



“REgeneration MOdel for accelerating the smart URBAN transformation”

HORIZON2020-WORK PROGRAMME 2004-2015 – 10. Secure, clean and efficient energy

SCC 1–2014: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse (large scale demonstration - first of the kind) projects

Document title

D1.15: Methodological guide on the development of urban integrated plans

WP1, Task 1.2

Date of document

June, 2016 (m18)

Deliverable version: D1.15, v1.2

Dissemination level: Public

Author(s): Alison Stacey¹, Jonathan Sawyer¹, Murat Aksu², Baturay Yenilmez², Elena Hoyos Santamaria³, Esra Demir⁴, Baha Kuban⁴, Christelle Degard⁵, István Nagy⁶

(¹NCC, ²TEP, ³VAL, ⁴DEM, ⁵SER, ⁶MIS)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 646511

Document History

Project Acronym	REMOURBAN		
Project Title	REgeneration MOdel for accelerating the smart URBAN transformation		
Project Coordinator	Miguel Á. GARCÍA-FUENTES (miggar@cartif.es) Fundación CARTIF		
Project Duration	1 st January 2015 – 31 th December 2019 (60 Months)		
Deliverable No.	D1.15. Methodological guide on the development of urban integrated plans		
Dissemination Level	PU		
Status		Working	
		Verified by other WPs	
		Final version	
Due date	30/06/2016		
Work Package	WP1 – DEVELOPMENT OF A REPLICABLE MODEL OF URBAN REGENERATION		
Lead beneficiary	MIS		
Contributing beneficiary(ies)	NCC, TEP, VAL, DEM, SER		
DoA	Task 1.2 – Legal and normative issues and non-technical barriers Subtask 1.2.4 – Smart City Strategy implementation plan		
Date	Version	Author	Comment
14/04/2016	0.1	MIS	Table of Content
18/05/2016	0.2	MIS	Updated Table of Content and proposal for distribution of efforts
19/05/2016	0.3	MIS	Description to sections
31/05/2016	0.4	MIS	Added (explanatory) content to sections 1, 2 and 4
20/06/2016	0.5	NCC, VAL, SER, MIS, DEM	Added content to sections 2, 3, 4 and 5
04/07/2016	0.7	TEP, MIS	Added content to sections 2 and 3
10/07/2016	0.8	TEP, MIS	Added content to sections 2 and 3
11/07/2016	0.9	MIS	Added content to section 1 and 6, collating all sections
12/07/2016	0.10	MIS	Formatting, draft for review
13/07/2016	0.10_rev	YOU	Review

18/07/2016	1.0	MIS	Additions based on review, introduction, conclusions, final version
18/07/2016	1.1	CAR	Final editing
25/07/2016	1.2	MIS	Minor correction in section 1.1

Copyright notices

©2016 REMOURBAN Consortium Partners. All rights reserved. REMOURBAN is a HORIZON2020 Project supported by the European Commission under contract No. 646511. For more information of the project, its partners, and contributors please see <http://remourban.eu>. You are permitted to copy and distribute verbatim copies of this document, containing this copyright notice, but modifying this document is not allowed. All contents are reserved by default and may not be disclosed to third parties without the written consent of the REMOURBAN partners, except as mandated by the European Commission contract, for reviewing and dissemination purposes. All trademarks and other rights on third party products mentioned in this document are acknowledged and owned by the respective holders. The information contained in this document represents the views of REMOURBAN members as of the date they are published. The REMOURBAN consortium does not guarantee that any information contained herein is error-free, or up to date, nor makes warranties, express, implied, or statutory, by publishing this document.



Table of Content

Executive Summary	9
1 Introduction.....	10
1.1 Purpose and target group	10
1.2 Contribution of partners	11
1.3 Relation to other activities in the project	11
2 Creating the basis for underlying the integrated urban planning process	13
2.1 Smart City operational model framework.....	13
2.1.1 Coordination unit for overall smart city development.....	13
2.1.2 Business and sustainability models	14
2.2 Partnership framework.....	15
2.2.1 Partnership Plan.....	15
2.2.2 Communication Plan	16
2.2.3 Education Plan	17
2.2.4 Implementation plan for partnership process.....	18
3 Analysis of current situation	22
3.1 Summary of relevant results and findings of previous studies	22
3.1.1 Analysis with regards to existing urban strategic plans	22
3.1.2 Analysis with regards to sectorial aspects	26
3.2 Complementary analysis, targeted audits.....	30
3.3 Summary of evaluation (SWOT analysis).....	31
3.3.1 Strengths.....	32
3.3.2 Weaknesses.....	33
3.3.3 Opportunities.....	33
3.3.4 Threats.....	34
4 Strategy	36
4.1 Principles for strategy building and evaluation criteria	36
4.1.1 General Principles.....	37
4.1.2 Horizontal Principles and cross-cutting objectives.....	38
4.1.3 Evaluation criteria.....	39
4.2 Vision	39
4.3 Goals, targets, objectives and their interconnections	40
4.4 Mapping of financing opportunities and schemes	41
5 Action Plan	42
5.1 Measures and project proposals.....	44
5.2 Schedule for programme management and implementation	45
5.3 Financing models.....	46
5.4 Risk analysis	48

5.5	Monitoring system, result and output indicators	48
6	Conclusions.....	51
7	References	53
Annex 1: Overview of existing urban plans of REMOURBAN Lighthouse Cities.....		54
	Valladolid	54
	Nottingham.....	57
	Tepebaşı/Eskişehir	64



List of Figures

Figure 1: Smart focused integration of existing urban plans	25
Figure 2: Baseline SWOT analysis for smart urban development	35
Figure 3: Action Plan Cycle	43
Figure 4: ITU Smart Cities KPI's	50
Figure 5: Urban Plans Evolution.....	54

List of Tables

Table 1: Contribution of partners.....	11
Table 2: Relation to other activities in the project	11
Table 3: Model template for stakeholder involvement implementation plan	19



Abbreviations and Acronyms

Acronym	Description
CLLD	Community-Led Local Development
EAFRD	European Agricultural Fund for Rural Development
EMFF	European Maritime and Fisheries Fund
ERDF	European Regional Development Funds
ESCO	Energy Service Company
ESIF	European Structural and Investment Funds
ETC	European Territorial Cooperation
GIS	Geographic Information System
GPS	Global Positioning System
IoT	Internet of things
ITI	Integrated Territorial Investment
LEADER	Liaison Entre Actions de Développement de l'Economie Rurale
PPP	Public-Private Partnership
REMOURBAN	REgeneration MOdel for accelerating the smart URBAN transformation
RES	Renewable energy sources
RFID	Radio Frequency Identification
ROI	Return on investment
SCC	Smart Cities and Communities
UIP	Urban Integrated Plan

Executive Summary

An Integrated Urban Plan is a sustainability-centric strategic plan developed along the active participation of all concerned social groups and stakeholders on a well-coordinated and balanced manner. Integration, on one hand, is understood in terms of stakeholders engaged who are to be integrated into a joint platform for planning, implementation and sustaining of innovative urban development projects. On the other, integration is also referring to a city's existing sectorial strategies that are to be harmonized into an overarching plan encompassing a wide range of aspects of urban development.

Integrated urban development is a prerequisite for successful urban sustainability. Integrated urban development policy means simultaneous and fair consideration of the concerns and interests which are relevant to urban development. It is a process in which the spatial, sectorial and temporal aspects of key areas of urban policy are co-ordinated. The involvement of economic actors, stakeholders and the citizens is essential. Integrated urban development policy is a key prerequisite for implementing the EU Sustainable Development Strategy. All dimensions of sustainable development should be taken into account at the same time and with the same weight. These include economic prosperity, social balance and a healthy environment. At the same time attention should be paid to cultural and health aspects [01].

An integrated plan for sustainable urban development comprises a system of interlinked actions which seeks to bring about a lasting improvement in the economic, physical, social and environmental conditions of a city or an area within the city. The key to the process is "integration", meaning that all policies, projects and proposals are considered in relation to one another. In this regard, the synergies between the elements of the plan should be such that the impact of the plan as a whole adds up to more than would the sum of the individual parts if implemented in isolation. In many Member States, city-wide and area-based development plans that have been prepared and adopted in accordance with existing planning protocols are likely to satisfy such a definition. Non-statutory plans and other policy documents approved following public consultation and appropriate community impact assessment might also provide an adequate basis for integrated urban development [02].

The main objective of this document is to provide guidance and recommendations for urban development professionals, decision makers and other stakeholders on developing integrated strategies for smart-oriented urban regeneration.

In Chapter 2, the document presents recommendations on what issues should be considered for laying down the basis for integrated planning: from setting up a specific unit for coordination of the process to creation of partnerships with as many relevant stakeholders as possible – bearing in mind the needs for knowledge transfer as well as clear and effective communications for their successful engagement.

Chapter 3 is dedicated to the overview of what sort of issues are needed to be tackled as subjects for integration, including different kinds of existing strategies/plans various sectorial aspects connected and believed relevant. With regards to smart-focused urban planning endeavours, some additional aspect are also listed – with a number of guiding questions a city should ask itself when collecting information on which issues need integration in a balanced manner within a UIP. This chapter ends with a SWOT analysis approach that can be considered as a basis for transition to the definition of integrated urban strategy.

Chapter 4 encompasses the general and horizontal principles of strategy building, evaluation criteria, definition of visions, objectives and goals.

Finally, Chapter 5 presents the framework of action plan development with its specific features.

1 Introduction

1.1 Purpose and target group

The Basque Declaration in Bilbao at the 8th European Conference on Sustainable Cities and Towns held at the end of April 2016, raised the stakes for European cities to "create productive, sustainable and resilient cities for a liveable and inclusive Europe ". From the Aalborg Charter twenty years ago and through UN HABITAT Conferences to the Sustainable Development Goals approved by the UN General Assembly in September 2015, the changing global economical, social and environmental problems have born their mark on the future of the city. The European approach has also evolved and can be seen to be announced succinctly in the Basque Declaration that summarizes the present challenges and the way out. The initial marriage/integration of spatial urban planning and urban energy flows has now been replaced by an emphasis on the integration of the living soul of the city; its people, its inhabitants, with the physical infrastructure. Thus, the European Smart City Programmes have moved from fundamentally technical solution searches to co-creation of the technical alternatives and strong public participation exercises. Many of the opportunities have come about using so-called information technologies that have allowed for real time, massive input and processing capabilities for two-way information traffic.

As one of the first smart city projects in the H2020 programme, REMOURBAN is in the forefront of this huge challenge for integrated urban planning, meshing technological solutions with community participation and evaluation. The cities of the project, embedded in their regional/national geo-historical, cultural and political trajectories, offer a plethora of possible pathways to the creation of Integrated Urban Plans that are not only radically more efficient in the technical solutions they offer, but also visionary in the methods and techniques they utilize to engage the citizenry in these plans as much as possible. "Re-generation Methodologies" naturally depend on the massive experience of European and Global urban research and experience gathered but carries it further through the team synergies created in working together. As the famed sociologist Richard Sennett put it, "*the city is a place where strangers meet but create a common ground*", smart city projects such as REMOURBAN are the European workshops where the "good city's" features take shape.

The objective of this document is to deliver useful guidance for the preparation of an urban sustainable and integrated plan as a new type of strategy for integrating both stakeholder needs and existing urban plans (mobility, energy, digital, social, innovation, etc.).

Integrated urban plans are regarded as innovative tools for enabling smart urban transformation. Such a plan should integrate the existing and/or non-existing sectorial strategies based on smart technologies and intelligent solutions with the aim of contributing to sustainability and liveability of cities with a strong focus on the engagement of stakeholders and citizens.

The document contains an insight to some of the existing urban plans of the REMOURBAN Lighthouse Cities will be the basis for the development of the Integrated Urban Plans for the lighthouse cities under D5.5. The overview of these existing urban plans is included in Annex 1.

The target group of this deliverable is twofold: on one hand, the five cities directly involved in REMOURBAN – these cities will develop, in later stages of the project, their own urban integrated plans. On the other hand, this document is offered to any city having the intention to develop such a plan.

1.2 Contribution of partners

The following Table 1 depicts the main contributions from participant partners in the development of this deliverable.

Table 1: Contribution of partners

Participant short name	Contributions
CAR	Coordination and advice
NCC	Overall content to sections 2.1, contribution to section 6
TEP	Overall content to section 3.3 and Annex 1
VAL	Overall content to sections 4, contributions to section 3.1 and 3.3
DEM	Overall content to section 5, contribution to section 1
SER	Overall content to section 3.1 and 3.2, contributions to section 3.3
MIS	Overall content to section 1, section 2.2, contributions to section 3 and 6

1.3 Relation to other activities in the project

The following Table 2 depicts the main relationship of this deliverable to other activities (or deliverables) developed within the REMOURBAN Project and that should be considered along with this document for further understanding of its contents.

Table 2: Relation to other activities in the project

Deliverable Number	Contributions
D1.13	Report on non-technical barrier and legal and normative issues Connections to section 2.1
D1.14	Report and policy recommendations on the optimization of the regulatory framework Connections to section 2.1
D1.16	Report on innovative citizen engagement strategies Connections to section 2.2
D1.17	Report on innovative business models and financial schemes Connections to sections 4.4 and 5.3
D1.18	Inventory on innovative PPP solutions and approaches Connections to sections 4.4 and 5.3
D2.1	Evaluation framework of sustainability and smartness in cities Connections to section 5.5

D2.2	Evaluation protocols Connections to section 5.5
D3.15	Citizen engagement strategy for each city Connections to section 2.2
D5.2	Model for replication potential IUP as an enabler for connecting cities' demand for smart solutions
D5.5	Integrated urban plan for each REMOURBAN city It will address the definition of the UIPs for the five cities involved in REMOURBAN

2 Creating the basis for underlying the integrated urban planning process

An Integrated Urban Plan is a sustainability-centric strategic plan developed along the active participation of all concerned social groups and stakeholders on a well-coordinated and balanced manner. In general, public initiators, in most common cases the City Council or other city representatives, bring the relevant actors together and they are often considered as a self-evident focal points for urban planning processes. Since UIPs are normally connected to public money and public infrastructures/services, it is a municipality/mayor's office/city council that takes (shared) responsibilities on process coordination and result delivery while assuring for all actors engaged to fairly represent their interest and contribute accordingly.

2.1 Smart City operational model framework

It has become very clear from the findings in D1.13 and D1.14, around the non-technical barriers to implementation and the likely solutions, that integration of both policy and process is crucial to the successful optimisation and delivery of urban development activities.

A number of common, shared issues were identified and all these affect significantly on the integration of plans and models.

Process Ownership

All the cities involved in the REMOURBAN project have encountered difficulties with silo working and thinking due to there not being one department in the Local Authority or Mayor's Office with responsibility for Smart Cities overall.

The Smart Cities agenda covers a diverse range of key urban infrastructure, such as transport, land use, housing, and integrated ICT. Historically the responsibilities for the policies and activities that underpin these have been vested in separate departments in Local Authorities, very often because of the regulatory framework that surrounds them.

This is a particularly important aspect of the Smart City agenda as the key to a true Smart City is that the infrastructure is integrated from the design to the implementation stage.

Cooperation model for project preparation, implementation and monitoring

The understanding around the need for true integration, from policy making to delivery, must lead to a different methodology around project preparation, implementation and monitoring.

Best practice would suggest that joining these aspects at the very start and then carrying them through to delivery and onto monitoring is the only way to align fully with the Smart City ethos and concept.

2.1.1 Coordination unit for overall smart city development

Multi-stakeholder group for coordination and management

A natural next step would be to ensure that there is a multi-stakeholder group within the Local Authority and / or Mayor's Office. Given that the various elements of urban infrastructure tend to be dealt with within different departments then a cross-authority or cross-agency team should be established reporting to the Chief Executive or Mayor.

This would ensure that there is parity across the departments and true integration of both policies and delivery actions.

The EC's core tenant of Smart Cities – that the citizen should be at the heart of the design of services and how they are delivered – should lead to the instigation of a separate, but aligned, external group to the local authority that incorporates input from a wide range of stakeholders.

This group would not coordinate or manage the Smart City work for the local authority / mayor's office but it would provide valuable input into the planning, policy and delivery processes.

Responsibilities for project control

Learning from the REMOURBAN project and the multi-disciplinary aspects of Smart City projects, it would be good practice to have an overall project team drawn from the different disciplines supported by sub-task leaders feeding into it. An example would be that there would be a sub task dealing with district heating matters that would then report to the overarching group. The Chair of the overarching project team would report into the Chief Executive or Mayor's office.

Nomination of coordination body

As outlined in the earlier paragraphs, there is a need for a small Smart City team to report to either the Chief Executive of the Local Authority or the Mayor's Office in order to ensure that all disciplines within a Smart City project are involved and true integration is achieved. The added value to Smart Cities is the integration, therefore, having a clearly nominated, accountable body with ownership of this is crucial to effective implementation and delivery.

