IRIS

Integrated and Replicable Solutions for Co-Creation in Sustainable Cities

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Deliverable 8.16

Second update of the mentoring roadmap

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Version History

Version	Date	Modifications made by
0.1	31/08/2022	VAASA created the first structure of the deliverable
1.0		Final version to be released to the EC

Disclaimer

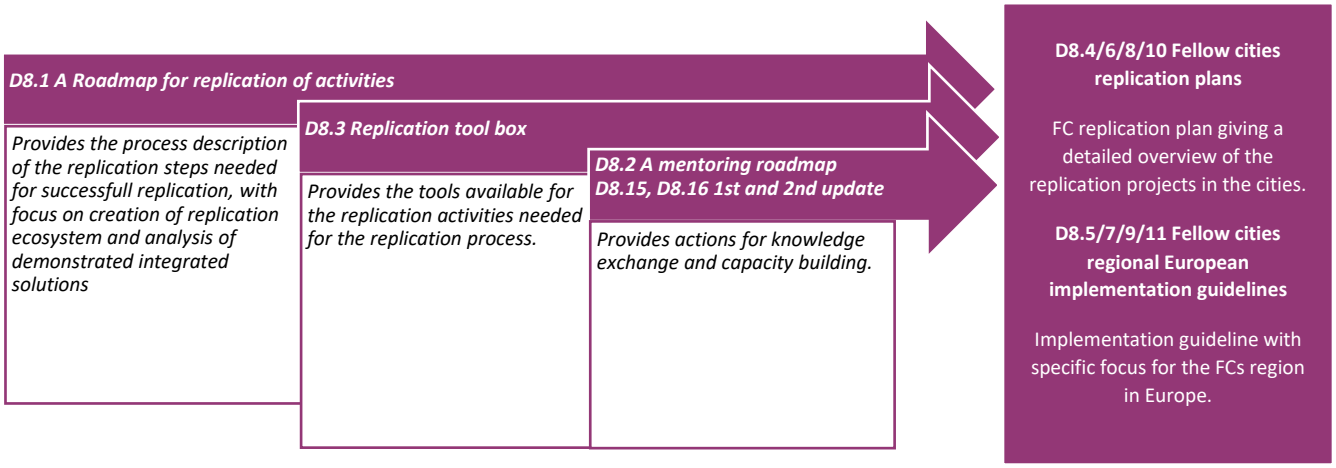
Executive Summary

The present document is deliverable **D8.16,** entitled **Second update of the mentoring roadmap** for the IRIS project. The deliverable is related to task **T8.1 Replication activities planning and roadmap creation**.

In task T8.1, all LH cities and FCs, in the IRIS project have created a common roadmap together: **D8.1 Roadmap for replication of activities**. This was to plan activities together, both for the expansion of activities of LH cities to other districts and for FCs to develop a replication plan based on their own specific experience, local conditions and best practices. **D8.2 A mentoring roadmap** focused on the mentoring activities themselves in the Roadmap.

D8.2 A mentoring roadmap was updated in **D8.15 First update of the mentoring roadmap**. The present Deliverable, D8.16, is the Second update of the mentoring roadmap. This report focuses on the mentoring activities implemented in M49-M66, most often planned and carried out through the Site Management and Replication Board (SMRB).

In task **T8.2 Replication tools development for capacity building, training and knowledge transfer,** the project has gathered all tools available for replication activities in the IRIS project in the deliverable **D8.3 Replication tool box**, together with explanations of what the tools are. **D8.2 A mentoring roadmap, D8.15 First update of mentoring roadmap and this update D8.16** include the tools used for mentoring actions in the project.



The roadmap **D8.1 A Roadmap for replication of activities**, the tool box **D8.3 Replication tool box** and the mentoring roadmap **D8.2 A mentoring roadmap** were all supportive documents for the FCs in the creation of their replication plans that were successfully completed in M42 of the project. These replication plans can be found amongst the project's other deliverables:

- D8.4 Vaasa replication plan
- D8.6 Alexandroupolis replication plan
- D8.8 Santa Cruz de Tenerife replication plan
- D8.10 Focsani replication plan

The replication roadmap, replication tool box, mentoring roadmap (and its updates**)** and the FCs replication plans served as support of the European regional implementation guidelines that the FCs created for their respective regions in Europe (M66):

- D8.5 Vaasa Northeastern Europe implementation guideline
- D8.7 Alexandroupolis Southeastern Europe implementation guideline
- D8.9 Santa Cruz de Tenerife Southwestern Europe implementation guideline
- D8.11 Focsani South-Central Europe implementation guideline

Table of Contents

List of Figures

List of Tables

List of Abbreviations and Acronyms

Abbreviation	Definition
API	Application Programming Interface
BIM	Building Information Model
DSO	Distribution System Operator
CIP	City Innovation Platform
CPB	Consortium Plenary Board
DHS	District Heating System
EIB	European Investment Bank
EIP-SCC	The European Innovation Partnership on Smart Cities and Communities
EMS	Energy Management System
ESCO	Energy service company
EU	European Union

FC	Follower City
FIWARE	A curated framework of open source platform components to accelerate the development of Smart Solutions
ICT	Information and Communication Technologies
IS	Integrated Solution
KPI	Key Performance Indicator
LH	Lighthouse
LHC	Lighthouse City
RES	Renewable Energy System
ROI	Return on Investment
SC	Smart City
SCIS	The Smart Cities Information System
SCC	Smart Cities and Communities
SMRB	Site Management and Replication Board
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TG	Task Group
TSO	Transmission System Operator
TT	Transition Track
USEF	Universal Smart Energy Framework
WP	Work Package

1 Introduction

1.1 Scope, objectives and expected impact

This deliverable is part of **WP8: Replication by Lighthouse regions, Follower cities, European market uptake** in the IRIS project.

The objective of WP 8 was to design & implement replication plans for the LHs regions and FCs that are scalable to other EU markets and cities through the creation of a tool box for capacity building, training, active mentoring & knowledge transfer, and developing a roadmap (and business/financing plan) for the creation of replication plans. The FC Replication Plans will be implemented through a combination of solutions already available during the project or within a few years after the end of the project depending on the expertise and suitability of each FC.

The deliverable is related to the task **T8.1 Replication activities planning and roadmap creation**, where all LH cities and FCs created a common roadmap to plan activities both for expansion of activities of LH cities to other districts and for FCs to develop a replication plan based on their own specific experience, local conditions and best practices.

D8.16 is the second update of D8.2 A mentoring roadmap. The mentoring roadmap was an essential part of the replication process in the IRIS project where mentoring actions served a fundamental function in the success of replication for the FCs. The mentoring roadmap was the third step in the replication process of the IRIS project, coming after the replication roadmap (D8.1) and replication toolbox (D8.3). The mentoring roadmap was built on the processes mentioned in D8.1 and was supported by the tools proposed in D8.3 for knowledge exchange and capacity building in FCs.

Figure 1 presents the interconnection between the WP8 deliverables.

