SMARTEES: Deliverable D3.4

Report on “Five models of social innovation”

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Executive summary

This document is the last deliverable of the WP3 "Clusters of case studies of social innovation" and is devoted to a sketch of the model(s) of social innovation processes in the five thematic clusters considered in the SMARTEES project; as well as to provide further inputs for the implementation of the quantitative survey in the frame of WP4 "Choice behaviour and energy usage: Knowledge co-production" (e.g., a set of phenomena that need further research), and of WP5 "Future policy scenarios" (e.g., a set of indicators to be considered in the preparation of scenarios), beyond the many inputs already included in Deliverable D3.2 (submitted in December 2018).

The main theoretical base of this document is the operational concept of social innovation adopted in the SMARTEES project:

> "Social innovation in energy transition is a process of change in social relationships, interactions, configurations, and/or the sharing of knowledge leading to, or based on, new environmentally sustainable ways of producing, managing, and consuming energy that meet social challenges/problems".

The empirical base of this document is the qualitative research implemented in the ten SMARTEES cases (two per each cluster) through a document analysis and the consultation of 88 key-informants (from local authorities to the business sector; from NGOs and citizens groups to the research community; etc.).

The ten SMARTEES cases are grouped in five clusters:

(i) Holistic, shared and persistent **mobility planning** (Zürich and Groningen)
(ii) **Island renaissance** based on renewable energy production (Samsø and El Hierro)
(iii) Energy efficiency in **district regeneration** (Augustenborg/Malmö and Järva/ Stockholm)
(iv) Urban mobility with **Superblocks** (Vitoria-Gasteiz and Barcelona)
(v) Co-ordinated, tailored and inclusive **energy efficiency schemes for fighting fuel poverty** (Aberdeen and Timisoara).

We adopted a "structural change model in energy transition" that was applied to the specific social innovation in each of the five clusters as they resulted from the analysis of the two cases belonging to each cluster. "Structural change" refers to profound modifications in order to pursue pervasive and definite objectives (e.g., a consolidated energy transition at the local level) thanks to a process of social change. We identify four main features characterising structural change processes in the field of energy transition at the local level.

- *Irreversibility*. One can speak of structural change only when the induced transformations are so rooted in the energy systems that they cannot be easily reversed, e.g., by a simple leadership turn-over or budget cuts.

- *Comprehensiveness*. Structural change implies a comprehensive modification of the local life, affecting, e.g., cultural and cognitive attitudes of citizens and local leaders, daily behaviours and practices, communication patterns and, obviously, procedures, rules, standards, etc.
- *Inclusiveness*. Structural change has to involve all the relevant players and stakeholders within the involved territory/system, from the leaderships to the citizens. Structural change has to be a collective effort. Therefore, both top-down and bottom-up processes are to be activated and coordinated.
- *Contextualisation*. Although problems and situations can be highly recursive and widespread, their mix is quite unique. Hence the need to contextualise structural change, e.g., devising strategies and tools which are specifically tailored on the concerned territory and in its energy system.

The model includes six elements to be taken into account:

(i) Core group (i.e., a motivated group of people in charge of promoting change)
(ii) Context analysis considering previous similar experiences; potential key actors to be involved; and existing norms, rules and financial constraints and opportunities
(iii) Development of a detailed plan of the social innovation action (possibly participatory and inclusive)
(iv) Agency mobilisation (i.e., the ability of the core group to "hooking up" the other important stakeholders already oriented to promote energy transition)
(v) Negotiation processes (e.g., related to consensus building or leadership support development)
(vi) Self-reflexivity (e.g., consider impacts/reactions that could lead to change of directions and approaches in the social innovation action).

This structural change model was applied in the five clusters, as analytically described in Chapter 3 (cluster 1), Chapter 4 (cluster 2), Chapter 5 (cluster 3), Chapter 6 (cluster 4), and Chapter 7 (cluster 5). The main conclusions of the analysis were as follows.

- **Cluster 1**: Change that has taken place in both cities (Zürich and Groningen) is actually structural. But this change certainly concerns only the sector of mobility (with all the social and environmental aspects connected), while almost nothing can be said about the energy transition as a whole.
- **Cluster 2**: Change that has taken place is actually structural in Samsø, all above four categories considered. The same cannot be concluded for El Hierro (two categories positive: "irreversibility" and "contextualization"; two categories less positive or almost negative: "comprehensiveness" and "inclusiveness").
- **Cluster 3**: Change that has taken place is actually almost structural, but not surely as there are in both cases (Augustenborg/Malmö and Järva/Stockholm) some reservations on the criterion "comprehensiveness" and, to a smaller extent, even on that of "irreversibility".
- **Cluster 4**: Change that has taken place at the level of both cities cannot be considered structural. First, it concerns only the sector of mobility (with all the social and environmental aspects connected), while nothing can be said about the energy

transition as a whole; second (at least in Barcelona), it appears still quantitatively not very significant compared to the city dimension with negative consequences on the level of irreversibility and comprehensiveness; third (at least in Vitoria Gasteiz), the governance strategy characterized by an high inclusiveness seems to have been put aside. However, at the level of some single neighbourhoods, where the Superblock program was successfully completed a structural change may have happened.

- **Cluster 5**: No structural change was reached yet both in Timisoara and in Aberdeen, due to the early stage of the activities.

Many inputs to WP4 and WP5 were already provided in the previous WP3 deliverables. These inputs are already quantitatively and qualitatively relevant. However, two further insights seem appropriate.

I - The sketch of the five models of structural change applications highlighted – in each cluster and also for each case – some weakness with respect to the "ideal" situation of representing a case of energy transition at the local level. These weaknesses suggest some research questions to be explored. And given that in the SMARTEES project we are moving towards a case by case "personalization" through the realization of the survey foreseen in WP4, such research questions could be useful. So, the final chapter of this document will provide suggestions on the main (or one of the main) research question still open per case (to be eventually considered in the surveys to be implemented) on the basis of our conclusions on the application of the structural change model.

II - One of the issues of WP5 is "social acceptability of the changes that the energy transition implies". Therefore, in the frame of WP3, we investigated how this issue was addressed in the ten SMARTEES cases. Hereinafter, information about this issue is recapitulated in the final chapter.

List of abbreviations

ABBREVIATION	FULL WORD
ACC	Aberdeen City Council
AEU	Agencia de Ecologia Urbana de Barcelona
AMET	Agency for Energy Management within Timiș County
ANRE	Romanian Energy Regulatory Authority
AREG	Aberdeen Renewable Energy Group
CEA	Centro de Estudios Ambientales (Environmental Studies Center)
CEP	Community Energy Programme
CESP	Community Energy Saving Programme
CHF	Swiss (CH) Francs
CHP	Combined Heat and Power district heating
CLICC	Country Level Impacts of Climate Change
CSO(s)	Civil Society Organization(s)
DEAL	District Energy Aberdeen Ltd.
DIA	Environmental Impact Statement
DKK	Danish Krona
DoA	Description of Activities
ECO	Energy Companies Obligation
E.ON	Electricity company
EED	Energy Efficiency Directive
EfW	Energy from Waste
EPBD	Energy Performance of Buildings Directive
ESCO	energy service company
EU	European Union
FALT	Federation of Owner's Associations in Timisoara
GD	Government decision
GDP	Gross Domestic Product
GHG	Greenhouse gasses
HECA	Home Energy Conservation Act
ICT	Information and Communication Technology
idea	Institute for Diversification and Energy Saving
ISTAC	The Canary Islands Statistics Institute
ITC	Technological Institute of the Canary Islands
IVT	Institut für Verkehrsplanung und Transportsysteme (Institute for Transport Planning and Systems)
KTH	Royal Institute of Science and Technology
L	Large (indicator of scope)

ABBREVIATION	FULL WORD
MDRAP	Ministry of Regional Development and Public Administration
M	Medium (indicator of scope)
MKB	Malmö Kommunala Bostads AB (Malmö communal housing)
MPT	Motorized Private Transport
MUSIC	Mitigation in Urban areas and the creation of Solutions for Innovative Cities
MWp	Megawatt peak
N	Narrow (indicator of scope)
NESCCP	North East Scotland Climate Change Partnership
NGO(s)	Non-Governmental Organization(s)
NHER	National Home Energy Rating
NRGi	Danish electricity provider (NRGi pronounces “energy”)
NTNU	Norwegian University of Science and Technology
OER	Romanian Energy Cities Association
PDMC	Master Plan for Cyclist Mobility
PLOCAN	Oceanic Platform of the Canary Islands
PMU	Urban Mobility Plan
PT	public transport
PvdA	Partij van de Arbeid (Worker’s Party of the Netherlands)
RE	Renewable Energy
REI	Renewable Energy Island (Samsø)
ROSENC	Romanian Sustainable Energy Cluster
RRI	Responsible Research and Innovation
SBB	Swiss railways
SEAP	Sustainable Energy Action Plan (Timisoara)
SEK	Swedish Krona
SI	Social Innovation
SUMpsP-SUMP	Sustainable Urban Mobility (and Public Space) Plan (Vitoria Gasteiz)
TCP	Traffic Circulation Plan (Groningen)
TUVISA	local public transport company in Vitoria-Gasteiz
UIC	Universidad Internacional de Catalunia
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
WP	Work Package
ZVV	Zürich local transport enterprise

CHAPTER ONE
Introduction

1. Institutional framework

This document is the last deliverable of the WP3 "Clusters of case studies of social innovation" and is devoted to a sketch of the model(s) of social innovation processes in the five thematic clusters considered in the SMARTEES project (each one with two empirical cases, all at the local level – e.g. cities, neighbourhoods, or islands – that represent the empirical research basis in the SMARTEES project) as well as to provide further inputs for the implementation of the quantitative survey in the frame of WP4 "Choice behaviour and energy usage: Knowledge co-production" (e.g., a set of phenomena that need further research), and of WP5 "Future policy scenarios" (e.g., a set of indicators to be considered in the preparation of scenarios), beyond the many inputs already included in Deliverable D3.2 (submitted in December 2018). For a better understanding of the context of this document, a short description of the SMARTEES project's aim and activities is provided below.

The SMARTEES project

The SMARTEES project, thanks to empirically and theoretically grounded methodological tools to assess and adapt policy strategies, aims at improving the acceptance of the Energy Union by European citizens and at increasing their responsiveness to socioeconomic incentives (in a perspective of an increased ownership, and prosumerism) and at strengthening the inclusiveness and robustness of policymaking. The SMARTEES project is coordinated by the Norwegian University of Science and Technology (NTNU) and carried out by a consortium of 11 organisations from ten countries over the course of 36 months. It is funded under the H2020 EU Research program.

SMARTEES addresses the need for policy support by adopting a multidisciplinary approach, through the integration of theories and methodologies of social innovation and agent-based socio-economic simulation in a comprehensive and flexible framework based on an empirical analysis of concrete trans-European cases of energy transition in five domains. Each domain, corresponds to a cluster composed by two reference cases which have already implemented a specific innovation at a mature stage; and 3-5 follower cases interested in this innovation; thus, enabling SMARTEES to study replicability of the concepts in different European contexts.

The five clusters are listed below (the two reference cases for each cluster are given in parenthesis):

a) Holistic, shared and persistent mobility planning (Zürich and Groningen)
b) Island renaissance based on renewable energy production (Samsø and El Hierro)
c) Energy efficiency in district regeneration (Malmö/Augustenborg and Stockholm/ Järva)
d) Urban mobility with Superblocks (Vitoria-Gasteiz and Barcelona), and

e) Co-ordinated, tailored and inclusive energy efficiency schemes for fighting fuel poverty (Aberdeen and Timisoara).

Thus, SMARTEES studies social innovation in a variety of cases of Energy transition around Europe. These cases differ concerning their location in Europe, the types of "technological" innovation (spanning from transitions in traffic to investment in insulation) and also their socio-economic and environmental context (with consequences for the behaviour of the involved people). Moreover, some of the experiences analysed attempted to change a single sector of their communities, such as developing sustainable transport, energy efficient housing, or the generation of property-level renewable energy. Another important difference concerns their duration. In some cases (e.g., Zürich and Groningen) the experience started in the '70s of the last century; in some others (e.g., Barcelona, Vitoria-Gasteiz, Malmö/Augustenborg or Samsø) around 20-25 years ago; and some others are more recent or very recent (e.g., Aberdeen or Timisoara). Sometimes successful changes create the conditions for further developments, resulting in cascading effects to a more sustainable community culture.

In the SMARTEES project, the case-study research activity entails:

- Analysis of key documents and information
- Qualitative interviews with key actors of the reference case-studies[1]
- A quantitative survey in each case measuring key variables fostering implementation of the innovation and barriers towards it.

WP3

In the framework of the project, the WP3 on "Clusters of case studies of social innovation", implemented from May 2018 to June 2019, was devoted to make sure the integration of the ten reference cases of the five clusters into the developments in SMARTEES[2] and a smooth coordination between these cases and the empirical work packages.

To achieve this, WP3 has the following objectives:

(i) Understanding how each social innovation in energy transition works "in action" in each of the five chosen clusters and on a super-ordinate level
(ii) Securing the constant involvement of the key innovation agents of each case study in the SMARTEES project to facilitate co-construction of the research
(iii) Preparing a specific profile for each of the five social innovations/clusters, providing information about phases, obstacles met, facilitating factors, role of incentives, turning points, etc.
(iv) Informing WP4 and WP5, suggesting phenomena/items to be taken into account in the survey, and indicators to be considered in the scenarios.

[1] Such as local authorities' representatives, city-planners, other policy-makers, representatives of the private sector/business/energy providers/farmers associations, think tanks/scientific community, citizens' organizations (e.g., green/ecological movement; NGOs, CSOs, vulnerable groups representatives, etc.), international organizations officials working on the case, social innovation initiatives funders.
[2] The identification and mobilisation of the follower cases in the SMARTEES project is placed under WP8.

WP3 entailed four Tasks.

(i) Task 3.1: Case-studies' main actors involvement (this Task has been devoted to the active institutional involvement of the ten cases in SMARTEES through the preparation, discussion and agreement of a plan of work with the corresponding timeline for each case).

(ii) Task 3.2: Profiles of the different types of social innovation (this Task was devoted to the preparation of a profile for each type of social innovation through a description of the social dynamics characterising the different cases and a systematic analysis of each social innovation cluster with its reference framework).

(iii) Task 3.3: Overall analysis of social innovation in energy transition "in action" (this Task was devoted, on the basis of the results of the previous one, to understand "prima facie" how social innovation in energy transition works "in action" as a whole in the Energy transition).

(iv) Task 3.4: Models of social innovation − conclusions and inputs for the following WPs, in particular for WP4 (e.g., a set of phenomena that need further research after identifying knowledge gaps during preparation of the profiles, to be filled through the surveys included in WP4) and for WP5 (e.g., a set of indicators to be considered in the preparation of scenarios).

This deliverable falls under Task 3.4, and represent the final output of WP3.

2. Theoretical framework: the concept of social innovation (SI) in the SMARTEES project

The concept of social innovation is becoming increasingly evident in policy, scientific and public debates, and, in the last decade, many different interpretations of social innovation have been developed.[3] Social innovation (SI) may be defined as "new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance society's capacity to act".[4]

As explained in the Description of Activities (DoA) document, SMARTEES considers social innovation (SI) "as a change in social relations, involving new ways of doing, organizing, framing and/or knowing and as transformative when it manages to challenge, alter or replace dominant institutions, both formal and informal". Moreover, the SMARTEES DoA considers social innovations to effectively respond to social challenges (e.g., Energy

[3] See for example the projects funded under FP7 such as TRANSIT, SI-DRIVE, CRESSI, SIMPACT, EFESEIIS, ITSSOIN, SOCIETY.

[4] EC (2011), *Empowering people, driving change,* European Commission, Bureau of European Policy Advisors (BEPA), Brussels, p. 33.

transitions), by mobilizing people's creativity to develop solutions, make better use of scarce resources and/or promoting an innovative and learning society.

In the SMARTEES project the concept of SI is applied to the energy transition process. The issue was discussed at the SMARTEES meeting in Groningen (25-26 February 2019) on the basis of inputs from EI-JKU (WP2 leader) and from K&I (WP3 leader). Different features of social innovation have been taken into account and various definitions confronted. At the end of this process the chosen preferred definition is:

> "Social innovation in energy transition is a process of change in social relationships, interactions, configurations, and/or the sharing of knowledge leading to, or based on, new environmentally sustainable ways of producing, managing, and consuming energy that meet social challenges/problems".

The study of SI should present information on the complex interactions among actors involved with the energy transition and on the different trends and processes they produce or are exposed to.

The above mentioned five clusters correspond to specific kinds of social innovation in relation to the Energy transition towards low-carbon societies and the ten reference cases meet all the characteristics of social innovation mentioned above.

1. Holistic, shared and persistent **mobility planning** (Zürich and Groningen); this social innovation is using the mobility plan as a way of mobilizing and coordinating many societal actors (different branches of local authorities, citizens, constructors, transport companies, etc.) towards the common goal of a more sustainable and efficient city transport system.

2. **Island renaissance** based on renewable energy production (Samsø and El Hierro); this social innovation is based on the mobilization of the citizens and innovative partnerships set-up of an island to achieve energy independence through renewable and energy efficiency measures as means to overcome the factors that put the community itself in danger and revive island communities.

3. Energy efficiency in **district regeneration** (Malmö and Stockholm); this social innovation includes hard and soft measures to transform the district such as local energy production and energy efficiency measures, urban green spaces, transport system transition measures, and citizen participation.

4. Urban mobility with **Superblocks** (Vitoria-Gasteiz and Barcelona); this social innovation is based on an urban innovation (superblocks) that introduce low-carbon mobility practices through the reorganization of urban space, which minimizes the use of motorized modes of transportation. The city is reorganised into superblocks, car-free areas designed to maximize public space and keep private cars and public

transport outside of the neighbourhoods, redesigning the inner streets for use by pedestrians.

5. Co-ordinated, tailored and inclusive **energy efficiency schemes for fighting fuel poverty** (Aberdeen and Timisoara); this social innovation is characterized by public authorities working in coordination with supply companies and civil society organisations in order to implement energy efficiency measures for houses and buildings with the aim of fighting fuel poverty with a tailored and inclusive approach.

For each specific cluster, a "social innovation profile", was built in D3.1 according to the above contents, considering it as a **transformative process** and taking into account the following features:

- Its starting points (critical attitude towards society, diffusion of new values, promoters, approach, etc.)
- Changes in ways of producing, managing, and consuming energy (towards an environmentally sustainable way), including technology innovation
- Changes in social relationships, interactions, and configurations (of actors, processes, forms of governance, rules, business models, etc.)
- Strategies for gaining social support
- Critical issues (including resistances and conflicts)
- How critical issues have been overcome (paying particular attention to negotiation processes among the involved actors and to strategies for gaining social support)
- Changes in the sharing of knowledge (including social learning and reflexivity as well as new configurations on energy transition)
- Societal/environmental benefits
- New behaviours
- Up-scaling/replicability.

3. Methodological framework

For investigating on how social innovation works in the above mentioned five clusters, a qualitative research strategy has been implemented.

This qualitative research entailed two steps.

First step: document analysis

As a first step, a document analysis was implemented in all ten SMARTEES cases. Documents have been partially provided by the key actors in the ten cases and partially found on the Internet. There are many kinds of documents, such as:

- General and specific (e.g., on specific aspects) case presentation sheets
- Application reports/documents (for getting EU or other public funds)
- Planning and strategic documents
- On-going activities reports

- Evaluation reports
- Legislative and regulatory texts
- Documents/sheets on technical specificities of a case
- Up-scaling documents/reports (i.e., studies done by external actors to understand specific features of a case and facilitate its replicability) and benchmark studies
- Texts containing stories by the protagonists of the cases about their own experience
- Articles from newspapers and social media
- Eurobarometer data/National statistics documents
- PPT presentations at conferences, seminars, etc.
- Minutes of SMARTEES visits to the cases (e.g., from the follower cities/islands)
- Essays written on specific characteristics of a case[5]
- University dissertations prepared on a case.[6]

Second step: key-informants interviews

As a second step, interviews to key-informants, in each case, were implemented, according to an interview protocol[7] prepared by UdC and K&I and agreed with the other SMARTEES research partners (JHU, NTNU, RUG, UoT), being JH, K&I, NTNU, RUG, UdC and UoT responsible of the research activities in the 10 SMARTEES cases, according to the table that follows.

Table 1: Overview of the SMARTEES social innovation clusters, main and supporting reference cases object of study and 'case research partner' responsible for case study.

Cluster	Case study	Case research partner
Holistic, shared and persistent mobility plan	*Main Reference Case*: Zürich	Knowledge & Innovation
	Supporting Reference Case: Groningen	University of Groningen
Island renaissance based on renewable energy production	*Main Reference Case*: Samsø	Norwegian University of Science and Technology
	Supporting Reference Case: El Hierro	University of A Coruña
Alliance for a district regeneration based on energy transition	*Main Reference Case*: Malmö	Norwegian University of Science and Technology
	Supporting Reference Case: Stockholm	Norwegian University of Science and Technology
Urban mobility with Superblocks	*Main Reference Case*: Vitoria-Gasteiz	University of A Coruña
	Supporting Reference Case: Barcelona	University of A Coruña

[5] E.g. How does a pioneer community energy project succeed in practice? The case of the Samsø Renewable Energy Island; Intra-Party Democracy in Groningen Early in the 1970s – decision making process within the labour party concerning the traffic circulation plan; Movilidad sostenible en Vitoria-Gasteiz: innovación desde un modelo de movilidad integral y partecipativo.

[6] E.g. PhD dissertation on "Storing the Renewable Energy Island Samsø".

[7] Lema-Blanco I., Dumitru A. and Garcia-Mira R. "SMARTEES Interview protocol" elaborated in January 2019.

Cluster	Case study	Case research partner
Coordinated, tailored and inclusive energy efficiency schemes for fighting fuel poverty	*Main Reference Case*: Aberdeen	The James Hutton Institute
	Supporting Reference Case: Timisoara	West University Timisora

Key-informants belonged to the following categories.

a. **Promoters and pioneers**, specific persons that participated in the beginning of the social innovation, starting out the project, and/or that have deep knowledge about the conditions, actors and development phases of the project. These key informants can be policy-makers, public servants, or business representatives involved in the energy initiative at a high level of decision making (e.g., superblocks are local initiatives launched by City Council and key informants can be municipal technicians involved in setting up the pilot initiatives as well as representatives of the transport sector, planning sector, etc.). As the different energy innovations can affect differently the various actors involved, a "representation" of each of them was aimed for.
b. **Third parties groups** (including business-private sector, local authorities' officials, civil society representatives, and other stakeholders) and other actors involved in each case, i.e. people, groups and institutions who know well the process, although they have not had responsibilities in carrying out the initiative.
c. **Key supporters**, stakeholders, social actors and public authorities which developed a significant role at any moment of the process and who are able to provide rich insights on the difficulties and opportunities that the SI experience offers for future developments.
d. **Recipients/beneficiaries** of the initiative. Key informants could be spokespersons of social platforms, representatives of neighbourhood/citizens associations, the commercial and business sector, which could provide different points of view and a critical vision of the process and the outcomes of the SI experience. Collecting external voices and different perspectives could contribute to identify critical points, best practices and proposals for improving and gaining effectiveness in future developments of the energy innovation.
e. **Experts in social innovation**, authoritative voices which provide a well-informed perspective of the process and the outcomes of the case, due to their deep knowledge (e.g., they have conducted studies on the case study). Such external visions might be people belonging to the academy, professional associations or NGOs which might give external/non-partisan perspective about the positive and negative aspects of the energy innovation.