Definition of roles, official duties.

Again, relating to the REMOURBAN example – as a Smart City project will be multi-disciplinary and often complex – it is imperative that there are clearly designated roles for the different aspects to be delivered. These, by necessity, will tend to be linked to technical expertise and will, therefore, be linked to specific departments, such as transport, energy, ICT.

The technical know-how will depend on these specialist departments undertaking the work. The integration will depend on an overarching project team, with clear sub-task duties reporting into it, in order to ensure the added value that Smart City working team will bring to a project.

Interconnections to / with city administration

The most robust way of ensuring that these project groups are effective is to ensure they report to and through one department in the local authority / Mayor's office with an appointed person responsible for this.

2.1.2 Business and sustainability models

Focus on sustainability (environmental, social, urban economy perspectives)

There is clear potential to link to the work in D1.14 around procurement that clearly shows that environmental and social aspects can be considered along with economic factors – therefore incorporating sustainability from the design stage right through to delivery.

Internal and external financial opportunities

See sections 4.4 and 5.3. for further information. More in-depth description of business models, funding schemes and, in particular, innovative PPP approaches are to be delivered within REMOURBAN through D1.17 and D1.18.

City as a service provider

All local authorities provide services to their citizens and business. In terms of a Smart City, as mentioned earlier, citizens should be included in the design of service provision.

As with the delivery of capital projects – looking at service provision through the Smart City filter and checking how many services could be integrated at the point of design and delivery would lead to better synergies and added value.

2.2 Partnership framework

Partnership, communication and education permeate almost every element of smart city planning and operation. These areas jointly compose the partnership process on an organic manner, serving as enabling keys for integrated strategy building. Therefore, it is essential to identify the guiding principles of, and concrete actions on developing and operating the partnership framework that practically encircles and helps moving forward the smartification process of urban environment as a whole.[03]

Although these three domains – i.e.: partnership, communication and education – are closely interconnected, it is recommended to dedicate special attention on each of them as follows: who the concerned stakeholders are and how to engage them (1), how/when/where/what to communicate (2) and what skills and competences are needed to be developed both within the foreseen partnership, including different departments of city administration in many cases, and users of the local innovations (3). A final step of planning the stakeholder involvement process, in terms of embedding to integrated urban planning, is to present interconnected actions linked to these domains in a simplified stakeholder involvement implementation plan.

2.2.1 Partnership Plan

Partnership plan is aimed at mapping, encountering and involving all key actors having notable relevance to plan, implement and sustain interventions with direct link to smart city development.

Basic issues to consider prior to strategy building for involvement

- Aims and expected results of involvement and participation – *What will make a difference, and how a strategy can be better if it is made in co-operation with local stakeholders?*
- Expected level of participation in the planning process – *with reference to „participation ladder” – What is the intended level of participation from the perspective of city leadership? (collecting data, consultation, delegation of tasks)*
- Guiding principles of participation and involvement – *What horizontal principles does the city apply regarding participation?*
- Operational plan of participation and involvement – *What operational model is preferred regarding participation?*
- Organisational/institutional framework for participation and involvement – *What kind of formal and informal institutions/bodies take responsibilities in planning process? (i.e.: committees, working groups, etc.)*
- The most important local actors to be involved – *Who are those key players who are assigned roles in the planning process, who are addressed in the first steps of the involvement?*
- Preferred methods to be applied for involvement process – *What kind of methods are to be applied for participative planning? (i.e.: planning workshops, assessment, labs, etc.)*
- Communication strategy – *Which communication tools, methods and channels are planned to be applied throughout the planning process?*

2.2.2 Communication Plan

In terms of smart city development, it is essential to take advantage on, and exploit opportunities deriving from the use of ICT tools, integrated and open data and co-operation potential of local actors. The common ground for these three areas is communication. Therefore, there is a strong need for supporting smart-oriented integrated planning by a comprehensive communication plan including the following two main areas:

Smart City Campaign

Smart urban transformation can more effectively improve a city's life and citizens' perception on living conditions if local actors, as ones directly concerned by the UIP, get to know and espouse the "smart approach" hence become aware of, and inspired by the opportunities coming along with smart renewal of their city. To achieve this goal, there is a need to transmit such strong, clear and key messages to citizens that are not only noticed by them but also able to induce heightened interest as well as personal and collective commitment to support and contribute to the modernization of the city. Therefore, it is recommended to define a specific communication toolkit the use of which enables appropriate delivery messages (slogan, logo, buzzwords, etc.) tailored to specific target segments of the society and develop dedicated communication campaigns.

Opportunity to join and be up-to-date

"Smart residents" are needed to be appropriately informed, aware, active and initiative. In order to enable them be so, it is important to give them the opportunity to be up-to-date about city affairs and actual planning processes as well as to be able to become active contributors of communication processes. Besides one-way communication tools (websites, internet platforms etc.), other more participatory tools are such as local/social media, city apps, discussion forums, information spots, social events etc. increasingly important through which the "less initiative" citizens can be involved and engaged.

For setting up a **communication strategy**, the following areas are to be covered:

- Team responsible for communication, participants
- Communication environment of the city
- Communication objectives
- Target groups
- Main messages
- Tools, channels and activities
- Resources, costs
- Indicators (based on pre-defined data to be collected) to measure the success of communications and the impacts in terms of community engagement

As a result, it has to be defined what range of messages should be delivered to who and why, which are the most appropriate communication tools and channels for the delivery of these messages, what are the related necessary investment in terms of budget and resources, which data are to be collected for the indicators measuring the success and involvement of the communication targets. These indicators will help the communication team to scale-up communication tools and redesign strategies in case the original objectives are not met.

Some suggestions for the development of a communication strategy:

- Define a simple but essential message that is easy to handle understand but arresting! Smart City approach requires a sort of paradigm shift in comparison to the previous urban development approaches. It is important that a broad range of citizen groups gets the point of the message which is simple, inspiring, concise, easy to understand and

identify with. This message can be the core and connecting link of every communication activity;

- Schedule the content of communication wisely! Apply the three-step sequence of inspiring (1), teaching (2) confirming (3);
- Complete top-down communication with contents delivered by local participants! Messages can frequently be more authentic if they come from participating stakeholders (outside the city administration) or even from peers (citizens);
- Communicate in an easily understandable way! The aims of urban development usually embrace casual areas like energy, mobility, security and livelihood. There is no need for jargon talks;
- Tell people about real stories! Messages can achieve their targets more efficiently via local and foreign examples than with didactic explanations;
- Use modern technologies creatively! Exploiting opportunities of ICT solutions is, in any case, in the core of Smart City concept.
- Devote the appropriate resources to communication! The success of strategy may strongly depend on this factor.
- Collect data and indicators relative to communication outreach and engagement to measure success or change strategy in case the targets and objectives are not met

The communication plan provides the framework for successful transferring the smart city strategic approach to different stakeholders and target groups of the city and sets up a basis for involving actors and building partnerships with them.

In a later stage, when UIP is turned in to implementation plan, specific communication needs are to be defined for each measure and project that are part of the smart urban regeneration process.

2.2.3 Education Plan

A city cannot be identified as smart without „smart citizens”, „smart users” and „smart governance”. Therefore, one of the most important pillars of smart city development is education, including awareness raising, skills improvement and knowledge transfer. Without this pillar, citizens are unlikely to formulate the so-called “smart community” of a Smart City.

Efforts spent on education have strong connections, in many aspects, to partnership building and communication. While communication activities are essential for awareness raising, inspiration and mobilization of local actors, stages of partnership building offer room for mutual learning and joint exploitation of knowledge and experiences acquired i.e. through REMOURBAN project.

Here, it is also important to identify the readiness level of different target groups in terms of skills, competences and motivations related to smart issues. Those are the ones to be improved through education by using wide range of tools such as study visits, trainings and courses, participatory action research and distance learning as well as gamification through innovative use of ICT tools.

Some suggestions to the content of the educational plan:

- Compose educational partnership – identifying institutions and persons responsible for coordination of education activities (composition of educational team);
- Analyse the current situation regarding smart city skills and knowledge;
- Define specific objectives for education related to specific measures/project of smart city development portfolio;

- Identify and segment target groups of education for all the key actors encountered, and link specific education agenda to each of the groups including timing, resource demand, objectives, goals, tools and means of education;
- Accelerator and incubator programmes for local enterprises concerned in smart city development

2.2.4 Implementation plan for partnership process

Stakeholder involvement plan is a “living plan”, as it requires occasional updates in line with feedbacks gathered during the implementation process: it should be open to i.e.

- incorporate new key actors, previously omitted groups
- change the composition of coordinator organization, thematic working groups
- add new communication methods, tools
- scale-up communication or redesign strategies according to the indicators collected during the awareness and engagement campaigns
- improve methods and contents of education-oriented activities

Table 3: Model template for stakeholder involvement implementation plan

	Objective/things to do	Stakeholders to be involved, actors in action	Tools	Comm. tasks	Education tasks	Timing	Resources
Establishment of a coordinator organisation	Planning processes need to have an owner, controller and higher level representative(s)	Decision makers, key players, external experts	Board/committee meetings, relatively closed group				
Establishment of a working group responsible for planning activities	There is a need to have a core team responsible for management and organization of processes. This serves as a basis for thematic groups to be established in a forthcoming stage	City council / Mayor Office representatives, active key players and external experts	Board meetings, workshops, open events				
Analysis of stakeholders	Identify main actors and stakeholders; assess their motivation; define activities leading to their successful involvement	Planning working group	Create a database, organize workshops or discussion groups/forums				
Identify and involve key players	Motivate and involve stakeholders based on the outcomes of analysis	Planning working group and other interested actors	Personal meetings, contacts in written forms and via phone				
Training and education of working group members, and other key players	Conclude to common interpretation and understanding of “smart city” notion, its relevance to urban environment and connected opportunities; Possible extension of stakeholder groups.	Planning working group and other interested actors	Workshops, invited speakers, study visits				
Establish thematic working groups	Establish thematic working groups according to Smart City domains (i.e. mobility, energy,	Planning working group and other	Personal meetings, contacts in written				

	etc.) and involve additional stakeholders relevant to specific domains	interested actors	forms and via phone				
Organization of thematic workshops (in optional quantity, depending on resources)	Analyse the situation of the city, elaborate detailed thematic analysis, identify opportunities for co-operation, synergies, potential areas of intervention. Define visions, goals and specific objectives for the thematic areas in matter. Identify the range of data (both existing and to be collected) which can be compiled into an (open) database.	Thematic working groups	Workshops (open)				
Organization of focus group meetings	Gather stakeholders and citizens in order to share their points of view, and gain information. These meetings focus on „hot topics” connected to thematic domains in order to have a broader/clearer view on the situation and need for engaging additional parties.	Stakeholders concerned in thematic areas citizens	Focus group meetings				
Definition interventions	Thematic working groups define main intervention areas/measures as well as connected opportunities for co-operation, synergies, co-design and co-creation	Planning working group, thematic working groups, key actors, stakeholders, citizens	Large, joint/common workshops				
Optional gathering of additional information	Preparing the ground for citizen engagement connected to the foreseen areas of intervention (related to as concrete cases as possible)	Done by thematic working groups Target group, can be any segment of the society depending on	Additional researches, assessments, gathering socio-economic data and literacy level , interviews, questionnaires,				



		focus	citizen surveys				
Creating an open database	Establishment of an open database that serves as a basis for defining smart city solutions and also as a connection point for adherence of further stakeholders	Coordinated by planning working group, Participants: co-operating actors are thematic working groups and other stakeholders					
Organisation of smart city cafés, meet-ups and hackatons	Collection of additional data/ideas/solutions, identification and testing innovative solutions related to data utilisations, mobilization and involvement of interested citizens	Thematic working groups, any interested player	Public workshops, smart city cafés, meet-ups, hackathons				
Planning, organisation (and launching) of living labs	Identification and testing innovative solutions related to data utilisations, mobilization and involvement of ICT-focused companies, SMEs, start-ups, interested citizens	Thematic working groups, anybody	Workshops				
Delivery of a documented strategy	Documenting the essence of everything identified, collected, and concluded: ideas, plans, results and experiences collected throughout the process (recommended: web-based formula, transparent, easy to keep updated)	Planning working group, thematic working groups	Workshop, shared document development				



3 Analysis of current situation

The objective of this section is to give a city that wants to set up an integrated urban plan necessary keys to achieve it, identifying its smart needs, related to the fields of activity / action analyzed as part of the urban preliminary diagnosis or “city audit” like conducted by the REMOURBAN project cities (D.3.1 to D.3.5). Analyze how smart solutions exist or not in these areas, see how they could be integrated and taken into account and what are the points of attention for their integration.

3.1 Summary of relevant results and findings of previous studies

The design of an integrated smart urban plan must take into account existing urban development strategies and achieve harmonization, while adding a smart layer to reach EU goals set in terms of environment and sustainable development. The latter will optimize existing plans by providing digital tools. Not only the different strategies for defined areas (mobility, energy, etc.) need alignment, but also political views in order to break down barriers and build a long-term vision.

An integrated urban strategy for smart and sustainable development involves setting ambitious projects, which may require a long-term development, as structural changes are needed (particularly the IT infrastructure or transport). This long-term strategy can be supported and initiated by pilot projects, in different fields, in order to test the feasibility and features of smart technologies.

3.1.1 Analysis with regards to existing urban strategic plans

Smart cities strategies should not be built aside existing urban plans. Cities need to consider the existing strategic plans they have already built and develop on these existing plans a smart city strategy.

These strategic plans can be very diverse and focus on different aspects of urban development. Some of them include:

Masterplan

A masterplan provides a picture of an existing community as it is and recommendations on how it should exist in the future. The objectives are to set up a plan to shape of the city of the future, which increases quality of life for the citizens, improves environmental sustainability and foster economic development and business activities. It deals with many topics which make the core of a city.

Transportation: transport means, transport infrastructures, transport ways and traffic.

Parks and open spaces: public parks are crucial for social live and cohesion in cities. As cities “green lungs”, they also contribute to air and environment quality. Besides parks, open spaces (undeveloped lands, deprived/polluted lands) are also locations to consider, when designing a masterplan, as they are part of an urban regeneration and re-organization.

Community facilities: all public facilities that are provided as services to the population (education, leisure, culture, safety, etc.)

Housing: housing is an important feature of citizen's life and wellness in cities. The quality of housing, the location and the surroundings, the friendliness of neighbourhoods partly defines the quality of lives of citizen and the attractiveness of a city.

Land use: physical and environmental conditions analysis provides a good start for land use recommendations.

Economic development: city planning should serve economic development. Specific attention should be dedicated on how the future changes of the city and the decisions and plan foreseen will contribute to maintain the actual economic activity and attract future business activities.

SUMP – Sustainable Urban Mobility Plan

A Sustainable Urban Mobility Plan is a strategic plan built to meet the mobility needs of users, like citizens, businesses, etc. in urban areas and surroundings. It encompasses the idea of an integrated approach; it fosters the balanced development of all relevant transport modes while encouraging a shift toward more sustainable modes[04]. According to the SUMP guidelines, developed by Eltis, its general objectives are the following:

- Ensure all citizens are offered transport options that enable access to key destinations and services
- Improve safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design for the benefits of citizens, the economy and society as a whole.

It gathers the long-term vision of the city regarding sustainable mobility development. It provides measurable targets, defines mobility policies and set up concrete actions to reach the long-term objectives set. The involvement of local authorities but also of local stakeholders and citizens is needed as the latter are the transport users (participatory approach).

RIS – Regional Innovation Strategies

In a globalizing economy, innovation plays an important role for European regions development. Regions need to adopt RIS in order to support local growth and compete at global level. Growth refers to a growth based on knowledge and innovation; a sustainable growth, supporting the environment protection, high employment economy and territorial cohesion[05].

The identification of the most significant areas for technological and economic development can be pointed out through a RIS, which can then support an efficient and dedicated R&D and stimulate private sectors investments. RIS enhance the development of an economy based on knowledge. It is also closely linked to sustainable development of regions and cities, as innovation can highly deploy in finding ways to use natural resources and energy more efficiently. Many European cities use that field for innovation development, calling it “eco-innovation” [06].

Local agenda 21

In 1992, at the earth summit (UN Conference on Environment and Development) in Rio de Janeiro (Brazil), the head of state of 193 countries adopted the decision to set up an agenda in favor of environment protection and sustainable development for the 21st century[07]. The approach of the agenda 21 is a strategic plan, based on a concrete action program, which follows these principles linked to sustainable development:

- fight against climate change and protection of the atmosphere
- conservation of biodiversity, protection of ecosystems and resources
- well-being of all human beings
- social cohesion and solidarity between regions and generations

- development following responsible modes of production and consumption

This agenda presents several levels of actions, with an implementation expected at international/national/regional and local levels. Many European cities have set up such a strategic agenda. It also emphasizes the participatory approach of citizens as pillar of the strategy and methodology. The citizens are expected to take part to the building phase of the strategy but also to its implementation and evaluation phases [08].