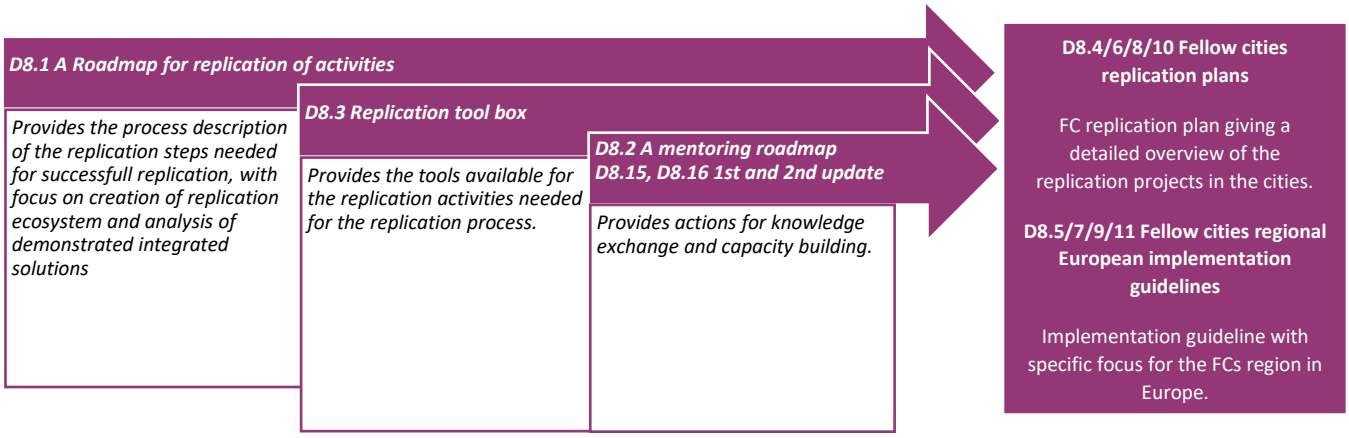


Figure 1 How the WP8 deliverables are associated with each other to support the IRIS replication process

LH cities, together with their project partners, acted as mentors to the FCs on the creation of this roadmap. LH cities hosted mentoring visits in their cities. In these visits, a team of city experts from the FCs visited

the LH cities, to better be able to study and evaluate the demonstrations carried out by the LHs. The visits aimed to support short-term wins and improvements, which accelerated the FCs replication projects. The mentoring study visits to the LHs were usually carried out in connection to an IRIS project event or meeting. Mentoring visits to the FCs were carried out digitally because of the Covid pandemic. All in all, there was 3 mentoring study visits to LHs and 3 digital mentoring visits carried out in the project.

The collaboration between the site managers of LH cities and the site managers of FC was an essential factor for successful mentoring visits. LH city site managers have in-depth know-how of all aspects in terms of partners, technology, legislation, and citizens profiling for each demonstration in their cities. In contrast, FC site managers are aware of the required expertise to implement the envisaged projects in their cities. LH city and FC site managers were already selected and represented in the IRIS project's organisational structure.

The main purpose of this deliverable is to present mentoring actions carried out in the project for knowledge exchange and capacity building for the FCs in their replication projects.

The deliverable presents the actions carried out in the project for removing obstacles to investment, providing visibility and technical assistance to investment and replication in additional areas and making smarter use of new and existing financial resources.

The main target audiences are the LHs (as mentors) and the FCs (those being mentored) in the IRIS project. The mentoring roadmap can serve as a useful document for other SCC Lighthouse projects or other smart city networks and activities where mentoring activities are planned to be carried out.

All of the FCs finished their replication plans in M42 of the project, and these plans functioned as a foundation for the mentoring actions carried out during the project.

- D8.4 Vaasa replication plan
- D8.6 Alexandroupolis replication plan
- D8.8 Santa Cruz de Tenerife replication plan
- D8.10 Focsani replication plan

All of the FCs finished their European implementation guidelines in M64 of the project, and these deliverables can provide valuable input for other European cities planning on carrying out smart city solutions:

- D8.5 Vaasa Northeastern Europe implementation guideline
- D8.7 Alexandroupolis Southeastern Europe implementation guideline
- D8.9 Santa Cruz de Tenerife Southwestern Europe implementation guideline
- D8.11 Focsani South-Central Europe implementation guideline

1.2 Contributions of partners

Main contributing partners to this deliverable is VAASA, CERTH, UPB and ICEM, but using the input received by all LHs and FCs partners in previous deliverables **D8.1** and **D8.3**. During the writing of this deliverable all the FCs and their partners have finished their replication plans (**D8.4/6/8/10**) and their

European implementation guidelines (D8.5/7/9/11), and input from the work has been used in the creation of this deliverable.

1.3 Relation to other activities

Table 1 depicts the relation of D8.2 and its update D8.15 to other activities (deliverables) developed within the IRIS project.

Table 1 Relation of D8.2 to other activities (deliverables) developed within the IRIS project

Number	Title	Relation
D2.1 (66)	Lessons learnt though cooperation with other Lighthouse projects	Output – Mentoring actions in the IRIS project serves as good experience exchange with other LH projects

1.4 Structure of the deliverable

This deliverable focuses on explaining the mentoring actions were carried out during the IRIS project. The deliverable has two main sections:

Chapter 2 presents the methodological approach of the IRIS mentoring process.

Chapter 3 presents the IRIS mentoring activities. The mentoring actions are presented and explained, together with responsible partners, their roles, and when the mentoring actions took place during the project.

2 Methodological approach of the IRIS mentoring process

The mentoring roadmap was created utilising previous work and experiences in WP 8, presentations by FCs, workshops, deliverables and webinars in the IRIS project, and research done regarding replication activities in the 17 SCC Lighthouse projects.

During the process of creating the mentoring roadmap, the IRIS project worked together with the Smart Cities Marketplace and Scalable Cities, as well as with the SCC Collaboration Framework's Task Group on Replication.

2.1 Types of mentoring actions in IRIS

As mentioned in D8.2 The main actions used within the mentoring process were the following:

- Mentoring visits
  - Follower cities' representatives to Lighthouse cities
  - Lighthouse cities' representatives to Follower cities (digitally)
- Staff Exchange
- Peer2Peer meetings
- Webinars
- Workshops

These actions, implemented, are presented in chapter 3.2 (implemented actions M49-M66).

All replication workshops within the IRIS project have been in connection with the consortium meetings of the project.

The main actions within the mentoring process focused on, but were not limited to, seven thematic areas:

1. Provided Follower cities with ideas for new projects/solutions.
2. Transferred specific technical information regarding implemented solutions and helped Follower cities site managers to adapt projects to local conditions. This was very important especially when the replication project includes new technologies, concepts, equipment, devices, etc.
3. Offered information and contacts of potential services and equipment suppliers especially for new technologies.
4. Offered information on business models, possible partnership between Municipality and other public or private companies for a faster, better, and more efficient project implementation.
5. Offered information about financing opportunities at EU level and provided a general support in analysing different financing schemes.
6. Provided information and support for overcoming different barriers, e.g. technical, legal, financial, etc.
7. Provided solutions for after project implementation monitoring and any possible improvements that could be implemented to a specific project.