Below, the number of key-informants interviewed by case and category is given.

Table 2: Key-informants interviewed per cluster, case study and category.

Cluster	Case study	Total	a	b	c	d	e
Holistic, shared and persistent mobility plan	Zürich	9	3	1	2	2	1
	Groningen	6	2	1	1	1	1
Island renaissance based on renewable energy production	Samsø	7+(12)	4	3		(12)[8]	
	El Hierro	8	3	0	1	3	1
Alliance for a district regeneration based on energy transition	Malmö	7	2	1	2	1	1
	Stockholm	7	4	2	0	0	1
Urban mobility with Superblocks	Vitoria-Gasteiz	12	4	2	2	4	0
	Barcelona	11	2	3	2	3	1
Coordinated, tailored and inclusive energy efficiency schemes for fighting fuel poverty	Aberdeen	14	3	2	4	2	3
	Timisoara	7	2	1	1	1	2
TOTAL		**88+(12)**	**29**	**16**	**15**	**17**	**11**

Key informants were identified on the basis:

(i) Firstly, of the case-studies contact persons that the research partners had prior to the beginning of the SMARTEES project as well as during previous conversations about the case in the frame of the Task 3.1 (Case-studies main actors involvement) implemented in the first three months of SMARTEES implementation

(ii) Secondly, of references found in the document analysis

(iii) Thirdly, of the use of a "snowballing" technique, which foresees asking interviewees/key informants about other persons who could have a deep knowledge or experience concerning the research questions about the concerned case and would be interested to talk about their experiences with the research team.

Being conducted according to an interview protocol and not to a questionnaire, these interviews should be considered as semi-structured and have been implemented, as far as possible, face-to-face, but also "at distance" through telephone/Skype.[9]

[8] 12 members of the Steering committee of the Samsø Energy Academy (grouping representatives of all the categories).

[9] Following the informed consent procedures settled in the SMARTEES project, respondents have been informed prior to being interviewed and are asked for their consent. Their participation in qualitative interviews was entirely voluntary and they have been informed both written and verbally of their option for withdrawal from research activities at any time. Participants have been also informed that they can retract their consent until the data is anonymized without any disadvantages and without having to give a reason as well as about the persons in charge of the research (in each institution) and the person to be contacted (full name, telephone, address and e-mail) in case they need to report any issue, request or suggestion to a

The interview protocol was articulated in five blocks, as follows:

1. Case study profiles: general questions oriented to obtain in-depth knowledge about the case, to integrate the information already available from the document analysis (this set of questions being complementary to the document analysis)
2. Motivations for participation in social innovation
3. Factors and dynamics influencing social acceptability of energy innovations
4. How social innovations have enhanced collective empowerment
5. How social innovations have facilitated pro-environmental behaviour adoption.

According to the DoA, as well as the interviews protocol, the qualitative interviews are supposed to contribute not only to WP3 but also to WP4.

In the frame of WP3, "only" information coming from the first three blocks of the interviews mentioned above was exploited. More specifically information on the following issues:

- Case study profiles
  - Transformative ambition of the (Local) Social Innovation
  - Pioneers and main actors
  - Development of the Social Innovation process in the case
  - Critical dimensions of the social innovation process in the case
    - New ways of behaving/doing
    - New ways of organizing
    - New knowledge
    - New relations
    - Impact
    - Up-scaling/Replicability
- Motivations for participation
  - Strategies for gaining social support
  - How have conflicts and resistance been overcome
- Factors and dynamics influencing social acceptability for energy innovations
  - Motivations for people to engage in the (particular) social innovation
  - Motivations for people to maintain their commitment.

Presentation sheet for each case

On the basis of the information included in all the analysed documents, a presentation sheet for each case was prepared according to the following scheme:

- Background (context, antecedents, etc.)
- Implemented actions

responsible person. Each research partner has saved and stored the interviews' records at a safe place and, as far as possible, interviews have been anonymised. If it is not possible to anonymize the data (e.g., because the respondent has an easily identifiable position in the local community), the data have not been published in this deliverable without explicit written consent of the respondent.

- Stakeholders analysis (e.g., involved actors, existing partnerships, leadership, negotiation processes carried out, strategies to gain social support, communication channels)
- Milestones
- Effects (e.g., quality of life benefits, environmental benefits, new behaviours, new governance strategies, new knowledge, technology innovation)
- Critical issues
- Up-scaling (replicability).

These sheets were attached in a first version in the Deliverable D3.2 (submitted in December 2018) and in a second version in the DeliverableD3.1 (submitted in April 2019).

The reading of these sheets allows to have a rather detailed knowledge of the ten cases and the information reported in them are NOT repeated in this document, if not functional to the present discussion in this document. It is therefore recommended to read these sheets before going on to read the following chapters of this Report.

4. This deliverable

This deliverable is divided into eight chapters. In addition to the present, where the work carried out in WP3 was described, chapter 2 is dedicated to a model(s) sketch of social innovation related to energy transition that will be applied for each of the five clusters in the following five chapters (chapters 3, 4, 5, 6 and 7). In Chapter 8, we will provide further inputs for the implementation of the quantitative survey in the frame of WP4 “Choice behaviour and energy usage: Knowledge co-production” and of WP5 “Future policy scenarios” on the basis of the findings of the previous five chapters, going beyond the inputs already included in D3.2 (submitted in December 2018). References will be reported at the end.

This deliverable was drafted by Giovanni Caiati, Federico L. Marta, Gabriele M. Quinti and revised by Andrea Declich of the K&I SMARTEES team, with the supervision of Christian A. Klöckner (NTNU), coordinator of the SMARTEES project, and taking into account important contributions provided by all the research partners (beyond K&I), more specifically: Lars E. Egner, Erica Löfström, Giuseppe Pellegrini Masini and Jens Røyrvik (NTNU); Ricardo Garcia-Mira, Adina Dumitru and Isabel Lema-Blanco (UDC); Wander Jager and Patrycja Antosz (RUG); Tony Craig, Kathryn Colley and Annabel Pinker (HU); Irina Macsinga and Coralia Sulea (UoT).

CHAPTER TWO
Model(s) of social innovation in energy transition

1. Social innovation as a transformative process

The notion of "Social Innovation"(SI) and, more specifically, the operational concept of "social innovation in energy transition" (a local level) adopted in the SMARTEES project have been presented in the Paragraph 1.2. On this basis, five profiles of social innovation have been drafted, one for each of the SMARTEES clusters, in the "core" of Deliverable D3.1, identifying the main SI features in each cluster (e.g., how the changes in social relationships, interactions, and configurations of actors, processes, forms of governance, rules, business models happen; how the decision-making process change; how the "sharing of knowledge" evolves, which critical issues happen and how they are managed; how the different actors participate and how this involvement evolve, etc.).

Therefore, looking at the five clusters' profiles social innovation appeared "in practice", too, as an engine that activates and strengthens a process of social change that enables (of course, along with other factors, such as the technological ones) the energy transition. In line with the theory of transformative social innovation,[10] this process of change of social relations, involving new ways of doing, organising, framing and/or knowing, may activate a structural change in the context where the actions are taking place, i.e. a broader process that changes existing patterns in different aspects of the social life.

On the basis of the findings included in the drafted profiles for each cluster in D3.1 (and considering the history of most of the ten cases), we could "reverse" the question and hypothesize that such a structural change could be a necessary condition (among others) of an actual energy transition or, in other words, of a consolidated transition (beyond obvious changes). Otherwise, the transition is in progress but we are dealing with more or less fragile experiences that may not even be successful.

According to this hypothesis, a model of social innovation in the energy transition should, therefore, entail a structural change. Let us then try to see what happened in the SMARTEES cases at this regard. But first of all, let us go more into what structural change is (with reference to the energy transition) and which structural change model could be proposed.

[10] The concept of Transformative Social Innovation has been elaborated in the TRANSIT project see Avelino, F., Wittmayer, J., Kemp, R., & Haxeltine, A. (2017). Game-changers and transformative social innovation. *Ecology and Society*, 22(4).

2. A structural change model for social innovation

The concept of structural change

This study has adopted a concept of structural change already developed in other fields such as gender equality policies in science and technology and the promotion of Responsible Research and Innovation (RRI) in research organisations. In such studies, structural change refers to profound modifications of organisations in order to pursue pervasive and definite objectives. The experience accumulated in this field allows us to identify at least four main features characterising structural change processes in the field of energy transition at the local level.

- *Irreversibility*. One can speak of structural change only when the induced transformations are so deeply rooted in the energy systems that they cannot be easily reversed, e.g., by a simple leadership turn-over or budget cuts.
- *Comprehensiveness*. Structural change implies a comprehensive modification of the local life, affecting, e.g., cultural and cognitive attitudes of citizens and local leaders, daily behaviours and practices, communication patterns and, obviously, procedures, rules, standards, etc.
- *Inclusiveness*. Structural change has to involve all the relevant players and stakeholders within the involved territory/system, from the leaderships to the citizens. Structural change has to be a collective effort. Therefore, both top-down and bottom-up processes are to be activated and coordinated.
- *Contextualisation*. It is necessary to contextualise structural change. Indeed, although problems and situations can be highly recursive and widespread, their mix is quite unique. Hence the need to contextualise structural change, e.g., devising strategies and tools which are specifically tailored on the concerned territory and in its energy system.

Structure/Agency dynamics in structural change

The above mentioned features turn around a structure-agency dualism. Agency can be simply understood as the individuals' will and capacity to act quite independently from the structure, which, in turn, can be defined as the dominant social and behavioural models and values. New models of action and new values are therefore initially promoted by the agency of some specific players only. Over time, this agency "contaminates" and mobilizes other people and groups, progressively undermining and weakening the structure, to the point that the new models of action and the new values progressively become dominant, turning into a news tructure.[11] Social Innovation can be interpreted as a set of new emerging action patterns and values, which can be put in place and embodied into the energy system as well

[11] See, in this regard: Berger P.L., Luckmann T. (1966). The Social Construction of Reality. A Treatise in the Sociology of Knowledge; Anchor Books. New York, NY; Archer M. (1995). Realist Social Theory: The Morphogenetic Approach, Cambridge University Press, Cambridge; Giddens A. (1984). The Constitution of Society. Outline of the Theory of Structuration, Cambridge, Polity Press.

as in social life. However, this process implies that social innovation is sustained by an agency strong enough and broad-based enough to start modifying the existing structure.

This scheme can be enriched with three other considerations particularly relevant for the energy transition.

- ***Barriers***. New action models and new values necessarily generate reactions, especially in terms of conflicts, tensions and resistances. In the analytical framework, barriers to social innovation can therefore be interpreted as the reaction of the structure to the new agency. Such a reaction may assume different forms, varying from the most informal and broad (e.g., jokes, narratives, tendency not to get involved, etc.) to the most formal ones (e.g., collective actions against the change, formal oppositions, etc.).
- ***Contingent factors***. The success/the failure of a new agency is inevitably linked to contingent factors, including e.g. national policies and regulations, national and local culture, local leadership's attitudes and orientation, previous experiences at the local level and even specific events. In order to activate an energy transition-oriented structural change process, it is therefore necessary to assess such factors at the outset (those facilitating and those hindering structural change) as well as to devise strategies and even tactics which can adequately exploit or cope with such factors.
- ***Negotiations***. The agency-structure dynamics can be rightly understood in terms of social relations among different players, in which some are bearers of a new agency and others are proactively sustaining the existing structures. Obviously, the majority of people and players usually display intermediate orientations among these two (or more) poles, such as being open to change while adopting the dominant standards or being fully inactive or indifferent. Hence negotiations play a key role in promoting energy transition oriented structural change. Negotiation[12] can be defined as an interaction process involving two or more people or groups in order to reach an agreement on "something", such as the courses of action, collective or individual interests or organisational aims and outcomes.

Elements of structural change model

In line with the above interpretation, a model of structural change may be adapted and used for describing how social innovation toward energy transition works. The six building blocks of such a model are described below.

1. Core group. A social innovation action is characterised by the emergence and/or establishment and later the maintenance of a core group, that is a motivated group of people in charge of promoting change, in our case in promoting the energy (or an energy specific sector, such as "mobility") related social innovation. In the light of what has been said above, this core group cannot be viewed only as an organisational structure. Rather, it is

[12] On the notion of negotiation, see, e.g.: Mead G.H. (1934). Mind, Self, and Society from the Standpoint of a Social Behaviourist. University of Chicago.

to be comprehended as the source of a new agency oriented to activate change processes at the local level.

2. Context analysis. Another key element of a social innovation action is the analysis of the context where it will be developed. The context analysis will be primarily focused on the concerned territory and in its energy systems (or some parts of it), but it may focus also on the wider context (national or international trends, resources, etc). The context analysis will consider multiple aspects, including:

- Previous similar experiences to identify obstacles that have already showed up as well as resources and opportunities
- The key actors to be involved, examining e.g. their orientations toward the change to be promoted and their attitudes and willingness to cooperate in the action
- The existing norms, rules and financial constraints and opportunities that may facilitate or hinder the action.

3. Detailed plan. Another element characterizing the activation of structural change is the development of a detailed plan of the social innovation action. The development of the detailed plan is not only a desk-based piece of work involving the core group, but it is a process that concerns other actors through a set of possible tools – including meetings – with the key institutional counterparts, stakeholders and citizen consultation, data collection, and involvement of experts. In this sense, the development of the detailed plan is already part of the process of change and not just a preliminary step for the social innovation action.

4. Agency mobilisation. The core group cannot be considered as the unique source of agency for attaining an energy related structural change. In the place where social innovation actions are promoted, there are other important individuals, groups or networks bearing a similar agency, i.e. already oriented or willing to promote the energy transition or some specific aspects of it (promoting the adoption of renewables, reducing the consumption of energy, promoting and diffusing soft mobility culture, preserving biodiversity, etc.). In this respect, another feature of the structural change process is the engagement of the core group in “hooking up” such players, in order to mobilise them to be part the social innovation action. To all intents and purposes, agency mobilisation is a “snow-ball process”, which increases its momentum and impact as the number and quality of the involved players increases.

5. Negotiation processes. Negotiation is the core tool for implementing social innovation actions. As a matter of fact, any action activates a negotiation process at different levels, the outputs of which greatly influence social innovation outputs and results. Usually, negotiations are related to consensus building or leadership support development on different dimensions, including the interpretative dimension (related to the interpretation of the situation of the local community in respect to the energy transition), the symbolic dimension (concerning the visibility and recognition of energy transition and its components in the local context), the institutional dimension (pertaining to the actual modification of the structure, such as rules, procedures, institutional arrangements, etc.), and the operational

dimension (i.e., the kind of negotiations which translate decisions, good will and declaration into “things and facts”).

6. Self-reflexivity. The negotiation processes oriented to implement social innovation actions are expected to have some impacts on the territorial context and the energy system. Many of them will be not of a structural nature, i.e. will not be irreversible, comprehensive, inclusive or well contextualised (see above). However, some of them will be the foundation upon which the rest will be built. At the same time, structurally negative reactions may also occur, changing the context or requiring modifications in the social innovation action. In the context and conditions described above, a key element of the structural change process is the self-reflective attitude of the core group, i.e. the core group is aware about objectives, obstacles, times, opportunities, facilitating factors or risks in place at any time. Self-reflexivity is expected to modify to a certain extent the core group's identity and approach, and to activate a reconsideration and interpretation of social innovation during its implementation. Self-reflexivity may also lead to change of directions and approaches in the social innovation action.

This process describes the nature of the Social Innovation as a transformation process leading to structural change in the energy system and in the local community. In this model, social innovation action is not intended as a mere execution of established plans. In fact, in contexts characterised by high levels of uncertainty, innovation and social complexity (and this is the kind of context of energy transition, at the local level too), policy and project implementation processes rarely assume a linear trajectory. Almost always, most implementation processes are nonlinear, characterised by stops and starts, sudden progress and setbacks, unplanned solutions and deviations from the original plan. This means that the social innovation actions for energy transition require pro-activity, flexibility and capacity to react rapidly to unexpected situations to achieve a structural change.

In the following paragraphs this model will be applied to the various cases of the five clusters of the SMARTEES project. Obviously for each step of the proposed model it will only be possible to give a few examples:

- Having to be as synthetic as possible
- Considering the complexity of most of the cases, many of which also have over 20 or even more than 40 years of life and can cover entire cities
- Due to lack of information (a deficiency that could possibly be filled by the subsequent field work – see Chapter 8).

However, what will be said should be sufficient to analyse the fruitfulness of this model for each of the five social innovation clusters in energy transition of the SMARTEES project. Finally we wish to underline that some overlapping are possible between the different steps (e.g., if a “negotiation process” happens during the design of a “detailed plan”, the same example will be relevant for both steps).

CHAPTER THREE
Structural change model applied to Cluster 1

Cluster 1 "Holistic, shared and persistent mobility planning" refers to the case of Zürich and Groningen. Both cases are characterized by a very long life (around 40-45 years until today) and are both centred on mobility (based on high quality public transport and propagation of bikes and bike lanes; mainly the first in Zürich, mainly the latter in Groningen) with little interest on the main other sectors of energy consumption (e.g., housing, industry, etc.) or on energy production.

1. Core group

The core group has changed at the person level, of course, during these long periods of life.

At the institutional level, since the beginning the main actor was (and still is) the Municipality in both cases. However, while in Groningen this is 100% true, in Zürich, the "initiator" in 1973 was a "people's initiative" aimed at providing 200 million CHF for projects to speed up trams and buses. After a (third) referendum, this initiative was endorsed by the Municipality, who generated the new mobility strategy (and who had before proposed a different strategy – rejected by two previous referenda – based on plans for and underground). Since then, the leadership position of the municipality was maintained during the years in Zürich, too.

In Zürich, even if persons changed along the whole "history" of the project, the departments in charge of different aspects of mobility maintained a core role going beyond an organisational perspective. This is witnessed, first of all, by the fact that this part of the municipality was self- restructured to increase its effectiveness:

- Increasing cooperation among the three departments (Civil Engineering and Waste Management Department, Department of Public Utilities and Transport, Department of Public Safety) in charge of mobility issues
- Increasing cooperation with other public actors (e.g., the Canton of Zürich), thanks to personal commitments that went beyond the mere working sphere, based on human relationships, even informal ones, to solve critical issues and carry out the necessary actions
- Inventing new structures for monitoring and putting "under control" the implementation of the mobility strategy, such as a regional conference concerning public transportation and a separate conference for the city of Zürich (with the participation of the local authorities, public transport enterprises – ZVV, SBB –, etc.).

The core group was and still is constituted by very motivated technicians with a strong agency that made and still makes them – in addition to what has just been said – to go beyond their tight work as municipal officials by meeting frequently, formally and informally, and assuring the continuity in the implementation of the mobility strategy. This resets in a sense political changes (because of turnover related to elections or other political events). Some politicians played an important role, too, but intermittently, given these political changes.

The Zürich core group was the source of a new agency oriented to activate change in mobility not only operationally (increasing buses, trams and bike lanes and decreasing the use of cars) but also at the cultural level, spreading a new "mobility paradigm", which, thanks to their tenacity, over the years (and beyond the ups and downs that, however, there have been) has become pervasive. Today, the original objectives of sustainable mobility have been adopted by almost all political parties and orientations and the various actors in the city. Differences remain in the view on the methods to be put into practice, but no longer on the objectives to be achieved.

In Groningen, the core group was originally some young politicians within the political party PvdA (socialist). This group of young people was inspired by literature and ideas of scholars on the liveable city from the 1960's. This network of "young left socialists" was very active in local and national politics and had regular meetings, also in the neighbourhoods. They were backed up by a number of reputable elder party members that had the respect of people in the neighbourhoods, in particular those belonging to the political silo of the PvdA. The network of people linked to the PvdA was strong and present in the older neighbourhoods that were considered for renewal and followed the paradigmatic shift in the view of the city, and the city planning process.

The initial core group was surrounded by some allies. The ideas on the liveable city were backed up by the older party members, and resulted in support from many citizens. When the PvdA succeeded in an election in 1974, this served as a message of trust of a large part of the citizens to work on a liveable city. Two of the young socialists became "elderman" in the city council, and they started working on the plan for the city (after an important political conflict both within the main left party – PvdA – and with the other political parties). For the plan, a majority was needed in the Counsel, and at national party-level discussion was taking place on supporting this "PvdA plan" (the national government, which should cover a major part of the investment costs of the scheme). Other allies were (and still are, albeit the "core group" evolved) in the University of Groningen (RUG). In the 1970's, in particular, the Sociology department of the university was focussing on city developmental plans. Many academics interested in urban planning were in some way involved in politics on different levels and in different degrees. In particular, the young PvdA "elderman" were originating from this academic background.

Despite some loud voices against this development, the majority of the people experienced that the city improved as a result of the changes. Mobility challenges strongly improved; quality of life, too. This "wind of change" in city development was rather pervasive, thanks to the strong agency of the original "core group". As a consequence, when at later stages the

PvdA lost their power in the municipality, the reversal of the plans has never been a discussion point. Also, current policies are firmly rooted in the same city vision on liveability (with the obvious evolutions connected to the history of these decades).

2. Context analysis

Both cases, since their inception, were founded on a detailed analysis of the context (the features of the two cities, the mobility situation, the societal actors to be involved), taking also into account the wider context (although in a relatively limited way since in both cases a local perspective clearly prevails). Anyway, existing norms, rules and financial constraints and opportunities were taken into account (e.g., in the city of Groningen a national party-level discussion was taking place on supporting this "PvdA plan", including the national government, which should cover a major part of the investment costs of the scheme, i.e. the new Traffic Circulation Plan – TCP – in 1977, that entailed the division of the inner city into four sectors confined by physical barriers or signs that cannot be crossed by the cars, making it impossible to go by car directly from one sector into another).

Previous similar experiences were very little considered, but for the simple fact that these were almost non-existent. In the case of Zürich, the municipality was initially inspired by pre-existing experiences, proposing the construction of the underground. But this idea (see above) was rejected by Zürich citizens who later suggested an alternative strategy through a "people's initiative" based on speeding up trams and buses. And this alternative approach was quite innovative for a city like Zürich.