Social/community development plan

In order to fight social exclusion, poverty, insecurity and decrease the amount of people living in vulnerable conditions, a city can set up a strategic social development plan. A set of initiatives can be developed and coordinated by the plan with the objectives to improve socio-economic inclusion, provide an access to decent housing for all citizens, access to health services and development of social cohesion, through weaving the links between different generations and cultures. In practice, this strategy aims to guarantee the access to medical care, employment, housing, culture and leisure and training opportunities for all citizens of a city.

SEAP – Sustainable Energy Action Plan

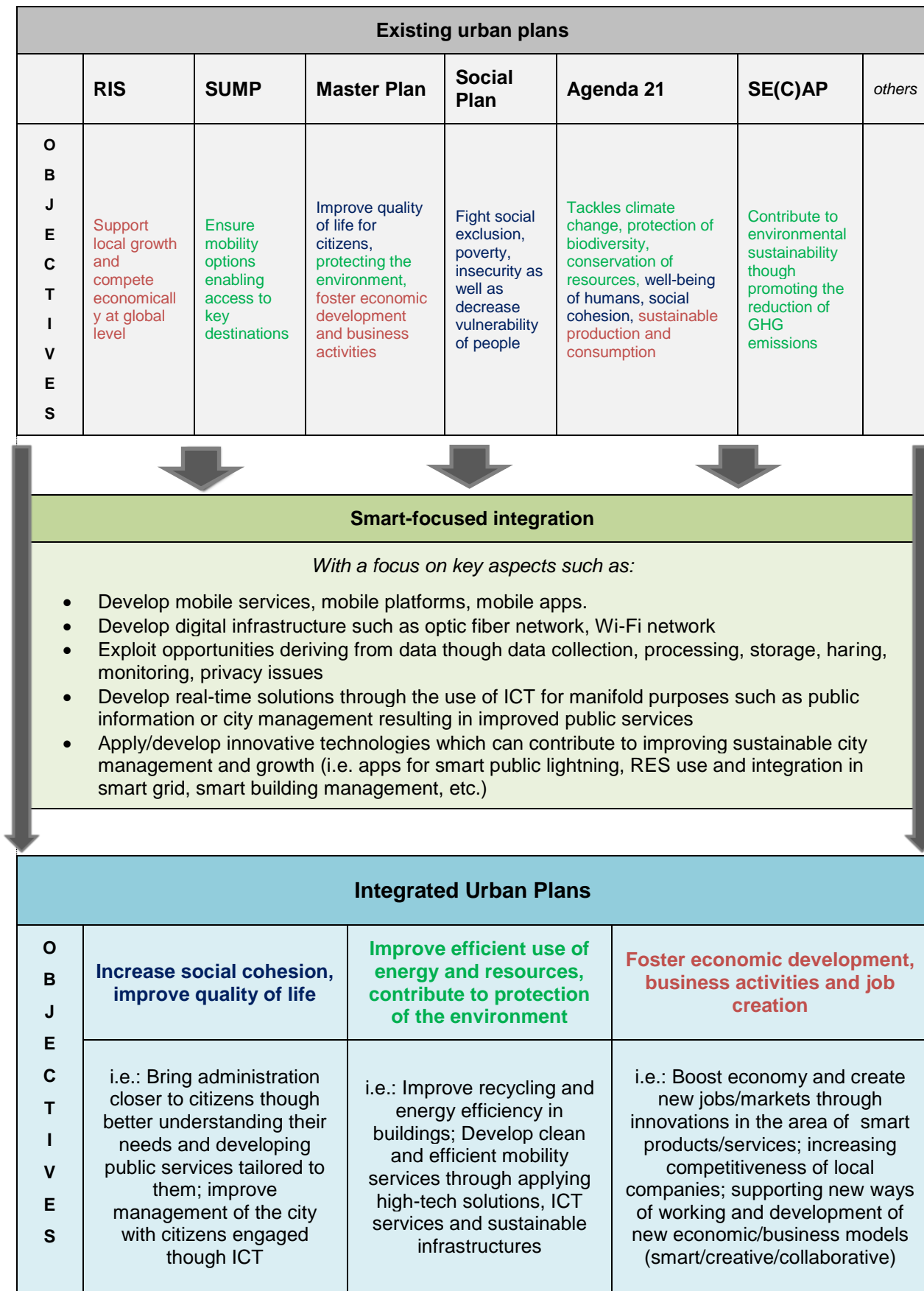
A SEAP is a strategic roadmap for European cities willing to fight climate change and set up and take actions in favor of energy transition. Cities building a SEAP also sign an agreement with the covenant of mayor, the European desk in charge of the support of the process, to assure that they will follow and respect their engagement. A SEAP contains objectives and target figures to reach in a defined period of time. So far, the target was the reduction of a minimum of 20% of the CO₂ emissions of the territory, by the year 2020, following the European target (20-20-20). However, this target has recently evolved and European cities signing nowadays into the Covenant of Mayor climate and energy initiative are expected to reach a reduction target of 40% by the year 2030. The strategy defines the activities and measures set up to achieve the targets, together with time frames and assigned responsibilities [09].

These strategic urban plans are characterized by specific objectives. They are associated to the sustainable development of a city, focusing either on a specific pillar (economy, environment, social) or on several of them.

These objectives should be included in an integrated urban plan while considering how "smart" objectives can be added. What "smart" objectives can be identified for an integrated urban development? How to harmonize the existing objectives with these new ones?

The scheme below depicts how these smart objectives can included in the urban strategy. Starting from the existing plans and their objectives, the scheme shows how smart objectives and their achievements means can contribute to the objectives of the overall Urban Integrated Plan.

Figure 1: Smart focused integration of existing urban plans



3.1.2 Analysis with regards to sectorial aspects

The need in terms of smartness and attention points regarding the current situation are outlined below for key action areas of a city:

- Society
- Human infrastructure
- Economy
- Land- and natural conditions
- Green spaces
- built environment and energy
- Mobility
- Public utilities
- Environmental protection
- Disaster recovery
- Municipal management, asset- and institutional model
- Urban climate
- Spin-off and spill-over effects of potential development to urban and suburban areas/agglomeration

Society

Society is defined by all categories of users living, working and/or having access to the territory of the city. These can be citizens, workers of enterprises, local shop owners, civil servants of the municipality, students. The quantity and diversity of city users/citizens is growing and hence, has an influence on the quality of the services that the city can provide.

When considering this topic in light of IUP, the city has to analyse to what extent the age, educational background, financial situation, school drop-out rate, possible fields of social conflict, acute poverty and social exclusion, ethnic minorities, socio-cultural diversity, different needs between men and women, etc. of the people support the spread of smart solutions. Important to consider, what potentials or tight cross-sections/bottlenecks can help or block/hinder the smart development processes and how to provide inclusive measures to take into account all categories of society in terms of not only economic revenues, but also educational level, or disabilities. With a growing and aging population, cities of the future will need to pay a specific attention to elderly people population, considering the accessibility of public and private spaces, the access to IT technologies.

Human infrastructure

Infrastructure dedicated to educational-, healthcare-, social, community- and cultural institutions, sport can integrate smart solutions to improve a lot of features: learning of students, performance of health technologies, access and support of patients, organization features in hospitals or schools, welcome of tourists, visitors and IT tools in cultural spaces, etc.

Important issues: *What are the already ongoing smart processes in and what barriers should be overcome in order to enable appropriate development? What range of public services needs digitalization in order to improve their efficiency while better responding to the needs of citizens?*

Economy

Economic analysis of city can help identifying the main economic activity sectors, the ones that could be enhanced, the main locations draining workers, the areas where economic activity need to be boosted, local labour market character, economic activity and business network, SMEs situation, local competitiveness factors, variables such as income per capita, or number of households affected by unemployment.

Besides the development of an innovative, smart economic structure that could attract workers and young people, a city need also to consider the new ways of working, oriented towards collaboration, cooperation, creativity, shared knowledge and space, but also towards opportunities connected to digital world like co-working spaces that promote local economic activities development.

Based on that analysis, several questions arise regarding smart developments, in particular: *How can smart solutions proposed improve local economic development, job creation and by doing so, increase local and regional benefits? Does the current entrepreneurial structure facilitate the spread of smart solutions? Is there an economic tissue (local companies) dedicated and specialized in smart city technological solutions? Is there cooperation, business potential to carry out investments in the future, and to increase competitiveness? How much is there the basis of green and creative economy?*

Land- and natural conditions

Every city has specific features on its territory that make it attractive for locals and visitors affecting the city's reputation.

Some of the basic questions: *What is the current status in terms of land use? Which are those land- and natural conditions that play the most important role in raising the reputation and touristic commerce/turnover of the settlement, and what kind of smart devices can support the spreading of this range of information? Which conflicts need resolution in order to improve the settlement's environment and quality of living?*

As land use and natural environment has also an influence on the deployment of renewable energies, there are other important questions arising: *Are there available spaces for solar panel installations and windmills? Are there any water sources suitable for hydro energy production? Does it have a potential for geothermal-based heating systems? What are the constraints related to these technologies and how smart solutions could overcome them?*

Does the city have power to decide the way it supplies its energy needs? – The response may affect largely the kind of fuel to be used, but also the type of energy production and the development of renewables.

Green spaces

Improvement of the quality of life of citizens is one important goal of smart cities. Green spaces participate to this achievement, by providing to citizens outside places, where they can rest, enjoy nature, meet each other, participating in this way to better social cohesion. Besides social considerations, green spaces and trees also have a high impact on climate mitigation as vegetation regulates rain cycle, has a cooling effect in urban areas, playing a buffer effect on climate warming. Urban green spaces expected to be peasant, peaceful, safe and adapted for disabled and providing furniture for kids.

Some of the important city-specific questions: How many green spaces count the city? What is the value of having these green spaces for the city? How much can it improve the micro-climatic conditions? Which conflicts need resolution in order to strengthen the well-doing role of green spaces?

Built environment and energy

The housing stock, in many urban areas of Europe, is nowadays degraded, aging, and not fulfilling good energy performances. Refurbishment and improvement of energy performances is a priority issue for cities, in light of energy transition and objectives set by the European commission.

Energy consumption of the houses and public buildings, street lighting and installations that present opportunities for energy savings or increase in the percentage of renewable energy

participation are subjects for analysis. A city needs to look at the current energetic status of existing buildings in the city and other features find local responses for a number of relevant questions such as follows:

How can smart solutions help to fulfil these energy efficiency goals? What is the level of renewable energy usage? Is there a need for smart digital tools, like solar potential aerial map or aerial thermographic picture of roofs that can be developed to inform citizens and make them act? What sort of local initiatives and subsidies are available with respect to energy efficiency/renewable? Regarding the new buildings, what kind of energetic related local regulations and arrangements are in effect that the city can/must adapt? Does the city have already set up an “Energy roadmap”?

Building stock cannot be refurbished at the same time and some district can be identified as priority among others. *What are the priorities identified district to be refurbished in order to become smart energy efficient? What are those measures that will have a clear impact on the savings and sustainability of the building?*

Mobility

A sufficient and eco-friendly public transportation system is crucial for the sustainable and smart development of a city. It has a clear positive impact on providing a peaceful atmosphere to the citizens, on the reductions of GHG and particulate matters, but also on the economic attractiveness of a city. Ideally, mobility offers should be wide-ranging, favouring modal split, sufficient and well organized in order to be practical for users and accompanied by a good infrastructure network.

Issues to be tackled: *What kind of smart solutions are already available in the settlement's transportation system i.e. communal, bicyclist, automobile or truck, railway, etc.? What kind of software is available/needed to help traffic management, fuel consumption reduction, particulate matters emissions, improve road security, parking spaces management, etc.? How to optimize transport tariff in line with frequency of use and multi-modal use? What sort of further opportunities and barriers influence smart development possibilities? The ownership of the transport network and transport infrastructures by the city is an asset and provides good opportunities to integrate smart solutions.*

In the transport sector, behaviours of citizens/users have a big influence on the development and use of transport solutions. Incentives and block can be used to promote one transportation mean or dissuade the use of another. *Are any incentives or blocks already put in place by the city? What opportunities can be identified for the adaption of smart transport solutions?*

Regarding electric vehicles fleet deployment, in order to reduce the impact of cars on climate change and environment, besides car purchase by citizens/users, the deployment of an electric charging station network is crucial and has increasing potential for putting in place by the city. *How to deploy an EV fleet with an efficient electric charging station network? What are the mobility behaviours of the citizens in order to set up a plan to install public charging stations that respond to the needs of users? What smart solutions can be proposed to manage and facilitate charging by the citizens/users? Is there a room for smart solutions to serve for freight transport and, especially, in last miles delivery services?*

Besides electric charging stations settlement, the city has to consider the source of electricity used for charging EVs. Electric vehicles can be coupled to renewable energy sources, like solar or wind, to provide a neutral CO₂ balance from “well to wheel”.

Public utilities

Public utilities cover a wide range of sectors, dedicated to services to citizens, i.e.: waste management, water management, energy networks, public lightning, etc. While in many cities,

ownership and/or management of these services are attributed to the city, in others they are managed by third parties. The ownership and level of autonomy that a city can experience in the management of its utilities has an important impact on the achievements of smart projects. The control on the evolution of the utilities and its flexibility as well as the investments achieved are directly related to the ownership of the city or not.

Does the city own its public utilities? What kind of developments are needed in basic public utilities to ensure living-conditions worthy of smart cities?

Regarding energy public facilities, if any, what is the condition of central district heating like? What are the opportunities of modernisation? Are there opportunities to develop new energy districts/networks (heating district, smart grid)? Are there any RES available to be used for an energy network?

As for public lighting, smart technologies exist in order to improve energy efficiency, and at the same time reduce greatly the energy bill, but also to provide, with the help of sensors, other services to municipalities: security, maintenance, traffic management, waste management, etc. *What are the needs and problems identified, for a city, which can be solved by a smart public lighting system?*

Concerning waste and water management, smart solutions can help better organizing the collection of wastes (i.e.: smart waste collection containers). Waste water and urban wastes are also sources of energy that can be exploited by a city. *What are the barriers to overcome in order to implement smart projects?*

Environmental protection

Environmental status of a city and environmental protection are important features, participating to a good quality of life in urban areas. A city needs to monitor the levels of air or noise pollution and take actions if they exceed some thresholds. For monitoring purposes smart solutions, like sensors, can be installed: *Which kind of data's need to be recorded? Where are the most suitable location for recording data's and install sensors?*

Citizens are the direct impacted persons regarding degraded environmental conditions. *What is the environmental awareness of the citizens like? What community programs are held on environmental protection? What are the most important points of conflict experienced with citizens and what kind of smart solutions can be helpful in order to solve them?*

Disaster recovery

Smart solutions can be implemented to face disaster, manage emergency situations and speed up recovery. *Are there any forecasting systems available in the City/settlement? What kinds of citizen disaster alerting solutions are available, or possible?*

Urban climate

Cities need to face climate change but will be also forced to adapt to its changing conditions in the future. Cities need to evaluate their vulnerability regarding climate change. This can be done in many fields, depending on the city's features: agriculture, flooding, forestry, biodiversity, energy, tourism, etc. *What is the city/settlement's vulnerability to climate change?* Answering this question allow to better manage the risks and implement smart solutions – exposure, sensitivity, adaptability. *What kind of effect does it have on human health, economy, water management, etc.?*

Municipal management, asset- and institutional model

Governance takes an important role in the achievements of the objectives of an integrated urban plan and in the roll out of the actions. Strong political support, internal coordination organized at hierarchical level, involvement of stakeholders' groups are also key of success.

What is the level of citizen engagement? Are there any forum, committee, group, referee related to strategic planning, energy improvement, environmental protection, smart city strategy management? Regarding financing means, how much municipal budget will be dedicated to the implementation of smart solutions?