The mentoring actions in the roadmap followed a process flow that had different actions in different stages of the IRIS project. Some mentoring actions were dependent of parts in the replication process that the FCs needed to achieve a certain stage before being able to enter into the mentoring actions.

Table 2 presents the time-plan of main mentoring actions in the IRIS project, i.e. LH cities demonstration communication actions, webinars, workshops, peer 2 peer meetings, mentoring visits (both LH cities to FC and FC to LH cities). D8.1 (section 3.5) and D8.3 (section 3.5) provide with detailed information about each type of action and the tools that was available to support it. Note that due to COVID-19 pandemic, the mentoring visits to the FCs were organised digitally.

Table 2 IRIS main types of mentoring actions

Mentoring actions / IRIS project year	1	2	3	4	5	6 ½
Study visits						
Mentoring visits						
Peer 2 Peer meetings						
Webinars						
Workshops						
Demonstration information actions						

The actors involved in the mentoring process have come from different entities, including:

1. Municipalities –there were people within the Municipality that oversee project implementation and they gathered great experiences that were shared.

2. Companies that participate in projects development/implementation. There were people that shared their experience and expertise in different areas, such as technical design, business models, financing issues.

The mentoring process was based, first, on the Follower cities' needs and, secondly, on the experience and expertise that was provided by Lighthouse cities, gained by them through implementation of different projects/solutions within IRIS. The Follower cities' needs came from the development of different projects/solutions that were a part of one of the IRIS project Transition Tracks:

1. Transition Track #1: Renewable and energy positive districts

2. Transition Track #2: Flexible energy management and storage

3. Transition Track #3: Intelligent mobility solutions

4. Transition Track #4: Digital transformation and services

5. Transition Track #5: Citizen engagement and Co-creation

One important focus of the mentoring process has been the replication / innovation ecosystem that the FCs worked on creating in their cities. Many of the mentoring actions were completely dependent on a functioning ecosystem with identified key organisations, companies and persons. If the ecosystem had not functioned well in the FCs, the mentoring actions would not have been able to reach the result and impact compared to the potential they had.

D8.1 (section 3.1.4) presents the process of defining the stakeholders in the IRIS Fellow Cities. Moreover, it presents (section 3.3) the methodology for the creation of working groups for chosen Transition Tracks and Integrated Solutions. Following the roadmap, the Fellow Cities did the first step in the definition of the local ecosystems for the IRIS solutions in their replication plans (D8.4, D8.6, D8.8 and D8.10). These deliverables include an initial mapping of the local stakeholders per TT. A more extended mapping of the local ecosystem was done during the rest of the project.

Figure 2 presents the mentoring actions from the more passive ones to more active ones (from left to right). The more passive ones required less effort, preparation, time and resources, and, thus, were more numerous, while the more active actions required more resources and involvement from both LHC and FC.

Figure 2 Sequence of the IRIS mentoring activities

As mentioned in D8.2, the Lighthouse cities' representatives had the main mentoring role within the IRIS project. Municipality representatives and site managers shared their experience regarding project management, different financing issues, consultancy/equipment suppliers, overcoming barriers and obstacles for project implementation, after project implementation issues. Representatives of companies that participated in project development and implementation shared information and experience regarding different technical details, business models, data management, etc. Annex 3 – IRIS solutions' leading partners provides an overview of the leading partners for all IRIS solutions in the three LHCs.

With the help of the first update of the mentoring roadmap, the IRIS project was able to plan the mentoring actions for the rest of the project, and focused resources and work towards the mentoring actions that gave the best results.

3 IRIS Mentoring activities implemented (M49-M66)

3.1 Site Management and Replication Board (SMRB) activities

The Site Management and Replication Board (SMRB) started its activities in 2021.

According to the original project plan the Site Management and Replication Board (SMRB) was responsible for monitoring the developments in the Lighthouse Cities, the Replication in the Follower Cities and the overall Replication of the Project. The SMRB was to be the main advisor to the Project Steering Committee. The Site Management and Replication Board (SMRB) was to consist of:

- IRIS Replication Manager, lead of SRMB, and responsible for the smooth rollout of the replication roadmap.
- IRIS Business Modelling Manager, responsible for the coordination of development of innovative business models.
- IRIS Monitoring and Evaluation Manager.
- IRIS Citizen Engagement Manager, responsible for coordination of citizen engagement and co-creation methods.
- IRIS Advisor on EU Data Protection Law, responsible for providing advice on legal, regulatory and privacy aspects.
- IRIS Lighthouse and Fellow City site managers responsible for the coordination of all city activities in WP5/6/7/8

The Site Management and Replication Board was indeed the most suitable board in the project to support the coordination and organisation of the replication process.

The Site Management and Replication Board was a platform for delivery of replication exchange activities. Its objectives were:

- To develop and keep up to date the IRIS Mentoring Roadmap (D8.2 and updated D8.15, D8.16).
- To monitor, organise and implement the exchange activities included in the Mentoring Roadmap.
- To monitor and report on the exploitable results from the (LH)-cities.
- To report to PC and Project Steering Committee on the progress and flag and discuss issues.

The composition of the SMRB is detailed in Table 3.

Table 3 Composition of the SMRB

Role	Partner	Main Responsible	*Deputy*
Replication Manager (chair)	VAASA	Mauritz Knuts	*Maria Backman*
Exploitation Manager	IMCG	Ulrika Wahlström	*Jonas Normann*

Monitoring and Evaluation Manager	RISE	Jutta Schade	*Lina Eriksson*
Citizen Engagement & Co-Creation Manager	HKU	Willem-Jan Renger	*David Crombie*
Technical & Innovation / Quality Manager	CERTH	Panagiotis Tsarchopoulos	*Thanasis Tryferidis*
EU-wide collaboration manager	UTR	Muriël Pels	*Roel Massink*
Communication manager	ESCI	Alec Walker-Love	
Site Manager Utrecht	UU	Arno Peekel	*Matthijs Kok*
Site Manager Nice	NCA	Celine Gindre	*Estelle Michel*
Site Manager Gothenburg	JSP	Eva Pavic	*Björn Westling*
Site Manager Vaasa	VAASA	Mika Hakosalo	*TBD*
Site Manager Alexandroupolis	ALEX	Kostas Lymperopoulos	*Anna Tzitzili*
Site Manager Santa Cruz de Tenerife	CSS SCT	Diego Broock Hijar / or Javier Rodríguez	*Besay García Rguez Manuel Pérez Coca*
Site Manager Focsani	FOCS UPB	Dan Mihal Cazaciuc / or Eduard Mincuic	*Adrian Imireanu*

A smaller preparation group planned and developed the meetings of the SMRB and the way of working. The smaller preparation group consisted of the following people:

Role	Partner	Name
Replication Manager (chair)	VAASA	Mauritz Knuts
Project Coordinator	UTR	Roel Massink
Citizen Engagement & Co-Creation Manager	HKU	Willem-Jan Renger
Exploitation Manager	IMCG	Ulrika Wahlström

The SMRB deployed the following **activities**:

- LH and FC site managers planned mentoring actions together with support of horizontal managers.
- Site managers reported on progress with demonstrations and replications (e.g. Replication project tracker).
- Site managers reported on progress with planned mentoring actions.
- Success stories regarding mentoring activities were shared to motivate work with coming actions.
- Worked to successfully plan and carry out mentoring actions in the project; webinars, P2P meetings, study visits and mentoring visits.
- The SMRB was a key factor for planning of study visits and events in the LHs.