In the case of Groningen, when the new TCP was conceived, partial attention was paid on key actors to be involved, examining their orientations toward the change to be promoted and their attitudes and willingness to cooperate in the action. In a very simplistic way, we could say that this was done with its supporters and much less with others. But this does not falsify the proposed model; indeed it corroborates it, given that this lack of analysis was at the origin of an immediate strong opposition and many protests from a considerable portion of the Groningen citizens: first of all, the generic category of the car drivers (some of them considering the – often relatively new – availability of getting into town by car as anow lost acquired freedom), but mainly the business sector and, above all, the shopkeepers that manifested a fierce opposition because they were convinced it would mean the end of their business if cars could no longer cross the centre (they were convinced they would go bankrupt if customers would not be able reach their shop by car).

This convinced the "core group" to change the approach progressively, and the situation changed slightly after the TCP implementation mid-term review. The municipal council conducted two rounds of discussion on the revised TCP proposal in May 1980 (one mainly with the business sector; the other mainly with citizens groups), and carried out later more and more consultations with the various actors promoting their perspective on the implemented change to be promoted and trying to change their attitudes and develop a willingness to cooperate in the TCP implementation. Over the years the opposition has (practically) disappeared.

In the last years and presently, every action related to a change in the mobility in both cities (at the neighbourhood/street level) is (almost) always anticipated by a context analysis focused on the concerned territory and related key actors/citizens orientations toward the change to be promoted and their attitudes.

3. Detailed plan

Not one, but dozens of detailed plans (at city or neighbourhood level or for a specific action) were developed in relation to mobility innovations in both cities, always with data collection and involvement of experts. Limiting ourselves to some of the most important, this happened for the TCP in Groningen (between 1975 and 1977) and for the urban traffic programme "Stadtverkehr 2025" launched in 2012 by the Zürich City Council (at the data level, considering, among many other issues, even the gap existing between subjective knowledge and objective measurements affecting mobility behaviour among the various segments of citizens was measured).

In Groningen, the (detailed) TCP in the '70s was not a desk-based piece of work, but a complex process involving other parts of the municipality and other stakeholders beyond the "core group". However, the process was strongly centred on the "core group" without consulting (and taking into account the perspective of) many citizens and stakeholders like the business associations or other non-public actors. As already stated, the consequences were conflictive and the paradigm changed progressively. In the following years, sharing the vision and acknowledging the problems that people had with the plans helped to reduce resistance among certain groups of people. A further "turning point" was the project "closing down the city park for cars in 1994". There was a referendum and the municipality organised a broad discussion that served as a platform for negotiating colliding interests of different groups. This approach has become more and more rooted over the years and today new knowledge has emerged considering how to develop plans in a participative manner, and how the municipality communicates with citizens.

In Zürich, the preparation of Plans related to the mobility strategy was (and still is) rooted in a very strong system of direct democracy characterized by the implementation of various referenda (promoted either by public local authorities or by citizens) and traditional consultations of citizens at the local level. In Switzerland, the referendum is generally the conclusion of a process that foresees the involvement of citizens in various ways. In general, the city of Zürich and all the other local planning authorities try to engage stakeholders in formal and informal for as much as they can in each planning exercise. Before the final decisions are taken, there normally is a formal request for comments where most of the formal actors get a chance to be involved; for example, there are Quartierkonferenzen (networks of local associations) in each of the 12 sub-areas of Zürich, and these networks of associations are always asked formally to comment and cooperate with the local authorities. Therefore, planning was (and is) a process concerning many actors (key institutional counterparts, stakeholders and citizen). Even, this complex consultation mechanism can provoke a slowing down of the decision-making processes, in the sense that sometimes the

implementation of a policy or even a specific activity (and the use the already available relative funding) is stopped for a while because of an announced referendum, which, in fact, "blocks" an ongoing initiative until the outcome of the referendum in question.

Concluding on this issue, it appears clearly, how, at least in the last decades, planning is already part of the process of change in both cities and not just a preliminary step for the social innovation action.

4. Agency mobilisation

As stated in Chapter 1, Paragraph 1.3., every sheet prepared for each case includes a paragraph on "stakeholder analysis", showing how agency mobilisation developed in detail for Zürich and Groningen more or less rapidly over the years and the steps, ups and downs involved the following stakeholders.

- In Zürich, the core group has surrounded itself with various officials from other departments of the municipality, some Canton officials, and managers of public transport companies. Presently, it is widening towards the Energy Commission of the municipality. However, this enlargement, quite important for a better linkage among the mobility strategy and the whole energy policy (involving other energy sectors) is still limited. The mobility strategy is included in the broader energy strategy (that entails a transition towards low-carbon patterns) and this is strategically recognized, but still not implemented enough at the operational level (in the day-by-day work).
- In both cities, the original "core group", despite the changes in people in over 40 years and the political orientations of the leadership has been maintained, in terms of promoting approaches concerning mobility, related strategies and actions. Despite the alternation of individuals and orientations in political leadership, the agency of the original core group has remained (and therefore other persons, beyond the original ones, bear a similar agency toward a sustainable mobility).
- Many other groups were also characterized by (or adopted progressively)a similar agency (e.g., in Zürich the leaders of the mobility enterprises, such as ZVV and SBB, but also –almost – all their employees like the tram and bus drivers, are dedicated to ensure excellent quality of public transport).
- Strong opponents (bearing a strong agency already in this initial position) became supporters (e.g., the shopkeepers in Groningen, interested today in the excellent quality of life and public spaces in the city centre, which originates from the launch of the TCP in 1977 which they themselves furiously contested).

Therefore, it appears evident as, in both cities, the original "core group" (whose members today have retired, moved on or even died) "hooked up" such players, so as to mobilise them to be part the mobility strategy. In both cities, agency mobilisation was (and still is) a snow-ball process, which increases its momentum and impact as the number and quality of the involved players increases.

One has the impression that the agency of the original "core groups" (but probably already present also in other groups) today belongs to (almost) everyone. In Zürich, from politicians and administrators to citizens almost everyone is proud of having one of the most effective urban surface transports in the world; while in Groningen they are proud of being the bike-city "par excellence" and of the greater social cohesion that this has brought about.

5. Negotiation process

The case of Zürich is deeply characterized by a continuous negotiation process (or by a lot of negotiations) among the concerned actors. Multiple examples can be made in this regard.

I - As already mentioned, in the '60s and in the '70s the city administration developed two different projects for underground solutions for short distance public transport. Both projects were rejected in referenda; one in 1962 and one in 1973. After the second referendum, a "people's initiative" (People's Initiative for the Promotion of Public Transport) was launched for projects to speed up trams and buses. As a matter of fact, this initiative (together with the referenda) marked a discontinuity in the development of the city and gave an important impulse to a transport policy giving priority to surface public transport that a majority of the population expressly agreed on. As stated above, it is just upon this impulse that the Zürich Mobility Strategy (still current) was grounded. This transition has been the result of a clear negotiation process involving, at least, the following dimensions.

- Interpretative: the adoption of the People's Initiative for the Promotion of Public Transport was based on a common understanding on how the mobility problems should be addressed in Zürich. This understanding has been the object of dialogue and consultation among citizens and relevant actors between 1973 (launch of this initiative) and 1977 (its adoption by referendum).
- Institutional: the process entailed referendums which are institutional acts. Beyond the two referendums already quoted, the People's Initiative for the Promotion of Public Transport itself was accepted by referendum in 1977 and the implementation that followed had many further referenda as milestones.
- Operational: the transition was based on a People's Initiative for the Promotion of Public Transport, transforming the will and declarations of their promoters into a new strategy on mobility in Zürich based on the promotion of public transport (also thanks to the opening of a suburban railway, and the reduction of motor vehicle traffic but also through a wide array of soft measures, ranging from marketing to cultural and behavioural work with citizens and public transport users) that has been concretely implemented (mainly in the 12 following years, with further actions later until 2012).

II - The implementation of the mobility plan is carried out by services belonging to different departments of the administration. Such services work together for the implementation of the plan. For this reason a continuous work of negotiation is ongoing within the administration and between the technicians and the political level. It is worth noticing that each department is guided by a member of the city council, and these members are elected

directly, and thus they may belong to different political parties (today they are all from the same political orientation but this has not often been the case in the past). Divergences among the involved departments are due, beyond (eventually) political motivations, also to specific objectives pursued (e.g., the Civil Engineering and Waste Management Department wishes to reduce the motorized vehicles speed from 50 km/h to 30 km/h against the wish of the Department of Public Utilities and Transport that wants that public transports can travel up to 50 km/h for keeping their effectiveness; conflicts are also on the use of roads/streets spaces: if you build a bike lane, there is less space for buses and trams – and for cars). Thanks to the set-up of specific arenas (e.g., meetings among the involvement departments), these actors work together for the joint design and negotiation of the measures to be adopted. This allows having a shared and coordinated vision among different players who are in charge of the city development, thus preventing and managing possible conflicts.
Here too, we can identify three of the four dimensions of negotiation: the institutional one (related to the measures/rules gradually adopted thanks to this negotiation); operational (in relation to their implementation); and interpretative (given that they can arise from the mediation between sometimes different and divergent "visions" on how to deal with the various questions of the modality).

III - Similar forms of negotiation and coordination are carried out between the City Government and other institutional actors (Canton of Zürich, other cities in the Canton, The Federal government, and Transport enterprises). More specifically, with the Canton, an intensive negotiation has been often operated at this level, taking into account the differences among the political majorities in the Municipality and in the Canton (most through to "informal" mediations among the technicians of both sides, thanks to their "human" relationships).

IV - A different type of negotiation (entailing, however, the same dimensions for the same reasons) is implemented with the territorial actors (business included; e.g. almost all the large enterprises such as Crédit Suisse, Google, etc. working in the Zürich territory have a person in charge of the relations with the municipality consulted at least twice a year; Car group "Touring club Switzerland", representing the interest of car owners; Bike group "ProVelo", represent the interest of bikers; etc.). These actors are consulted and involved in participatory process for the development of the different projects.

Negotiations processes characterize the long "history" of the Groningen case, too. Not so much at the beginning, but since the '80s, a negotiation strategy was developed, basically on a micro-level, e.g. adjusting the plans about where to place short parks and the like (dimension: operational). Later, the negotiation process was expanded with consultations (e.g., above the already mentioned project "closing down of the city park for cars in 1994") and more formal referenda, either binding or advisory referenda (including both operational and institutional dimensions, like in Zürich, but also the interpretative one, considering that during these consultations different visions on the city mobility, as well as on other social and environmental aspects, were confronted).

6. Self-reflexivity

In this regard, one can look for example at what happened in the initial phase in the two cities.

In Zürich, the rejection of the underground plans through two referenda and the following "people's initiative" changed radically the mobility policy of the Municipality from underground to surface public transports solutions. More generally, the mobility strategy history is characterized by a permanent self-reflective attitude of the Municipality (the initial "core group" and his successors). Self-reflexivity in Zürich is so important, that it gets to provoke a slowing down of the decision-making processes in the sense that often the implementation of a policy or even a specific activity is stopped until the results of a referendum or another kind of consultation are clear. And when the result is negative, a measure is cancelled or a project or even a policy is changed.

The Groningen case was characterized at the beginning by a lack of a self-reflective attitude in the "core group", who believed that, since the implementation of the TCP was considered a right urban measure on the urban plan, it had to be applied without ifs and buts (and, effectively, the TCP launch quickly reduced the car traffic in the inner city by 50%, making cycling the safer and faster option). Therefore, as already stated, negotiation was very poor and this generated strong conflicts with important groups of citizens, such as car drivers and shopkeepers. This critical attitude was firstly ignored. Only later, the "core group" started to adopt a weak self-reflective attitude and few adjustments were made in the TCP implementation.

7. Which "level" of structural change?

Irreversibility. In both cities, transformation in mobility patterns is so deeply rooted that it can be considered irreversible (and this is already true for many years). Limiting ourselves to two indicators: presently, from 53% to 60% (there are little differences at this regard according the various sources of information) of the Zürich households do not own a car, while in Groningen, the inhabitants possess an average of 1.4 bikes per person and 3.1 per household. Moreover, the "history" of both cities was characterized by leadership turn-over without weight effects on the mobility.

Comprehensiveness. Surely (see above) mobility patterns of Zürich and Groningen inhabitants (both citizens and those who live or go to the city to work or study) changed deeply. However, in Zürich, a comprehensive modification of the local life, affecting attitudes, daily behaviours and practices of citizens beyond the mobility cannot be perceived. For instance, it has been underlined that the adoption of more pro-environment behaviours, like a more rational use of water and in reducing the temperature of the heating in the houses during the winter or the air conditioning in the summer are still very limited (and changes of behaviour are limited by the NIMBY effect: often people do not want changes affecting their personal life/environment). Moreover, mobility strategy is still weakly integrated in the broader energy policy. In Groningen, the quality of the public space

improved a lot with positive effects on social cohesion and is experienced as very positive by the inhabitants; moreover many relevant sustainability dimensions such as well-being, energy use and economic viability have been positively affected; but, beyond this (which is already a lot), here too, a comprehensive modification of the local life cannot be yet demonstrated. However, an energy transition strategy (Horizon 2035) was already adopted at the city level with many objectives and actions going far beyond mobility.

Inclusiveness. Since many years change has deeply involved (almost) all the relevant players and stakeholders within the involved territory/system, from the leaderships to the citizens, and the evolution of the mobility patterns can be considered a collective effort. This is true since ever in Zürich, while in Groningen, the organisation of city planning has changed completely during the years with a transition from top-down policy by the technical planning experts to a mixed policy via consultation to referenda and co-creation of plans thanks also to intensive relations between the citizens, municipality and shopkeepers/entrepreneurs.

Contextualisation. Both cases are highly contextualized. In Zürich, many social features of the mobility strategy have been conceived according to an institutional context (e.g., the "direct democracy" through frequent referenda and intensive consultations), which is very specific to Switzerland and not widespread elsewhere. Groningen case is rooted in the biking culture widespread in countries such the Netherlands (or Denmark) and much less elsewhere.

To sum up, as presented above it is useful in the first place to refer generally to the scope of the "action" conducted and in this framework see the level of structural change produced by such action. In particular, therefore, attempts will be made to apply simultaneously (in a truly rough way) the following two indicators.

- As for the scope, the indicator considers how many fields of energy (energy production, energy consumption in housing, energy consumption in mobility, energy consumption in productive activities, etc.) are affected; this scope can be Narrow (N) if, tendentially, just one sector is affected; Medium (M) if more; Large (L) if many or alls.
- Inside the scope, the second indicator considers the level of change that could be calculated giving a score from 0 to 1 for each one of the previous criteria (*Irreversibility, Comprehensiveness, Inclusiveness, Contextualisation*) and making the sum of these scores; therefore, this indicator may vary from 0 to 4.

Applying these two indicators to the cases of the Cluster 1, results should be:

- Zürich: Scope N, Change 4 (giving 1 to all the 4 criteria)
- Groningen: Scope M (in perspective L), Change 4 (giving 1 to all the 4 criteria).

As a matter of fact, indeed, one has the impression that the change that has taken place in both cities is actually structural. But this change certainly concerns, presently, only the sector of mobility (with all the social and environmental aspects connected).

CHAPTER FOUR
Structural change model applied to Cluster 2

Cluster 2 "Island renaissance based on renewable energy production" refers to the cases of Samsø and El Hierro, two islands getting a high level of autonomy based on renewable energies. The two social innovations experiences have been implemented in different time periods. The Samsø project has been implemented mainly from 1997 to 2007, but is now in a second or third stage, whereas the activities on El Hierro started after 2009. Interest is mainly on energy production and management, but also centred on changing energy consumption (housing and mobility).

1. Core group

Both projects had among their protagonists a local authority (Samsø Municipality and the Cabildo de El Hierro) and an energy company (Samsø Energiselskab and Gorona del Viento SA); both companies had among the founders the municipalities (Gorona del Viento Board of Directors is chaired by the president of the Cabildo de El Hierro; Samsø Municipality is part of the Samsø Energiselskab).

Samsø Renewable Energy Island (REI) project started in 1997 (more than 20 years ago) and at least partially, the "core group" is still the same also at the individual level. Søren Hermansen was involved since the beginning and became very soon the "leader" of the REI Samsø project which he still is. Today he is the leader of the Samsø Energy Academy, which is a direct emanation of the REI project. It is quite evident that this leader with its core group during the whole "history", maintained a central role going beyond an organisational perspective. This is witnessed by dozen of elements.

- Søren Hermansen and his group (originally, he and two other Samsø inhabitants) managed to integrate the Renewable Energy Island into the community life in the villages, applying processes of sensing and priming in order to achieve successful meetings before, during and after which the locals committed themselves to the project.
- Søren Hermansen and his group revolutionized management practice by mixing the formal and informal levels in a fruitful way and adopting open procedures (everybody could read the minutes of every meeting, an open budget procedure was adopted, people could see what the running costs were; and meetings were open also towards not invited people, if interested), creating an atmosphere of trust that demonstrated to people that there was nothing to hide.
- At the conclusion of the REI, Søren Hermansen and his group did not stop. Since some time before, they had started the design of the Samsø Energy Academy,

dedicated to hosting researchers and students studying renewable energies, organizating conferences, a show centre and consultancies and meetings between research and business (a hub for the "Energy tourism").

It must be said that the "starting context" was not negative. Since the '80s, dedicated individuals in the local municipality and business network were willing to invest extra time in creating positive development on the island.

From what has just been said (and from many other elements), it appears evident that the core group is constituted by a group of very motivated technicians with a strong agency that brings them to go beyond their work, becoming community leaders and leaders of an intensive transformative process that does not stop and, as it reaches one set of objectives, fixes another one (today, we speak explicitly of Samsø 3.0, after Samsø 1.0 – i.e., the REI from 1997 to 2007, and Samsø 2.0 – i.e., the Samsø Energy Academy operational since 2007).

The Samsø core group is the source of a new agency oriented to activate change in energy production, management and consumption, initially on the island of Samsø, involving, step by step, almost everybody, and since some years at the national and international level. Today, the Samsø Energy Academy receives about 5,000 visitors annually, including school children, students, business actors, politicians, ambassadors and members of royal families. In addition to that, the Energy Academy is regularly invited to international conferences and workshops and takes an active part in the political debate surrounding renewable energy in Denmark. Since the start of the Renewable Energy Island project in 1997, Samsø has been engaged with similar projects elsewhere in the world.[13] This shows how pervasive the agency of this group of islanders in spreading a new "mobility paradigm" for the management of energy systems and problems in the islands worldwide has been.

Much less we are able to say in this regard on El Hierro. The need of becoming self-sufficient in the energy domain and to develop a renewable energy strategy was one of the strategic objectives approved by the local government of the island, the Cabildo Insular de El Hierro since 1997. This ambition to transform El Hierro to a front-runner island in this regard with a strong commitment to sustainability, has been pursued by all the leaders of the Cabildo insular to date, through research of funds, political alliances, relations with the scientific community. This has led to the official inauguration of the hydro and wind-power project "Gorona del Viento" in 2015. In July 2018, "Gorona del Viento" achieved the milestone of having supplied 97% of the electricity consumed in El Hierro.[14] All this was possible thanks to the existence, of a "core group" with very clear ideas about the objectives to be achieved and, without doubt, animated by a strong transformative agency. The project was, indeed, "unexpected", considering that a peripheral and isolated territory like El Hierro, according to the promoters interviewed, was not in the focus of international agenda in the '80s, and

[13] The Energy Academy acts as a consultant and partner to EU projects, island states in the South-Pacific, American islands and cities (E.g., Renewable Energy Vermont and Fund for Maine Islands), Japanese decision-makers and diverse educational programs in sustainability.

[14] So far, in 2018, the Wind-Pumped Hydro Power Station has met 100% of the demand for a period of over 560 hours, and has done so for over 2,000 hours in total since it began to operate in June 2015.

they “had neither the influence nor the money to transform the El Hierro Island in a completely self-sufficient island in terms of energy”.

Tomás Padrón, an engineer employed in the newly created renewable energy department at Unelco (today Endesa), the energy company operating on the island in the ‘80s, is considered the pioneer of the initiative. The Elected President of El Hierro’s island authority dedicated his efforts to this project and to get the necessary economic and technological support for making this project a reality. The current president of the Cabildo (and president of Gorona del Viento El Hierro), Belén Allende, leading the project, was not one of its pioneers.

We cannot say how much this “core group” went beyond a technical/organisational perspective and how much it was the source of a new agency oriented to activate change processes at the local level. Probably it is starting to be. An indicator in this sense would be that now “Gorona del Viento” goes far beyond energy production and, based on this project,the Cabildo de El Hierro has launched several measures focused on enhancing residents’ mobility with electric cars, encouraging farms and wine cellars owners to install solar panels in their exploitations; and has intensified education and awareness raising measures. Moreover, Gorona del Viento, approved recently a social responsibility plan which establishes, among other, that a percentage of the benefits of the plant will be destined to the improvement of the energy efficiency in disadvantaged homes.

2. Context analysis

On this issue, what happened in El Hierro and in Samsø is quite different, too, with the exception regarding the analysis of the existing norms, rules and financial constraints and opportunities that may facilitate or hinder the action, implemented in both cases (among others, in Samsø the original project won a Danish government competition to become a model of renewable energy community obtaining funding, albeit limited, from the regional and national level; in El Hierro, after the visit of the President of the Government of Spain in 2006, 5 million Euros for a first phase of the project were allocated and many other public funds were received later).

In the case of Samsø, previous similar experiences identifying obstacles that have already showed up as well as resources and opportunities, were not taken into account for the simple reason that they did not exist (however, local tradesmen in Samsø had since the 1980s gained some experience in the construction and operation of small wind turbines and this issue was valorised). Samsø is considered an “anticipatory experience” of “Island renaissance based on renewable energy production”.

That said, as far as possible, a context analysis was implemented, underlying f.i. that the islanders of Samsø are a strong ‘tribe’ filled with traditional wisdom provided with a strong sense of the significance of place considered as a decisive element that brings people closer to the place where they live (they identify); and also characterised by respect for alternative opinions and inclusiveness, especially among the businesses, but also by a certain resistance

towards change. In this perspective, Søren Hermansen, then a farmer and teacher, was hired as the island's 'energy counsellor' to manage what is commonly termed 'the social aspects' of the project: getting the island public to accept and contribute to the REI project. Moreover, the long experience with local (agricultural) cooperatives served as an organisational background for the project.

Despite this, in the case of Samsø, when the REI was initially conceived, partial attention was paid on key actors to be involved: there was a period following the start-up in 1997 when the public was not directly consulted. Things changed deeply since 1998 with a careful identification of all the actors examining their orientations toward the change to be promoted and their attitudes and willingness to cooperate in the action (as we will see below). The following "big steps" (Samsø 2.0 and Samsø 3.0) were accompanied by detailed analyses taking into account all the mentioned issues (what is more, the preparatory phase of the Samsø Energy Academy - Samsø 2.0 – lasted around 5 years).