Spin-off and spill-over effects of potential development to urban and suburban areas/agglomeration

It is recommended to take into account the territorial dimension of the urban phenomenon, not limiting the scope to the administrative borders, but urban realities in a proper context, i.e. territorial, (sub-)regional, and functional as well as dynamic relationships. *What is the settlement's cooperation with its environment and what are the areas concerned? Are there any common strategies or complementary development with neighboring settlements that are subjects for analysis?*

3.2 Complementary analysis, targeted audits

Other fields of activity/action can be added to the ones presented in section 3.1. They are specific to the planning of Smart cities :

- Urban services focused on citizens
- End-user profiles
- Digital infrastructure
- Data assets
- Relevant co-operating bodies
- Potential financial opportunities

Urban services focused on citizens

Smart urban services (i.e.: mobility, waste management) can be defined as easy to use, dynamic and flexible. Public services should be considered as real services for citizen, with the aim to transform them in such a practical and easy way of use that they become unavoidable. *What can be simplified in the existing public services? What digital tools can be created to easy services provided to the population?*

End-user profiles

End-users are at the core of smart urban regeneration. Therefore, their needs, preferences, behaviour and other characteristics requires particular attention. They should be considered as crucial stakeholders in order to make the smart solutions work. *Who are the users of the public services in the city? What are their profiles? If they are users of building facilities or mobility services: what are they expecting and what are their needs in terms of usage and comfort? What are the needs of citizens in terms of urban digital platform? What innovative services are they expecting from the city?*

Digital infrastructure

Digital infrastructure supports the roll out of urban smart projects, for Apps development, collection and processing of data, automation of devices, etc. However, many EU cities currently lack deployed and efficient ICT infrastructures (optic fibre cable network; Wi-Fi/wireless network). *What kind of infrastructure (ICT platform) can serve data collection, in a relevant, secure and efficient manner? What standards do the telecommunication services provide in the settlement? How to deploy a public network of optical fibres to fill in the existing gap? Sensors, mobile devices, cameras can be useful tools to build the digital infrastructure.*

Data assets

ICT infrastructure allows collecting a comprehensive amount of data. However, the management of data's is a high challenge for smart cities development, as they need to be first collected, then spread and exchanged, then processed and stored. The city has to identify its needs: *What kind of data's does the city want to focus on?*

Depending on the urban areas that need to be the most urgently improved and where smart solutions need to be found the most urgently (energy, mobility, environment, etc.). Data's finally need to be transformed in a way to become services for citizens and for administrative offices of the city. Data provides better inform decision makers and help taking the right decisions.

How the city can develop open data systems, taking into account the privacy of data's and their right use, to the service of all.

How to respond to the needs of citizens/stakeholders identified and provide relevant and innovative services to all stakeholders in contact with the territory? Not only citizens or workers, but also external stakeholders, like tourists, external companies willing to settle on the territory.

Relevant co-operating bodies

There is a need for good collaboration and communication between public utility companies and cities in order to make data management and share efficient. The city needs to identify who are the key contact and contributors.

Potential financial opportunities

How to finance the investments of an IUP? A city should consider and analyse the financing opportunities: what are the EU opportunities to fund smart city projects? What are other opportunities and financing schemes that exist such as PPPs; ESCOs; crowdfunding, etc.? (see further information in D1.17 and D1.18, future document of REMOURBAN). A city can identify who the interested parties in the deployment of the investments are as actors to be possibly involved in the financing process.

In the set-up and assembling of a project, what legal structure can be created to manage the project and budget? Who will pay and who will operate the smart system? How can smart city investments provide ROI?

3.3 Summary of evaluation (SWOT analysis)

Smart city development is a strategic process, which requires novelty in approach, planning, operations, networking and management of urban enterprises. To strategize the smart city transformation scenario, Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis has been used as a strategic tool to identify the gap between existing resources and prerequisites of smart city transformation.

Gathering data with regard to prior smart city undertakings and extrapolating respective strengths, weaknesses, opportunities and threats, it is possible to draw a clear picture concerning the difficulties and favorable issues encountered during the transformation of already existing European cities into smart cities.

So far, based on the Smart Cities Baseline SWOT analysis, the main conclusion is that there is a certain level of difficulty in implementing smart city projects in Europe due to issues outside the project implementation activities (opportunities and threats).

The smart city development strategy and implementation is different scenario subject to smart city vision, adoption, initiatives, and overall progress. The development strategy of smart city is important by the following three reasons. Firstly, it can clarify the strategic difference about the

specific strategy and how it will perform better than others smart city development strategies; secondly, it can help city management to cope with the changing environment; thirdly, strategic management helps to coordinate city's management and people's efforts working in the same directions.

3.3.1 Strengths

The impact analysis of internal and external factors affecting the implementation of previous or ongoing smart city projects shows that the most important strengths are applications integration platform, technological innovation and integration and business opportunities. This result highlights the importance of information exchange when carrying out smart city activities.

Applications integration platform

The orientation of cutting-edge technology such as Internet of Things (IoT), cloud computing, advance signal processing, sensing and instrumentation, RFID, and ubiquitous informational network applications like remote sensing platform, GPS, GIS, spatial-temporal data services and urban spatial information system have open the smartness gates. The integration of these cutting edge technologies and information system applications platform have set the required base to take benefit of complete information about city's geographic database, demographic database, and macroeconomic database to develop a sustainable city that can fill the future needs.

Technological innovation and integration

Technological innovation and integration ICT has transfigured human's aspects of thinking, the way ubiquitous sensing and instrumentation, control and optimization, networking and service integration and wireless connectivity have converged, it has really made the citizens more situational aware and smarter than ever. Smart ICT revolution and technology advancement have already set the required base for smart city concept due to following reasons.

Firstly, the development of fourth generation mobile communication technology has already set the technical basement especially for broadband applications and high-speed transmission of information, which signifies the geospatial spaces for smart city developments. Secondly, the data collection, access, exchange and transmit types of issues are now easier with the introduction of IoT, which enables identifying, locating, positing and managing network by transmitting and exchanging information between things by defined protocols through sensors, radio frequency identification devices (RFID) and GPS. Thirdly, cloud computing being the distributed computing mode, sets high efficiency of information processing and information diffusion is facilitating the users living status and public accessories such as electricity, gas, water by using information technology service and infrastructure, computing platform and software modules. Lastly, information system integration platform is providing the flexibility of wide range data integration specially the integration of urban information system to offer access to geographic and demographic database for smart city.

Strong business market opportunities

Any project initiative requires an economic competitiveness, innovation business opportunities, trademarks entrepreneurship and coordination between national and international business markets. Accepting the importance of smart city for sustainable development, the European Union has substantially placed a budget of €107,180,000 for smart city development and related projects in ongoing Horizon 2020 project for the period 2014-2020.

3.3.2 Weaknesses

The main weaknesses or shortcomings of the projects turn out to be lack of multi-source and multi-temporal data, lack of real-time decision mechanism and managerial and organizational issues.

Lack of multi-source and multi-temporal data

One of major concerns about existing urban information systems is lack of different types of information from different sources to make high spatial and temporal analysis. The information data source depends on basic remote sensing, Geographical information System (GIS) mapping data and 3-D model of urban streets. The city information is analyzed in form 3-D visualization prospects, without having the advantage of multisource and multi-temporal data, which further can assist urban management for better decisions based on high spatial and temporal analysis.

Lack of real time decision mechanism

Lack of different types of information from different sources for high spatial and temporal analysis barricades the real-time information updates and future predictions, which affects the real time decision support mechanism practically.

Managerial and organizational issues

The active involvement of leading organizations is essential for smart city initiatives. On one side, the successful initiatives require managerial and organizational innovation that cannot be achieved without interdepartmental collaboration. On other side, the managerial and organizational interoperability is the promising part of smart city initiatives that requires dynamic leadership skills.

3.3.3 Opportunities

The main opportunities are large-scale space-time and service platform, handling of multi-source heterogeneous systems and innovation and entrepreneurship.

Large scale space–time and service platform

Sensors, controllers and computing terminals are the major source of acquiring smart city spatial information from different service platforms. The coordination and integration of these service platforms is of great concern. Also, smart city information contains large amount of structured (atmospheric data like temperature, geographical coordinates and so on) and unstructured data (pictures, video and audio files), so the storage and management of such huge amounts of data needs some special attentions, because mismanagement of data can result in misinterpretation of data, which can affect the city information services very badly.

Handling heterogeneous urban information system

Smart city spatial information is acquired from different sources, at the same time data observation mechanisms, data processing mechanism and location information are different so smart city requires proper handling of such multi-source heterogeneous information system to continuously observe the information data and to be able to detect any abnormal events effectively as it happens.

Innovation and Entrepreneurship

The utilization of intelligence of information technology cannot be the only objective of smart city but the integration of different resources are required to develop a sustainable and livable city, which not only be innovative in information and management but must consider the human interactions and interest intact. During sustainable city construction, creation of job

opportunities, workforce development and entrepreneurship will lead a significant improvement in productivity, and will also sets high degree of economic competitiveness.

3.3.4 Threats

The threats with the highest impact values are data privacy and security issues, standards and interoperability issues, economic uncertainty and lack of standardized frameworks.

Data privacy and security issues

It is better to remove information sharing and exchange barriers for every stakeholder, but it does mean that data privacy and information security be compromised at any stage to allow unauthorized access to data. ICT advancement, cybercrimes, and data encryption techniques are challenging the data privacy and information security. Before massive scale deployment of sensors, cyber security must be taken to a highest level.

Standards and interoperability issues

To manage urban information system, usually different cities and organizations adopt different standards and models, which create interoperability issues. For certain reasons this may look logical but in broad prospective of smart city deployment at wider scale, an open industry process and unified information models are required to be developed so that every stakeholder remains involved.

Economic uncertainty

The inconsistency in international, national, and regional rules and regulations related to economic policies cannot help to scale up the smart city initiatives. Also, there is a lack of appropriate and systematic methodologies and metrics for reporting and verifying the investment returns. Depleted public finances from the recession are slowing down public investments. The financial situation, the unavailability of credits, and regulations on financial institutions to reduce risk exposure by building stronger deposit bases are limiting the available cash flows, thus slowing down the investments in new technology domains like smart city.

Lack of universal standardized frameworks

There is no “universal solution” to ensure the success of a city in its path towards ‘smartness’, instead, a set of transformations has to be dealt with in order to take different aspects into account. Many cities worldwide have launched initiatives to become smart cities, and each case is different. Each city government must adapt resources and improvement efforts to meet its specific needs.

Figure 2: Baseline SWOT analysis for smart urban development

	Strengths	Weaknesses
	Such as <ul style="list-style-type: none"> • Applications integration platform • Technological innovation and integration • Business opportunities 	Such as <ul style="list-style-type: none"> • Lack of multi-source and multi-temporal data • Lack of real-time decision mechanism • Managerial and organizational issues
Opportunities	OFFENSIVE STRATEGY	DEFENSIVE STRATEGY
Such as <ul style="list-style-type: none"> • Large scale space-time and service platform • Handling of multi-source heterogeneous systems • Innovation and entrepreneurship 	How to exploit the opportunities based on our strengths? How to exploit the strengths in such a way that enables to take advantage on the opportunities?	How to improve weaknesses in order to enable exploitation of opportunities? How to exploit the opportunities for improving the weaknesses?
Threats	STRATEGY FOCUSED ON BREAK-OUT POINTS	CRISIS STRATEGY
Such as <ul style="list-style-type: none"> • Data privacy and security issues • Standards and interoperability issues • Economic uncertainty • Lack of standardized frameworks 	How to wisely use the strengths in a way that ensures better protection against threats?	What interventions/measures should be taken in order to avoid threats and risks in those areas were the city faces weaknesses?

4 Strategy

Cities are one of the most important engines of the European economy providing jobs and services and serving as catalysts for creativity and innovation but also the places where persistent problems such as unemployment, segregation and poverty, as well as severe environmental pressures, are concentrated. Policies pursued in relation to urban areas therefore have a wider significance for the EU as a whole.

It is increasingly clear that the various challenges facing urban areas – economic, environmental, climate, social and demographic – are interwoven and success in urban development is only achieved through an integrated approach. Hence, measures concerning physical urban renewal should be combined with measures promoting education, economic development, social inclusion and environmental protection. The development of strong partnerships involving local citizens, civil society, the local economy and the various levels of government is an indispensable element. Combining capacities and local knowledge is essential to identify shared solutions and to achieve well accepted and sustainable results.

Such an approach is especially important at this time, given the seriousness of the challenges European cities currently face. They range from specific demographic changes to the consequences of economic stagnation in terms of job creation and providing services, to the impact of climate change. Identifying effective responses to these challenges will be critical for achieving the smart, sustainable, inclusive society envisaged in the Europe 2020 Strategy.

Definition of the scope

The definition of scope is determined by the characteristics and the nature of the problem or situation addressed. Not all problems included within the Strategy must be addressed and treated at the same scale. Hence, once defined the suitable urban area for the implementation of the long-term strategy, which could lead to a delimitation of functional urban areas involving different scales and dimensions.

Insofar as that such actions included in the Strategy are integrated and related to each other, they should all contribute to a unique development of the sustainable urban strategy, although running on time and on different territorial scales.

The implementation scale of an operation could be executed in a functional urban area or in a polycentric urban network (for example in the case of a problem of mobility and public transport) or could be concentrated in a reduced sub-area, neighborhood or residential area (e.g. in the case of a social inclusion problematic or education of vulnerable resident population).

4.1 Principles for strategy building and evaluation criteria

The cohesion policy 2014-2020 aims to foster integrated strategies which enhance sustainable urban development in order to strengthen the resilience of cities, and to ensure synergies amongst the investments supported by ESI funds.

The EU has produced some factsheets highlighting key elements and principles of the approach that must be given to the *integrated urban development strategies*.

4.1.1 General Principles

A more holistic approach

It signifies that resources should be concentrated in an integrated manner to target areas with specific urban challenges; and at the same time, that ERDF-funded urban development projects should be integrated into the wider objectives of the programmes.

Stronger focus on urban development at programming level

Partnership Agreements and OP should set out the arrangements to ensure an integrated approach to the use of ESI funds urban areas within the wider context of territorial development.

Investment priorities tuned to facilitate tackling urban challenges

A number of the thematic objectives supported by the ESI funds have urban specific investment priorities e.g. promoting low-carbon strategies for urban areas; improving the urban environment, including the regeneration of brownfield sites and the reduction of air pollution; promoting sustainable urban mobility, and the promotion of social inclusion through supporting the physical, economic and social regeneration of deprived urban areas

Improved tools to deliver integrated actions

The Integrated Territorial Investment (ITI) is a new delivery mode to bundle funding from several priority axes of one or more operational programmes for multi-dimensional and cross-sectoral interventions. An ITI can be an ideal instrument to support integrated actions in urban areas as it offers the possibility to combine funding linked to different thematic objectives, including the combination of funding from those priority axes and operational programmes supported by the ERDF, ESF and Cohesion Fund (Article 36 of the Common Provisions Regulation). An ITI can also be complemented with financial support from the EAFRD or the EMFF.

Community-Led Local Development (CLLD) is a tool to promote the implementation of bottom-up, local development strategies prepared and implemented by local action groups involving representatives of all sectors of local interest. It is an extension of the LEADER approach into urban areas promoting community ownership and multi-level governance. CLLD allows for needs-based capacity building activities, networking and stimulating innovation already at neighbourhood level in order to empower communities to fully exploit their potential (Articles 32-35 of the Common Provisions Regulation).

Financial instruments

Member States are encouraged to make extensive use of financial instruments in supporting sustainable urban development. The scope of financial instruments is extended and covers all thematic objectives and investment priorities and all kinds of beneficiaries, projects and activities (Articles 37-46 of the Common Provisions Regulation).

Ring-fencing funding for integrated sustainable urban development

A minimum of 5 % of the ERDF resources allocated to each Member State shall be invested in the implementation of integrated strategies for sustainable urban development. There are several options as to how these strategies can be financed:

- using the new Integrated Territorial Investment (ITI) tool,
- by means of a specific operational programme,
- or through a specific priority axis (Article 7(2) of the ERDF regulation).

Increased responsibility for urban authorities

The implementation of sustainable urban development strategies requires a degree of delegation to the urban authority level (Article 7(4) and 7(5) of the ERDF regulation)



Innovative urban actions

Some funds are provided to support innovative actions. These innovative urban actions shall include studies and pilot projects to test new solutions to urban challenges that are likely to grow in the coming years.

Strengthened networking

The Commission will establish an Urban Development Network comprising urban authorities which receive funding from the ESIF to be spent in line with ERDF Articles 7 and 8 (Article 9 of the ERDF regulation), This Network will act as a forum for capacity building and exchange between the cities pioneering new techniques and developing integrated investments. The Network is not a funding instrument but a way for cities to share feedback on the use of these new approaches.

Under the European Territorial Cooperation (ETC) objective, the exchange and learning programme for cities will continue to provide them with networking opportunities in order to share and develop good practices in urban development. In particular, cooperation between urban authorities will continue under a financially strengthened URBACT III programme.

4.1.2 Horizontal Principles and cross-cutting objectives

Equality between men and women and non-discrimination

This general principle should be applied in all sectors, especially in professional life, education and access to health care, goods and services. It is necessary to point out how the strategy contributes to further integration in the labor market and social both women, disabled and other marginalized communities, immigrants and ethnic minorities.