The SMRB was active in carrying out the following actions:

- Webinars: 2 webinars in 2021 & 2 webinars in 2022.
- Peer-2-Peer: LHC & FC P2P activity-lines/themes.
- Mentoring Visits: digitally to each FC.
- Study Visits: one to each LHC combined with events and workshops.
- Exploitable results for LHCs

In the reporting period (M49-M66), the SMRB met 10 times.

During the previous reporting period the SMRB developed an online dashboard on Miro. The dashboard was used to identify topics that the project needed to work with. The dashboard was not used in the later stages of the project as more topics were identified than the project had resources to address. So, after mapping a sufficient number of topics to work with, the dashboard was used less. The dashboard was also used to plan and set up visits, workshops and seminars. Figure 3 presents an indicative screenshot from the online dashboard.

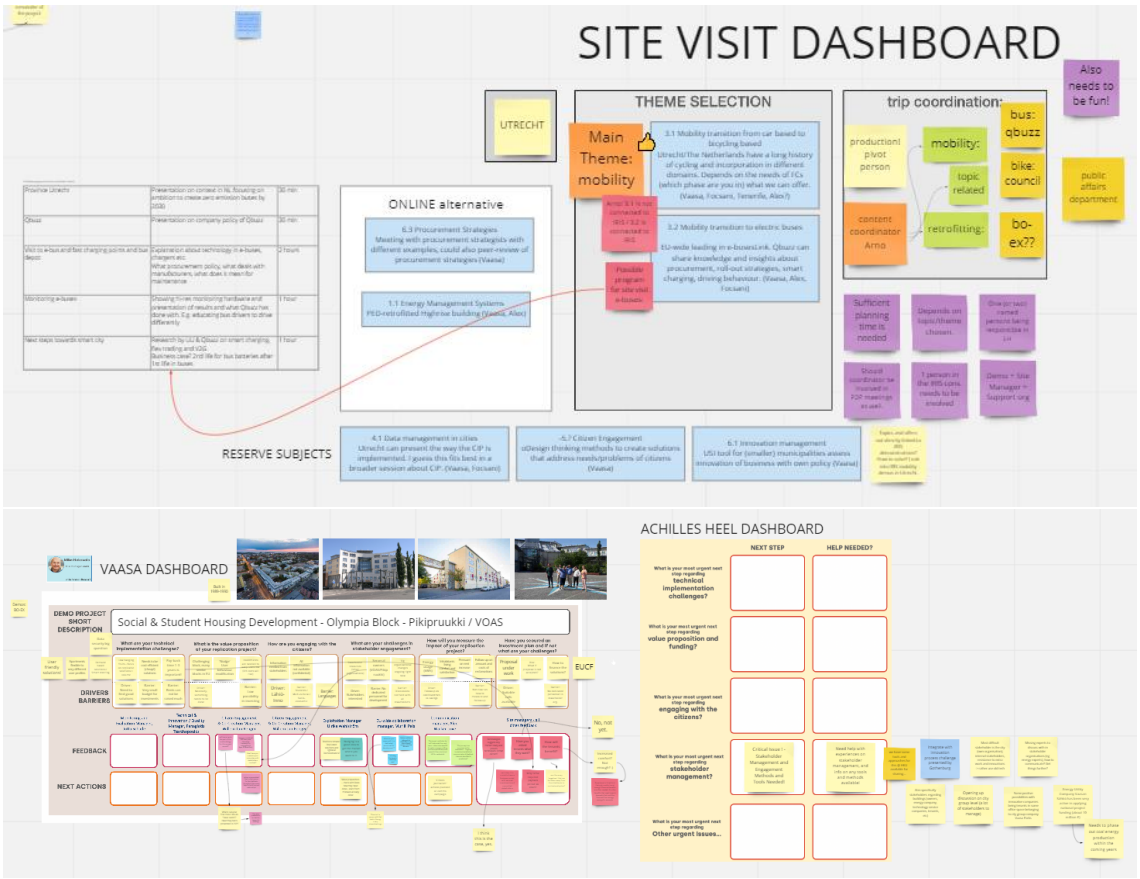


Figure 3 An indicative screenshot from Miro co-creation dashboard

3.2 Mentoring actions implemented M49-M66

As described in D8.2, paragraph 3.2 Mentoring needs, the FCs have identified knowledge gaps related to the replication of the IRIS solutions, in their replication plans. In the same document, they also present local actions for capacity building and knowledge transfer.

One of the identified knowledge gaps was related to financing, and the project partner IMCG (active in WP 3) activated a mentoring process with the FCs to attend this knowledge gap. IMCG conducted P2P meetings with all FCs and mentored them with solutions to financing the replication projects being planned and implemented.

HKU, the IRIS leading partner in citizen engagement and co-creation activities, carried out a mentoring process to support FCs with local citizen engagement actions. Each FC had at least one mentoring meeting for with HKU. Each FC prepared a brief question/challenge in advance. Based on the meeting follow-up agreements were made and more specific mentoring meetings were held with HKU.

The mentoring process throughout the IRIS project was very active and efficient thanks to all the engaged partners that always provided both input and output for all planned actions. Every meeting, event and gathering was utilised to its fullest with carefully planned preparations and post-actions. The covid pandemic had a big negative impact on the mentoring actions of the project, at least during 2020 and 2021. In 2022 the project was finally able to arrange face-to-face meetings and visits to the LHCs. But during the challenged periods the project took great leaps in compensating with digital online tools, where digital meetings, workshops, events and visits was successfully carried out. The mentoring process of the IRIS project was successful and greatly accelerated the smart city journey and the implementation of smart city actions of the FCs.

The table below shows the implemented mentoring actions for each IRIS project year.

Table 4 Timeline of IRIS mentoring actions

ACTION / YEAR	1	2	3	4	5	6
Study visits FC to LHC					2 / FC	1 / FC
Online visits LHC to FC				1 / FC		
Peer 2 Peer			4	3	6	3
Webinars		2	6	2	2	1
Workshops	2	4	4	1	2	1

The following mentoring actions were implemented in the reporting period M49-M66:

3.2.1 Project wide knowledge exchange activities

Table 5 Project-wide knowledge exchange activities for the 4th, 5th, and 6th, year of the project (M49-M66)

Topic of exchange (e.g. solution, process, method, tool)	Type of exchange	WPs involved	Organiser	Contributor(s)
Battery Energy Storage Systems	Webinar	WP5, WP6, WP7, WP11	CERTH	LomboXnet, EDF, Goteborg Energi
Smart City Business Models – How to boost sustainable	Webinar	WP3	UU, IMCG CERTH	For solution providers (with city representatives attending)

innovation and make it a financial success				
Creating Smart City Business Models through Ideation Tools and Business Incubation	Webinar	WP3	UU, IMCG, UtrechtInc	For innovation ecosystems and business incubators
Scalable Cities Community Event "From Solution to System Change"	Event and workshop	All WP	UTR	All project partners
Utrecht study visit	Study visit and workshop	All WP	UTR	All project partners, focus on FC partners, experts and stakeholders
Nice study visit	Study visit and workshop	All WP	NICE	All project partners, focus on FC partners, experts and stakeholders
Gothenburg study visit	Study visit and workshop	All WP	GOT	All project partners, focus on FC partners, experts and stakeholders

All webinars organised M1-M66 can be found in Annex 1 – Webinars organised during M1-M66. The contents of each webinar (presentation and video recording) are available on the IRIS website (https://irissmartcities.eu/webinars). Moreover, the video recordings can be watched on the IRIS YouTube channel: https://www.youtube.com/channel/UCVZPWV3_lx4xF1aXItY9E8w/videos

The topics covered in the 3 study visits can be found in Annex 2 – Study visits topics.