In El Hierro, conversely, content analysis has not gone, as far as we know, beyond the existing norms, rules and financial constraints and opportunities for a long time and only very recently has started to give attention to the societal actors present on the island and their attitudes.

3. Detailed plan

Many plans, more or less detailed, were prepared, since the beginning during the history of the projects on the two islands, always involving the core groups.

The case of El Hierro is described as the result of "three decades of studies, design, engineering development and a complex operation in a location affected by its twofold insularity". However, it was essentially technical-engineering plans that considered eco-environmental and partly, social aspects in addition to financial and legal aspects. This process involved the Cabildo Insular de El Hierro, other public authorities, such as the Canary Island government, the Gorona del Viento hydro-wind power station (since its establishment in 2004) and the Canarian (Spanish) private energy sector and some universities and the technological sector (in the Canarian islands and elsewhere). The citizens' involvement though was limited in facilitating information and dissemination among the population.

Conversely, in the case of Samsø, people were deeply involved in planning during the years. First of all, we have to remember that the project originated from the initiative of Søren Hermansen and two other citizens before being supported by the municipality shortly afterwards. Beyond the core group, however, islands inhabitants were not involved in the planning. Technical calculations, plans and preparations were made, but no practical activities were making the REI project visible to the island public. People were getting discouraged and some perhaps started to fear that things were happening behind their backs. This was the result of a report prepared by geography students from the University of Copenhagen which showed that the public knowledge, accept and participation in the REI project were low in 1998.

As stated in the previous paragraphs, things changed after 1998 with a progressive involvement of various groups of citizens also in the planning process. This happened in the more general context of "agency mobilisation" which we will describe now.

4. Agency mobilisation

In Samsø, the involvement of citizens and all the societal actors in the planning process was embedded in the framework of a broader agency mobilisation.

First of all, the Renewable Energy Island Masterplan played an important role as it helped to translate national goals and guidelines into concrete local action and served as a common guiding vision on Samsø. It was well designed to serve as a credible communication and guiding tool internally on Samsø, as well as externally between the local, county and national level. This 'Masterplan' was communicated to the islanders in several meetings after the most fundamental technical details had been settled.

More important, since 1998, Hermansen's has started to mediate between different local interests and between local interests and the county/national interests. With his group, he started to integrate the REI into community life in the villages, applying processes of sensitisation and involvement in order to achieve successful meetings before, during and after which the locals committed themselves to the project. Among the tools, they used the "Café God Energi" (Café Good Energy), which had the purpose of creating an open space for "discovering our common vision for the energy project's contribution to Samsø's long term survival and the next wise steps in the short term".[15] Moreover, they carried out kitchen meetings which are private meetings held on friendly terms between the project developers and islanders.

Some of the organizations that were already in Samsø to protect nature such as Greenpeace or other groups who did not like the wind turbines, because they threatened the environment, were also invited to take part in the transition. Instead of sitting down and saying that they did not like it, they agreed to the development and became co-responsible.

Over the years, the people on the island discuss and debate more as a family than as opponents and have maintained an open process that does not hide its discussions, but openly air disagreements. Today, more or less all stakeholders are in agreement concerning the general ambition while they may well disagree on how to get there.

As a result, the stakeholders have become part of the development in the continuous debate about what should be done further. The municipality, the local farmers, the islanders, but to a large degree, everyone has become part of the implementation process. Overall, the project has gone from a few enthusiasts to a movement that involves all actors on the island,

[15] Storing the Renewable Energy Island Samsø. PhD Dissertation by Irina Papazu. Available at: http://www.dasts.dk/wp-content/uploads/2016/04/Irina-afhandling-til-print1.pdf

individuals, businesses and people in their professions. The Samsø initiative became a big part of the survival of the island community and the people now consider it part of their life.

In El Hierro too, many other groups valorised progressively a similar agency as the one of the original core group: as already said above, beared already this agency (or were contaminated by it) technician and other people working in the Gorona del Viento hydro-wind power station and some other people of the energy sector or belonging to some universities and the technological sector or, even, in the Canary Island government. Considerable fewer citizens and social groups were involved. However, as mentioned in paragraph "core group" above, things are changing now.

Today, not only in Samsø, but, at least partially, in El Hierro too, have become "example projects" on the international level. Almost everyone is proud of the process which has caused these islands to base their energy independence on renewable energies.

5. Negotiation process

The case of Samsø is deeply characterized by a continuous negotiation process among the concerned actors. Multiple examples can be made in this regard.

I - Hermansen became "leader" of the REI Samsø project as a result of a negotiation process among all the promoters of the REI project: the three citizens who initiated the REI project – him among them –, the municipality who supported the idea, the Samsø Energy Company established to facilitate the implementation of the REI project, the Samsø Energy and Environment Office and the energy utility company ARKE. Some of these actors were interested in the mere technical implementation of the project, while the islanders wanted to define and plan the project themselves. The result of this negotiation in 1997 has been hiring (a) an external engineer, who moved to Samsø and took care of the technical dimensions; and (b) in Hermansen, local farmer and teacher, being hired as the island's "Energy counsellor" for managing "the social aspects" of the project. Step by step, Hermansen became the real leader of the project and today he is the director of the Samsø Energy Academy which, in 2007, took over the "legacy" of the REI project. This negotiation process was characterized by the following dimensions.

- Institutional: Hermansen hired first (1997) as "Energy counsellor" (social aspects) of the REI project and later (2007) appointed as director of the Samsø Energy Academy.
- Operational: Between 1997 and 2007, Hermansen became the chief of the REI project thanks to the continuous involvement of the Samsø activists in the project and an increasingly intense dialogue among them.
- Symbolic: Hermansen became the real leader of the REI project as the symbol that the REI project belongs to the islanders of Samsø (local ownership) also because they see themselves as a strong "tribe" bearing a traditional wisdom based on a strong sense of the significance of their place.

II - The establishment of the "Café Good Energy", as well as the launch of the "Kitchen meetings", entailing a radical change in the approach. Prior, the public had not been directly involved, but due to these actions, the islanders were finally invited into the process and asked to participate and co-develop the project. This process was characterized by the following dimensions.

- Operational: As stated, at the beginning, the public was not directly involved and in 1998 Hermansen and his group started to integrate the REI into the community life in the villages as described above.
- Institutional: Hermansen played his role as a mediator between different local interests and between local interests and the county/national interests, thanks to his institutional role as the "Energy counsellor" for the social aspects of the REI project.
- Interpretative: This served as a common guiding vision on Samsø REI project, making the successful combination and adaptation of various contextual conditions possible.
- Symbolic: In that sense, the Samsø community energy project was more than just an externally induced local ownership and participation linked to renewable energy. It has been the symbol of the reinvention of the island allowing the islanders to overcome the state of crisis which Samsø experienced in the final years of the nineties.

III - At the end of the REI project, thanks to a negotiation process among all the local actors involved in any capacity, the Samsø Energy Academy was created. Its design started in 2002 through a working group for the creation of an energy centre for collecting, storing and disseminating the experiences in the REI project and finally the Academy was opened in 2007. This process was characterized by the following dimensions.

- Interpretative: The whole process was devoted to the creation of an energy centre for collecting, analysing, storing and disseminating the experiences and now the Academy is dedicated to hosting researchers and students studying renewable energies, with the organization of conferences, and meetings between research and business
- Institutional: The path from the working group to the Samsø Energy Academy that is a formal institution with its statutes and articles of incorporation, its rules and roles, etc.
- Operational: The process has been successful in turning the good will and declarations in the working group in 2002 into decisions followed by actual actions in a reasonable time (5 years for the whole process).
- Symbolic: The Academy has become the symbol for the success of the REI project in Samsø. The Samsø Energy Academy receives some 5,000 visitors annually, including school children, students, business actors, politicians, ambassadors and members of royal families. In addition to that, the Energy Academy is regularly invited to international conferences and workshops and takes an active part in the political debate surrounding renewable energy in Denmark.

An example of negotiation at work: the case of the smiths (plumbers)

"Hermansen was met by a lot of downturned thumbs at the first public meetings about the project. The smiths, for instance, reacted with scepticism toward the news that the REI project developers were planning to replace the old oil-fired burners in the islanders' homes, which the smiths used to service, with individual RE technologies or district heating pipes. How would they continue their business under these new circumstances? Hermansen initially did not have an answer prepared, feeding the islanders' scepticism: the green project was irresponsible gambling with people's money, a romantic idea they could not support. Hermansen had to reconsider his tactics.
Before the next public meeting, he called up the smith(s) and talked to him (them) about the possibilities inherent in the project. Hermansen together with the engineer had prepared some calculations enabling him to tell the smiths about all the new heat exchangers and pipes he would get to install. And they would be offered further training so he could service the RE technologies as well. The smiths did their own calculations and accepted. They were in, and they promised to show their support at the next meeting. Hermansen then asked the
spokesman for the smiths to point out other actors central to making the district heating projects work. 'We need a few farmers to deliver the straw for the burning. The chairman of the civic organisation and the nature conservancy association need to get on board, and the principal of the continuation school and some other workmen'. Hermansen called them all up and asked them to join the next meeting and the working group that was forming. At the meeting, the engineer presented the numbers and calculations and skilfully answered the incoming questions. Then the strategy was put to the test: would people show their support and sign up for the project work? After a long wait, the smith finally raised his hand: "I think what we need to do now is start working on the district heating project. We can't rely on oil forever". The locals started joining in. In this way the project developers learned that there had to be a business case, that each project needed to be endowed with a 'what's in it for me' or a 'what's in it for the community' logic. The green ideas were not automatically accepted by the workers and farmers on Samsø".[16]

Fewer examples can be found in the case of El Hierro. Negotiation processes happened in all likelihood among the politicians, administrators and technicians of the various entities mentioned so far but have not touched society as a whole. Many residents of the island, at the beginning and during the years, were quite sceptical, claiming that El Hierro had needs that should have been covered before building Gorona del Viento such as several public services like telephone lines, Internet access and mobile connections. Water or resource management was limited and some thought they should have been solved first. They were pessimistic concerning the success of the project and about potential low performance of the plant. Moreover, they were concerned about the lack of a direct impact on their economies especially because they are not able to perceive the benefits of the investment in terms of reduction of the energy bill. Almost nothing has been done to give weight to these points of view.

[16] Storying the Renewable Energy Island Samsø. Cit.

6. Self-reflexivity

The Samsø case, based on the information above, was characterized by a continuous and deep negotiation process through the years. Negative reactions did not entail important changes but modified, to an important extent the core group's identity and its approach. After the initial criticism for example, the process became more "socially embedded" after 1998 and new tools were launched the such as "Café Good Energy" and "Kitchen meetings". Moreover, this process enlarged this identity. As described above, the Samsø project has gone from a few enthusiasts to a movement that involves all actors on the island, individuals, businesses and people in their professions and, in all probability, this represented a condition sine quae non for the transition first towards Samsø 2.0 (the Samsø energy academy) and, recently, Samsø 3.0 (the launch of the the circular bio-economy). One can assume that without negotiation and self-reflexivity we would have had at most a successful project about a major upgrade of renewable energies, but nothing more. Self-evaluation has been one fundamental element for generating a self-creativity and a continuously developing project on Samsø.

Nothing of the kind appears to be true, based on the information collected, in the case of El Hierro (beyond what it can generate – and certainly will have generated – the fruitful interaction between various administrators and technicians with specific points of view, in an initiative however successful).

7. Which "level" of structural change?

Irreversibility. On both islands, transformation in the production and management of energy are now so well established that they can be considered irreversible, if only for the considerable investments that have been made. On Samsø, the results have been consolidated for more than 20 years and have also generated many changes in energy consumption such as the diffusion of electric cars or the use of straw burned in a central heating for heating the homes. On El Hierro the project has started more recently. However, here as well positive indicators can be found including energy consumption. The electric demand, for example, fell by 4.11% in the third quarter of 2018, even with an important increase of tourists in that period. The pride almost everybody takes in the implemented project and into being internationally recognized and visited from almost elsewhere, should consolidate this irreversibility.

Comprehensiveness. A comprehensive modification of the local life, affecting for example cultural and cognitive attitudes of citizens and local leaders, daily behaviours and practices, communication patterns and, obviously, procedures, rules, standards, etc. is to be demonstrated in the case of El Hierro. Few changes, of course, happened as we just said, but the implemented qualitative study in the SMARTEES project has shown that the population of El Hierro does not have direct evidence of the impacts the project has on their lives. Present activities concerning mobility, housing, and agriculture production energy consumption patterns, as mentioned above, should make the El Hierro case more comprehensive.

In Samsø, the citizens have become more and more part of the initiative, and the difference between the citizens, businesses and experts are more and more blurred as the Samsø initiative has become a big part of the survival strategy of the island community. People have become naturally involved and are actively involved in the Samsø initiative as part of their lives, either by family, business, and professional life or indirectly by people visiting the island to study the Samsø initiative.
Both cases, in contrast to the ones of the previous cluster, concern energy production, management and at least partially consumption. This issue should have facilitated the level of "comprehensiveness".

Inclusiveness. For many years now, change on Samsø has involved almost all the relevant players and stakeholders within the involved territory and system including the leaderships, the citizens and the evolution of the energy system and can be considered a collective effort. In contrast, on El Hierro this has not happened and it is beginning to take place, perhaps, only now.

Contextualisation. Both cases are well contextualized, thanks to context analysis that, independently from the weight of social actors and their attitudes and orientations inside, consider deeply existing norms, rules and financial constraints and opportunities that may facilitate or hinder the action. Moreover, on Samsø, specific cultural and social features were considered such as the fact that the islanders of Samsø see themselves as a strong 'tribe' filled with traditional wisdom which provides them with a strong sense of the significance of place. Other aspects were the broad network of cooperating associations and previous little experience on wind power. Some adopted tools, such as the "Café Good Energy" or the "Kitchen meetings" were culturally rooted. In El Hierro the "uniqueness" of the geographical/political position of this island as a "piece of Europe in Africa" has been well valorised, first of at the normative and financial opportunities levels. Nevertheless, both experiences are considered to be highly replicable and therefore frequently visited and studied for inspiring future experiences on other islands aiming at reaching an energy autonomy through an intensive use of renewable energy.

Applying the same indicators already proposed for the Cluster 1 cases, also for the cases of this Cluster, results should be:

- Samsø: Scope Large, Change: 4 (giving 1 to all the 4 criteria);
- El Hierro: Scope Large, Change 2 (giving 1 to the criteria "irreversibility" and "contextualization"; and 0 to the criteria "comprehensiveness" and "inclusiveness").

As a matter of fact, it can be concluded that the change that has taken place is actually structural in Samsø, all above four categories considered. The same cannot be concluded for El Hierro with two categories positive; two categories less or almost nothing.

CHAPTER FIVE
Structural change model applied to Cluster 3

Cluster 3 "Energy efficiency in district regeneration" refers to the cases of Augustenborg (Ekostaden Augustenborg/Malmö) and Järva (Stockholm). These two cases have many similarities, referring both to the regeneration process of two districts built between the '60s and the '70s in the Swedish "million homes program".[17] In the following decades, as a consequence of de-industrialisation processes and of the welfare state crisis, both districts were affected by high rates of unemployment and criminality. Finally, both cases developed measures for renewable energy production, although the "core" of the actions started from the low energy efficiency of buildings, and by an urgent need of building renovation and, therefore, was centred on the refurbishment of the buildings to increase their energy efficiency through insulation of walls and roofs. A wide array of interventions was also developed to foster sustainable mobility.

1. Core group

In both cases the district renovation was promoted by the city administration jointly with the local public housing company:

- The City of Malmö and Malmö Kommunala Bostadsbolag (MKB, i.e. the Malmö Municipal Housing Company) in the case of Augustenborg
- The City of Stockholm and the housing company "Svenska Bostäder" in the case of Järva.

Core groups are in the frame of the above mentioned entities.

In both cases, some people remained engaged for a long time in the core group, such as Trevor Graham in Augustenborg and Lisa Ernasson in Järva. Here as well, the core groups constituted of very motivated technicians with a strong agency that brought them to go beyond their simple work, understanding, beyond the urban planning dimension, the related societal issues. This is witnessed by many issues.

[17] Onethirdof the homes in Sweden werebuilt as part of the Million Homes Programme in the 1960s and '70s. The Million Homes program was a national initiative from the 1960's to provide Swedish citizenswithimprovedhousingconditions. Under the socialist (government, marked by the riseof the Swedish welfarestate, 1,000,000 homesofvarioustypeswereconstructed in approximately ten yearsduring the 1960's, adding over 600,000 homes to the national housing stock. Morethan 200 million Europeans live in similarproperties. Manyofthesebuildingsare now shabby and in needof renovation, and theirenergyconsumptionneeds to be at leasthalved to meettoday'sdemands.

First of all, the municipalities mobilised themselves integrating the work of many departments/offices (in the City of Stockholm the Building and city planning department most central, as well as the Traffic office; in the City of Malmö, the Fosie district, the water department and the Service Department).

Secondly, the "history" of both projects was characterized by their enlargement, initially focussed on housing and considering, later, many other issues, having adopted a sustainability paradigm, in its broad sense. The aim of both initiatives was to create a more socially, economically, and environmentally sustainable neighbourhoods. More specifically:

- In Augustenborg, beyond the refurbishment of the buildings to increase their energy efficiency through insulation of walls and roofs, measures addressing urban flooding were combined with those aiming at reduction of CO_2 emissions, and at improved waste management, combined with initiatives aiming at improvement energy production, electric public transport, car pooling and recycling
- In Järva, beyond the refurbishment of the buildings to increase their energy efficiency through insulation of walls and roofs, measures improving energy production from renewable sources were combined with a series of activities to support and prioritise cycling in the area, ranging from the infrastructural interventions, and related to education, training, culture (e.g., preservation of cultural historical values) and sport.

Thirdly, the most important issue, in this regard, was a deep change in the governance configuration, characterized by a switch from a governance system based only on formal partnership between different institutional stakeholders (e.g., the municipality and the public local housing company), to a model of extended and informal partnership involving a wider set of actors like universities, schools, citizens groups, individuals and local businesses. In both cases, the extension of the governance system to such actors was a long lasting and progressive process. Interestingly, the informal character of this partnership was stressed both in Augustenborg and in Järva. Notwithstanding that, those actors were an important part of the governance of the projects and of their success.

2. Context analysis

The new governance configuration was possible only through an extensive and direct involvement of the residents in the decision making process. In fact, in both cases, the intervention was to be discussed in advance with residents, giving them the possibility to express their suggestions and observation so to have the possibility to adjust and modify the plan. In certain cases, some aspects of the plan were co-designed by residents. In Augustenborg, this approach was developed since the beginning, while in Järva a complex system of consultation and cooperation with the residents was developed under the name of "Järva dialogue", after a period of serious confrontation between residents and authorities

Going more into detail, one of the main objectives of Ekostaden Augustenborg was to enable residents to play a significant role in the planning and implementation of the initiative. The

Augustenborg project incorporated extensive public consultation. This included regular meetings, community workshops, and informal gatherings at sports and cultural events. The approach became increasingly open and consultative. Approximately one fifth of the tenants in the area have participated in dialogue meetings about the project, and some have become very active in the development of the area. About two months were spent on contacting the various associations in the area to organize them and ask for their input prior to the project.

The greatest challenge in involving the public was maintaining continuity, which involved keeping a steady focus on the environmental awareness of the residents and informing the newcomers to the area about what had been done. It has been considered that in order for people to become involved people, they need to have more control over the project outcomes, and the authorities therefore have to accept that things do not always happen exactly as they were planned.

Beyond these consultations, which undoubtedly dug deep into the content, considering also attitudes and willingness to cooperate of the various actors, studies were also promoted directly by the residents (e.g., a local survey which indicated a difficult traffic situation in the area, eventually resulting in a better overview of the traffic situation).

The "Järvadialogen's" concept was developed after an initial crisis (see in the next subparagraph). "Järvadialogen" came about through individuals trying to turn their negative energy into positive energy. Furthermore, people in central positions such as in the city planning units, have later also pushed the process forward. "Järvadialogen" is an expanded consultation process where residents gather per houses to address shortcomings that need to be addressed and then an agreement on the housing standard to be built is reached. The concept involves three dialogue steps: (i) Collecting residents` views and suggestions; (ii) Present the collected views; (iii) Present what has been built based on these suggestions and views and what is being planned for the future.

Before each renovation, every household was invited to meet the architects and building mangers to ensure that there is a collaborative agreement on the changes to come. This concept gives the residents an opportunity to comment on and participate in decisions about the renovation, to help improve the well-being of the selected houses and inspire a sustainable lifestyle. A process chart was made with the tenant association, with formal plans, meeting documents, etc. The Housing Company started the "Järva Dialog" by inviting the inhabitants to open meetings. 10,000 participated and gathered 30,000 opinions about what was considered positive and negative in the area.

In both cases of this cluster, residents were treated as experts and bearers of specific and territorially grounded knowledge. This knowledge was further developed during the implementation of the two projects (e.g., with study groups involving citizens on issues related to the project), and was used for the development of the projects. In Järva, it turned out that there was an incredible amount of highly competent people, with experiences from other countries that engaged themselves in the project.

3. Detailed plan

In both cases, planning exercises (along the implementation of the whole project in Augustenborg; after an initial "top-down" phase in Järva) were highly participated by all the involved actors. Even, as already said, the residents in the area were considered as the experts and thus allowing in certain cases a direct involvement of citizens in the design of some actions, or in the development of new sustainability oriented project.

Residents and people working in Augustenborg were involved in the design of the outdoor environment. A special needs advisor and local access and mobility group worked with the design team throughout the project. Constant communication and in-depth community involvement enabled the project to accommodate residents' concerns and preferences (e.g., regarding the design of the storm-water system). Consequently, the project encountered little opposition. Giving another example, Augustenborg school pupils were involved in a number of local developments, with the planning of a new community/school garden, rainwater collection pond/ice rink, a musical playground and sustainable building projects incorporating green roofs and solar energy panels. About two months were spent on contacting the various associations in the area to organize them and ask for their input prior to the project.

In Järva, initially, major plans for renovation and building plans were presented to the residents without establishing the plans and ambitions with them in advance. The tenants received letters from the town that simply stated that they had to move in order for the upgrading to happen. These letters provoked strong reactions from the residents of the area. The top-down and distant way of communicating, the dramatic consequence of people losing their home and perhaps an area with affordable housing prices created the situation known as "The egg and tomato war" – as the residents threw eggs and tomatoes at official representatives. This initial approach considerably harmed the trust and relationship with the residents.