Sustainable development

The horizontal principle of sustainable development implies the implementation of cross-cutting measures related to environmental protection, efficient use of resources, mitigation and adaptation to climate change, biodiversity and ecosystem protection, resilience disaster, prevention and risk management.

It should be noted how the Strategy contributes to achieving greater efficiency in resources use, de-carbonization of the economy, mitigation and adaptation to climate change, protection of biodiversity and ecosystems, and disaster resilience.

Accessibility

In general, there are national strategies on disability which relate the fields and the strategic measures in education, employment, health and poverty reduction, as well as establishing universal accessibility as a pre-requisite for participation in society and in the economy.

The urban strategy should take into account the requirements of accessibility strategies.

Demographic change

The aging of the population produces an increased pressure on pension systems increasing too demand for social protection benefits, especially health services and dependency on care situations.

The Designed strategy should consider the challenges outlined as a result of demographic change in urban areas, and particularly address the needs of the elderly.

Mitigation and adaptation to climate change

Strategies should consider measures helping to mitigate and adapt to climate change and reducing its effects taking into account the risk of natural disasters caused by extreme weather events.

4.1.3 Evaluation criteria

The design and development of the strategy must have a flexible character and it must be adapted to the territorial reality and the institutional and governance structure, although certain basic elements of general application can be identified, in particular: initial identification of problems, integrated analysis, diagnosis and definition of expected results, delimitation of the scope, implementation plan, indicators definition, and a real involvement of the local actors and a public participation throughout all the process.

4.2 Vision

Although the regulation does not go into detail on the content of integrated urban strategies, there are some key principles which are recommended to be taken into account:

- The integrated urban strategy should not be viewed as an administrative exercise that an urban authority has to complete in order to qualify for funding. It should be a comprehensive and evolving strategy that is of real use to the urban authority and that helps to address key challenges.
- It should be based on the real development needs of the area concerned following a robust territorial and demographic analysis which identifies:
 - the challenges;
 - the strengths;
 - the weaknesses;
 - the opportunities (in the specific area and in relation to the wider area);
 - a development strategy (indicative actions, measures, investments, operations)
- It should set out a mid-term/long-term vision i.e. until at least 2020.
- It should be comprised of a system of interlinked actions which seek to bring about a lasting improvement in the economic, environmental, climate, social and demographic conditions of an urban area. Although not compulsory, Member States should seek to use the ESF, in synergy with the ERDF, to support measures related to employment, education, social inclusion and institutional capacity, designed and implemented under the strategy.
- As not every operation occurring within the urban area will be financed in the same frame, the strategy should clearly refer and build upon major investments (including ESI-funded investments) occurring within the urban area concerned. By extension, any EU funded investment project should therefore seek to take account of and link with the integrated urban strategy. The coordination of the financial mechanisms must be set up to ensure synergy and coordination between investments; in particular EU supported ones, in the urban territory concerned.
- It should be coherent with the overall development targets of the region and Member State.
- It should be realistic in terms of the capacity to implement and it should be proportionate to the amount of funding concerned.
- Those operations in the strategy to be funded by ESI Funds must be linked to the objectives of the programme from which the funds derive. If an ITI uses funding from several priority axes or programmes, a Member State may wish to express the objectives of the ITI through additional result indicators covering all contributing priorities or programmes.
- It should clearly demonstrate how local citizens, civil society, other governance levels will be involved in the implementation of the strategy. The creation of the strategy should be a collective undertaking, as the co-production method increases the likelihood of an integrated approach and the chances of successful implementation.

While it is accepted that the co-production method is challenging and requires additional effort, it will benefit the urban authority in the long term.

4.3 Goals, targets, objectives and their interconnections

In terms of what is meant by 'interrelated' or 'interlinked', it means that actions should not be proposed and funded in complete isolation from each other, but rather that they should be developed within the context of a wider integrated strategy with the clear aim of creating a coherent and integrated response to the problems of the urban area concerned (deprived neighbourhood, city district, entire city, metropolitan area, etc.).

The meaning of this principle is twofold, it implies that resources should be concentrated in an integrated way to attend challenges of specific urban areas and at the same time, the urban development projects funds must be integrated into the broader objectives of the programs.

In addition, there are two levels of integration: horizontal and vertical.

Horizontal integration

The strategy cannot consist of a simple isolated relationship of sectoral activities, but it must go further analyzing interlinkages existing between them, and how actions contribute to the overall strategy. This does not imply that each action must necessarily respond to all the dimensions of the strategy (economic, environmental, climatic, demographic, social...) but at least some of them.

The integrated approach doesn't mean to deal with all issues at the same time and giving them all the same relevance. The complexity of an urban area involving different subareas entails higher requirements for application of an integrated approach: Various municipal authorities involved and an integrated management of several institutions participating in the strategy. It must be understood that integration involves a cross-cutting strategy that requires interdependency of sectoral policies, new planning instruments and new governance arrangements between institutions. It must be avoided, as often it happens, the mere juxtaposition of sectoral policies with low internal cohesion.

The implementation of the integrated approach should not only involve coordinating or interlinking the territory horizontally; actions need to be combined supported by sectorial investment priorities (low carbon economy, urban environment improvement, promotion of the sustainable mobility and social inclusion, etc.) in the unique urban development strategy of the city.

Thus, the principle of the integrated approach is effective aligning sectorial to the territorial.

Vertical integration

The Strategy must integrate a vertical perspective. This implies that the strategy should be consistent with regional strategies that apply the strategic documents nationally defined in order to contribute to the objectives of the Sustainable Growth Operational Programmes also demonstrating engagement with the Europe 2020 strategy.

Define S.M.A.R.T. goals

Goals defined should be

- Specific
- Measurable
- Attainable
- Relevant
- Timely

4.4 Mapping of financing opportunities and schemes

A UIP would have relatively low value without financial viability, but it should be realistic and achievable with mobilization of available funding opportunities and application of appropriate funding schemes. Smart urban regeneration is very often capital-intensive and offer spaces for innovative financing models and resources.

REMOURBAN project will identify a wide range of new financing solutions a city might strongly need, besides traditional ones, for smart urban development. These solutions will be presented in details in D1.17 Report on innovative business models and financing schemes and D1.18 inventory of innovative PPP solutions and approaches.

Some of resources which will be required to make this happen;

- Summary of potential sources of funding (including but not limited to ERDF and ESF);
- Presentation of how these activities relate to the programmes for the period 2014-2020 and also other European initiatives such as Horizon 2020.

As indicated in the section 4.1 the Integrated Territorial Investment (ITI) is a new delivery mode to bundle funding from several priority axes of one or more operational programmes for multi-dimensional and cross-sectorial interventions. An ITI can be an ideal instrument to support integrated actions in urban areas as it offers the possibility to combine funding linked to different thematic objectives, including the combination of funding from those priority axes and operational programmes supported by the ERDF, ESF and Cohesion Fund (Article 36 of the Common Provisions Regulation). An ITI can also be complemented with financial support from the EAFRD or the EMFF.

Community-Led Local Development (CLLD) is a tool to promote the implementation of bottom-up, local development strategies prepared and implemented by local action groups involving representatives of all sectors of local interest. It is an extension of the LEADER approach into urban areas promoting community ownership and multi-level governance. CLLD allows for needs-based capacity building activities, networking and stimulating innovation already at neighbourhood level in order to empower communities to fully exploit their potential (Articles 32-35 of the Common Provisions Regulation).

Financial instruments

Member States are encouraged to make extensive use of financial instruments in supporting sustainable urban development. The scope of financial instruments is extended and covers all thematic objectives and investment priorities and all kinds of beneficiaries, projects and activities (Articles 37-46 of the Common Provisions Regulation).

5 Action Plan

One of the major challenges when it comes to devising and implementing an Integrated Urban Strategy is the complexity of the city itself and of the (decision-making) processes that need to be put in motion to change the business as usual paradigm. This challenge often materializes in the form of understanding the potential solutions for the city and overcoming very practical barriers that concern the regulatory environment, decision-making processes, and existing governance mechanisms.

Cities and communities around the world face tough challenges, including[10]:

- Increased population
- Polarized economic growth
- Increased greenhouse-gas emissions (GHGs)
- Decreased budgets

However, the main barrier to adopting such solutions is the complexity of how cities are operated, financed, regulated, and planned. For instance, city operations are multidimensional and comprise multiple stakeholders whose dependencies and interdependencies affect and ultimately determine the urban environment.

These issues, and others, can be mitigated through the adoption of scalable solutions that take advantage of information and communications technology (ICT) to increase efficiencies, reduce costs, and enhance quality of life. Cities that take this approach are usually the ones that have an Integrated Urban Planning approach.

A number of initiatives have triggered the local governments to have a sense of planning to reach an ultimate goal (decrease carbon emissions, energy consumption, etc.). Interest in this kind of action plans have led to plenty of theoretical and technology-led discussions, but not enough progress has been made in implementing related initiatives. When you look at Covenant of Mayors initiative there are 5,341 “Action Plans” but only 926 “Monitoring Plans” (as of 07.06.2016). Most of the local governments do not have the ability to implement and monitor the actions they have planned.

The integrated urban plans are translated into programs and projects through implementation plans. This requires building and communicating a strategic and long-term vision for the city, foreseeing financing scenarios and tools, planning the cooperation with multiple actors, while taking into account the local/regional/national environment. Most of the action plans cover the questions why, what, when; but the most relevant question “**how?**” for local governments remains unanswered.

Finding answers to the following questions while preparing an action plan is crucial:

- Why is the identified strategy good for a city?
- What is the business case that justifies the initiative or innovation?
- Which solutions should be deployed?
- Which actions have to be taken?
- Which projects and components of the plan are crucial?
- How should the solutions be implemented?
- Which policies and business models have to be in place to implement the plan?
- Is the capacity of the local government enough or a new organizational structure is needed?
- Who are the key stakeholders?

By answering the questions above by use of a template approach, a city will be able to put together a coherent and comprehensive proposal for an action plan which often provides a strong base when seeking funding or assistance from bodies such as the EC Horizon 2020.

Figure 3: Action Plan Cycle



1. **Political commitment** is the first and foremost step to start an implementation plan. It is important to regularly provide information on the progress, the benefits and needed resources for the action plan to top management. Empowerment and support at the highest level will be crucial for successful action plans.
2. **Administrative structure** of the team is also an important success factor. A team leader with adequate empowerment and members with clear visions about their responsibilities will make it easier. The team members should also have links to relevant organizational structures (strategic planning, spatial planning, transportation, etc.)
3. The views of **citizens and stakeholders** should be known before detailed plans are developed. Therefore, citizens and other stakeholders should thus be involved and offered the opportunity to take part in the key stages of the Action Plan elaboration process: building the vision, defining the objectives and targets, setting the priorities, etc. There are various degrees of involvement: 'informing' is at one extreme while 'empowering' is at the other. To make a successful action plan, it is highly recommended to seek the highest level of participation of stakeholders and citizens in the process.
4. Another important step is to **identify the existing** municipal, regional and national policies, plans, procedures and regulations that affect urban planning within the local authority. The mapping and analysis of these existing plans and policies is a good starting point towards better policy integration.
It is also important to evaluate the current assets of the institution; the resources, constraints in terms of financial and human resources to be able to establish a realistic,

doable and down to earth action plan. A **SWOT analysis** for the action plan might be helpful.

5. **Long term vision** serves as the uniting component that all stakeholders can refer to; meaning everyone from leading politicians to citizens and interest groups. The long term vision should compromise different aspects that want to be covered in Action Plans; environmental, social, economic.
6. While developing an action plan it is important to define **criteria** to choose the actions that will be carried out or prioritized.
7. In the **Implementation** phase it is important to adopt a Project Management approach: deadline control, financial control, planning, deviations analysis, risk management and quality management procedure.
 - Divide the project into different parts and select specific procedures and processes
 - Plan the follow-up with the stakeholders establishing a calendar of meetings
 - Propose, approve and put into operation a training programme at least for those persons directly involved in the implementation
 - Motivate your team, internal people are important stakeholders
 - Tools such as pilot or demonstration projects can be used to test the suitability of a measure
8. Determine indicators to **monitor** the measures specified in the action plans. Monitor the actions monthly or quarterly, if resources are scarce at least annually. When monitoring monthly or quarterly, consider seasonal effects

5.1 Measures and project proposals

In many cities long-term success is built upon on a variety of overlapping short-term achievements, which require a delicate balance. City decision-makers need to have a dynamic, constantly refreshed strategic "vision" of what the city will look like in the long-term, and make sure that the various short-term projects and initiatives have a direct line of sight to the longer strategic vision.

Connection of the short-term objectives to the long-term goals involves a process of defining the long-term goals and planning backward to develop short-term objectives. Thus, short-term successes become motivation to achieve long term goals, though convergence between the individual goals and timelines targeted by the different actors that participate in the building of the smart city may be a real challenge.

Different projects will require access to different data sets that are relevant to their particular area. Often, setting a baseline and getting hold of the relevant data and information is simple; other times it is complex and in many cases the project may well impact on multiple baselines.

To select and turn a suggested project into something tangible requires a clearly defined plan and it is important to take the necessary steps for selecting and integrating technology solutions into Integrated Action Plans[11].

The action plan should be based upon a clear process, which takes into account multiple considerations in order to ensure most elements are covered. For example, a sound knowledge of the local situations in terms of environmental and socio-economical governance issues.

Different kinds of actions and measures may contribute to the achievement of the objectives. Undertaking the entire list of possible actions is necessary: what are the costs and benefits of each of them (even in qualitative terms).

To facilitate the selection of measures, the local authority may rank the possible measures by importance in a table summarising the main characteristics of each action: duration, level of

required resources, expected results, associated risks, etc. The actions may be broken down into short-term actions (3-5 years) and long-term actions (towards 2030).

Specific methods for the **selection** of priorities are available. In simple terms,

- define which criteria you want to consider for the selection of measures (investment required, energy savings, employment benefits, improved air quality, relevance to the overall objectives of the local authority, political and social acceptability);
- decide which weight you give to each criterion;
- evaluate each criterion, measure by measure, in order to obtain a 'score' for each measure;
- If necessary, repeat the exercise in the context of various scenarios in order to identify the measures whose success is not scenario-dependent.

Such an evaluation is a technical exercise, but it can also be considered as a political one, especially when selecting the criteria and their respective weighting. Therefore, it should be carried out in a careful manner, and be based on relevant experts' and stakeholders' opinions. It may be useful to refer to various scenarios[12].

Once the actions have been selected, it is necessary to plan them carefully so that they can become a reality. For each action, it is important to specify:

- The timing (begin date – end date).
- The person/department responsible for implementation.
- The modality of financing. As municipality resources are scarce, there will always be competition for available human and financial resources. Therefore, efforts should be continuously made to find alternative sources of human and financial resources.
- The modality of monitoring: identify the kind of data that need to be collected in order to monitor the progress and results of each action. Specify how and by whom the data will be collected, and who will compile it. Examples of indicators can be found in section 5.5 of this report. To facilitate implementation, complex actions could be broken down into simple steps, each of them having its own timing, budget, person responsible, etc.

The roles and responsibilities of each player have to be specified. Partnerships with key actors are often necessary in developing and implementing a successful Action Plan. Further communication about the plans' implementation results will be necessary to maintain motivation of stakeholders.

5.2 Schedule for programme management and implementation

The Action Plan should set out in detail the steps to be taken in implementing each component of the overall strategy over the first five years, who should take those actions and when. This should be complemented by another simple plan setting out in detail, the actions required during the first one to two years.

The Action Plan is likely to take 6-9 months to complete. Detailed implementation planning, including detailed feasibility studies and pilot projects for selected options should proceed following political approval, and are likely to take a further 1-2 years to complete.

Options should be assessed to the pre-feasibility stage. More detailed feasibility studies will be required prior to implementation of most investment projects identified in the Action Plan.

Over-ambition should be avoided. Actions should be carefully phased over time and include sufficient time for detailed feasibility study, the formal development planning process, political approval and securing investment and operating budgets.

Progressing immediate actions will help to ensure that the momentum established during the planning process is not lost, and demonstrate a commitment on the part of the municipality.

During the course of planning, adequate time should be given to stakeholder consultations. The first step is to identify the main stakeholders. The stakeholders are those:

- whose interests are affected by the issue;
- whose activities affect the issue;
- who possess/control information, resources and expertise needed for strategy formulation and implementation;
- whose participation/involvement is needed for successful implementation.

Communication can also be internal to the local authority, meaning may be necessary to improve collaboration between the departments involved within the local authority.

Communication is an essential means to keep the stakeholders informed and motivated. Therefore, a clear communication strategy should be integrated into the action plans. Before initiating a communication campaign, a set of criteria (objectives, key messages, targets, tools, channels, timing, monitoring, indicators, expected impacts, etc.) should be defined in order to maximise the impact of the action.