3.2.2 Mentoring activities

Peer 2 Peer meetings were essential for the mentoring activities in the project. The Peer 2 Peer meetings identified key persons in the city ecosystems that were needed for successful replication activities. The meetings were also important for the planning of other mentoring activities such as webinars, workshops, study- and mentoring visits. Successful Peer 2 Peer meetings were a pre-requisite for the study and mentoring visits carried out. Table 6, Table 7, Table 8 and Table 9 present the organised Peer 2 Peer meetings for each FC during the period M49-M66.

VAASA

Table 6: Organised Peer 2 Peer meetings with FC Vaasa

City, Demonstration Project and/or Organisation	Replication Project	Topics for Mentoring Support	Date
Utrecht	Smart Energy Management System in Vaasa	Transition Track #2: general discussion on Measure 4: Smart energy management	Q2/2020

		system would be of interest, interesting solution for Vaasa.	
Utrecht	Smart Energy Management System in Vaasa	Transition Track #2: general discussion on Measure 4: Smart energy management system would be of interest, interesting solution for Vaasa.	Q2/2020
Nice	Positive Energy Building in Vaasa	TT#1 Palazzo Meridia optimisation	Q2/2020
Gothenburg	Positive Energy Building in Vaasa Ravilaakso mobility solutions	TT#1 Viva Sustainability Tool TT#3 EC2B	Q2/2020
Utrecht, Bo-Ex, retrofit projects (including citizen engagement)	Pikipruukki social housing / VOAS student housing	Retrofit solutions, implementation and investment calculation	Q4/2020
Utrecht, DSO Stedin, LomboXnet	Smart Grid, Ravilaakso / Vaasa as whole	Grid flexibility, congestion management, peak load reduction	Q1/2021
Gothenburg, Trivector, EC2B	Ravilaakso, Hanna & Yrjö säätiö	EC2B suitability for Ravilaakso area and H&J säätiö project	Q2/2020
Utrecht City Innovation Platform	Vaasa City Innovation Platform	How to plan and create a CIP	Q3/2020
Utrecht	Smart Grid, Ravilaakso / Vaasa as whole	Grid flexibility, congestion management and peak load reduction	Q1/2021
Gothenburg	Vaasa digital platform	Citizen engagement using a digital platform	Q1/2021
Gothenburg, Min Stad	Vaasa City participatory city modelling	Citizen Engagement on digital platform	Q2/2021
HKU	Lähiö Inno - VOAS	Citizen Engagement	Q1/2021
Utrecht, HKU	Lähiö Inno – VOAS	Citizen engagement – follow up	Q2/2021
Gothenburg, Metry	Vaasa Campus Area Development	Energy Cloud Solutions	Q2/2021
Gothenburg, IMCG	Replication projects – City Data Platform, District Heating, Mobility	Financing possibilities for replication projects	Q3/2021
Gothenburg, IMCG	Replication projects – City Data Platform,	Financing possibilities for replication projects	Q3/2021

	District Heating, Mobility	- Follow up meeting	
Utrecht/Nice/Gotenburg	Urban Data Platforms	Developing, running, funding, the journey	Q2/2022
Utrecht	Smart Charging Traffic management Bidirectional charging ecosystem Mobility	Strategy, development, citizens engagement, funding, technical	Q2/2022
Nice	Innovation and Partnership/IMREDD Geothermal network City innovation platform	Strategy, development, funding, management	Q3/2022

ALEXANDROUPOLIS

Table 7: Organised Peer 2 Peer meetings with FC Alexandroupolis

City, Demonstration Project and/or Organisation	Replication Project	Topics for Mentoring Support	Date
Utrecht	Apartment buildings Street lighting (Retrofitting towards NZE district) (Smart street lighting with multi-sensoring)	Topic 1 – TT1, measure #6 – Smart AC/DC power grid in apartments Topic 2 – TT1, measure #7 – Smart DC street lighting at district level	Q2/2020
Nice	Energy Positive Buildings Smart Multi-Sourced Low Temp District Heating (TT1, M2-Positive energy city hall) (TT2, M1-Low enthalpy geothermal district heating)	Topic 1 – TT1, measure #1 – Collective self-consumption at building scale Topic 2 – TT2, measure #2 – Smart multi-sourced low temp district heating with innovative storage solutions	Q2/2020
Gothenburg	Energy Management System Energy Cloud (TT2, M1-Low enthalpy geothermal district heating) (TT4, M2-Energy cloud)	Topic 1 – TT1, measure #10 advanced energy management system to integrate PV, DH, grid and storage options Topic 2 – TT4, measure #2 energy cloud	Q2/2020
Nice, Palazzo Meridia	Retrofit objects	Retrofit solutions: Techno-economic	Q1/2021

	(TT1, M2-Positive energy city hall)	efficiency, implementation plan technology analysis, legal issues	
Utrecht, Bo-Ex	Retrofit objects (TT1, M4-Retrofitting towards NZE district) (TT1, M1 -Retrofitting towards positive energy buildings)	Retrofit solutions: investment calculation, implementation, citizen engagement project governance	Q1/2021
HKU	Retrofitting towards NZE district	Citizen engagement activities for a specific replication project	Q1/2021

SANTA CRUZ DE TENERIFE

Table 8: Organised Peer 2 Peer meetings with FC Santa Cruz de Tenerife

City, Demonstration Project and/or Organisation	Replication Project	Topics for Mentoring Support	Date
Utrecht	Retrofitting City Innovation Platform	TT#1.1 Measure #4. Building's refurbishment cost-benefit analysis TT#4. Santa Cruz de Tenerife City Innovation Platform.	Q2/2020
Nice	Retrofitting City Innovation Platform	TT#1.1 Measure #4. Building's refurbishment cost-benefit analysis TT#4. City Innovation Platform.	Q2/2020
Gothenburg	Battery Storage Systems Energy Management Systems Planning of E-Buses	TT#1.1.: #1. Cost-benefit analysis for the PV/ 2nd life Battery storage; Content on 2nd life batteries agreements. TT#1: #6. Management systems to integrate PV, Storage & Electric vehicles. TT#3: Confronting air conditioning demand	Q2/2020