It was thought that the protests were only about a singular case – namely these to-be-renovated apartments. But eventually, because of the demonstrations, the developers realised that there was a much broader and more heterogeneous picture to consider. The local authority eventually understood that all of these provoked residents were very committed individuals and groups who could be engaged participants if they could change the direction of the energy that was displayed. The local authority succeeded in re-directing this energy toward the project which was later named Järvadialogen (Järva Dialog – see above), which thus focused on dialogue and on engaging representatives from all groups and segments in a democratic process. Women's networks were also established as it became clear that the women's voice had not been clear enough.

New suggestions were gathered and voted on. 30,000 suggestions and points of view were gathered, only 20% of which were about residences. The main emphasis turned out to be concerning schools, outside areas, traffic, and other conditions.

4. Agency mobilisation

Also in this cluster, the fact sheets attached to deliverable D3.1 for Augustenborg and Järva include a paragraph on the "stakeholder analysis", showing in detail how there have been other individuals and groups focused on promoting and implementing actions functional to the energy transition who were inspired by the core groups in the districts and respective cities.

First, a set of other actors joined the project early during its implementation as promoters of other related small projects, side events and initiatives, or taking the lead of parts of the project.

- In the City of Stockholm, the Royal Institute of Science and Technology (KTH), various city management offices, the State Museum and Stockholm water and waste management (Stockholm Vatten),the Swedish Union of Tenants, business associations, the police and – last but not least – local residents (including migrants, in particular non-Swedish women).
- In the City of Malmö, the University of Malmö, the Swedish energy company Sydkraft, other private companies, local business, school managers, and the residents (as a whole, but also specific groups such as the school parents or school pupils or larger groups, such as the older residents and the newcomers).

In this sense, it can be stressed how the group of promoters was extended during the development of the social innovation.

Moreover, tools described in the two previous subparagraphs were useful for an increasing agency mobilisation among the involved actors and, in particular, the inhabitants (migrants included) of the two districts and their groups.

Agency mobilisation was facilitated by the following strategies adopted in both projects.

a) Cultural sensitivity. Both districts are characterised by a high proportion of immigrants. One of the strategies carried out in both social innovation cases was the adoption of cultural sensitivity in promoting and communicating the project. This was done through translating the published materials to the different languages spoken in the neighbourhoods (Augustenborg); using translators (Augustenborg); leveraging on a cultural mediator (the residence host in Järva); taking into account different groups' perspectives, especially the one of immigrant women (Järva).
b) Transparency. Another strategy adopted was the transparency in communication and in the implementation of the interventions. The preliminary presentation of all the aspects to be implemented was a central part of this action. In certain cases (as for the roof photovoltaic installations in Järva) residents were allowed to visit the site under construction at any time. This allowed increasing the trust in the project and in institutional representatives.
c) Two-way communication. The most important strategy carried out for gaining social support was a continuous and two-way communication within the project. This

communication was realised in many different ways, privileging direct contacts and face-to-face interactions. A prominent role was played by the direct interaction and discussion between technical staff and citizens.

In Augustenborg, dialogue with the residents creates a good breeding ground for local community groups. Regular meetings, community workshops, and informal gathering at sports and cultural events were employed to gain input and support. Participation was considered crucial at any level (e.g., in order to have sustainable city development the children need to understand how everything is connected, for instance by planting trees).

In Järva, established study groups, and cleaning and maintenance courses can be highlighted as a further tool for agency mobilisation. Around 150 local organisations were invited, which eventually started study groups in the organisations. Among others, an ecologist was invited to talk about the nature reserve, and a lot of similar talks made this a diverse offer.

Finally periodical events, such as the "Ekostaden day" in Augustenborg and the "Climate week" in Järva became important symbolic acts that resulted in more engagement, and further social energy for the project.

5. Negotiation process

The case of Augustenborg and Järva are both characterized by a continuous and deep negotiation process among the concerned actors. Some examples selected from a longer list are reported below.

I - Järva/Stockholm: It was decided to radically change the previously adopted approach with the development of a dialog concept between the promoters and people. The old strategy had faced major protests and considerably harmed the trust of and relationship with the residents due to the fact that major renovation and building plans were presented to the residents without discussing with them in advance. As stated, a dialogue concept was developed and implemented by inviting the inhabitants to open meetings. This negotiation process was characterized by the following dimensions.

- Operational: The process was initiated to develop a design then followed up by actions (the "Järva Dialog" with 10,000 participants in a short timeframe of only a few months).
- Interpretative: The "Järva Dialog" can also be considered as a negotiation process aimed at reaching a common vision of "Sustainable Järva" and on the possible actions to be implemented.
- Institutional: The dialog concept established some specific rules adopted in the "Järva Dialog" (i.e., three dialogue steps: (i) collecting the residents' views and suggestions; (ii) presenting the collected views; and (iii) presenting what has been implemented based on these suggestions and views and what is being planned for the future).

II - Järva/Stockholm: Later, during the implementation of the project, Järvadialogen has eventually become formalised. Here, the institutional dimension of this negotiation process was strengthened.

III - Augustenborg/Malmö: An Ekostaden day was established in Augustenborg/Malmö in order to highlight the issues of sustainable development in a positive way, to raise awareness, to serve as a good forum to interact among all the concerned actors (promoters, citizens, local companies and groups) and to share their views. This aimed at enabling them to play a significant role in the planning and implementation of the initiative. The following dimensions characterized this process.

- Interpretative: The Ekostaden day was established in order to highlight the issues of sustainable development and to raise a common understanding and awareness of all involved actors.
- Symbolic: The establishment of a commemorative day should also have a certain symbolic value, strengthening the consensus from local actors.
- Institutional: The establishment of a commemorative day as a normative act, in the frame of the process aimed to enable residents to play a significant role in the planning and implementation of the initiative.
- Operational: The process has been functional to turn the good will of the promoters, which resulted in a shared vision on sustainability and awareness increase, into specific actions characterizing the Ekostaden day.

IV - In roughly the same way a “Climate week” was established in Järva.

V - Augustenborg/Malmö: The planning process as described above. We can add that a crucial role was played for the involvement of citizens in the project by “high standing people” like professors and other representatives of the project who worked as mediators and facilitators with citizens. At least two dimensions of negotiation (interpretative and operational) are quite evident here.

6. Self-reflexivity

In the case of Järva the initial negative strong reactions (as described in §2) entailed a radical change of the initial approach. This is a clear indication of self-reflexivity

In the case of Augustenborg, as well as in the case of Järva later reactions were “constructive” but influenced deeply the implementation of both projects, changing the “how” of some actions and enlarging their scope and the identity of the projects. There by also the identity of both core groups was changed who extended their view of the projects, reconsidering the aims and the expected activities.

7. Which "level" of structural change?

Irreversibility. In both cities, a transformation of many aspects of energy production and management appear to be achieved. New consumption and mobility patterns are deeply rooted for many years now, so they can be considered irreversible. The same cannot be said for energy consumption despite many important improvements: e.g. in Augustenborg, the heat and hot water consumption has decreased by 25%; in Järva, among the multi-family houses, ten of the units have annual heat savings of more than 35 kWh per square meter, and the best aggregates have heat savings of about 42 kWh per square meter. These results have not been challenged yet by changes in leadership.

Comprehensiveness. On the basis of the available information there is no proof of a comprehensive modification of the local life, affecting attitudes, daily behaviours and practices of citizens. This is despite both district regeneration projects affected many issues of local life (mobility, energy management at home, education, sport, culture, management of natural hazards, availability of public spaces, etc.). On the one hand, many important results that could be interpreted in this direction were achieved (e.g., in both cases: improved air quality and perception of safety; new leisure spaces; new green areas; new services; new places for socialisation; moreover, in Augustenborg, the decrease of unemployment and the increase of political participation; and in Järva the increased participation of women in public debates). On the other hand, the high criminality rate of the two neighbourhoods, recently blossoming up again in the general changing climate of Swedish society is an issue to be considered.

Inclusiveness. An highly participatory procedure has been consolidated, reaching an high level of sharing among the residents involved. Voices that were previously mute have now been enabled to appear and matters of inter-citizen relations improved as well as gender balance. Järvadialogen in Järva and equivalent tools in Augestenborg established an entirely new way for city and citizens to communicate. This is especially pushing the development in this area. In Järva, inclusiveness was further enhanced by procedures such as giving a vote for what upgrade measures were going to be carried out, which was eventually collected anonymously in order to promote the women's or/and ethnic minorities voices. This was shown to be very effective. Giving another example, a calendar which is not limited to Swedish holidays, but which also includes the entire spectrum of holidays important for residents with a different social background, was adopted to facilitate the inclusion of migrants in the project.

Contextualisation. Both cases are well contextualized, thanks to context analyses that consider deeply the history of each district (including the "degeneration" phenomena prior to the start-up and other problematic issues, such as floods in Augustenborg), existing norms, rules and financial constraints and opportunities (also at the societal actors level; since the start in Augustenborg; after "the egg and tomato war" in Järva). Therefore, despite the fact that both the context (e.g., the historical link with the "Million Homes program") and the large lines of intervention between Augustenborg and Järva have many similarities, so that many other districts in Sweden were inspired by what they did (e.g., in Malmö, the Sustainable Hilda in the Rosenberg district; and in Stockholm the Skærholmen), their mix is

quite unique. This is demonstrated, among other things, by some differences between the actions implemented (e.g. attention to natural hazards in Augustenborg; greater attention to education in Järva).

Applying the same indicators already proposed for previous cluster cases, the following scores are proposed:

- Augustenborg: Scope Large, Change: 3 (giving 1 to the criteria “inclusiveness” and “contextualization”; and 0.5 to the criteria “irreversibility” and “comprehensiveness”)
- Järva: Scope Large, Change 3(giving 1 to the criteria “inclusiveness” and “contextualization”; and 0.5 to the criteria “irreversibility” and “comprehensiveness”).

As a matter of fact, we conclude that the change that has taken place in both areas is almost structural, but some doubt remains as there are some reservations on the criterion “comprehensiveness” and, to a small extent, even on that of “irreversibility”.

CHAPTER SIX
Structural change model applied to Cluster 4

Cluster 4 "Urban mobility with Superblocks" refers to the cases of Vitoria-Gasteiz and Barcelona centred on "superblocks", i.e. on the creation of public spaces, thanks to a re-organisation of inner-city mobility. As in Cluster 1, there is very little interest for the main other sectors of energy consumption (e.g., housing, industry, etc.) or on energy production. Both cases originated in the last decade of the last century, and are still on-going.

1. Core group

Both projects had the respective local authorities among their main promoters, and in both cases the "Agencia de Ecologia Urbana de Barcelona (AEU)" was involved, a public consortium consisting of the City Council of Barcelona, the Municipal Council and Metropolitan Area of Barcelona and the Barcelona Provincial Council.

So in these cases, we have first of all an "originator", having a charismatic leadership for both cases, i.e. Salvador Rueda, leader of AEU. Secondly, we have an inspiring event, i.e. the United Nations Conference on Environment and Development (UNCED) celebrated in Rio de Janeiro in 1992 with its "Agenda 21" agreed at the end of that conference. On these bases, Barcelona has managed to establish a collective document named ´Citizen Commitment to Sustainability´ and Vitoria-Gasteiz has prepared a 'Specific Agenda 21' and created a public participation body, i.e. the "environmental forum". These originator and inspiring event were, themselves, a source of agency for the two core groups.

The Sustainability Mobility and Urban Space Plan/SUMP (2007) is a public initiative run by the City Council of Vitoria-Gasteiz but it has originated and been agreed upon in a deliberative process with social actors and with the commitment of all local political parties. The Plan was related to the work carried out in the "Citizens' Forum for Sustainable Mobility" with participation of both institutional and social actors. The city council created a permanent working group composed by technical staff from the various departments affecting the city's mobility coordinated by the Environmental Studies Centre (CEA), which is a local public autonomous entity whose mission is to monitor and improve sustainability in Vitoria-Gasteiz. This center can be considered as the "core group". Alfonso Alonso (mayor of Vitoria-Gasteiz in 1999-2007) was the mayor under whose leadership the Sustainability Mobility and Urban Space Plan was designed and the "Citizens' Forum for Sustainable Mobility" implemented. Mayor Patxi Lazcoz and city counsellor for mobility, Joaquín Esteban, were mentioned by several interviewees during the SMARTEES qualitative study, as politicians committed to the process. In the period 2007-2011, Esteban leaded the participatory process. Public presentations were conducted in all the neighbourhoods of the city and Esteban, together with the CEA members discussed with citizens the concrete

measures for each neighbourhood, taken into consideration citizen proposals that improved the plan. Since 2011 and up to current days, two different political parties have run the city but they maintained the plan. Since 2018, the Plan has been revised.

The Environmental department of the council of Vitoria-Gasteiz, specifically the Environmental Studies Centre (CEA), started a participatory process to deliberate and reach a city-wide agreement concerning the ambition and objectives of the plan. Thus, the "core group" cannot be viewed only as an organisational structure. Rather, it was the source of a new agency oriented to activate change processes at the local level.

The situation in Barcelona, was also characterized by some "anticipatory experiences" as the first Superblock was already established in 1993 in Ciutat Vella, prior to the conception of this project; and another one was realized in 2003 in Vila de Gràcia.

In Barcelona, for the implementation of the Urban Mobility Plan (2013) and the following "Let's fill streets with life; the establishment of the Superblock Model" plan (2016), the local government integrated and coordinated several city council departments and formed a Technical Secretariat in charge of the implementation which provided professional support. Many other institutional actors were involved like the Catalan government at a higher level, and the Metropolitan Area of Barcelona and the Metropolitan Transport Authority, and at a lower level different district administrations within Barcelona. These actors, being much more heterogeneous than in Vitoria-Gasteiz, can be considered the "core group". Although less identifiable as a "group of people in charge of promoting change", they have been the source of a new agency oriented to activate change processes at the local level since the beginning, beyond the organizational structure. This happened thanks to Rueda and the AEU and the "Citizen Commitment to Sustainability".

2. Context analysis

Both cases were based on detailed analyses of the context, which started many years before their inception. These analyses are documented in:

- In both cases, the urban studies of the *Agencia de Ecologia Urbana* contributed
- In Vitoria-Gasteiz, the documents related to the local Agenda 21 (in 1998) and to the Vitoria-Gasteiz's Climate Change Prevention Strategy (approved in 2006)
- In Barcelona, the study on public health benefits of reducing atmospheric pollution in Barcelona's Metropolitan Area (2007), the Environmental Report (2013), the analysis of anticipatory experiences of superblocks (e.g., on Vila de Garcia, by UN-Habit, for recognizing it as a sustainable best practice).

Content analysis, at the city level, but also at the level of neighbourhoods interested by the Superblock programs in both cities were implemented or are implemented also presently.

Existing norms, rules and financial constraints and opportunities have been taken into account in these studies as well as previous similar experiences (e.g., in Barcelona the "anticipatory superblocks", but also experiments carried out since the 1980s, to provide

more areas for pedestrians, such as the urban redevelopment projects, implemented in the city's old quarter, to turn it into a pedestrian zone and the subsequent extension of that model to practically all the old centres of the towns and villages that were annexed by the city in the 19th and 20th centuries).

In the first period, broad attention was paid on key actors to be involved, examining their attitudes toward the change to be promoted and their willingness to cooperate in the actions. These actors (e.g., district organisations, non-governmental organisations and associations, several citizens´ initiatives and other third-sector entities) were involved in Barcelona in the preparation and launch of the collective document "Citizen Commitment to Sustainability" signed by more than 800 organisations in 2002 and the following "Citizen Commitment to Sustainability" for the period 2012-2022.In Vitoria-Gasteiz, a 'Citizens' Pact for Sustainable Mobility' was signed in the spring of 2007 by representatives of 54 associations, institutions and private companies, following a consultation process which started in 2006, initiated with the constitution of the Citizens' Forum for Sustainable Mobility of Vitoria-Gasteiz, integrating a group of social actors, politicians and technicians, who would work first on defining a consensual scenario regarding the sustainable mobility model and desirable public space for this city.

However, apparently, less attention is paid presently. In Vitoria Gasteiz, the season of participation seems to be over; and in Barcelona some recent Superblock related actions were accompanied by more or less strong conflicts with citizens (likely attributable to an underestimation of the attitudes and orientations of these actors), albeit in the frame of a consultative process.

Resistances in Poblenou

The pilot experience of Poblenou (neighbourhood where the commercial fabric is very scarce), which generated large contestation from residents. In Poblenou, results have been controversial. 87% of the 1,739 residents who voted in May 2017 in the consultation promoted by the Plataforma d'Afectats of the Superilla de Poblenou rejected the project. Citizens and their associations denounce the lack of security in the nocturnal hours (it becomes a desert area only frequented by young people who drink on the streets) and mobility problems, as well as a hasty and little consensual application of the pilot test. Moreover, the project has caused a sharp drop in merchants' turnover. Finally, the resistance is due to the concentration of traffic, unchanged in quantity and nature by the unchanged habits of people who continue to use the car (using now the perimeter streets) and the lack of places for the sacred rite of parking. Urban planners and city technicians responsible for the project report the difficulty of adaptation of a theoretical model (designed by the biologist Salvador Rueda 30 years ago) to the reality of the territory and of the selected neighbourhoods. The technicians also reflect on their responsibility when evaluating where the economic (and other) municipal resources are allocated.[18] Moreover, the district council acted in opposition to the implementation of the superblocks, supporting those critical voices that were reluctant to the urban innovation and voted to eliminate the urban

[18] According to a Barcelona urban planner (informal conversation), "The original design of Salvador Rueda had to be adapted to the needs of the neighbourhoods, to the requests and needs of the neighbours, but also to the resources that are available. Rueda is very referenced and admired, but also "demystified": his work does not have knowledge of planning and planning that are necessary to implement the superblock plan in Barcelona".

interventions and permit road traffic to enter again in the area. This situation forced the City Council to search points of consensus in order to reduce conflict and resistance. In doing so, the Technical Secretariat of the Superblocks Programme: (i) Improved communication and public participation, for example, explaining better the changes implemented in the superblocks and the expected benefits of this intervention. Janet Sanz, City Councillor, admitted that the city council "could have improved the communication and participation" while "listening to the neighbourhood has been the main learning of this project" (El Periódico, 2016[19]). Thus, the City Council organized four different workshops with city technicians responsible for the project and politicians in order to discuss different issues related to mobility, energy in which residents could express their concerns to the local managers. (ii) Improved participatory process and create new channels of communication with citizens. The City Council has recognized that participatory process was not well delivered in Superblock Poblenou, so they tried to solve the main problems adapting the temporary intervention to a permanent objective. They did so by a participatory process through which residents and local actors were invited to formulate improvements in the design of the superblock. (iii) The city council and representatives of the neighbourhood (including both pro and against platforms) enter into a negotiation process and some changes were implemented, including permitting public transport and private cars to enter across the superblock. Also, neighbourhood associations are part of the permanent commission for the evaluation of the Superblock Poblenou and all the information about the process is published on the city council Website.

3. Detailed plan

Many detailed plans at the city level or concerning the involved neighbourhood were developed in relation to urban innovations entailed by the superblocks in both cities always with data collection and involvement of experts. Until a few years ago, planning exercises were very participative (more so in Vitoria Gasteiz, less in Barcelona).

In Barcelona, each Superblock project has been implemented with collaboration of local residents, different organisations and the city council despite difficulties (see box above). Meetings are held at different project levels, and interested citizens can participate directly in the vision creating process and decision-makings or contribute by taking specific actions. The same procedure of involving citizens in the implementation process is followed for each superblock, but the outcomes are different as each neighbourhood has its own distinctive challenges (e.g., dynamic economic activity, higher density, less educated inhabitants, etc.). Moreover, many workshops have been organised in each district.

The entire process was formalised in the following steps: 1. Definition and analysis of the area; 2. Internal work by the Technical Secretariat; 3. Technical work with the district; 4. Work with the Promotional Group; 5. Participation of specific groups; 6. Participation of local residents; 7. Approval of Action Plan; 8. Drafting projects with suitable protocol and participation according to type of initiative; 9. Implementing the initiatives.

[19] Source: https://www.elperiodico.com/es/barcelona/20161004/vecinos-lamentan-precipitacion-superamanzana-poblenou-5454245

In Poblenou, where many problems with citizens were met, the Technical Secretariat has become a facilitator of the participatory process, which presents the draft technical proposal for the superblock but encouraging the different voices of the neighbourhood to become vocal and engage in co-designing the Action Plan to be implemented in the superblock.

In Vitoria-Gasteiz, the Sustainability Mobility and Urban Space Plan involved both institutional and social actors. Since September 2008, several permanent working groups were strategically created to provide deliberative spaces with technicians and politicians on the mobility measures to be implemented (Citizen Forum on Sustainable Mobility, Mobility Technical Committee, Technical-political Mobility Committee). These groups were characterized by flexibility, encouraging people to discuss the plan and make proposals for the improvement of the measures. In this frame, many proposals were received, which were taken into consideration, making participants "feel part of the project" (e.g., on the case of citizens engaging in the designing of the new public transport system, an important number of proposals were received). These representatives were later also consulted for the preparation of sectoral plans (such as the Master Plan for Cycling Mobility 2010-2015) and for the drafting and/or adaptation of various municipal ordinances.

This process of public deliberation on the mobility plan was facilitated by a consultancy specialized on citizen participation, through participatory meetings that contributed to the definition of a first vision of the superblock plan, which was discussed and approved in the Forum. This process culminates with the already mentioned "citizen" pact for sustainable mobility", to be considered as a public act of commitment of all political groups, stakeholders, social actors and individual persons, who will subsequently also have positions of political responsibility. Moreover, a series of Public consultation about the measures of the plan in each neighbourhood through participatory meetings with neighbourhoods groups in the city were held in order to give the chance to develop new proposals and suggestions regarding the application of the SUMP.

It appears quite evident that planning process went far beyond "a desk-based piece of work" in both cases, but was involving many other actors, and generated in themselves already a process of change.

4. Agency mobilisation

The promoters, in both cases, were not the only protagonists of the projects bearing a strong agency. On the contrary, multiple sectors and levels of public administrations and collateral bodies have been implicated; and their commitment has often gone well beyond routine, which can be considered the fruit of a more or less strong agency of the persons involved. Beyond that, the pure number of groups involved since the beginning (in Vitoria-Gasteiz in the 'Citizen Pact for Sustainable Mobility'; in Barcelona in the ´Citizen Commitment to Sustainability´) is a symptom of the valorisation of agencies that are from well beyond the public sector. The same could be said for citizens and groups mobilized in the neighbourhoods becoming superblocks (sometimes even as opponents). All these actors seemed to be actually connected to be part of the Superblock program in both cities.

5. Negotiation process

Both cases are deeply characterized by a continuous negotiation process or better by a lot of negotiations among the concerned actors, as is already evident from what has been said in the previous subparagraphs. Multiple examples can be made in this regard. We only mention some of them.

