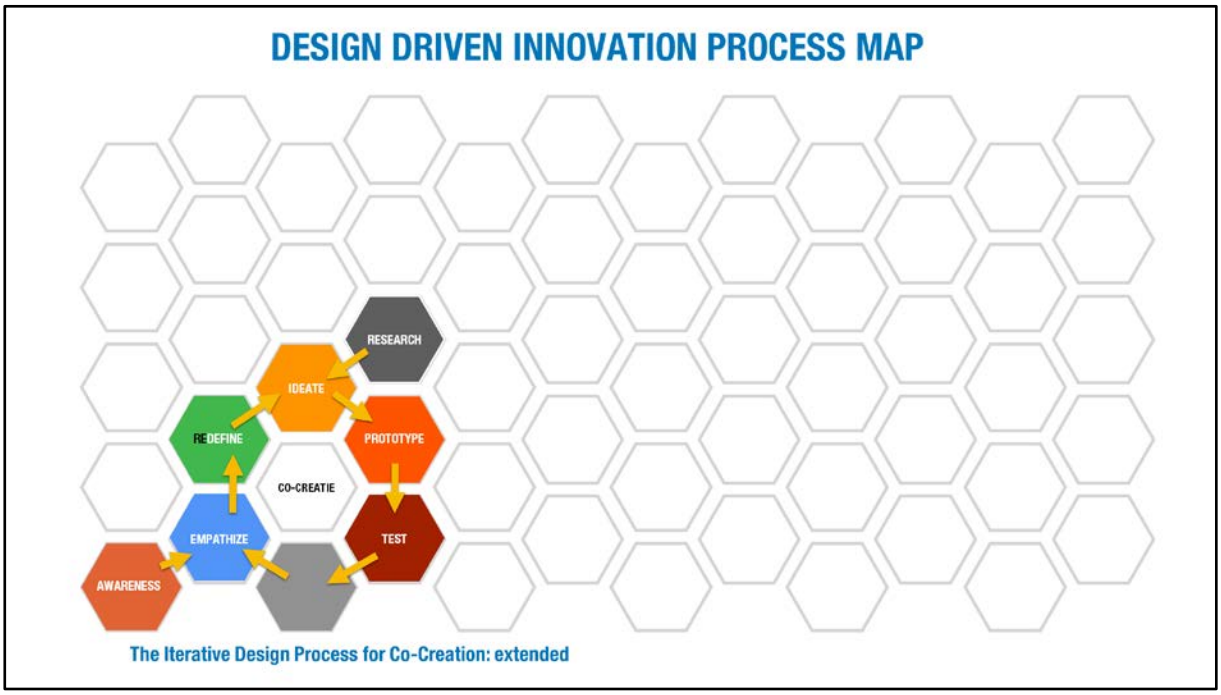
SCENARIO 1: IMPLEMENTATION OF "PASSIVE USE" MEASURES

DESIGN DRIVEN INNOVATION PROCESS MAP

LEVEL 3-4 SCENARIO
For measures wherby EXISTING touchpoints require additional tweaks to enhance adoption, use, and understannding.
This is what is also called 'co-creation'.

All relevant stakeholders participate in this design cycle


DESIGN DRIVEN INNOVATION PROCESS MAP
RESEARCH
IDEATE
REDEFINE
PROTOTYPE
CO-CREATIE
EMPATHIZE
TEST
AWARENESS
The Iterative Design Process for Co-Creation: extended


DESIGN DRIVEN INNOVATION PROCESS MAP
RESEARCH
IDEATE
REDEFINE
PROTOTYPE
CO-CREATIE
EMPATHIZE
TEST
AWARENESS
The Iterative Design Process for Co-Creation: extended

DESIGN DRIVEN INNOVATION PROCESS MAP

This is when new ideas, services, products will be developed involving relevant stakeholders
This is what is also called 'co-creation'.

All relevant stakeholders participate in this design cycle. The development process for Co-Creation is quite an elaborate process.