		over the capacity of batteries on e-buses.	
Gothenburg	Energy Systems	Energy system BRF Viva	Q1/2021
Nice	City sensors	Integration of renewable energy sources in residential buildings	Q1/2021
Utrecht, Bo-Ex, retrofit projects (including citizen engagement)	Social housing retrofitting Barrio de La Alergría y María Jiménez	Retrofit solutions, implementation and investment analysis	Q2/2021
Gothenburg, Viva Measure 200 kWh electricity storage in 2nd life batteries powered by 140 kW PV.	Smart Gerencia 2nd life batteries	Agreement for supply 2nd life, BEMS, integration of batteries, batteries performance and investment analysis	Q2/2021
Nice, Activities on NCA, Smart Charging infrastructure Gothenburg, Viva Measure 200 kWh electricity storage in 2nd life batteries powered by 140 kW PV.	Santa Cruz EV charging system	General management of the infrastructure. Management of RES, 2nd life batteries and EV: (how manage this flexible electricity?)	Q3/2021 Q2/2021
Gothenburg, Brf Viva	Personal Mobility Strategy	General philosophy of the project and integration of different solutions. Citizens engagement	Q2/2021
Nice, Sensor data collection in air quality. Measure 1	Santa Cruz sensor data collection in air quality	Citizen engagement activities vs environmental scenario	Q3/2021
Gothenburg, City Information Model Pilot.	CIM y public data	Johannesburg pilot area. Implementation sensor data into BIM/CIM for public visualisation	Q2/2021
Nice, Data control and monitoring for Smart e-mobility	Smart EV charging	Smart Charging platform	Q3/2021
Gothenburg, Co-creation activities in Local Innovation Hubs	VR BIM Smart Gerencia	Citizen engagement activities	Q3/2021
Nice, Sensor data collection in air quality. Measure 1	Santa Cruz sensor data collection in air quality	Citizen engagement activities vs environmental scenario	Q3/2021

Gothenburg	2nd life batteries	2nd life batteries	Q3/2021
Utrecht, HKU	Citizen engagement	Citizen engagement	Q3/2021
Gothenburg, IMCG	Financing roadmap	Financing roadmap	Q3/2021
Utrecht, Utrecht cycling network deputy	Personal mobility network	Utrecht cycling network	Q3/2021
Utrecht	Cycling network	TT#3 Shared roads advice; designs and strategies for pre-project definition	Q2/2022
Utrecht, HKU	Citizen engagement	Methodologies on storytelling and working with local agents.	Q2/2022

FOCSANI

Table 9: Organised Peer 2 Peer meetings with FC Focsani

City, Demonstration Project and/or Organisation	Replication Project	Topics for Mentoring Support	Date
Utrecht	City Management and Planning Citizen Engagement Energy Efficient Behavior	IS 4.2 Services for city management and planning. IS 5.1 Co-creation the energy transition in your every environment. IS 5.4 Apps and interfaces for energy efficient behavior.	Q2/2020
Nice	Citizen Engagement Energy Efficient Behavior	IS 5.1 Co-creation the energy transition in your every environment. IS 5.4 Apps and interfaces for energy efficient behavior.	Q2/2020
Gothenburg	City Management and Planning Citizen Engagement Energy Efficient Behavior	IS 4.2 Services for city management and planning. IS 5.1 Co-creation the energy transition in your every environment. IS 5.4 Apps and interfaces for energy efficient behavior.	Q2/2020

Utrecht	EV charging	V2G EV charging	Q1/2021
Gothenburg	Residential buildings	Integration of renewable energy sources in residential buildings	Q1/2021
Utrecht	Traffic Management in Utrecht	Traffic management and traffic control center: infrastructure and operations of traffic lights, video cameras, public lightning	Q2/2022
Nice	*ICT and Data Management*	City Innovation Platform and Innovation Management	Q3/2022
Gothenburg	Electric Public Transport	Electrify the public transport	Q1/2023

4 Conclusions and recommendations

4.1 Conclusions

This deliverable aims to provide an overview of mentoring actions for knowledge exchange and capacity building for the FCs in their replication projects in the reporting period (M49-M55).

The mentoring actions have been implemented as planned and have contributed to the FC Replication Plans delivered in M42 and the European implementation plans delivered in M66. In support of the mentoring actions and the implementation of the Replication Plans, the IRIS Site Management and Replication Board was active in this reporting period. Moreover, through participating in SCC Task Group Replication, IRIS gained insights from other Lighthouse projects on replication approaches and used this knowledge to address specific barriers in the process of adapting and customising local ecosystems and framework conditions.

The main results of the mentoring activities were captured in the FCs Replication Plans, as delivered in M42, and in the FCs European implementation guidelines, delivered in M66.

The mentoring actions have led to the FCs being better able to specify their replication actions together with their stakeholders in their local ecosystem. As a result, the FCs have improved the plans for their replication projects and prepared them for actively applying for funding to implement them. The mentoring actions have also given the FCs a better understanding of the demonstrations in the LHs and how they were implemented, and why they were implemented. All the mentoring actions have also strengthened the project as a whole and given a good foundation for study and mentoring visits to, and from, the FCs. The mentoring actions have also provided the FC teams with tools to help them reaching out to local stakeholders, but also to other cities and city networks outside the IRIS project, which is essential in reaching the IRIS project goal of activating 80 cities outside the project in Europe and 20 cities outside Europe. All FCs started the implementation of replication projects during the IRIS project. The progress for the replication projects is presented in deliverables D8.5, D8.7, D8.9 and D8.11.

Also, in deliverable D8.15 are presented the main targets defined by the SMRB, as well as the terms for measuring the success by the SMRB.

It should also be mentioned that during the period M37-M48, the SMRB met five times. The SMRB members documented the outcomes in an online dashboard during these meetings. This dashboard was created in the Miro platform during the planning and development activity of SMRB to support the co-creation. Using an online co-creation tool like Miro opens the possibility of receiving contributions and actions from all SMRB members during the meeting. Moreover, the Miro SMRB dashboard served the purpose of having a permanent record of planning activities, as during the sequential meetings, SMRB members could quickly make changes to the board, add new information, and revise existing content. This was helpful for SMRB members who were not able to attend the meeting, or for future reference when reviewing the progress of the mentoring activities.

4.2 Recommendations

All 4 Fellow cities have already started implementing the projects they planned to replicate. For many of those projects, the information/help provided/offered by Lighthouse cities has been beneficial.

Based on the mentoring process implemented in the IRIS project, the following recommendations can be made for projects that want to conduct mentoring activities:

- The mentoring actions should target and support the local ecosystem. FCs should identify key organisations, companies, and persons that will play a significant role in the design and implementation of the replication projects and start the creation of a functioning ecosystem before starting mentoring activities. The main focus of the mentoring actions should be on providing FCs with ideas for new projects/solutions, technical information on implemented solutions, information and contacts of potential services and equipment suppliers, information on business models, financing opportunities, and support for overcoming different barriers.
- Combine mentoring actions, such as webinars, workshops, peer-to-peer meetings, mentoring visits and study visits, to transfer knowledge and experience from LH cities to FCs. The mentoring actions should start early in the project and should span from more passive ones to more active ones. The more passive activities require less effort, preparation, time and resources and, thus, are more numerous, while the more active actions require more resources and involvement from both LHC and FC.
- Detail planning of mentoring actions is required by using a mentoring roadmap that identifies the FCs' needs, and focuses on the activities that could give the best results considering the needs of the FCs.
- LH cities' representatives should take the leading mentoring role and share their experience regarding project management, financing issues, consultancy/equipment suppliers, overcoming barriers and obstacles, and after-project implementation issues.
- A dedicated steering committee should support the mentoring activities' coordination, organisation and monitoring.