I - Vitoria-Gasteiz – As written above, in the spring of 2007, the Citizens' Pact for Sustainable Mobility was signed, following a consultation process which started in 2006, initiated with the constitution of the Citizens' Forum for Sustainable Mobility. This process was characterized by the following dimensions.

- Interpretative: the pact reflected a consensual and shared scenario and shaped from that moment on the road map upon which the adopted strategy was to be coordinated for planning the transformation of the mobility system of the city.
- Institutional: the pact was signed by 54 associations, institutions and private companies and therefore represented a normative act.
- Operational: the pact was the result of a complex consultation process based on all the activities implemented by the Citizens' Forum for Sustainable Mobility (e.g., three participatory workshops held between October 2006 and January 2007).
- Symbolic: the pact had a high symbolic value, also representing a turning point (a public act of commitment of all)for the wide involvement of the local actors in the implementation – and somehow in the management – of these projects

II – Barcelona – Something somehow similar happened in relation to the "Citizen Commitment to Sustainability" signed by more than 800 organisations in 2002 and of the "Citizen Commitment to Sustainability" for the period 2012-2022. Same dimensions of this negotiation process, mutatis mutandis, can be identified.

III – Barcelona – All the solutions related to the superblocks' introduction are implemented according to the needs of inhabitants, through a negotiation process. Decision groups consisting of different stakeholder representatives were set up in each superblock, after a co-designing process. Multistakeholders decision-making processes have been formalized in several neighbourhoods (i.e., institutional dimension), constituting formal and regular working groups for the design of the ongoing superblocks. Such working groups, so-called "promotional groups", engage a district's local residents, associations and specific groups that deliberate together, analyse and define the superblock (i.e., interpretative dimension), gaining agreement between different voices and interests of the inhabitants, the economic sector, education institutions and other sectors of the population living and working in the area (i.e., operational dimension). As written in the box above, on the basis of such a negotiation process among the city council and representatives of the neighbourhood including both pro and against social platforms some changes were implemented in Poblenou, including permitting public transport and private cars to enter the superblock.

6. Self-reflexivity

Based on the information above, Barcelona and Vitoria-Gasteiz can be characterized by deep negotiation processes during the years, albeit with some flaws, e.g. increase of parking prices in Vitoria-Gasteiz. Negative reactions entailed some changes, but much more often were prevented by consultations and co-design as well as re-design processes. This seems to bear witness of a punctual or, at least, short-term self-reflexivity.

We are not able to say if the above modified the core group's identity to some extent. To this regard, it must be acknowledged that the involved people fluctuated over the years but it does not seem that the approach changed much.

- Concerning the conflicts in Poblenou, urban planners and city technicians responsible for the project report the difficulty of adaptation of a theoretical model, designed by Salvador Rueda 30 years ago, to the reality of the territory and of the selected neighbourhoods. However, what happened in Poblenou informed the approach adopted immediately later in the neighbourhood of Sant Antoni where the imbalances would have a greater impact, given that it has a greater specific weight at the commercial, mobility and affluence levels (and this is a good sign of self-reflexivity).
- In Vitoria-Gasteiz, citizen participation has weakened after a few years. The execution of the mobility plan has led to a certain fracture of the consensus and participatory methodologies, since the municipal government adopted political decisions without having first taken them to the Sustainable Mobility Forum, which did not receive a good acceptance by its members. Therefore, the Forum was casted in sterile debates that cause people to stop attending it. Recently, three citizens associations resigned as members of the forum due to their disagreements with the city council about the mobility plan. This can be observed as an instance of that the social consensus existing about the Sustainable Mobility and Public Space Plan is over and that might compromise the commitment of other actors to the plan. Compared to all this, the heirs of the initial core group seem to react very weakly. This seems to bear witness to a lack of self-reflexivity in the medium to long term.

7. Which "level" of structural change?

Irreversibility. In both cities, transformation in mobility patterns are not so deeply rooted, if only for the simple fact that, compared to the original projects, only parts of the city were affected by the Superblock program (relatively more important in Vitoria-Gasteiz, less in Barcelona). This is mainly due to financial constraints the respondents in our interviews say. In Vitoria-Gasteiz, budget cuts after the financial crisis of 2008 as well as due to the local economic crisis prevent completing the desired superblocks scheme and just two superblocks are fully completed. However, the restructuration of public transports and parking rules appears solidly rooted. In Barcelona, the Superblock project proceeds slower than planned and still involves a very limited area of Barcelona. The "Barcelona of the future", with an undetermined date, should be structured in a total of 503 superblocks of different dimensions. However, today, less than 10 were completed or are well advanced. In

both cities, Superblock programs survived leadership turnover but at the cost of a partial routinization and with considerable slowdowns. Overall, at the city level, we seem far from a situation of irreversibility, above all in Barcelona. And in both cases, this could be further aggravated by what has just been said about the poor medium and long term self-reflexivity. However, at the level of the few single superblocks were the Superblock model has been completely applied (e.g., Central and Sancho el Sabio in Vitoria-Gasteiz and at least Ciutat Vella, Vila de Gràcia and Poblenou in Barcelona) we can speak of irreversibility, at least on the urban and social (albeit only local) levels.

Comprehensiveness. Surely mobility patterns of superblock inhabitants changed as results from precise assessments at the neighbourhood level show; and social cohesion has also increased with positive effects on the quality of life. Changes in modes of transportation, but also changes in the use of public space are well documented. However, superblock areas are limited. This is primarily the case of Barcelona, while in Vitoria-Gasteiz, beyond superblock areas, mobility patterns changed also thanks to measures related to public transports, biking infrastructure improvements, and car restrictions (e.g., the increase of parking prices). The 2006-2016 Evaluation report of the Sustainable Mobility and Public Space Plan and the Cyclist Mobility Master Plan of Vitoria-Gasteiz outlined the development of a new mobility paradigm in the city that is manifested in a change in modes of transportation in everyday journeys. According to the results of this study: “The improvement of the public transport, together with the communication campaigns and, above all, the great difficulties for parking and circulating by car have triggered seated changes in conduct, both in those interviewed themselves and, in their relatives, and social environment. Decrease in car journeys, boost of the use of the bicycle and increase in pedestrian journeys”. Anyway, neither in Vitoria-Gasteiz, nor in Barcelona, a comprehensive modification of the local life, affecting attitudes, daily behaviours and practices of citizens can be stated.

Inclusiveness. The Sustainability Mobility Plan and the related Citizens’ Pact for Sustainable Mobility (in Vitoria-Gasteiz) and both Citizen Commitment to Sustainability and the establishment of the Superblock Model(in Barcelona) have involved the development of new governance strategies. These strategies were based on the participation and commitment of political actors, of different sections of the municipality, of further public administrations involved in the mobility sectors, and of citizens and citizen groups, generating coalitions between city-governors, political parties, and key stakeholders (representatives of social groups, neighbourhood associations, municipal technicians and common citizens). In these experiences, both top-down and bottom-up processes are to be activated and coordinated. Recently, however, in Barcelona these strategies seem a little creaking and seem more put into practice as a reaction to conflicts, while in Vitoria-Gasteiz participation was weakened and the whole mechanism no longer seems to work well.

Contextualisation. Both programs in Vitoria-Gasteiz and Barcelona were well contextualized at the city-level and at the neighbourhood level on the basis of specific studies, broad consultation process and often co-design with districts, citizens groups and other local stakeholders. Let us remember what was stated above on planning: “The same procedure of involving citizens in the implementation process is followed for each superblock, but the outcomes are different as each neighbourhood has its own distinctiveness, e.g., dynamic

economic activity, higher density, less educated inhabitants, etc. However, it could be that, in the long run, the uniqueness of each district has not been sufficiently taken into account. The problems at Poblenou could be derived from this deficiency to which, however, it was reacted positively, both in the same Poblenou, and with the subsequent actions in Sant Antoni.

Applying the indicators proposed for the previous cases, we propose the following assessment of the two cases:

- Vitoria-Gasteiz: Scope Narrow, Change: 2,5 (giving 1 to the criterion "contextualization"; 0,5 to the others);
- Barcelona: Scope Narrow, Change 2,5 (giving 1 to the criteria "inclusiveness" and "contextualization"; 0,5 to the criterion "comprehensiveness" and 0 to the criterion "irreversibility").

As a matter of fact, we cannot conclude that the change that has taken place in both cities can be considered structural. First, it concerns only the sector of mobility (with all the social and environmental aspects connected), while nothing can be said about the energy transition as a whole; second (at least in Barcelona), it appears still quantitatively not very significant compared the city dimension with negative consequences on the level of irreversibility and comprehensiveness; third (at least in Vitoria-Gasteiz), the governance strategy characterized by an high inclusiveness seems to have been put aside. However, at the level of some single neighbourhoods, where the Superblock program was successfully completed, a structural change may have happened.

CHAPTER SEVEN
Structural change model applied to Cluster 5

Cluster 5 "Co-ordinated, tailored and inclusive energy efficiency schemes for fighting fuel poverty" refers to the cases of Aberdeen and Timisoara. These cases are rather recently started. Both cases are centred on the reduction of energy consumption and greenhouse gas emissions through changes in the energy consumption in the housing sector. Little (or no) attention is paid on other sectors of energy consumption (e.g., mobility) or on energy production.

The Aberdeen case focuses on the development of the Aberdeen Heat Network and associated household energy efficiency schemes in the city with the aim of fighting fuel poverty. This is a 'live' case in that the SMARTEES project is taking place at the same time as the planning of a new phase of heat network development in the neighbourhood of Torry. Similar features characterize the Timisoara case.

1. Core group

In both cases, the main important actor is the Municipality:

- In Aberdeen, the Aberdeen City Council – ACC, who began a process of identifying solutions to tackle fuel poverty for tenants in electrically-heated high rise council housing blocks in the city in 1995.More recently, ACC identified the Torry neighbourhood as a key priority area for action to ameliorate fuel poverty.
- In Timisoara, the Municipality of Timișoara, who is committed to providing citizens access to secure, sustainable and affordable energy.

In Timisoara a "core group", as defined in Chapter 2, Para. 2., exists only in an embryonic state. It is composed by persons of two departments from the Timisoara City Hall (the Environmental Protection Directorate and the Social Service Department of the Local Council) with the cooperation of the West University of Timisoara. According to what emerges from the key-persons interviewed in the SMARTEES study and according to their first steps, there is certainly the intention to operationalise the work in such a way to be not only an organisational structure, rather a source of a new agency oriented to activate change processes at the local level. The aim is to create a strong partnership between the public sector, the private sector and citizens to support energy poverty projects and initiatives, bringing also together specialists from several fields: agriculture, engineering, policy makers, etc. This partnership should also create the premises for the commitment of voluntary associations and experts of various organizations (consulting companies, central heat supply system operators, entrepreneurs, real estate agencies, professional associations, universities and local public authorities, NGOs, SMEs, consulting companies, financial institutions, etc.).

In Aberdeen a core group exists and can be considered composed by representatives of the three main organisations in the implementation of this case:

- Aberdeen City Council (responsible for the development of the city's strategic approach to energy and sustainability and driving Aberdeen's low carbon transition)
- Scarf (a social enterprise aiming at delivering a range of sustainability and energy-related services to householders, businesses and communities)
- Aberdeen Heat & Power (AHP; a not-for-profit company set up by Aberdeen City Council in 2002 with the objective of alleviating fuel poverty and reducing the City's carbon footprint).

A number of key figures who were involved with the development of the heat network from the beginning continue to be part of this core group. In particular, the officer who was employed by ACC to formulate Aberdeen's strategy in fulfilment of 1995's Home Energy Conservation Act, and who introduced the idea of building a heat network in the city into the strategy document, now serves as treasurer on AHP's board. In the SMARTEES qualitative study, it was noted that she had played a critical role in the initiation and expansion of the heat network. The long-standing chief executive of AHP, who is often credited for a dedication to the company that often saw him personally dealing with problems arising in the heat network on weekends, retired recently. The new incumbent has worked for Scotland's largest energy provider, and is thought to bring a commercial dimension to the work of Aberdeen Heat and Power.

Therefore, the Aberdeen case relies on a partnership approach, bringing together key regional players from public, private and third sectors in the delivery of an integrated programme of measures which will require uptake by households on a voluntary basis. The case, as of now, entails a closer formal and informal linkage among separated policy sectors such as local energy production, household energy efficiency, fuel poverty, and housing quality, also thanks to having installed intermediary officials mediating between different council departments with their "specialisations" for many years now. Moreover, the local-level response in Aberdeen led to the development of a new model of organisation whereby the council established AHP as a not-for-profit company which remains its close partner and leads in taking forward the infrastructural development and operational aspects of the Aberdeen Heat Network.

One of the key guiding principles in Aberdeen was the idea of considering it as an "Energy Efficient and Resilient City", and the project acted as a useful catalyst for collaborative thinking and working on solutions to sustainability challenges within the city. In recognition of having adopted an innovative approach to environmental sustainability, Aberdeen was awarded a bronze sustainable development "Scottish Green Apple award" in 2014.

All this suggests that the promoters work together united by a mission towards the reduction, even the eradication, of fuel poverty, which represents the source of a new agency oriented to activate change in this direction.

2. Context analysis

Many studies on energy efficiency and on energy poverty were implemented in Romania, considering also the area of Timisoara, identifying already more or less carefully norms, rules and financial constraints and opportunities that may facilitate or hinder a project aimed at improving energy efficiency and fighting fuel poverty. Moreover, in the frame of an investigation among households, the Environmental Directorate of the Municipality has identified problems and vulnerabilities among citizens, especially residents/owners of large sized dwellings with lower income, and poor energy efficient heating systems, in buildings without thermal envelopes. All these factors are considered a prime cause for urban energy poverty/vulnerability. Also, households vary in terms of their energy needs, practices, with groups of citizens, based on factors such as age, gender, ethnic or sensitive health status, and difficult family situation (single parent, large families with children) facing particular disadvantages due to increased energy requirements, low income and other social issues. Finally, in the frame of the SMARTEES project, an initial qualitative study started the identification of potential key actors to be involved, considering their orientations and attitudes in relation to energy efficiency and fuel poverty; as well as their willingness to cooperate in such action. However, a specific more or less complete content analysis does not exist yet and should be implemented soon.

In Aberdeen, some studies concerning this topic were already implemented in connection with the Aberdeen's Sustainable Energy Action Plan on "Powering Aberdeen" (2016) and with the "Community Planning Aberdeen and Aberdeen City Council" (2017) related also to the Torry neighbourhood (Torry Draft Locality Plan 2017-27). Previous case study research on the Aberdeen Heat Network has identified intermediary action, bringing together various local government sectoral areas (housing, environment, finance, planning and transport), as well as external networks and community energy agencies, as being central to the development of this knowledge base. The selection of a specific neighbourhood (Stockethill) as the location for the first phase of heat network development was in part informed by a view that this development would offer a useful first step in developing shared learning about putting standardised procedure in place that could reduce future financial and time costs and therefore support a long-term strategy of future heat network development in the city.

These studies, among others, deal also with potential key actors to be involved, considering their orientations and attitudes in relation to energy efficiency and fuel poverty (and further information, at this regard, was collected in the frame of the SMARTEES qualitative study). Moreover, there are broader studies/analysis (e.g., at the Scottish level[20]) that include information/data on norms, rules and financial constraints and opportunities that may facilitate or hinder a project on these issues. However, also in Aberdeen, a specific more or less complete content analysis does not exist and should be implemented soon.

[20] E.g. *Energy Efficient Scotland* programme (Scottish Government, 2018a), draft *Fuel Poverty Strategy* (Scottish Government, 2018b) and current Fuel Poverty (Target, Definition and Strategy) (Scotland) Bill, and the *National Planning Framework 3* (Scottish Government, 2014).

3. Detailed plan

In 2014, the Municipality of Timisoara approved the Sustainable Energy Action Plan 2014-2020 (SEAP) for Timisoara (Planul de Acţiune pentru Energia Durabilă a Municipiului Timişoara). Its aims were mainly to: (i) Increase energy efficiency (of public buildings, buildings in the tertiary sector, private buildings, transportation – including the expansion of the network of cycling lanes, etc.); (ii) Increase the use of renewable energy; (iii) Rehabilitate public spaces and green areas in the downtown area, urban agriculture, etc.

A couple of mentioned activities could be highlighted: (i) Promoting the installation of solar panels in order to provide domestic hot water to south-facing homes/residential buildings, at a rate of 2%/year of all buildings with southern exposure in Timisoara Municipality; (ii) Promoting the installation of off-grid photovoltaic panels with power between 1 and 3 kW for electricity production, at a rate of 2.5%/year of buildings with southern exposure in Timisoara Municipality. However, from all the actions proposed in the Plan, none is specifically designed towards the topic of the fuel poverty.

Starting with October 2018, the Municipality decided to couple the already scheduled activities concerning the improvement of energy efficiency in residential buildings included in the SEAP 2014-2020 with actions fighting energy/fuel poverty/vulnerability in buildings inhabited by the citizens in need. It must be underlined that energy poverty is not mainly a problem related to the adequate physical access to clean and modern energy in Timisoara; it is rather an issue of affordability and energy efficiency. Energy poverty/vulnerability therefore describes a condition wherein households cannot get or afford an adequate level of energy services.

No specific planning process started until now in Timisoara on the expected project on energy efficiency increase and fight against fuel poverty. The intention of the promoters and of the other key actors consulted is to implement a participatory planning exercise involving all the relevant stakeholders as well as the concerned citizens. It has been underlined, during the SMARTEES qualitative study, that the project could not have any chance of success otherwise.

In Aberdeen, ACC launched its Sustainable Energy Action Plan in 2016, which sets out the city's vision for the transition to become a smart, low carbon city and the measures and activities proposed to achieve this vision. As part of the development of the Sustainable Energy Action Plan, stakeholder engagement activities and statutory consultations were carried out. A steering group consisting of external stakeholders from both the public and private sectors has been set up to guide the implementation of the Action Plan, providing input from civil society actors.

At the level of Torry, we can quote again the Torry Draft Locality Plan 2017-27, where the intention to reduce fuel poverty through the delivery of a heat network is set out amongst other objectives for public service delivery in the area. However, a detailed plan or any other planning exercise related to this specific "live case" was not implemented until now. Also here, intentions are the best: the delivery of the objectives of the Torry Locality Plan are to

be overseen by a Local Partnership, whose membership is intended to consist of at least 50% community representatives with the remainder representing local public services. Nothing more can be stated at this stage.

4. Agency mobilisation

Surely, the ACC has valorised the agency of his partners Scarf and AHP with positive effects already. This new model of institutional organisation for local-level energy provision also carried with it new opportunities to explore different ways of pricing domestic energy which could be more sensitive to the needs of the recipients. Previously, being served by electric storage heating systems, residents paid large-scale energy providers on a price-per-unit basis. Since the electric heating systems were inefficient in their conversion of electricity to heat, this resulted in many being unable to heat their homes to a comfortable standard because of the prohibitive costs. With district heating in place, AHP replaced the profit-generating energy company as the direct energy provider. In the existing domestic schemes, AHP charges ACC a connection fee for each household, and the council (as the landlord) charges households a fixed cost for their heating energy, which is reviewed annually.

This effectively means that the partnership of the not-for-profit AHP and ACC is able to provide residents with energy on a cost-rather than market-based heat tariff (Scottish Futures Trust, 2015). While this can mean more affordable heat to the consumer, it also means that households (no longer being part of the wider energy market) can no longer exercise choice over their energy provider. Furthermore, under a fixed rate tariff there is no economic incentive for householders to reduce their energy use or limit wastage. For the council, this pricing structure transferred the burden of risk of non-payment of energy bills to them. However, this is offset against improvements in revenues from their housing stock and reduced costs of heating other public buildings.

Moreover, and most importantly, a steering group consisting of external stakeholders from both the public and private sectors has been set up to guide the implementation of the Sustainable Energy Action Plan, providing input from civil society actors. This plan also sits within the wider policy landscape governing low carbon transition at the national level. Partners in this fuel poverty project have identified community engagement as a critical element in the success of the project.

In Timisoara, we can note a deep willingness towards agency mobilisation. It has been already established by the core group that this case study will benefit from many citizen-oriented actions already included in the SEAP, such as:

- Organizing information workshops and encouraging stakeholder involvement (at least once a year)
- Carrying out information and awareness raising activities among citizens regarding the benefits of projects for improving the energy efficiency of residential buildings (at least once a year)
- Organizing awareness campaigns on the advantages of centralized heating compared to other alternative heating sources

- Informative and awareness raising actions for the owners/residents living in single family households.

In this frame, the core group should involve beneficiaries from the start in project implementation, not just to use them as a means of validation, measuring different variables, such as their satisfaction after the implementation phase; but consulting them actively through seminars/information workshops to which different representatives of beneficiaries and attracting groups of influencers, even potential opponents of the solutions offered by the expected initiative, discussing with them towards shared solutions. The idea was that the social innovation should not be presented as a finished product or as a final result.

The number of participants that remained relatively high in the meetings already implemented led to conclude that local stakeholders are interested in implementing the proposed solutions.

5. Negotiation processes

Nothing can be stated at this early stage, except that negotiation processes certainly took place among the three main promoters in Aberdeen and with other actors, considering also the existence of some opponents. Indeed, initial proposals to establish district heating in some housing blocks were contested in some quarters by politicians, and by housing, finance and legal officers, largely on the basis of the cost/value for money, of the risks associated with the council having to take on liability for tenants' non-payment of fuel bills and on the basis of general concerns about risks associated with doing something new and out of the council's existing portfolio of work. Moreover, on the basis of the above, further negotiation processes are expected in a near future.

6. Self-reflexivity

Nothing can be stated at this stage (both cases started too recently).

7. Which "level" of structural change?

On the basis of the above, it is quite evident that no structural change was reached both in Timisoara and in Aberdeen. In Timisoara, the scope is Narrow; in Aberdeen probably Medium. The level of change is 0 in Timisoara (0 to all criteria); in Aberdeen the change score is set to 1, giving a score = 1 to the criterion inclusiveness and 0 to the others.

CHAPTER EIGHT
Going forward: further inputs for WP4 and WP5

This is the final deliverable of WP3 and is supposed to provide substantive inputs for the following WPs, in particular for the quantitative studies (or more focussed qualitative studies) to be implemented in the frame of WP4, and for the construction of the scenarios in WP5.