5.3 Financing models

Every “Action Plan” requires a comprehensive plan on how it will be delivered. This part will include a detailed business plan, which will generally includes a governance model as well as a financial viability overview; no matter whether it is a private sector or public sector initiative.

There are a variety of delivery models available to cities from fully funded by the city, joint ventures to **public private partnerships (PPPs)** and similar models. Often PPPs may be used for overcoming broad public sector constraints: lack of public capital, lack of public sector capacity, resources and specialized expertise to develop, manage and operate infrastructure assets.

In PPP projects, the private sector may be responsible for the designing, financing, constructing, owning and/or operating the whole project. The private sector will engage in a PPP only if the public-private partnership structure assures a competitive rate of return compared with the financial rate of return they could get on alternative projects of comparable risk.

When PPP economic projects allow the private sector operators to recover their capital investment from the revenue produced by charging the end users, the success of this kind of projects depends on the volume of demand for the service on offer. In these kinds of projects, the demand risk will then be introduced as one of the main risks that can impact on the project viability.

Third-party financing allows another party to provide the capital and take the financial risk, is perhaps the easiest way for municipalities to undertake comprehensive building energy retrofits. High financing costs may be expected to reflect the fact that the debt is registered on another entity's balance sheet.

Energy services companies (ESCOs) are one of the most well-defined third-party financing mechanisms for energy-related initiatives. The ESCO usually finances energy-saving projects without any up-front investment costs for the local authority. The energy savings achieved during the contract period recover the investment costs and pay a profit. The contract guarantees the local authority a certain energy saving and saves the city investment in an unknown field. Once the contract has expired, the city owns a more efficient district.

Revolving funds are intended to establish sustainable financing for a set of investment projects. Typically, several parties are involved and the owners can be public or private companies, organisations, institutions or authorities. The operator of the fund can either be its owner or an appointed authority. External donors and financiers provide contributions to the fund in the form of grants, subsidies, loans or other types of repayable contributions. The borrowers can either be the project owners or contractors.

Leasing describes arrangements in which the client (lessee) makes payments of principal and interest to the financial institution (lessor). The stream of income from the cost-savings covers the lease payment and the frequency of payments depends on the contract. Leasing can be an attractive alternative to borrowing because lease payments tend to be lower than loan payments.

In addition, there are some key parameters to consider when mapping/setting up financing models, which are:

- Investment time horizon (short/medium/long term)
- Revenues time horizon (short/medium/long term)
- Maturity of technology (prototype/early market/mature)
- Maturity of planning and implementing approach (standard/innovative)
- Type of project financing (infrastructure/buildings/products/soft measures)
- Project scale (national/regional/city wide/district/neighbourhood).

This stage sets the scene for the appraisal by establishing the financial objectives for the action plan, which will satisfy financing institutions. The key consideration in financial management is that the strategy is self-sustaining in financial terms in the long run.

The objectives will be influenced by:

- the extent to which costs must be recovered during the life of the scheme; initial cost, operation and maintenance cost, etc.
- the level of future investment funding arrangements (and thus the debt service obligation); and
- the level of direct municipal contributions to the service out of revenue.

The financial analysis should project future costs and revenues after taking into account the effects of inflation, investment finance, loan drawdown and debt servicing schedules. The key stages in preparing the financing plan, are as follows:

- estimation of the total investment requirements - total funds needed over the implementation period i.e capital costs adjusted for price contingencies plus provision for interest incurred during implementation;
- identification of the sources of investment funds - principally national or state government loans or local government grants, commercial loans and international finance agency loans;
- preparation of the financing plan - which will form part of the integrated financial model. This allows the effects of changes to the proposed investment financing structure to be observed directly in the sources and uses of funds table, and reflected in the profile of debt coverage ratios.

Delivery D1.17 and D1.18 of the work package will focus on innovative business models and financial schemes and PPP solutions and approaches. These studies will provide innovative financing models for big investments as in the project REMOURBAN.

Innovative and also realistic financial models will also secure the replicability of similar projects. The lessons learned from implementations and ideas produced in the course of similar projects

as detailed in Deliverable 5.2 Model for replication potential of REMOURBAN will provide a valuable basis for comparable projects in future.

5.4 Risk analysis

The selection of actions and measures should also be based on the careful estimation of risks associated with their implementation (especially when significant investments are planned): How likely is it that an action fails or does not bring the expected results? What will be the impact on the objectives? And what are the possible remedies? The barriers identified earlier in Deliverable 1.13 “Report on non-technical barrier and legal and normative issues” and Deliverable 1.14 “Report and policy recommendations on the optimization of the regulatory framework” are also potentially the main risks.

Potential barriers to overcome and risks to encounter can be summarized as follows[13];

Project-related risks: poor estimations of cost/benefit analysis, cost and time overruns, poor contract management, contractual disputes, delays in tendering and selection procedures, poor communication between project parties...

Government-related risks: inadequate approved project budgets, delays in obtaining permissions, changes in Government regulations and laws, lack of project controls, frequent changes in personnel...

Technical risks: inadequate design or technical specifications, technical failures, poorer than expected performance, higher than expected operation costs...

Contractor-related risks: inadequate estimates, financial difficulties, delays, lack of experience, poor management, difficult in controlling nominated subcontractors, poor communication with other project parties, etc.

Market-related risks: increase in wages, shortages of technical personnel, materials inflation, shortage of materials or equipment, and variations in the price of the various energy carriers...

Risks may be assessed using conventional quality management techniques. Finally, remaining risks have to be evaluated and either accepted or rejected.

5.5 Monitoring system, result and output indicators

Monitoring progress is an important process that provides the city with the opportunity to measure the effectiveness of its strategy. The process also provides an opportunity to highlight achievements, assess key learnings, and provide direction for actions that will be planned for the future.

The first step is to establish more precisely what to measure. This will also help setting up basic indicators that can be then used at a later stage for monitoring and evaluation purposes.

In essence, benchmarks are often identified within published or individually assessed indicators. Some of these indicators are wide ranging and many are very sector specific. Many of them will be suitable for a city when choosing a benchmark set for comparison. Various data sets (indicators) are used by each indicator sets to analyse the results, and each indicator reflects the nature of the information and conclusions being sought. Most of these indicator sets use publicly available primary data; or cities carry out their own direct research, which is still based on available public data but is aggregated or dissected to suit the purposes of the indicator being prepared in which a specific indicator set will be used to evaluate the performance of the cities.

Within WP2 of REMOURBAN Project, a set of indicators will be defined to obtain the needed information to evaluate the effects of the interventions in the three demo cities during the demonstration phase of REMOURBAN project, in the areas of Energy, Urban Mobility and ICT platform and integrated infrastructures.

There is a number of frameworks, indicators developed to measure the effectiveness of projects and in the long run the set of KPI's show if the projects have a positive effect on the cities. Concerto Premium Indicator Guide being one of the first and most comprehensive ones. A lot of projects and indicators looked at Concerto as a reference guide to start with. It is worth to take a look at some of these indicator sets before deciding on what your city needs The KPI's will not be investigated further as the focus of this document relies on the strategies and not on the action plans.

The Reference Framework for European Sustainable (RFSC) cities

RFSC helps key city actors develop and implement plans and strategies for attractive and sustainable cities, hence its name, the Reference Framework for Sustainable Cities. This online European framework of 30 sustainable objectives supports the delivery of the Leipzig Charter and of the European common vision for sustainable cities. Its agenda: fostering integrated urban development for small, medium and big cities all across Europe[14].

CITYkeys

The mission of the CITYKEYS Project is to develop, and validate, a holistic performance measurement framework for future harmonized and transparent monitoring and comparability of the European cities activities during the implementation of Smart City solutions..

The CITYkeys project was funded as a 'horizontal activity' of the Smart cities and Communities call to develop an indicator framework for smart city project evaluation and thus also support the so called Lighthouse projects. In developing the indicator selection, CITYkeys has closely collaborated with TRIAGULUM, REMOURBAN and SMARTER TOGETHER lighthouse project consortia. The lighthouse projects implement tangible technological solutions that are expected to support smart city development and achieve environmentally-friendly, economically viable and socially desirable urban environments.

The work methodology will be based on the following key factors:

- Extensive collaboration and communication with European cities
- Establish a baseline by analysis and integration of existing results from previous initiatives
- Develop a set of Key Performance Indicators (KPIs) specific for Smart Cities initiatives evaluation and comparability
- Smart solutions for transparent and open data collection and processing

“Smart city KPI's and related methodology” report of Citykeys Project describes the selection of indicators for assessing smart city projects and the corresponding indicators on city level. Starting from the definition of a smart city and smart city projects, indicators have been selected. They can work as Key Performance Indicators for tracking the progress towards the city and project objectives.

The indicators are needed to assess or evaluate single smart cities projects. They indicate the difference the project has contributed to, by comparing the situation without the project with the situation after the project implementation. As such they can also serve to benchmark projects among each other[15].

Under the subthemes of People, Planet, Prosperity, Governance and Propagation in total 92 project indicators and 73 city indicators have been selected. Not all indicators are equally suited for evaluating all types of smart city projects. Although there is a consistent body of common

indicators, for specific sector projects a relevant subset of these may be used (i.e. some indicators are specifically suited for transport projects, other for building related projects, etc.).

The selection was based on an inventory of 43 existing indicator frameworks for cities and projects. The majority of the indicators in the CITYkeys selection have derived from existing indicator frameworks. New indicators have been suggested to fill the gaps in existing frameworks, mostly related to specific characteristics of smart city projects.

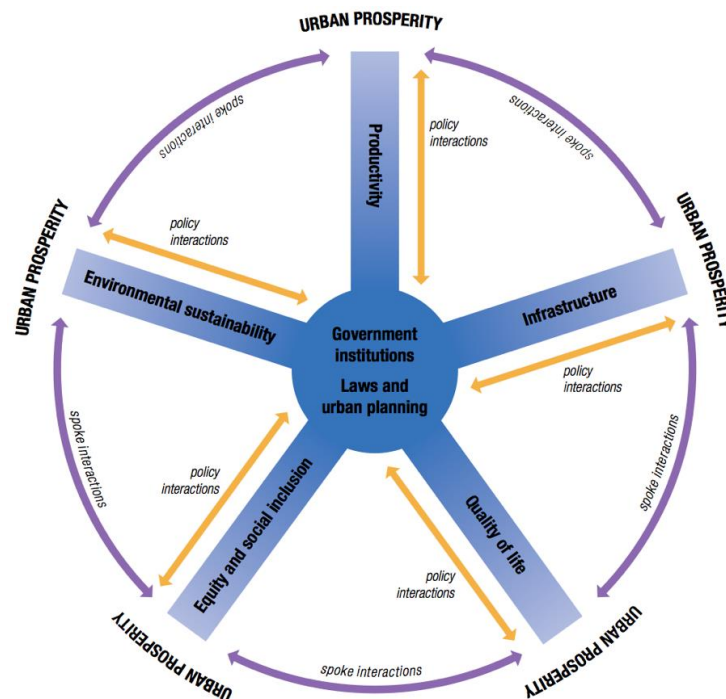
ITU and UNECE SSC KPI's

International Telecommunication Union (ITU) and UNECE developed a set of international KPIs for Smart Sustainable Cities (SSC), which are the first of their kind[16].

These KPIs can be used to assess how successful cities have been in accomplishing their set smart sustainable city goals. These KPIs also allow for the demonstration of the feasibility of rapidly progressing towards the set energy and climate objectives at the city level, while proving to citizens that their quality of life (QoL) and local economies can be improved by consistently measuring energy efficiency and reduction of carbon emissions using ICTs.

These KPIs will also foster the dissemination of efficient SSC models and strategies by bringing various cities on a level playing field and allow for the progress towards a low carbon future.

Figure 4: ITU Smart Cities KPI's



The dimensions of KPIs can be categorized as

- Information and Communication Technology
- Environmental sustainability
- Productivity
- Quality of life
- Equity and social inclusion
- Physical infrastructure

6 Conclusions

An integrated urban plan may be defined as a global strategic plan of the city, integrating all existing plans and master plans, into a single approach to help the city becoming smarter and more sustainable at medium/long term. At a strategic level, the REMOURBAN urban regeneration model and methodology (to be manifested in deliverable 1.19 and 1.20 coming in later stages of the project) will help establishing such an integrated urban plan, thanks to the different socio-political, technical and especially financial enablers, overcoming any barriers.

In the reports covering Deliverables 1.13 and 1.14 we examined both the barriers to sustainable urban development and ways of optimising the benefits of projects, such as REMOURBAN.

This report very much builds on the findings in D1.13 and D1.14 and takes the thinking further to try and ensure that urban strategies and policies can be truly integrated. It is perhaps obvious to suggest that unless the planning of urban development is not integrated across the main areas, such as land use, mobility and ICT, etc. then the eventual delivery will be compromised as a result and will never maximise the benefits to citizens and businesses.

All the cities taking part in REMOURBAN have a range of policies and strategies covering all aspects of urban development. Some are within the regulatory framework of the local authorities and Mayor's office, some are national in nature. This report highlights that to be truly integrated these policies and strategies need to be brought together and to be viewed and considered within a Smart City context.

It is not enough to align separate strategies, there needs to be full integration with an overarching strategy that is owned by all the players involved. Citizens are at the core of a Smart City and should be involved in both the design of services and the commissioning of them.

The reports have identified that, often, there is a lack of ownership within and across organisations that are delivering urban development. Planning and delivering policies in individual departments of municipalities will never optimise urban development and truly integrated, Smart City working.

The very nature of the Smart Cities agenda covers a broad range of subjects and areas of interest which will be dealt with in different parts of a number of organisations. If the goal is for as integrated an approach as possible, in order to maximise impact and benefits, then the leadership of this agenda needs to be vested in one strategic area of an organisation that can work across boundaries.

Smart City working is as much an approach as it is a methodology. Organisations and departments within them should adopt "Smart City thinking" and look at how integration can be built into policies and delivered on the ground.

It is also crucial to engage and communicate with citizens. Smart Cities exist to deliver smart, sustainable urban living to their citizens and two way communication is an essential prerequisite of this.

No city is starting from a blank canvas with regard to strategies and policies. This report has shown that it is important to undertake an audit of the strategies and policies that are in place and to then build on them and develop them into an integrated, overarching policy that is capable of being measured and monitored.

This report looks at the need to produce detailed Action Plans designed to implement each component of a Smart City which is clear about who should take actions and when. There may also be the need to undertake detailed feasibility studies and pilot projects, with sufficient time to address any issues that may result from this and to learn from them.

Over-ambition is something that should be avoided and the actions should be carefully phased over time but this should be balanced by progressing immediate actions to help ensure that momentum is established from the planning through to the end delivery phase.

All Action Plans need a comprehensive delivery plan that should include a governance model as well as a financial viability overview. Governance and financial planning are particularly important when urban development involves a number of partners from both the public and private sectors. With difficult financial situations in most cities new, innovative funding models are being examined and piloted in order to ensure financial sustainability along with economic, social and environmental sustainability.

After an audit of existing policies and strategies leading to an overarching strategy for integrated development and a detailed Action Plan a review of a risk analysis needs to be undertaken. Risks can occur at a number of levels – they can be project related, government related, technical in nature and need to be evaluated leading to them either being accepted or mitigated against.

The work on the REMOURBAN project is also covering the monitoring systems and key performance indicators in order to establish what works and what doesn't work and how best practice can be learnt and replicated across the wider urban agenda. In order to optimise this there will be a close alignment with the CITYkeys project and the inventory of existing indicator frameworks in place across a number of cities.

It isn't suggested that all indicators are appropriate to all cities but that there will be some commonality and sharing of information. Similarly all policies will not be the same in all cities. The key factor, at the core of sustainable urban development, is that a Smart City thinking and methodology are adopted and used to optimise the benefits of integrated urban development.