Annex 1 – Webinars organised during M1-M66

Table 10 Webinars organised during M1-M48

Topic	Date	Video Link
Grid Flexibility: An antidote to relieve pain in the changing energy system?	2/10/2018	YouTube Channel
Vehicle 2 Grid (V2G) technology	23/9/2019	YouTube Channel
How numerical software tools support the creation of replication plans in smart cities energy projects	17/12/2019	YouTube Channel
Developing & applying a successful Mobility As A Service (MaaS) business model	24/3/2020	YouTube Channel
A Paradigmatic Shift in Citizen Engagement	22/4/2020	YouTube Channel
City Innovation Platforms: applications in energy efficiency and environmental risk	15/7/2020	YouTube Channel
Battery Energy Storage Systems (BESS)	8/12/2020	YouTube Channel
Smart City Business Models - How to boost sustainable innovation and make it a financial success!	4/2/2021	YouTube Channel
Dutch start-up experts cook up recipe for smart city business models	20/1/2022	YouTube Channel
Urban Data Platforms	28/11/2022	YouTube Channel

Annex 2 – Study visits topics

Utrecht Study Visit for Fellow Cities	
Date:	Tuesday 31st of May, Thursday 2nd of June, 2022
Capacity Building Part 1: Plenary presentation followed by short Q&A. Tuesday 31st of May	
11.00-11.30	**Session 1.1: Strategies for Zero Emission Mobility in Utrecht** Policy mix of promotion of active transportation, electrification of transport, charging infrastructure roll-out, low emission zones. Speaker(s): **Matthijs Kok** (Senior policy advisor electric mobility)
11.30-12.00	**Session 1.2: Policies, planning and design for cycling in Utrecht** Speaker: **Herbert Tiemens** (Senior policy advisor cycling)
12.00-12.30	**Session 1.3: Traffic Management in Utrecht** Traffic management and traffic control center: infrastructure and operations of traffic lights, video cameras, public lightning etc. Speaker(s): **Huib Beets** (Senior advisor traffic management)
12.30-14.00	Lunch with topical roundtables Utrecht / Fellow City colleagues • **Table 1**: Herbert Tiemens and cycling policies • **Table 2**: Matthijs Kok on zero-emission mobility • **Table 3**: Huib Beets on traffic management
Capacity Building Part 2: Parallel site visits to Utrecht sites. Tuesday 31st of May	
14.00-17.00	**Site visit 2.1**: **Smart Charging of Electric Buses**: Participants will take the tramline to the Qbuzz bus depot in Utrecht Westraven. Qbuzz operates about 65 zero emission buses in Utrecht and uses smart charging strategies to optimise their operations towards sustainability. Speaker/Host: **Tim van Twuijver (QBuzz)**
	Site visit 2.2: **Utrecht Bidirectional Charging Ecosystem**: Participants will visit highlights of the bidirectional charging ecosystem visiting bidirectional charging infrastructures, V2G-shared car systems and stationary batteries, functioning together as a Virtual Powerplant. Speaker/Host: **Robin Berg (Lomboxnet), Matthijs Kok**
	Site visit 2.3: Urban densification, cycling-friendly and multi-modal mobility: Guided walk through the inner-city densification projects Beurskwartier and the largest multi-modal hub of the NL, visiting underground bicycle parking for more than 25 000 bicycles, public transport facilities and surrounding urban development projects Speaker/Host: **Bart Budel**

Capacity Building Part 3: Parallel site visits to Utrecht sites. Thursday 2nd of June	
9.00-11.00	1. **Utrecht Lighthouse demo: Bidirectional Charging Energy system:** guided bike ride through highlights of the bidirectional charging ecosystem visiting bidirectional charging infrastructures, V2G-shared car systems and stationary batteries in the Utrecht Lighthouse district Kanaleneiland, functioning together as a Virtual Powerplant. 2. **Urban densification and multi-modal mobility**: a guided walk through the inner-city densification projects Beurskwartier and the largest multi-modal hub of the Netherlands visiting underground bicycle parking for more than 25 000 bicycles, public transport facilities and surrounding urban development projects. 3. **First high-rise retrofitted Positive Energy Building**: participants will visit by bike the Henriëttedreef apartment building. In 2021 this 10-story high social housing block was renovated towards a Positive Energy Building with an electricity surplus to the grid. During the tour participants will be able to visit the building. 4. **Utrecht Lighthouse demo: Inclusive energy transition – co-creation with citizen**: many smart city projects face challenges in the mismatch between citizen needs and smart city solutions. We need to shift our thinking and start with the citizen. Design approaches give us a tool. During this guided walk through the Lighthouse demo district Kanaleneiland we will learn and discuss how to connect with citizens and co-create future districts together.

Nice Study Visit for Fellow Cities

Date:	Thursday 29th of September, 2022
Site visits' round 1	
14.00-16.00	• Visit #1: Energy Tour to the IMREDD building • Visit #2: Geothermal network • Visit #3: City Innovation Platform and Innovation Management
Site visits' round 2	
16.00-18.00	• Visit #1: Energy Tour to the IMREDD building • Visit #2: Geothermal network • Visit #3: City Innovation Platform and Innovation Management

Gothenburg Study Visit for Fellow Cities

Date:	Thursday 9th of March 2023
Site visits	
9:00 – 12:00	1. **Electric Public Transport** (Group 1 and 3 share the same start of the study tour and split up when we get to Lindholmen.) We meet at A Working Lab, Sven Hultins Plats 5 (the red building where we were the day before) where we get a presentation of ElectriCity - Gothenburg's collaborational effort to electrify the public transport before entering the electric bus that takes us to Lindholmen. When we arrive we have coffee and listen to a presentation of Lindholmen Science Park. Ericsson will showcase prototypes of 5G connected bicycle and 5G connected autonomous bicycle ferry before we walk together to the ferries taking passengers across the river. Here, public transport company, Västtrafik, will present how they are working to electrify its vehicles, including ferries. We take the ferry across the river and go together by public transport back to Johanneberg Science Park. 2. ***Energy efficient buildings*** We meet in the golden building at Sven Hultins Plats 1-2 (across the street from where we were the day before). Per Löveryd, Akademiska Hus, presents the energy system on campus, before we walk together up the hill to Brf Viva (10 min walk), where we have coffee. Pierre Hult, Riksbyggen, presents the energy system at Viva. We then take a walk around the buildings, look at the battery room and peek into one of the apartments. We then walk to HSB Living Lab (15 min walk) and listen to a presentation by Evdoxia Kouraki, Johanneberg Science Park. Then we take a tour around the house, before walking back to A Working Lab (5 min walk) where Per Löveryd will show us the PCM energy storage and solar panels. 3. ***Digital twins and platforms*** (Group 1 and 3 share the same start of the study tour and split up when we get to Lindholmen.) We meet at A Working Lab, Sven Hultins Plats 5 (the red building where we were the day before) where we get a presentation of ElectriCity - Gothenburg's collaborational effort to electrify the public transport before entering the electric bus that takes us to Lindholmen. When we arrive we have coffee and listen to a presentation of Lindholmen Science Park. We then enter into the Visual Arena where we will get a demonstration of Gothenburg's digital twin and a discussion about the city's efforts into digitalisation.