Many inputs to WP4 and WP5 were already provided in the previous WP3 deliverables. In particular, in the specific Deliverable D3.2, submitted in December 2018, titled "Report on inputs for the questionnaire and for the scenarios", but also in D3.1, submitted in April 2019, and in D3.3, submitted in May 2019. More specifically:

a) A description of the ten "SMARTEES cases" through detailed fact sheets (one for each case) provided in a first version in D3.2 and later in more comprehensive versions in D3.1
b) A profile representing the main features of social innovation for each of the five SMARTEES clusters (remembering that each cluster groups two "similar" SMARTEES cases) provided in D3.1
c) A cross-cut analysis of the five clusters (few elements in D3.2 and a more systematic analysis in D3.1)
d) Some notes on how social innovation works "in action" in the energy transition as a whole, provided in D3.3 (formalized in a policy-brief including also some policy implications)
e) Some further inputs to WP4 were provided in D3.2 on
    (i) How social change and negotiation processes are happening and could be analysed
    (ii) How the actors involved should be considered and identified in further WP4 studies
    (iii) The "human energy" approach
f) Some further inputs to WP5 were provided again in D3.2 on
    (i) The scenarios used in the case-studies
    (ii) Phenomena on citizen empowerment (and engagement) as they emerged in the case-studies
    (iii) Phenomena on social acceptability of the changes that the energy transition implies, as they emerged in the case-studies.

Moreover, in the previous chapters of this document, five models of social innovation, one for each cluster (based on a common scheme) were provided.

It would therefore be more than righteous to assume that the input provided for WP4 and WP5 of SMARTEES are already quantitatively and qualitatively relevant and we could therefore finish this deliverable here. However, two further insights seem appropriate.

I - The sketch of the five models in the previous chapters highlighted in each cluster and also for each case, some weakness with respect to the "ideal" situation of representing a case, which accomplished the energy transition at the local level. These weaknesses suggest some research questions to be explored. And given that we are moving towards a case by case “personalization” in the realization of the survey foreseen in WP4, such research questions could be useful for the SMARTEES project. At least they represent an additional input for WP4. So, the first paragraph of this chapter will provide, without any pretence of completeness, suggestions on what appear to be the main research questions still open to be eventually considered in the surveys to be implemented based on our conclusions on the application of the structural change model.

II - The inputs referred to in point f) above (for WP5) have been provided (in December 2018) based only on documented research. Much more information has been collected later. In this regard, we can specify what follows.

- On “scenarios used in the case-studies”, a specific activity on public policy for designing policy scenarios started in February 2019 and concerns all SMARTEES cases. This activity went more in depth compared to what was done in D3.2 or what could be done based on all the information collected in WP3. Please refer to this issue documented in D5.1 presently under preparation.
- “How social innovations have enhanced collective empowerment” is (see Chapter 1, § 3) the 4th of the five blocks of the interviews protocol utilised for the key-informants interviews implemented from December 2018 to April 2019 in the SMARTEES project. However, as it was specified in this paragraph (see Chapter 1, §3), these interviews are shared by WP3 and WP4 and, in the frame of WP3 “only” information coming from the first three blocks of the interviews mentioned above was exploited, while the information of the 4th and the 5th block will be exploited in the WP4; therefore this issue is out of the scope of this deliverable.
- The “social acceptability of the changes that the energy transition implies” was also deeply investigated in the qualitative research through the consultation of key-informants, mainly through the 2nd block of the protocol, then under the scope of the WP3. And all the information collected, was already included in the profiles representing the main features of social innovation of the SMARTEES clusters under the rubric “strategies for gaining social support”. For convenience, the part of this information (corresponding to almost totality) functional to investigate the phenomenon of social acceptability is reported, for the five SMARTEES clusters, hereafter,in the second paragraph of this chapter.

1. Research questions provided for WP4

Zürich

As stated, the change that has taken place in this city seems actually structural, but it concerns only the sector of mobility (with all the social and environmental aspects connected). It has been also highlighted that, if on the one hand the mobility strategy is still weakly integrated in the broader energy policy, on the other hand some efforts are addressing this issue with a potential re-configuration of the governance system, entailing, *inter alia*, stronger relations with the Energy Commission of the Municipality and, more in general, a better integration of the mobility strategy in the energy policies both at the municipality and at the canton levels. This is an on-going process with non-predictable outcomes that could be better investigated.

Groningen

Mutatis mutandis, this same issue is important in Groningen. Here, the comprehensiveness of the strategy is more advanced having already positively affected relevant sustainability dimensions such as well-being, energy use and economic viability, and thanks to the adopted Energy strategy (see Chapter 3, §7). Then, the conditions for a greater integration of what is being done in terms of mobility in the wider ambition of the energy transition and the mitigation of climate change deserve to be deepened.

Samsø

Samsø appears as a case of structural change *par excellence* where change transcends the mere local dimension, being a case of worldwide inspiration. We switched from the REI project to Samsø 3.0, passing through the Samsø Energy Academy attended by people from all over the world. But one can also die of success, especially when this success is, at least symbolically, embodied in a person. The conditions for maintaining this success should therefore be investigated.

El Hierro

In El Hierro, the main critical area is the lack of "inclusiveness" that, in a certain sense, informs also the "comprehensiveness" (e.g., direct evidence about the results of the project on people life). However something is changing now in this regard towards a better consideration of social issues and an active (and not only passive) inclusion of people, beyond technicians, scientists, administrators, and politics. This is a very delicate passage whose implementation conditions (e.g., if it is really effective and how) should be further investigated.

Augustenborg

Irreversibility in Augustenborg should be strengthen through its replicability in the other districts of Malmö presenting more or less the same conditions. This is actually happening (e.g., the Sustainable Hilda in the Rosenberg district). And this would entail "return effects"

capable of rendering what came to Augustenborg more and more irreversible. At the same time, in Sweden (also on the basis of experiences, such as those of Augustenborg and Järva, among many other factors) the attention to the effects of climate change and therefore in favour of the energy transition has increased, which should tend to reinforce the "comprehensiveness" in such experiences. These trends should be carefully investigated.

Järva

Same as above (however, here, in Stockholm, the reference neighbourhoods are different, e.g., Skærholmen).

Vitoria-Gasteiz

Vitoria-Gasteiz was one of the most interesting cases on the "inclusiveness" dimension with a sort of "revolution" in the governance configuration. Nonetheless participation was weakened and the whole mechanism no longer seems to work well. The single triggers that are at the origin of this negative trend are more or less known (e.g., the financial crisis and the slowdown of the Superblock program, some top-down measures, a certain fracture of the consensus and participatory methodologies with sterile debates in the Forum) but a more in-depth discussion could be useful. Even more important would be to identify the conditions for a *mutatis mutandis* return to the positive situation of some years ago.

Barcelona

Here, the major crisis issue seems to be the little relevance of the program in terms of size, affecting then the "irreversibility of the process", carried out or on-going in less than 10 Superblocks, while 503 are planned. The relevance to the city level of the program appears to be a useful theme to be explored also to better understand how the program can be extended more quickly in the future and entail a real structural change at the city level.

Aberdeen

A detailed feasibility study (which conditions and how, also through a deepening of a context analysis) of the application of the structural change model to the Aberdeen case in Torry, with reference to the energy efficiency enhancement and to the fight against fuel poverty should be designed and implemented.

Timisoara

Here, the first problem, is the implementation of a real and complete content analysis (as described in §2.2.), including, firstly, the key actors to be involved, examining e.g. their orientations toward the change to be promoted and their attitudes and willingness to cooperate in the action, in more depth than what has been done so far.

2. Social acceptability of the changes that the energy transition implies, inputs provided to WP5

One of the issues of WP5 is "social acceptability of the changes that the energy transition implies". Therefore, in the frame of WP3, we investigated how this issue was addressed in the SMARTEES cases. As already stated some first informative inputs in this regard were provided in D3.2 and, later, in D3.1 under the rubric "strategies for gaining social support" in the cluster protocols (the "core" of D3.1). Hereinafter, this information is recapitulated.

First cluster

In **Zürich**, social acceptability of the mobility strategy by citizens has been facilitated through the adoption of the following strategies (see D3.1, §2.4.).

a) Follow the traditional forms of "direct democracy" characterizing the governance system in Switzerland, i.e. ask citizens' opinion through referenda; allow people initiatives to initiate referenda; frequent citizens consultation through Quartierkonferenzen in each of the 12 sub-areas of Zürich; and/or other local consultations on specific projects/measures (see above).
b) Proceed gradually, step by step, avoiding too fast and too big changes in a short time, avoiding almost always radical measures (such as impeding cars circulations in specific areas of the city or between the sectors of the city – as it has been done in Groningen).
c) Negotiate constantly with citizens or specific groups (e.g., the representatives of the main important business groups) on specific measures.
d) Adopt targeted policies (e.g., with contact persons for mobility consultations in large companies).
e) Give priority to "pull" measures (such as intensive improvement of public transport or the set up of bike lanes) over "push" measures, which have however been implemented, but with less emphasis (such as the increase of the parking price).

In **Groningen** (see D3.1, §2.4.), the main strategies in this regard included a direct communication with the citizens. From the beginning, after the launch of the TCP, the initiators realised the importance of going to the neighbourhoods, shopkeepers and other stakeholders to discuss the plans in terms of the liveability of the city. Hence, the overall vision was emphasised when local plans were under discussion. Different neighbourhoods were approached in different ways, depending on the culture, level of participation and cohesion of the people living there. Discussions took place on the street, either planned or spontaneous.

Later the negotiation process was expanded with a more formal referendum, either of a binding or of an advisory type. The experiences with referenda were mixed (from the specific point of view of the planners), as the outcomes were not always in line with their preferences.

The municipality has become very aware of the importance of co-creation and consultation, and depending on the type and complexity of projects, different types of citizen involvement are being used. Also, the provision of information has changed in the time, partly due to new digital formats and channels that are available nowadays. The municipality has changed its interaction from hosting meetings of interested people in the town hall, towards actively going towards the neighbourhoods and finding specific ways to include the local communities in the planning process.

Finally, social support has been maintained thanks to the experience of the city as a pleasant, friendly, clean and accessible place. The inner city has developed into a welcoming and friendly place where people like to shop, walk and visit restaurants and bars. The city centre is vivid in the sense that during day (and night time sometimes) there is a continuous flow of people walking and biking. The air is clean and the acoustic quality is high, creating a pleasant atmosphere. The older neighbourhoods that have been restored are flourishing. Most of the old and relatively small houses have been renovated, and the neighbourhoods are thriving. Due to a strict parking regime the inhabitants are capable of parking their cars in their own neighbourhood, and city visitors from abroad are increasingly using the transfer at the outskirts of the city, where large car-parks are available with cheap and fast public transport for coming in the inner city.

Second cluster

In **Samsø** (see D3.1, §3.4.), the strategy was characterized by an intensive (and progressive) mobilization of the citizens for achieving energy independence through renewable energy and the improvement of energy efficiency with a significant role played by all societal actors in the design, co-development/co-creation and implementation of the initiative. The main elements of the strategy are listed below.

a) Bottom-up approach.
b) Progressive character of the consensus building through negotiation and dialogue to overcome conflicts and resistance, also thanks to several workshops and (partly informal) meetings – including:
    - “Kitchen meetings” (private ‘meeting technology’ held on friendly terms between the project developers and islanders central to the realization of the renewable energy projects)
    - Café Good Energy (informal meetings having the purpose of creating an open space for discovering the Samsø citizens common vision for energy, Samsø’s long term survival and the related next wise steps in the short term).
c) Credible and constant communication.
d) Transparency (e.g., open minutes from the meetings and open budget documents; more generally the whole implementation process became “open access” after the initial phase).
e) Capitalization on the experience (and lessons learned) through the set-up of the Samsø Energy Academy (see above).
f) Citizen ownership of the renewable energy production and the related economic gains.

Over the years, the islanders have become used to discuss and debate more as a community than as opponents and have developed an open process that does not hide its disagreements, but "openly airs" them. Today, more or less all the stakeholders agree with the general ambition of the Samsø renewable energy initiative, but they may well disagree on how to get there.

In **El Hierro** (see D3.1, §3.4), Citizens' involvement was gained by facilitating information and targeting dissemination activities at the population. Gorona del Viento offers guided visits to residents, school children, and visitors, and informative material is also available in the local facilities. "Open doors days" are organized, inviting citizens to visit the plant and experience the dimension of the project. Nowadays, support from the islanders has increased because the plant has become a key element in job creation and economic development, and some students from El Hierro and from other islands have been employed by the Gorona plant. Moreover, Gorona del Viento strengthens tourism and therefore the local economy. The international reputation gained has become a relevant motivation for people. However, even today the scope of the project appears as not totally well understood by the population (which is only partially involved).

Third cluster

In **Augustenborg** and in **Järva** (see D3.1, §4.4.), social acceptability, was facilitated by a strong actors' involvement in decision making (see above), accompanied by a set of strategies, as follows.

a) Cultural sensitivity. Both districts are characterised by the high presence of immigrants. One of the strategies carried out in both social innovation cases was the adoption of cultural sensitivity in promoting and communicating the project. This was done through translating the published materials in the different languages spoken in the neighbourhoods (Augustenborg); using translators (Augustenborg); leveraging on cultural mediator (the residence host in Järva); taking into account different groups' perspectives, especially the one of immigrant women (Järva).
b) Transparency. Another strategy adopted was the transparency in communication and in the implementation of the interventions. The preliminary presentation of all the aspects to be implemented was a central part of this action. In certain cases (as for the roof photovoltaic installations in Järva) residents were allowed to visit the site under construction at any time. This allowed to increase the trust in the project and in institutional representatives.
c) Two-way communication. The most important strategy carried out for gaining social support was a continuous and two-way communication on the project. This communication was realised in many different ways, privileging direct contacts and face-to-face interactions. A prominent role was played by the direct interaction and discussion between technical staff and citizens.

The main strategies for facilitating the social acceptability on new measures on mobility and specifically related to the Superblocks program in **Vitoria-Gasteiz** and in **Barcelona** (see D3.1, §5.4.) are listed below.

a) The process of public deliberation on the mobility plan, both in Barcelona and Vitoria-Gasteiz:
   - In Vitoria-Gasteiz, the participatory meetings contributed to the definition of a first vision of the superblock plan, which was discussed and approved in the Forum. This process culminates with the "Citizen pact for sustainable mobility", public act of commitment of all political groups, stakeholders, social actors and individual persons, who will subsequently also have positions of political responsibility
   - In Barcelona, a process of negotiation is launched in each district to ensure that all the solutions are implemented according to the needs of inhabitants and to gain social support at the neighbourhood level, and the Action Plan should be also approved by the "Conseill de Barri" (the district political body) before being implemented. Transparency is supported by publishing the minutes of the deliberative processes and public meetings on the municipality Website.

b) Public consultation about the measures of the plan in each neighbourhood both in Barcelona and in Vitoria-Gasteiz. A series of participatory meetings with neighbourhoods' groups in the city were held to give the chance to develop new proposals and suggestions.

c) Communication strategies:
   - In Vitoria-Gasteiz, under the claim "I join. It's worth it!", a communication and behavioural change campaign was launched and then played by citizens of Vitoria-Gasteiz, of different ages and neighbourhoods, inviting the whole town to join the plan; moreover, a media campaign included advertising in newspapers, bus shelters, outdoor advertising (540 bus shelters, street modules and street-lamp banners), radio (234 20-second-spots) and Internet (340,000 banner ads)
   - In Barcelona, information and communication strategies and channels are based also on the use of ICT technologies (e.g., GIS maps) for illustrating the main changes proposed in the project at the neighbourhood level.

d) Environmental education activities:
   - In Vitoria-Gasteiz, to raise awareness on mobility and the sustainable use of transport, as the "European Car Free Day" (since 2000) or the "European Mobility Week". The city celebrates this event yearly in and around public open spaces. The idea is based on "recovering the city for the citizens", showing the City's capacity for acting and exchanging information in an environmentally-friendly atmosphere. Some of the events are celebrated using the new public areas provided by the first "Superblocks" implemented due to the Sustainable Mobility and Public Space Plan, demonstrating a different way of understanding the relationship between citizens and open spaces
   - In Barcelona, citizens comprehend, thanks to the Superblocks design and implementation, the features of each territory and the systemic interactions and

relationships between certain patterns of behaviour and their consequences – based on scientific evidence about health, quality of life, life expectancy, etc. (in this regard, some interviewed promoters talk about "doing pedagogy" when they inform and stimulate people's curiosity).

e) Bike driving courses in schools focused on increasing the young population's competences for cycling on streets and interurban roads. Concerning bikes, there was also a social influence effect when several social groups (such as politics, journalists) started to use them.

Fifth cluster

In **Aberdeen** (see D3.1, §6.4), the issue should be further investigated in the future. However stakeholders' engagement activities and statutory consultations that have been carried out will facilitate a positive social acceptability. A steering group consisting of external stakeholders from both the public and private sectors has been set up to guide the implementation of the Action Plan, providing input from civil society actors. The Action Plan also sits within the wider policy landscape governing low carbon transition at the national level. Partners in this fuel poverty project have identified community engagement as a critical element in the success of the project.

In **Timisoara** (see D3.1, §6.4), the project is expected to involve beneficiaries from the start in project implementation through seminars/information workshops, in this way attracting different representatives of beneficiaries and groups of influence, even potential opponents.

References

ZÜRICH

- Buck, M., Meier-Bukowiecki, Y., (2011). Ten Years Of The Zürich Mobility Strategy - Lessons Learned And Outlook
- Cavallasca, L. (2018). Holistic, participatory, and persistent mobility plan. SMARTEES Reference Case "Zürich". November 8th 2018
- City of Zürich (2018). Urban *Traffic Programme - "Stadtverkehr 2025"* - 2012 Report
- Garrick, N., & McCahill, C. T. (2012) Lessons from Zürich's Parking Revolution. From The Atlantic/ Citylab.
- Meier-Bukowiecki, Y. (2010), *Zürich's Mobility Strategy*, September 29th 2010
- Moglestue, A. (2005). Zürich: Top city - thanks to light rail.*Tramways & Urban Transit*. Vol. 68, No. 808
- Moglestue, A. (2005). Zürich: The Cobra rules, *Tramways & Urban Transit*. Vol. 68, No. 809
- Nash, A.B., & Sylvia, R.D. (2003). Implementing Zürich's transit priority program. Transportation Research Record: *Journal of the Transportation Research Board*, (1835), 59-65
- Ott, R. (2011). *Zürich's transport planning for quality of living*. www. stadt-zuerich. ch/mobilitaetskultur
- Ott, R. (2012). Eliminating Gridlock Through Effective Travel Demand Management and Urban Mobility Strategies
- https://www.citylab.com/transportation/2012/08/lessons-Zürichs-parking-revolution/2874/
- http://www.proaktiva.ch/tram/Zürich/Zürich05_0.html#toc
- http://www.proaktiva.ch/tram/Zürich/Zürich05_0.html#toc

GRONINGEN

- Bio-VeloCity 2017 – Groningen, the Netherlands, the cycling experience
- Flash Eurobarometer (2016). *Quality of life in European Cities 2015.* FLASH EUROBAROMETER 419. European Commission, Directorate-General for Regional and Urban Policy REGIO DG 02 – Communication. Luxembourg: Publications Office of the European Union, 2016
- Hellemeier, C., Soltaniehha M. (2010), Implementation and Results of the Traffic Circulation Plan in the City of Groningen, University of Stockholm
- How Groningen invented a cycling template for cities all over the world (The Guardian); available at: https://www.theguardian.com/cities/2015/jul/29/how-groningen-invented-a-cycling-template-for-cities-all-over-the-worldNoorderplantsoen
- The next city – Strategic plan – the next city': Groningen's quality of life first
- Tsubohara, S. - Intra-Party Democracy in Groningen Early in the 1970s − decision making process within the labour party concerning the traffic circulation plan
- Tsubohara, S. (2007) - The effect and modification of the Traffic Circulation Plan (VCP) - traffic plannign in Groningen in the 1980s – RUG
- Tsubohara, S. & Voogd, H. (2004)- Planning fundamental urban traffic changes: experiences with the Groningen traffic circulation scheme,Urban Transport X, C. A. Brebbia & L. C. Wadhwa (Editors), WIT Press, ISBN 1-85312-716-7
- URSI-FRW Postbus 800, 9700 AV Groningen December 2005. Urban and Regional Studies Institute Research Report 310Stadsmonitor Gemeente Groningen (2015). Onderzoek en Statistiek Groningen, gemeente Groningen
- We are Groningen cycling city: cycling strategy 2015-2025
- https://www.oogtv.nl/2016/02/kruispunt-wilhelminakade-aangepakt/
- https://gemeente.groningen.nl/kruising-wilhelminakade
- http://www.noorderplantsoen.nl/plantsoen/historie

SAMSØ

- Biello, D. (2010). 100 Percent Renewable? One Danish Island Experiments with Clean Power. Scientific American. http://www.scientificamerican.com/article/samso-attempts-100-percent-renewable-power
- Caiati, G. (2013). Interview to Søren Hermansen in the frame of FP7 EU project molesecure2050 (www.milesecure2050.eu)
- Jørgensen, P.J., Hermansen, S., Johnsen, A., Nielsen, S.P., Jantzen, J. and Lundén, M. (2007) - Samsø, a Renewable Energy Island: 10 Years of Development and Evaluation (10 year evaluation report). Project report, Samsø Energy Academy

- Kolbert, E. (2008).The Island in the Wind. A Danish community's victory over carbon emissions. The New Yorker.http://www.newyorker.com/magazine/2008/07/07/the-island-in-the-wind
- Löfström, Erica. (2015)Centres promoting sustainable building and living: characteristics, concepts and lessons learned.eceee Summer Study proceedings - eceee 2015 Summer Study on energy efficiency: First fuel now. Available at: https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2015/3-local-action/centers-promoting-sustainable-building-and-living-characteristics-concepts-and-lessons-learned/
- Møller, T, Schmidt, S.O. and Nielsen, J.H. (1999) Dokumentationfra seminar. In: Café GOD ENERGI, 1999. Availableat: http://energiinstituttet.dk/337/
- Papazu, I. - Storying the Renewable Energy Island Samsø. PhD Dissertation. Available at: http://www.dasts.dk/wp-content/uploads/2016/04/Irina-afhandling-til-print1.pdf
- Samsø Energy Academy; SamsøDenlark, synthesis, September 2007.Availbale at: ec.europa.eu/regional_policy/en/projects/best-practices/denmark/1392/download
- Sperling, K. (2017). How does a pioneer community energy project succeed in practice? The case of the Samsø Renewable Energy Island. Available at: http://www.sciencedirect.com/science/article/pii/S1364032116311789?np=y
- http://pioneerguide.com/
- http://arkiv.energiinstituttet.dk/307
- http://arkiv.energiinstituttet.dk/234
- https://energiakademiet.dk/en/
- http://energiakademiet.dk/vedvarende-energi-o/energikort
- http://content.time.com/time/specials/packages/article/0,28804,1841778_1841782_1841789,00.html