Scenario 3 is originating, creating en developing an idea

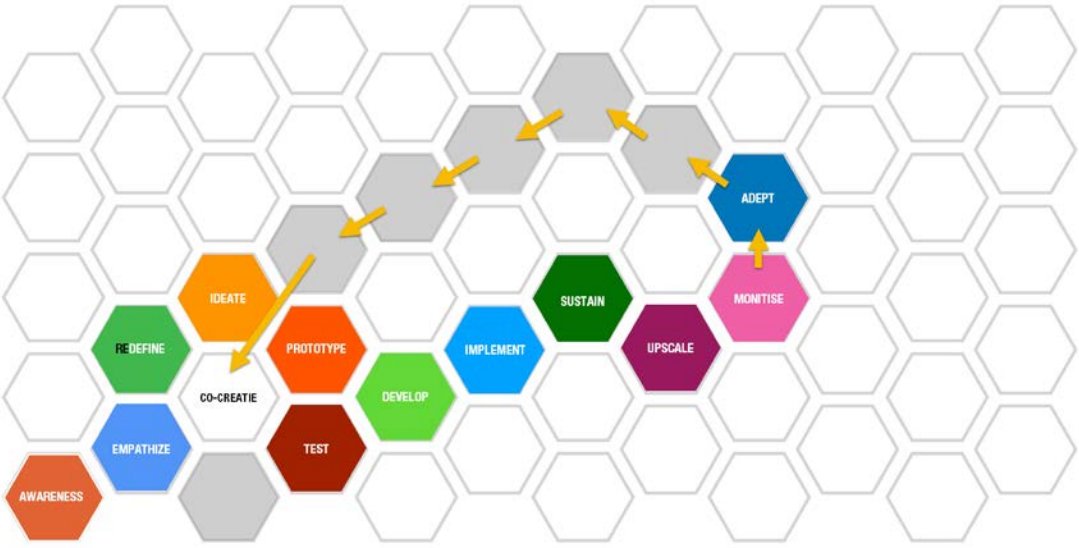
DESIGN DRIVEN INNOVATION PROCESS MAP

From prototype to product: UPSCALING

DESIGN DRIVEN INNOVATION PROCESS MAP

Any change in external circumstances might require an adaptation in product, service, underlying technology etc.

Scenario 4 is a return to (re)design to sustain and maintain a measure



Most Products are Services and need sustained support

DESIGN DRIVEN INNOVATION PROCESS MAP

Another possibility is that a particular product, or service is meeting demands in a different context than originally intended. A new market can be opened, often with some adjustments to the original

Scenario 5 is a return to (re)design to sidescale to new market opportunities.

Most Products are Services and need sustained support

AND NOW…..

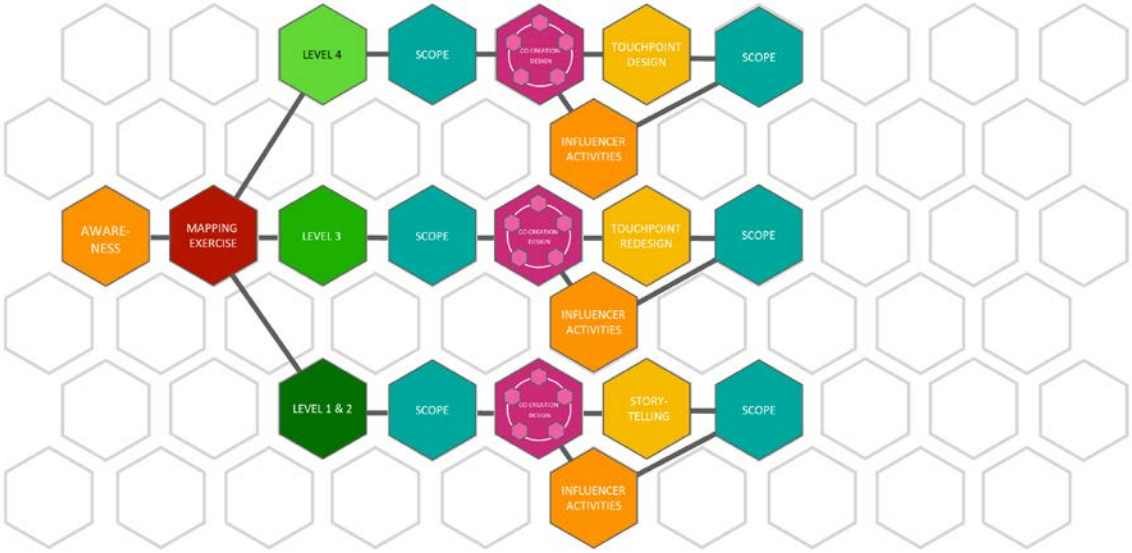
PLACE EACH MEASUREMENT ON THE LADDER

IDENTIFY TOUCHPOINTS AND INFLUENCERS

if time allows: DISCUSS ACTIONS

VRAGEN?

CITIZEN ENGAGEMENT LADDER MODEL



Citizen Engagament process map LEGENDA

AWARENESS	truly understand the problem context/organisation / content area/policy etc. from a cognitive perspective
RESEARCH	research emerging ideas and solutions in literature and through repertoire studies
EMPATHISE	truly understand the citizen's role in the process/context of the problem/solution space from empathy perspective through DIRECT frequent contact with these users using design research methodologies
(RE)DEFINE	define or redefine the true nature of the problem or solution space, enhanced by research and
IDEATE	conceptualise a solution, idea or redesign of existing form
PROTOTYPE	materialise a solution, idea by giving it form, shape and function
TEST	testing solution on actual citizens/humans/users i.e. all active use stakeholders
DEVELOP	move from prototype phase to actual development of final/scalable/distributable form factor
IMPLEMENT	from solution to user acceptance in regular workflow; real usage,acceptance, inclusion in daily life
SIDESCALE	use or sell the solution (with slight adaptation) in another area / context / for other user groups/ stakeholders etc.
SALE	generate value (social, economic, cultural)
UPSCALE	use or sell the solution on a larger scale (numbers/area/geography)
ADEPT	change the product/service triggered by external circumstances (an app will need maintenance with every OS update)
SUSTAIN	sustain the solution in the long run; service, maintenance, helpdesk etc.

END