Annex 3 – IRIS solutions' leading partners

Table 11 The leading partners of the IRIS activities in LH city UTR

Measure Number	Measure Title	Leading Partner
Transition Track #1: Smart renewable and closed-loop energy positive districts		
Measure 1	District wide PV	BOEX
Measure 2	LT district heating	BOEX
Measure 3	HEMS TOON	BOEX
Measure 4	NZEB refurbishment	BOEX
Measure 5	Smart (hybrid) e-heating systems	BOEX
Measure 6	AC/DC home switchboxes	BOEX
Measure 7	Smart DC Street Lighting	UTR
Transition Track #2: Flexible energy management and storage		
Measure 1	Solar V2G charging points for e-cars/e-vans (demand driven)	LOM
Measure 2	Solar V2G charging point for e-buses	LOM
Measure 3	Stationary storage in apartment buildings	LOM
Measure 4	EMSs- Smart Energy Management System	LOM
Transition Track #3: Intelligent mobility solutions		
Measure 1	V2G e-cars (demand driven)	LOM
Measure 2	V2G e-buses	LOM
Transition Track #4: Digital transformation and services		
Measure 1	Monitoring E-Mobility with LoRa network	UTR
Measure 2	Smart Street Lighting with multi-sensoring	UTR
Measure 3	3D Utrecht City Innovation Model	UTR, CIV
Measure 4	Monitoring Grid Flexibility	UTR, LOM
Measure 5	Fighting Energy Poverty	UTR, BOEX
Transition Track #5: Citizen Engagement and Co-creation		
Measure 1	Community building by change agents	BOEX, HKU
Measure 2	Campaign District School Involvement	UTR
Measure 3	Campaign Smart Street Lighting	UTR
Measure 4	Co-creation in Local Innovation Hub	UTR, HKU
Measure 5	XR Experience	BOEX

Table 12 Leading partners of the IRIS activities in LH city NCA

Measure Number	Measure Title	Responsible Partner
Transition Track #1: Smart renewable and closed-loop energy positive districts		
Measure 1	Collective self-consumption at building scale (Palazzo Meridia)	NEXITY
	Collective self-consumption at building scale (UNS-IMREDD)	UNS-IMREDD
Measure 2	Optimisation of heating load curve	COF
Measure 3	Commissioning process from the design of the operation	CSTB
Measure 4	Dashboard providing real-time energy balance	EDF
Transition Track #2: Flexible energy management and storage		
Measure 1	LEM - Local Energy Management system	EDF
Measure 2	DHC Smart District Heating and Cooling optimisation algorithm - Phase 1: Monitoring on a part of the network	MSE
	DHC Smart District Heating and Cooling optimisation algorithm - Phase 2: Full monitoring (with electric and thermal storage)	EDF, MSE
Measure 3	Stationary storage deployment in buildings and local electric flexibility management	UNS-IMREDD, EDF
Transition Track #3: Intelligent mobility solutions		
Measure 1	Dynamic energy management of an EV charging network - Phase 1: baseline EVCI supervision management	EDF
	Dynamic energy management of an EV charging network - Phase 2: V1G and V2G based smart charging services	EDF
Measure 2	Free floating EV car sharing system - Phase 1: smart management of EV charging to optimise shared vehicles use rate	EDF
	Free floating EV car sharing system - Phase 2: Smart charging of V1G and V2G vehicles for EVCI to contribute to grid flexibility services	EDF
Transition Track #4: Digital transformation and services		
Measure 1	Sensors data collection in air quality - Phase 1: With legacy air sensors)	ATMOSUD
	Sensors data collection in air quality - Phase 2: With microsensors	ATMOSUD
Measure 2	BIM/CIM data display	CSTB
Measure 3	Charging infrastructure data for optimal EV-based free-floating car sharing - Phase 1: Connected to phase 1 of measure 3.2	NCA
	Charging infrastructure data for optimal EV-based free-floating car sharing - Phase 2: Connected to phase 2 of measure 3.2	NCA

Measure 4	Data interoperability with energy cloud	UNS-IMREDD
Transition Track #5: Citizen Engagement and Co-creation		
Measure 1	Public awareness campaign on air quality - Phase 1: with IMREDD targeted audience	ATMOSUD
	Public awareness campaign on air quality - Phase 2: with public stage media	ATMOSUD
Measure 2	Public awareness campaign Energy – School & Collège; Youth & Family - Phase 1: with youth and family	COF
	Public awareness campaign Energy – School & Collège; Youth & Family - Phase 2: for the school	COF
Measure 3	Citizens individual engagement – IOT invoices	COF

Table 13 Leading partners of the IRIS activities in LH city GOT

Measure Number	Measure Title	Responsible Partner
Transition Track #1: Smart renewable and closed-loop energy positive districts		
Measure 1	At least 200 kWh electricity storage in 2nd life batteries powered by 140 kW PV	RB
Measure 2	Heating from geo energy with heat pumps (2-300 m deep boreholes)	RB
Measure 3	Cooling from geo energy without chillers	RB
Measure 4	Local energy storages consisting of water buffer tanks, structural storage and long-term storage in boreholes	RB
Measure 5	Seasonal energy trading (cooling in summer season) with adjacent office block	RB
Measure 6	Advanced Energy Management System to achieve peak shaving and minimal environmental impact	RB
Measure 7	Building Integrated Photovoltaics (BIPV) in façade	HSB
Transition Track #2: Flexible energy management and storage		
Measure 1	350 V DC building microgrid utilising 140 kW rooftop PV installations and 200 kWh battery storage	AH
Measure 2	Low temperature DH 45/30 system for six buildings	RB
Measure 3	1700 kWh PCM (Phase Change Material) cooling storage	AH
Measure 4	Integration and evaluation of a 200kWh energy storage	RB
Transition Track #3: Intelligent mobility solutions		
Measure 1	EC2B, version for accommodation (Riksbyggen's BRF Viva)	TRIV
Measure 2	EC2B, version for workplaces (Johanneberg campus area)	TRIV
Transition Track #4: Digital transformation and services		
Measure 1	CIM - City Information Model	GOT
Measure 2	Energy Cloud	METRY
Transition Track #5: Citizen Engagement and Co-creation		

Measure 1	Organise a spatial planning design contest for children and youths based on a Minecraft® model of Gothenburg	GOT
Measure 2	Further develop the city's online citizensourcing platform "Min Stad"	GOT
Measure 3	Inclusive Life Challenge competition	GOT
Measure 4	Demonstrate a BIM (Building Information Modelling) based AR/VR app	JSP
Measure 5	Demonstrate the Personal Energy Threshold (PET)	HSB