7 References

- [01] LEIPZIG CHARTER on Sustainable European Cities, 2007.
http://ec.europa.eu/regional_policy/archive/themes/urban/leipzig_charter.pdf
- [02] Integrated plans for sustainable urban development in the context of JESSICA, 2010.
<http://www.eib.org/products/blending/jessica/faq/index.htm>
- [03] Planning Guide for Smart City Development Model, Lechner Tudásközpont, 2016. (original: Okos Város Fejlesztési Modell, Tervezési Útmutató)
- [04] Developing and implementing a sustainable urban mobility plan. Eltis, 2014.
- [05] Guide to research and innovation strategies for smart specializations (RIS 3). European Union, 2012
- [06] Lappeenranta University of technology. Faculty of technology. Anna Koroban. Regional innovation strategies and sustainability in selected EU countries. Master's thesis. 2011
- [07] <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>
- [08] http://www.etopia.be/IMG/pdf/E1._agenda_21_locale_version_finale.pdf
- [09] <http://www.covenantofmayors.eu/>
- [10] "Integrated Action Plan-Report Process and Guidelines", European Commission Smart Cities Stakeholder Platform, Finance Working Group, December 2013
- [11] "Integrated Action Plan-Report Process and Guidelines", European Commission Smart Cities Stakeholder Platform, Finance Working Group, December 2013
- [12] "How to Develop a Sustainable Energy Action Plan - Guidebook", Covenant of Mayors, 2010
- [13] "How to Develop a Sustainable Energy Action Plan - Guidebook", Covenant of Mayors, 2010
- [14] Reference Framework for Sustainable Cities, www.rfsc.eu
- [15] "D1.4 Smart city KPI's and related methodology", Citykeys Project, January 2016
- [16] ITU-T, Focus Group on Smart Sustainable Cities, "Key Performance Indicators definitions for smart sustainable cities", 2015

Annex 1: Overview of existing urban plans of REMOURBAN Lighthouse Cities

Valladolid

Valladolid has a clear commitment of reducing GHG emissions, of increasing the quality of life of its citizen, of decreasing energy demand and associated economic costs. This firm commitment is underpinned in the urban plans, which have been developed by Valladolid City Council.

Evolution

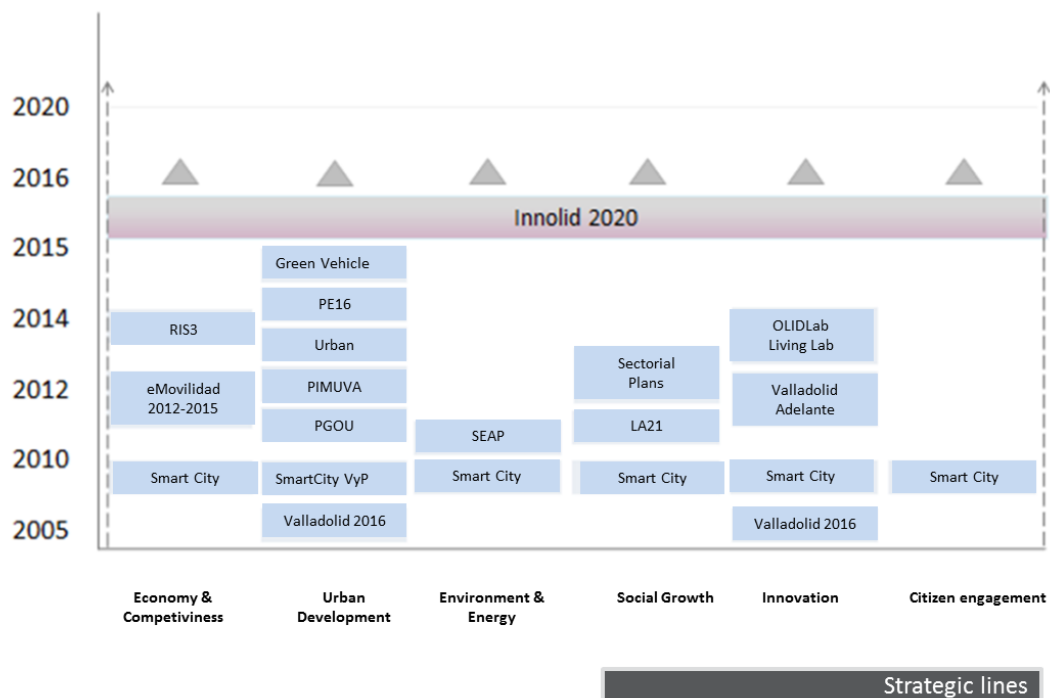


Figure 5: Urban Plans Evolution

'Valladolid towards 2016' Strategy

The city undertook initiatives to position itself as a knowledge-based economy as well as to strengthen the added value of its productive activities. In this context, the 'Valladolid towards 2016' document is a development strategy which envisages Valladolid as an "innovative city" as well as an "advanced city within knowledge society".

'Valladolid towards 2016' also proposes specific measures to overcome the local impact of the Spanish economic crisis, fostering synergies among public and private economic actors within the city.

The environment and health with the unfortunate predominance of pollution are also high on the Town Council's agenda. This is why the development of the strategic plan Valladolid towards 2016 is a key project. Valladolid has a firm commitment to becoming a sustainable city. Both the Town Council and the civil society have reached an agreement that this city should respect the environment and this is outlined in Agenda 21.

'Valladolid towards 2016' describes the place as a welcoming city, socially cohesive and well integrated, a place where humanism, innovation, linguist wealth and the arts meet. In 2005 "Valladolid towards 2016" was focused on four areas:

1. Urban development
2. Culture, innovation and social integration
3. City and its citizens
4. Economy and Competitiveness

Local Agenda 21

Local Agenda 21 shows the municipal commitment to fighting climate change, specifically by reducing the impact on the environment and including environmental considerations in public contracts. Innovative experiments are also being carried out to develop ecological awareness and to preserve and improve the environment by promoting sustainable behavior in all daily activities.

Valladolid City Council started to work in the first Local Agenda 21 when the City of Valladolid joined the group of cities working together for the urban sustainability. The first step was the signature of the Aalborg Charter in December of 1999. In October 2001 Valladolid approved the first Local Agenda 21.

The current IV Action Plan was approved in June 2012 and it is underpinned by 2 axes: the Covenant of Mayors and the Municipal Health Plan.

Line 1: Sustainable Mobility Programme

Rationalise private vehicles mobility in the city, improving mobility conditions through alternative ways and prioritization of electric and low emissions mobility in urban area delimited by ring road defined in PIMUVA.

Line 2: Urban Planning Programme and Sustainable Buildings

Promoting well-adjusted urban and building development, with sustainable and energy saving guidelines. The composition of the new General Plan is an opportunity for applying set principles in Revised Text of Land Law and urban regulations of Castilla y León, consolidating previous mentioned guidelines about sustainability. Meanwhile, it is important to go in depth in renovation politics and district and building update by reinforcing actual urban system.

Line 3: Energy Strategies

Increase public consciousness and sensibility in renewable energies and climate change, natural systems protection – improving biodiversity and water resources -, promoting natural coal sources and CO2 emissions. Promote implantation of integrated and sustainable systems of wastes management aimed to reduce greenhouse effect gases generated by inadequate management of them as well as its incorrect elimination.

Line 4: Pubic Health Programme

Elaboration and implementation of II Health Municipal Plan of Valladolid, focused to promote healthy habits and risk behavior prevention, contributing with better life quality of Valladolid inhabitants.

Covenant of Mayors - SEAP

The Sustainable Energy Action Plan (SEAP) is the key document that shows how the Covenant signatory will reach its commitment by 2020. It uses the results of the Baseline Emission Inventory to identify the best fields of action and opportunities for reaching the local authority's

CO2 reduction target. It defines concrete reduction measures, together with time frames and assigned responsibilities, which translate the long-term strategy into action.

Valladolid is a Spanish city member of the Covenant of Mayors. A number of actions have been undertaken with the aim of achieving at least the 20% CO2 emissions reduction, as established by the EU for the year 2020. One of these actions is oriented towards the improvement of urban spaces dedicated to walking (bigger pavements, with green areas, reduced space for motorized private vehicles). Another action is focused on the promotion of cycling as a means of transport. This action will comprise training activities (support to the Valladolid Cycling School), design of cycling routes network taking into account pedestrian needs.

The commitment of Valladolid City, within the objectives of the Europe 2020 strategy against climate change, is shown in the Covenant of Mayors signature on April 12th, 2011, the elaboration of an emissions inventory, and the approval of its Action Plan for Sustainable Energy (PAES) on June 14th, 2012. PAES' objective for 2020 is to reduce greenhouse-gas emissions (CO2) in 20%, as well as to achieve that energy consume in Valladolid contains at least 20% from renewable energies (zero carbon footprint), what involves a reduction of 1,12 tons per habitant and year. Within PAES' measures, it stands out the progressive replacement of the current vehicles mechanizations by others hybrid, electric or using low-pollutant fuels, with a CO2 estimated emissions reduction of 6.170 tons.

Valladolid Smart City Strategy

In 2010 Valladolid City Council started the creation of the smart city. The strategic line is situated within the frame of urban city model and its objective is to improve several aspects of the quality of life in Valladolid, dealing with the urban environment in general, but also, in particular, urbanism, mobility, energy and natural resources rational use (including savings), among other areas including sustainable development.

Valladolid is part of an innovative Smart City initiative together with Palencia, at a distance of 50km. The Smart City is an initiative of the two City Councils and coordinated by a Permanent Commission. This unique Smart City is focused on five different axis; Energy, Environment, Logistics and Transport, Citizens and Tourism.

Valladolid hosts the permanent headquarters of the Spanish Network of Smart Cities that was formally created during June 2012. The Network is an initiative promoted by sixty Spanish cities aiming to improve the efficient management of urban infrastructures and public services through the use of new technologies, allowing a reduction of costs and improving quality of services.

Green Vehicles Programme

In 2012 Valladolid City Council designed a 2012-2015 roadmap for electro-mobility whose main measures are:

- Creation of a special vehicle category called VELID (Electric Vehicle of Limited Dimensions) as the biggest expression of the advantages EVs have within the City.
- EVs can park for free in the more than 8000 regulated parking slots, and VELIDs as well, in residential parking slots.
- EVs battery charging is free within the public charging points network spread in the whole urban area with more than 34 points strategically located in 19 different sites.
- From the taxes perspective, several regulations have been modified in a way that exemptions or discounts in the payment of local taxes are applied fostering EVs, including the 75% discount in the tax on motor vehicles (IVTM), environment licenses, opening and communication licenses for business activities dealing with repairing, maintenance or recycling of EVs, batteries or associated charging infrastructure.



- Creation of public-private partnerships with manufacturers, operators, power charge managers, technology providers and utilities for the implementation of a short-time EVs shared-use system, for urban and interurban journeys, and the impulse of business models associated to the exclusive use of EVs, looking for its dissemination, demonstrative and promotion effect.

Comprehensive urban mobility plan – ‘Plan de Movilidad Urbana PIMUVA’

The Comprehensive Urban Mobility Plan (Urban Mobility Plan - PIMUVA) is an important strategy which objective is to establish the principles and targets of urban mobility in Valladolid and regulate the planning tools.

The main objectives are:

- To integrate the urban deployment policies with the mobility policies
- To regulate the accessibility in the city and its environment.
- To promote the rational use of the private vehicle
- To improve the mobility in general, and to reduce – in particular – the needs of mobility with private vehicle.
- To plan a new model of mobility for prioritizing the public transport
- To decrease the traffic congestion in the downtown
- To boost and protect the more ecological means of transport
- To create initiatives for improving the security in the mobility
- To use new technologies for improving the urban mobility.
- To promote measures for protecting the environment.
- To encourage the intermodality.

‘PGOU’ – General Plan of Urban Development of Valladolid

Valladolid City Council is reviewing the General Plan of Urban Development of Valladolid. It has been aligned to the new national and regional regulation framework and it has been drawn a new model of city.

These are the main actions that have been designed:

- A rational use of the resources, creating the adequate flexibility for the new context.
- Planning for the regeneration service and the urban equity: improving the existent city as a guide and resource of the future city.
- Key ideas and spaces: centrality spaces, “city double green rings” and the promotion of economic development through spatial planning.

Nottingham

Nottingham City Council has:

- 80% ownership of Nottingham City Transport, unlike many of its peers who sold their stake in public transport systems.
- 100% ownership of Enviroenergy Ltd, which provides district heating and power to 4,600 residential properties and to major customers in the city centre.
- 100% stake in Nottingham City Homes, which has 29,000 homes making it one of the largest social housing providers in the UK.

In summary Nottingham aspirations as a City of the Future are to:



- Support businesses in the emerging digital content, life sciences and clean technology sectors to provide prosperity and sustainable employment
- Become more energy self-sufficient as a means of gaining a competitive advantage - attracting and retaining business investment while at the same time tackling fuel poverty and carbon emission issues through the provision of local secure and affordable clean energy
- Continue to deliver on what is regarded as one of the UK's most ambitious and effective transport investment programmes
- Encourage businesses to utilize and exploit the research and development power and international links of both its Universities
- Create a manufacturing renaissance in the city – rebuilding Nottingham's international reputation as a place that designs and makes things.
- Link disadvantaged City residents to employment and training opportunities created by new growth sectors
- Continue to address deep seated endemic social issues and increasing responsibilities for localised social welfare provision at a time of public sector and benefit cuts –for example via Nottingham's pioneering Early Intervention programme
- Be better at managing and capturing value from data and information within the public sector.

National policy, strategy and targets on energy supply and low carbon transition have all advanced rapidly in the last 12 months. In July 2009, the Department for Energy and Climate Change (DECC) published the UK Low Carbon Transition Plan. This comprehensive plan sets out how the country will meet the cut in emissions set out in the 2009 Budget of 34% on 1990 levels by 2020. It aims to plot the UK's move onto a permanent low carbon footing and to maximize economic opportunities, growth and jobs along the way. Alongside this and on the same date, DECC published the national Renewable Energy Strategy which maps out how the Government will deliver the UK's target of getting 15% of all energy (electricity, heat and transport) from renewables by 2020, and the Department for Transport (DfT) published the Low Carbon Transport Plan which sets out how to reduce carbon emissions from domestic transport by up to 14% over the next decade.

There has been a step change in policies relating to carbon reduction and energy security. This has been underpinned by the interdependent issues of climate change, power supply security and peak oil. There is now a small window of opportunity to meet the parallel global challenges of avoiding dangerous climate change, preparing for peak oil and, against the national picture of potential power supply insecurity towards 2017, ensuring continuity of affordable energy supply in Nottingham.

Nottingham City Council is the only Local Authority in the UK to have adopted a motion recognizing the need to respond to the forthcoming impact of Peak Oil. The City is well placed to take fast decisive action at local authority level to protect citizens, whilst ensuring that we continue to reduce our carbon emissions.

The City Council has also recently adopted, through the Sustainable Communities Strategy, two challenging 2020 targets:

- 20% of energy used to be produced within the Greater Nottingham area from renewable or low/zero carbon sources;
- 26% reduction in CO₂ emissions to 1,329k Tones CO₂ per annum by 2020.

Covenant of Mayors - SEAP

The Covenant of Mayors is the mainstream European movement involving local and regional authorities in the fight against climate change. It is based on a voluntary commitment by signatories to meet and exceed the EU 20% CO₂ reduction objective through increased energy efficiency and development of renewable energy sources.

After the adoption, in 2008, of the EU Climate and Energy Package, the European Commission launched the Covenant of Mayors to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies. Indeed, local governments play a crucial role in mitigating the effects of climate change, all the more so when considering that 80% of energy consumption and CO₂ emissions is associated with urban activity.

Nottingham signed the covenant on the 8th December 2009. It is a requirement of the Covenant of Mayors programme that participants complete a Sustainable Energy Action Plan (SEAP); a prescribed template exists in spreadsheet format. Further details (the template and instructions for completion) are available at: http://www.eumayors.eu/library/documents_en.htm.

In 2010 Nottingham City adopted a comprehensive sustainable energy strategy, written by the Nottingham Energy Partnership NEP, as a key partner of the City council, have been commissioned to provide the background and evidence to interpret the city energy strategy for the Covenant of Majors. This document and the accompanying spreadsheets provide that evidence base. Nottingham City Council is required to provide an annual update on progress against this plan.

Since the setting of the 26% SCS target and the fixed tonnage target, Nottingham's 2005 baseline footprint has been recalculated and is higher than the original figure however meeting or exceeding the 26% target is still the aspiration.

The UK 80% target and interim carbon budgets to 2050 are against a 1990 baseline. In line with most other local authorities, a baseline of 2005 has been chosen in Nottingham because this is the earliest year for detailed and relatively accurate subnational data for energy consumption and carbon emissions. The Nottingham Energy Strategy provides data trends for 2003 to 2006.

If we estimate Nottingham's 1990 baseline using 1990 average UK per capita emissions, our target for 2020 becomes a 52% reduction on 1990 levels, against which we have already cut our emission by 31%.

For the purposes of the CoM we have adopted 2005 as our baseline year and used the 26% 2020 target. A modelling show that up to 30% is achievable through the actions planned to 2021.

Green Vehicles Programme

Over the Greater Nottingham conurbation, bus travel accounts for around 34% of all trips made, far higher than other comparable cities in the UK, having a significant impact on reducing congestion. This is particularly the case in the City Centre and at key hotspots such as along the Ring Road and around hospitals and universities. Over past 10 years Bus/tram patronage rose from 48.3m pa to 55.3m pa.

Nottingham City Council has introduced a Workplace Parking Levy (WPL) to tackle problems associated with traffic congestion, by both providing funding for local transport and by acting as an incentive for employers to manage and potentially reduce their workplace parking. Money raised from the WPL will go towards NET Phase Two (the extensions to the existing tram system), the redevelopment of Nottingham Railway Station (known as the Hub Project) and will also support the popular Link bus network.