EL HIERRO

- BBC News - El Hierro, the Spanish island towards energy independency". Available at: https://www.sustainableislands.eu/news/videos-smilegov/elhierro-energy-revolution.html
- De la Cruz Modino, R., & Pascual-Fernández, J.J. (2013). Marine protected areas in the Canary Islands–improving their governability. In Governability of Fisheries and Aquaculture (pp. 219-240). Springer, Dordrecht
- Institute of Diversification and Energy Saving. http://www.idae.es/ .
- Latorre, F.J. G., Quintana, J.J., & de la Nuez, I. (2019). Technical and economic evaluation of the integration of a wind-hydro system in El Hierro island. Renewable Energy, 134, 186-193
- Technological Institute of the Canary Islands. http://www.itccanarias.org/web/
- World pioneer'. https://www.businessinsider.com/a-spanish-island-is-about-to-be-the-worlds-first-energy-self-sufficient-island-2014-4?IR=T
- http://www.goronadelviento.es/
- http://www.goronadelviento.es/index.php?accion=artic ulo&IdArticulo=70&IdSeccion=85
- http://www.itccanarias.org/web/
- http://www.idae.es/
- https://www.eldiario.es/ultima-llamada/El_Hierro_renovables_energia_6_541105902.html
- https://www.eldiario.es/elhierroahora/isla/Gorona-Viento-produce-energia-Hierro_0_763973753.html
- https://www.eldiario.es/canariasahora/elhierroahora/isla/duplicado-coste-real-electricidad-Isla_0_865114222.html
- http://v2018.goronadelviento.es/en/gorona-del-viento-el-hierro-launches-recharging-points-for-electric-vehicles/
- http://v2018.goronadelviento.es/en/on-el-hierro-antonio-martinon-and-rafael-robaina-sign-an-important-partnership-agreement /
- http://v2018.goronadelviento.es/en/gorona-del-viento-practice-range/
- https://www.endesa.com/en/projects/a201611-el-hierro-renewable-sustainability.html
- http://www.goronadelviento.es/index.php?accion=articulo&IdArticulo=225&IdSeccion=89/
- http://v2018.goronadelviento.es/en/gorona-del-viento-takes-forward-its-commitment-to-the-population-of-el-hierro/
- http://euanmearns.com/el-hierro-third-quarter-2018-performance-update/
- https://www.iea.org/policiesandmeasures/pams/spain/name-152980-en.php
- https://www.pveurope.eu/News/Markets-Money/Spain-Government-suspends-controversial-7-solar-power-tax
- https://www.thelocal.es/20160420/el-hierro-spanish-canary-island-100-percent-clean-energy-spain-renewables
- https://www.efe.com/efe/canarias/medio-ambiente-y-ciencia/las-renovables-marcan-un-record-en-canarias-al-cubrir-el-33-de-la-demanda/50001310-3910539
- https://elpais.com/internacional/2018/03/26/actualidad/1522044301_177241.html
- https://viajes.nationalgeographic.com.es/a/hierro-eden-islas-canarias_11072/2

MALMÖ

- Andersson, C. (2014). *Hållbara Hilda: En BeBo-sammenfattning med energifokus*. Malmö, WSP Environmental.
- Application for Habitat Scroll of Honour Award - Malmö, Sweden
- Augustenborg, Malmö: Retrofitting SUDS in an urban regeneration area; available at:
- https://copenhagenwater.files.wordpress.com/2013/11/adaption-to-climate-change-using-green-and-blue-infrastructure-augustenborg-malmo.pdf
- Benchmark study/European sustainable urban development projects. Ekostaden Augustenborg
- Building and social housing foundation - Ecocity Augustenborg, Sweden – Winner World Habitat Awara https://www.world-habitat.org/wp-content/uploads/2016/03/Report-Eco-city-Augustenborg-peer-exchange-5MB1.pdf
- City of Malmö. (2014). *CLICC. Climate Living in Cities Concept: Layman's report.* Sweden: Malmö.
- EKOSTADEN AUGUSTENBORG - on the way towards a sustainable neighbourhood; aivalable at: https://climate-adapt.eea.europa.eu/metadata/case-studies/urban-storm-water-management-in-augustenborg-malmo/augustenborg-brochure.pdf
- EU LIFE. (2013). *Progress Report: CLICC - Climate Living in Cities Concept*. Sweden: Malmö.
- EU LIFE. (2014). *Final report: CLICC - Climate Living in Cities Concept*. Sweden: Malmö.
- Graham, T. – Echoes of tomorrow
- Jönsson, J. O., Nerpin L., Gormsen, D., Andersson, L.,Röder C.,Fahl M., Lindsjö, L.(2009). *Energistrategiför Malmö.* Retrieved from https://malmo.se/download/18.76105f1c125780a6228800039868/1491301605975/Energistrategi-Kf+2009-12-17.pdf
- Kazmierczak, A. and Carter, J. (2010) Adaptation to climate change using green and blue infrastructure. A database of case studies - Augustenborg, Malmö: Retrofitting SUDS in an urban
- NBS case study: Malmö. Available at: https://www.think-nature.eu/wp-content/uploads/2018/08/15a-Case-studies-Malm%C3%B6-NBS-MS-workshop.pdf
- TEN Group (2010) – Learning from Copenhagen and Malmo. Available at:
- http://urbed.coop/sites/default/files/Learning%20from%20Copenhagen%20and%20Malmo.pdf
- Memari Poor, E. (2012). Garaget. A second living room. Available at: https://muep.mau.se/bitstream/handle/2043/14217/Memari%20Poor.Elham%20%20Garaget%20-A%20seccond%20Living%20Room.pdf
- https://greenroof.se/ekostaden-augustenborg/
- www.ekostaden.com
- https://cordis.europa.eu/project/rcn/70479/factsheet/en
- http://v2018.goronadelviento.es/en/el-hierros-dream-of-renewable-energy-has-finally-come-true/

STOCKHOLM

- Behind the protests in Järva, Stockholm, June 9, 2017 By Katie Brown, available at: http://theprotocity.com/behind-protests-periphery-stockholm/
- City of Stockholm (2014) *Roadmap for a fossil fuel-free Stockholm 2050*, Sweden: Stockholm
- City of Stockholm (2016) *Strategy for a fossil-fuel free Stockholm by 2040*, Ref. no. 134-175/2015, Sweden: Stockholm
- City of Stockholm (2018) *Stockholm City Plan, City of Stockholm,* Sweden: Stockholm
- Contested Suburban Mobilities – Towards a Sustainable Urbanism of Justice and Difference. Graduate thesis submitted on 28th August 2015 as part of the requirements for the degree of M.Sc. in Nature, Society, and Environmental Policy at the University of Oxford
- Eriksson, T.;Pacsay, F. M. (2019) *Klimatfärdplan 2050 förStockholmsregionen,* Tillväxt- ochregionplaneförvaltningen, Sweden: Stockholm
- Ernasson, L. (2009) - Sustainable Järva 2010-2014
- Lönngren, Ö.; Hedvik, C.; Musabasic, A. (2010) *Stockholm action plan for climate and energy 2010–2020*, Sweden: Stockholm
- Lönngren et.al (2012) *Stockholm action plan for climate and energy 2012–2015 WITH AN OUTLOOK TO 2030,* Sweden: Stockholm
- Sustainable Järva - http://www.latea.lv/userfiles/news/Sustainable%20J%C3%A4rva.pdf
- Sustainable Järva - Re-building the Suburbs, available at: http://www.re-green.eu/en/go/green-building-leading-cases1
- Stockholm County Council (2016) *Environmental Programme 2017–2021,* Sweden: Stockholm
- https://international.stockholm.se/globalassets/listor/sustainable-jarva-a4-info.pdf
- Take action now! The Delegation for Sustainable Cities; conclusions from the government assignment September 2008 – December 2012 available at:
- https://www.boverket.se/contentassets/dce3f7e3d80d4bcaa06ad2071366beda/take-action-now.pdf

- Vision Järva 2030. Available at:
- https://international.stockholm.se/globalassets/rapporter/jarvalyftet_broschyr_en1.pdf
- http://www.eurocities.eu/eurocities/news/Stockholm-s-Sustainable-Jarva-is-ManagEnergy-finalist-WSPO-9MJUVE
- https://www.svenskabostader.se
- http://www.stockholm.se/hallbarajarva

VITORIA-GASTEIZ

- Albaina, A. (2017) - Civitas prosperity presentation 21.11.2017, Kaunas
- Albaina, A. (2017) -. Civitas prosperity - Prosperity through innovation and promotion of Sustainable Urban Mobility Plans
- Albaina, A. and Escudero, J.C. - Civitas prosperity - The Sustainable Urban Mobility Plan of Vitoria Gasteiz – Summary (EN); available at:
- http://sump-network.eu/fileadmin/user_upload/SUMPs/PROSPERITY_Vitoria_Gasteiz_SUMP_summary__EN.pdf
- Canedas Mora, A. – Civitas Modern - Plan de Movilidad Sostenible y Espacio Público de Vitoria-Gasteiz
- Citizens' Pact for Sustainable Mobility, 2007
- Civitas modern – Superblock model Vitoria-Gasteiz. Available at: https://civitas.eu/sites/default/files/modern_vg_m05.01_0.pdf
- ENDURANCE European SUMP network – Vitoria-Gasteiz SUMP within the climate change policy. Available at: https://www.polisnetwork.eu/uploads/Modules/PublicDocuments/endurance_fs_16_cooperation_spain_vitoriagasteiz_en_web.pdf
- Gainza Barrencua, X., Etxano Gandariasbeitia, I.; Agencia Vasca de la Innovación (2014) - Movilidad sostenible en Vitoria-Gasteiz: innovación desde un modelo de movilidad integral y partecipativo; available at: https://www.vitoria-gasteiz.org/docs/wb021/contenidosEstaticos/adjuntos/es/89/51/58951.pdf
- GEO VITORIA-GASTEIZ (2009) - Diagnostic report regarding the status of the sustainability and the environment in the town of Vitoria Gasteiz:
- Los coches vuelven a la calle Dato para visualizar cómo era antes de su peatonalización. Available at: https://blogs.vitoria-gasteiz.org/medios/tag/semana-europea-de-la-movilidad-sostenible/
- Muñoz, B. & Rondinella, G. (2016) - 2006-2016 A decade of changes in the mobility of Vitoria-Gasteiz - Evaluation report of the Sustainable Mobility and Public Space Plan and the Master Plan for Cyclist Mobility of Vitoria-Gasteiz - CEA; available at: https://www.vitoria-gasteiz.org/wb021/http/contenidosEstaticos/adjuntos/en/57/32/75732.pdfCivitas Modern - Streets designed for sustainable mobility
- Nos vamos del Elkargune “Foro Ciudadano por la Movilidad Sostenible”. Avaialble at: http://www.bizikleteroak.org/adjuntos/bizikleteroak2010Noticias/167_adjunto.pdf
- Plan de movilidad y espacio público. VITORIA – GASTEIZ – DIAGNOSTICO. Avaialble at: https://www.vitoria-gasteiz.org/docs/wb021/contenidosEstaticos/adjuntos/es/54/29/5429.pdf
- Rueda S. (2016), La Supermanzana, nueva celula urbana para la construccion de unnuevo modelo funcional y urbanistico de Barcelona. Avaialble at: www.bcnecologia.net
- Superblocks are Cerdà's Plan of the twenty-first century" interview with Salvador Rueda in Metrópoli Abierta. Avaialble at: https://www.metropoliabierta.com/el-pulso-de-la-ciudad/movilidad/las-superilles-son-el-plan-cerda-del-siglo-xxi_729_102.html
- TRANSyT - 2014 Vitoria-Gasteiz Mobility Survey – analysis of the results. Available at: http://www.civitas.eu/content/vitoria-gasteiz
- UDC (2018)- Minutes from our visit to Vitoria-Gasteiz and meeting with CEA team, September
- Vitoria-Gasteiz celebra 10 años de movilidad sostenible. Available at: https://www.gasteizhoy.com/vitoria-gasteiz-semana-movilidad-sostenible/
- http://www.udalsarea21.net/BuenasPracticas/Ficha.aspx?IdMenu=381395ad-9baa-4408-809e-a73e0a2ec092&Cod=99dcd66a-b15b-4d79-abc8-02252db57202&Idioma=es-ES

BARCELONA

- Ajuntament de Barcelona (2016) - LET’S FILL STREETS WITH LIFE - Establishing Superblocks in Barcelona (PPT)
- Ajuntament de Barcelona - Government measure (2016) - LET’S FILL STREETS WITH LIFE - Establishing Superblocks in Barcelona, Commission for Ecology, Urban Planning and Mobility, May 2016
- Barcelona City Council (2013). Barcelona, a city committed to the environment. Environmental report
- Barcelona Public Health Agency (2014). Health in Barcelona
- BARCELONA: LABORATORIO DE LA CIUDAD DEL FUTURO. Available at: https://www.nytimes.com/es/2018/07/29/barcelona-supermanzanas-plan-urbano/ (07.09.2018)

- Brass (2017). Redesigning the Grid: Barcelona's Experiment with Superblocks. Available at: https://urbanland.uli.org/planning-design/barcelonas-experiment-superblocks/#
- CREAL-Research Centre for Environmental Epidemiology (2007). The public health benefits of reducing atmospheric pollution in Barcelona's Metropolitan Area
- Colau acabará el mandato impulsando dos 'superilles' más. Avaialble at: https://www.elperiodico.com/es/barcelona/20181004/balance-dos-anos-superilla-poblenou-7069749
- Donada, J. T., & Riu, A. S. (2018). La ciudad como ecosistema. Entrevista a Salvador Rueda. Biblio3W, 23(1.233).
- JOANNEUM RESEARCH–LIFE: Centre for Climate, Energy & Society/UNDP (2015) – Superblocks, Barcelona, Spain – Smart Cities good practice (Transport and Mobility, Governance, Biodiversity, Social Inclusion). Available at: http://www.energy-cities.eu/db/Barcelona_Pocacito_Superblocks_2016_en.pdf
- LA CIUDAD COMO ECOSISTEMA. ENTREVISTA A SALVADOR RUEDA. Avaialble at: http://www.ub.edu/geocrit/b3w-1233.pdf (15.04.2018)
- LA 'SUPERMANZANA' GANA ADEPTOS EN POBLENO. Las movilizaciones contra el proyecto decaen en el barrio. Available at: https://elpais.com/ccaa/2018/09/29/catalunya/1538246791_684437.html
- MELBOURNE SE INSPIRA EN BARCELONA A LA HORA DE PROPONER ZONAS SIN COCHES. Avaialble at: https://www.thefifthestate.com.au/urbanism/planning/melbourne-takes-inspiration-from-barcelona-as-car-free-zones-proposed/98359 (09.04.2018)
- P*olis Network – Thinking Cities magazine* (2016) – Volume 3, Issue 2.
- Rueda S. (2016), La Supermanzana, nueva celula urbana para la construccion de unnuevo modelo funcional y urbanistico de Barcelona. Avaialble at: www.bcnecologia.net
- Superblocks are Cerdà's Plan of the twenty-first century" interview with Salvador Rueda in Metrópoli Abierta. Avaialble at: https://www.metropoliabierta.com/el-pulso-de-la-ciudad/movilidad/las-superilles-son-el-plan-cerda-del-siglo-xxi_729_102.html
- Superilla del Poblenou. Available at: http://ajuntament.barcelona.cat/superilles/sites/default/files/original%20fullet%20superilles%20final2.pdf .
- The bike hub gets ever nearer Available at: https://www.barcelona.cat/infobarcelona/en/the-bike-hub-gets-ever-nearer_265770.html
- http://ajuntament.barcelona.cat/superilles/es/
- http://ajuntament.barcelona.cat/ecologiaurbana/en/what-we-do-and-why/quality-public-space/superblocks
- https://www.elperiodico.com/es/barcelona/20181004/balance-dos-anos-superilla-poblenou-7069749
- https://www.metropoliabierta.com/quien-hace-barcelona/entidades/entrevista-superilla-poblenou-matrix_660_102.html
- https://pasp9.wordpress.com/qui-som/
- https://www.barcelona.cat/mobilitat/en/about-us/participatory-bodies/mobility-pact
- https://www.elperiodico.com/es/barcelona/20161004/vecinos-lamentan-precipitacion-superamanzana-poblenou-5454245
- https://www.theguardian.com/cities/2016/may/17/superblocks-rescue-barcelona-spain-plan-give-streets-back-residents?CMP=fb_a-cities_b-gdncities
- http://ajuntament.barcelona.cat/superilles/ca/superilla/sant-antoni
- https://www.c40.org/case_studies/barcelona-superblocks
- https://ajuntament.barcelona.cat/santmarti/ca/noticia/amb-la-superilla-el-poblenou-ha-guanyat-mes-de-25-000-metres-quadrats-despai-per-al-ciutada_714967
- http://www.nytimes.com/2016/10/02/nyregion/what-new-york-can-learn-from-barcelonas-superblocks.html?_r=1
- https://elpais.com/ccaa/2018/09/29/catalunya/1538246791_684437.html
- https://www.metropoliabierta.com/el-pulso-de-la-ciudad/movilidad/las-superilles-son-el-plan-cerda-del-siglo-xxi_729_102.html
- http://citiesofthefuture.eu/superblocks-barcelona-answer-to-car-centric-city/
- https://www.vox.com/2016/8/4/12342806/barcelona-superblocks
- https://www.biciclot.coop/

ABERDEEN

- Aberdeen City Council (2016) Powering Aberdeen: Aberdeen's Sustainable Energy Action Plan. October 2016, Aberdeen City Council. Available online:
- https://www.aberdeencity.gov.uk/services/environment/powering-aberdeen [accessed 25.03.19]
- ADE (2018) Market Report: Heat Networks in the UK. January 2018, Association for Decentralised Energy. Available online: https://www.theade.co.uk/resources/publications/market-report-heat-networks-in-the-uk [accessed 25.03.19].
- Community Planning Aberdeen (2017) Torry Draft Locality Plan 2017-27. Community Planning Aberdeen and Aberdeen City Council. Available online: https://communityplanningaberdeen.org.uk/our-communities/torry-draft-locality-plan-2017-27/ [accessed 25.03.19].

- Community Power Scotland (2015) Fighting Fuel Poverty: Aberdeen Heat & Power Ltd. Factsheet available online at:
- http://www.communitypower.scot/wp/wp-content/uploads/2015/02/AberdeenHeatAndPower.pdf [accessed 13.03.19]
- Hawkey, D., Webb, J. &Winskel, M. (2013) Organisation and governance of urban energy systems: district heating and cooling in the UK. Journal of Cleaner Production, 50, 22-31.
- Hawkey, D. & Webb, J. (2014) District energy development in liberalised markets: situating UK heat network development in comparison with Dutch and Norwegian case studies. Technology Analysis & Strategic Management, 26:10, 1228-1241.
- National Records of Scotland Mid-2016 Population Estimates for Settlements and Localities in Scotland. Available at: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/settlements-and-localities/mid-2016-population-estimates-for-settlements-and-localities-in-scotland
- Ramboll (2016) Torry District Heating Network Feasiblity Study: Feasibility Report. Ramboll, January 2016.
- Scottish Futures Trust (2015) Guidance on Delivery Structures for Heat Networks. March 2015; Scottish Futures Trust.
- Scottish Government (2014) Ambition-Opportunity-Place: Scotland's Third National Planning Framework. June 2014, The Scottish Government. Available online: https://www.gov.scot/publications/national-planning-framework-3/ [accessed 25.03.19].
- Scottish Government (2015) Heat Policy Statement – Towards Decarbonising Heat: Maximising opportunities for Scotland. June 2015, The Scottish Government. Available online: https://www.gov.scot/publications/heat-policy-statement-towards-decarbonising-heat-maximising-opportunities-scotland/ [accessed 25.03.19]
- Scottish Government (2017) Scottish Energy Strategy: The future of energy in Scotland. December 2017, The Scottish Government. Available online: https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/ [accessed 25.03.19].
- Scottish Government (2018a) Energy Efficient Scotland: route map. May 2018, The Scottish Government. Available online: https://www.gov.scot/publications/energy-efficient-scotland-route-map/ [accessed 25.03.19]
- Scottish Government (2018b) Draft Fuel Poverty Strategy for Scotland 2018. June 2018, The Scottish Government. Available online: https://www.gov.scot/publications/draft-fuel-poverty-scotland-2018/ [accessed 25.03.19]
- Scottish Government (2019) Climate Change Plan: The Third Report on Proposals and Policies 2018-2032. February 2019, The Scottish Government. Available online: https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/pages/11/ [accessed 25.03.19].
- Torry Strategic Assessment. Available at: https://communityplanningaberdeen.org.uk/wp-content/uploads/2016/05/Locality-1-Full-Strategic-Assessment.pdf
- Webb, J. (2015) Improvising innovation in UK urban district heating: The convergence of social and environmental agendas in Aberdeen. Energy Policy, 78, 265-272.
- https://www.aberdeencity.gov.uk/
- http://www.parliament.scot/parliamentarybusiness/Bills/108916.aspx
- http://www.communitypower.scot/case-studies/projects/aberdeen-heat-power-ltd/
- https://news.aberdeencity.gov.uk/site-investigations-starting-at-ness-energy-from-waste-plant/

TIMISOARA

- Centrul pentru Studiul Democratiei (Center for the Study of Democracy) (2017) - Energy poverty and the vulnerable consumer in Romania and Europe
- Clodnitichi, R. & Busu, C. (2017). Energy poverty in Romania – drivers, effects and possible measures to reduce its effects and number of people affected. Proceedings of the 11th International Conference on Business Excellence. Doi: 10.1515/picbe-2017-0015
- Conventia Primarilor – Municipiul Timisoara (2014) - Planul de Acţiune pentru Energia Durabilă Aa Municipiului Timişoara (Sustainable Energy Action Plan 2014-2020 for Timisoara Municipality)
- European Commission (2016). Report fror the Commission to the European Parliament, the Council, the European Economy and Social Commission: Clean energy for all europeans COM/2016/0860
- Hoppe, T. & de Vries, G. (2019). Social Innovation and the Energy Transition. Sustainability, 11, 2-13. Doi: 10.3390/SU 11010141
- Introna, V., Cesarotti, V., Benedetti, M., Biagiotti, S., & Rotenno, R. (2014). Energy Management Maturity Model: an Organizational Tool to Foster the Continuos Reduction of Energy Consumption in Companies. Journal of Cleaner Production, 83, 108-117. Doi: 10.1016/j.jsu
- Musatescu, V. (WEC Romanian National Member), Zamfir C. and Mihailescu A. (Romanian Academy). 2017 – On the residential energy consumers vulnerability in Romania;
- Romanian Energy Regulatory Authority (ANRE) - E^{n}R regular meeting (M61) hosted by ANRE EnR President, 14-15 June 2017
- Romanian Energy Regulatory Authority - Energy Efficiency Department - "Energy Efficiency trends and policies in ROMANIA", September 2015

- http://www.eurasia.undp.org/content/rbec/en/home/blog/2016/11/7/Energy-poverty-is-a-big-deal-in-Romania-here-s-how-we-re-helping.html
- Romanian Energy Strategy 2016-2030. Available at: www.ropepca.ro