Nottingham's existing tram network carries 10 million passengers per year, taking some 3 million car journeys each year off congested roads. Phase 1 is 14km long with 23 tram stops. NET Phase 2 - 17km extension with 28 new tram stops. Around 30% of users changing travel behaviour by moving from car to NET directly or using park and ride. NET Phase Two will reduce the growth of traffic congestion by taking a further three million car journeys off Nottingham's roads. This is in part funded by the Workplace Parking Levy (WPL)

The reductions in car use as a result of introducing NET Phase Two will have most impact in the busy south west quadrant of the city. The three corridors served by NET Phase Two (the A453, A52 and A6005) are three of the busiest traffic routes in Nottingham and are key to maintaining the connectivity of Nottingham to the national road network, in particular the M1, A52 and A42/M42 28 new tram stops will be provided, with over 50 stops on the network providing access to nearly 2,000 workplaces, and 20 of the 30 largest employers 22 new trams have been bought to add to the existing 15 trams. When complete, the extended tram network will consist of 51 tram stops, and link directly with the existing NET line at Nottingham Station. The total tram network will be 32km in length, serve seven park and ride sites and be able to provide around 23 million passenger journeys a year.

Nottingham is the least car dependent city in the UK, with more bus use than any other city apart from London. We have recently published our Local Transport Plan for 2011 – 2026, and this aims to reduce the impact of transport on the environment, and reduce carbon emissions. Some of the planned major improvements to transport will include phase two of the Nottingham Express Transit (NET) which will see two new tram lines opened to the south of the city, anticipated to take three million car journeys off Nottingham's roads and serve 3 of our biggest employers. We are developing the transport hub around Nottingham Train Station, which will link rail, tram, buses, and cycling and walking connections. And the Workplace Parking Levy will further reduce congestion and produce investment for public transport systems.

In April and June 2011 Nottingham City Council, in partnership with the Greater Nottingham Transport Partnership (GNTP), Sustrans, NHS Nottingham City, Nottinghamshire County Council and Derbyshire County Council, submitted a two-stage bid for the Nottingham Urban Area to the Government's Local Sustainable Transport Fund (LSTF). These bids propose a programme of measures to promote sustainable travel behaviour by improving integration between journey modes and making low carbon choices easier.

Our initial Key Component Bid has been awarded 6.89m EUR (£4.925m) for 2011/12 – 2014/15 which will fund the development of smart ticketing improvements, business travel support, community wide promotion of cycling including continuing the successful Ucycle initiative and the first community smarter travel hub in the north of the City which will pilot a new approach to community engagement to improve access to work and services and promote sustainable travel behaviour.

Nottingham leads the way in sustainable transport. It is the first city in the UK to have a stringent environmental standard for all buses entering the City Centre. Nottingham City Council is developing a fleet of 50 Electric Buses (Figure 84) over 2014 to serve existing Link services and the 2 parks and ride bus services. The Linkbus network of 40 routes to workplaces, health and education sites and district centres takes seven million trips a year. The vehicles have a passenger capacity of 33-seated passengers and four standees. There is also a dedicated area for a wheelchair and a separate buggy zone. A fully charged bus can cover around 75 miles before it needs to be recharged. The charging of the vehicles takes place overnight at the bus depot where specific chargers have been installed to monitor the electrical consumption of the vehicles. The electric buses take between six and eight hours to fully charge using the onboard trickle chargers; off board fast chargers can fully charge the vehicles within 90 minutes. All buses equipped with real time information to give priority at signalized junctions if late running.



Electric drive-lines are much more efficient than diesel or diesel/electric hybrid drive-lines in terms of primary energy and much less polluting. They are also much quieter in operation and induce less ground borne vibration. Consequently the bus market could contribute a significant amount to the UK's 2020 carbon goal and Nottingham's Strategic Sustainability Target to reduce the city's carbon emissions by 26% of 2005 levels by 2020. The vehicles also present strong environmental credentials with their zero tailpipe emissions (apart from a small diesel powered unit that heats the interior of the bus during cold weather).

Comprehensive urban mobility plan

Local Transport Plan 3 2011-2014

The Nottingham Local Transport Plan (LTP3) is a statutory document and outlines the City Council's long term transport strategy and three-year rolling investment programme. The current LTP came into effect on 1 April 2011 and is formed of two documents. The LTP3 sets out the transport strategy and programme of investment for delivering transport improvements across Nottingham City Council's area. The LTP has been developed to comprise of two component development: the LTP Strategy and the LPT implementation Plan.

The Implementation Plan seeks to deliver proposal and measures to achieve the five overarching strategic objectives for transport:

- Deliver world-class sustainable transport system, which supports a thriving economy and enables growth.
- Create a low carbon transport system and resilient transport network. Improve access to key services, employment and training including creation of local employment and training opportunities.
- Improve the quality of citizens' lives and transport neighborhoods.
- Support citizens to live safe, independent and active healthy lifestyles.

Over the past decade Nottingham has built up a high quality integrated and efficient transport system. The LTP3 is the principal policy and investment tool through which the planning, management and delivery of transport improvements take place. The LTP has been developed with a view to achieving wider health, socio-economic and environmental benefits to local citizens and businesses. Maintaining the current transport assets, the role of transport in supporting neighbourhood transformation, enabling enterprise, and providing and enhancing the sustainable transport system are core themes of this strategy. The 2010 Comprehensive Spending Review and associated Budget announcements have confirmed the Government's commitment to reducing the national deficit. As such, public sector funding has entered a time of austerity with reduced levels of funding for local transport compared to what we have benefited from in recent years. However, not continuing to invest in our transport network would present us with major consequences where people and businesses are restricted by poor travel opportunities and lowered aspirations.

Tackling climate change and reducing carbon emissions from transport is at the heart of the Nottingham Local Transport Plan Strategy (LTP3), which sets out the City's transport strategy for 2011 – 2026. One of the five strategic objectives of LTP3 is to deliver a low carbon and resilient transport system.

This will be achieved by:

- Reducing travel demand
- Improving operational efficiency of transport systems
- Promoting sustainable car use
- Improving resilience of transport systems
- Planning.

Nottingham towards 2016. Strategic proposals

Energy vision for Nottingham

To make sure Nottingham is a future-proof city, including: A city insulated against high energy prices. Secure, low carbon energy supply and services available for business, public and domestic sector. A city prepared for climate change and peak oil. A city leading on growth in low carbon jobs, industries, services and training. A city exemplar of integrated low carbon heat, power and transport. An exemplar of neighborhood community energy solutions. A smart city where energy flows are planned, mapped and monitored.

These key energy ambitions will reinforce and help to deliver the long-term vision of the Nottingham Sustainable Community Strategy (p.9, Nottingham's Long Term Vision, SCS, 2009).

"We will do this by being radical, bold and daring to be different".

Scope of the Strategy

Setting SMART40 targets and identifying key strategic objectives, programmes and technologies to meet those targets across: Low or zero carbon energy generation; Domestic energy efficiency; Education and behaviour change; Business and public sector energy efficiency; Growth in energy and energy services sector economic activity and employment Transport energy.

Aims of the Strategy

- Aim 1 – Reduce energy use in public sector infrastructure.
- Aim 2 – Reduce energy use in domestic properties and tackle fuel poverty.
- Aim 3 – Support increased energy efficiency in city businesses.
- Aim 4 – Develop alternative energy sources, supply chains and services.
- Aim 5 – Support low carbon transport infrastructure.
- Aim 6 – Create local jobs and opportunities in energy sector businesses.
- Aim 7 – Develop strong external and community partnerships.
- Aim 8 – Support local community energy initiatives.

Strategic objectives

There are a number of key strategic objectives that are essential to ensure the delivery of the aims of the Sustainable Energy Strategy:

1. The city's unique strength in energy self-sufficiency will be used to promote Nottingham in the UK and Europe as the first choice for location of sustainable energy related and green tech business, innovation and growth.
2. Major capital investments detailed within the Energy Strategy and its associated Action Plan to be assessed for delivery through innovative partnerships, including with Enviroenergy, the City's Energy Services Co (ESCO) and district heating provider. This will enable Enviroenergy to build a mixed portfolio of generation and income for continuous re-investment in energy efficiency and generation in Nottingham.
3. To develop the City's installed low or zero carbon energy generation and distribution capacity in line with the detailed targets in the Sustainable Energy Strategy.
4. To reduce local authority, domestic and 'industrial and commercial' energy consumption in Nottingham in line with the detailed targets.

5. NCC will work to ensure local planning policy, and local authority capital procurement supports the timely delivery of the Sustainable Energy Strategy, through developing and setting rigorous, evidenced, local targets for carbon and energy sustainability in new development.

6. To develop resource and maintain a prioritised Action Plan and delivery management structure including key partners and technical experts to deliver the Strategy, with an annual review cycle for the Action Plan and review cycles aligned with national carbon budgeting periods for the Strategy.

7. To set transport related carbon emissions reduction and technology targets in the forthcoming 3rd Local Transport Plan which are aligned with the Energy Strategy and aim to exceed the national Low Carbon Transition Plan targets by 2020. At this stage an indicative target of 20% reduction is recommended.

8. To work closely in partnership with business, universities and technology partners to ensure Nottingham accelerates the process and maximises the impact of demand led innovation in energy technology and management within the city

9. The City and partners will support the development of local and grass roots organisations seeking to enable their communities to reduce carbon footprints, energy bills and adapt to inevitable climate change and peak oil.

Nottingham is starting the low carbon transition from the front, with a considerable lead. Between 2003 and 2006 the City reduced domestic gas consumption by 16%; the greatest fall of all Local Authorities in the East Midlands and of all the Core Cities. In 2006 we generated 3% of our own heat and power from renewables and waste, making Nottingham the most energy self-sufficient City in the UK.

We also generated 11.45% of our own heat and power from gas CHP (combined heat and power) and renewables. Nottingham is the leading City in the country in distributed energy generation. Generation of 11.45% of our own energy from low or zero carbon sources, against the 20% Sustainable Communities Strategy target is a remarkable achievement and a very strong starting point for the challenge ahead.

Local Agenda 21

This Strategy provides an overarching framework for the City's plans, programmes and initiatives relating to sustainable energy supply and use to 2020: cutting emissions, maintaining energy security, maximising economic opportunities, and protecting the most vulnerable. The Strategy and the associated action plan will ensure that Nottingham accelerates the development, use and value of its energy resource and energy efficiency potential.

The Strategy responds to a number of key drivers; climate change, peak oil and energy security. These drivers are recognised locally and nationally through policies and challenging targets that need to be delivered within given timescales.

Targets

The Action Plan prioritises the delivery of:

- A 26% reduction of carbon dioxide emissions against 2005 levels,
- 20% of the City's own energy generated from low or zero carbon sources

By the target date of 2020, as set out in the local Sustainable Community Strategy. At a national level the Government's Low Carbon Transition Plan³ and Renewable Energy Strategy⁴ in particular provide very challenging targets. The Strategy details how we will meet our

proportional 'pro rata per capita' contribution to the national Renewable Energy Strategy targets, which is estimated in the City at:

- 2% (37GWh) generation from small-scale sources
- 12% (342.7GWh) generation from renewable heat sources.

Tepebaşı/Eskişehir

Tepebaşı Municipality Strategic Plan 2015-2019

The strategic objectives related with promoting low energy districts and sustainable mobility within the strategic plan for Tepebaşı Municipality are below;

Strategic Objective 1: To create modern, healthy and aesthetic urban areas

Target 1: Ensure the sustainability of Tepebaşı's environmental protection policies and practices to make effective and efficient waste management

Strategy 1: Take actions to combat against climate change.

Tepebaşı Municipality will develop a project each year to combat climate change. In 2014 the Municipality prepared "Sustainable Energy Action Plan" for the Covenant of Mayors Initiative.

Strategy 4: Increase the quality of pedestrian transportation and build new pedestrian paths.

Strategic Objective 2: Plan sustainable projects on behalf of social and cultural municipal management

Target 4: Conduct projects for environment and health

Strategy 1: Organize trainings about global climate change, carbon footprint, renewable energy resources and energy efficiency

Tepebaşı Healthy City Profile and The Development Plan (2013)

Tepebaşı Healthy City Council started preparing Tepebaşı Healthy City Profile and The Development Plan in 2012. Besides the Tepebaşı Healthy City Council, The Healthy Development Plan of Tepebaşı Municipality formed by also municipalities, specialists and the public and private institutions.

Healthy City profile includes useful statistics and analyses about demography, social life, sectoral analysis for Tepebaşı District provided by public and private institutions. Some data revised and eliminated for the project. Eventually The Healthy City Profile of Tepebaşı proved to be a useful guide for the policy makers with necessary data and graphs included.

The second part of the study, Healthy City Development Plan aims for determining the current problems and future threats for Tepebaşı Municipality, tackling with them and guiding the policy makers to setting new goals and objectives. Tackling the current and future problems for a city needs strategic comprehensive plans and actions.

The Development Plan contains actions in four different titles as health, education, socio-economy and environment. The Development Plan started the process of SEAP and many projects regarding energy and environment.

Local Agenda 21

There are slight differences between European and Turkish Cities' Local Agenda 21 implementations due to different development levels. In Europe, implementations of the Local Agenda 21 are carried out by strong local authorities coherent with the central government. In the context of this horizontal relationship between the central and local authorities, there are

strong civilian organizations, which ensure citizen participation. Because of the existing social and governmental infrastructure, the environmental aspects of the Local Agenda 21 become more important in European implementations.

In Turkey, Local Agenda 21 is most significantly about participation and governance because of the lack of cooperation and communication between central government and local authorities and public.

When we look at implementations of Local Agenda 21 at different Turkish cities, it can be seen that there is not a single model, which is suitable for all. Implementations of Local Agenda 21 in every city are shaped by the needs and social structure of the local society.

Tepebaşı Healthy City Council

Tepebaşı Healthy City Council increases the sense of belonging of citizens to their environment and supports their decisions over the social and political issues which effects their daily life. The structure of the council is highly participative and has multiple stakeholders.

Tepebaşı Healthy City Council established by the authorization of Municipality Regulations, Healthy City Council Regulations and the Constitution of Healthy Cities Association. Tepebaşı Municipality formed the city council with the collaborative efforts of the public, private sector, non-governmental organizations and the universities in 2000. Eventually Tepebaşı Municipality achieved all requirements in 2001 and was accepted as a member of the World Health Organization Healthy Cities Network from phase 3, which was in effect between 1998-2002.

Thereby the council was renamed as “Tepebaşı Healthy City Council” and also began to follow the World Health Organization’s agenda. Now the current stage Phase VI will take place between 2014-2018 and it has two strategic goals as “improving health for all and reducing health inequalities” and “improving leadership and participatory governance for health”.

Tepebaşı Municipality's mission in this organization is to sustain the Healthy City Council to go on with its work. Moreover the municipality's responsibilities are creating an independent environment for the city council, finding financial sources and providing labour force to the projects of the council.

The Council's executive board formed by 1 chairman and 10 members from different NGO's, universities and institutions. The chairman and the members have to be elected to be in the council. There are 4 working groups named health, education, socio-economic and environmental working groups. The groups come up with projects and design their own processes. It is the executive board's responsibility to approve and enable these projects. Every citizen can take part voluntarily in the working groups.

For catalyzing the process and increasing participation, there are sub-groups connected to Healthy City Council. In December 2014, Tepebaşı Youth Council was formed and organized by students and young labourers to figure out problems of the young population.

In order to increase awareness and participation of citizens to their local problems and decision making processes, Neighborhood Councils came to life in 2014. There are 5 councils operating currently and plans have been made to increase this number in the future. Residents, craftsmans, institutions and organizations operating between the borders of the area join the council and share their opinions and solutions about all of the problems of their neighborhood.

All these sub-councils have their own organization schemes and working groups that are open for all interested citizens.

Tepebaşı Youth Council

Youth Council is also established in the municipality. Working together with the youth parliament, awareness campaigns on social issues, organization and democratic participation

are conducted. Among the activities of Youth Council are cultural trips, individual development courses, active participation and social responsibility projects.

Tepebaşı Youth Council has been established to support democratic and participatory youth, to design action plans to identify concerns and meet the requests, to introduce new policies in the field of youth, to disseminate the rights of the youth and to give equal opportunities to the youth.

Tepebaşı Youth Council, started with the idea of active citizenship and active participation in decision-making process. It involves representatives from non-governmental organizations, syndicates, unions, associations, chambers, governmental organizations, neighbourhoods, high schools, universities, political parties and civil society organizations who are in between 15 and 30 years old. It is the legal representative of youth, living in Tepebaşı district.

The purpose of the Tepebaşı Youth Council are;

Active participation of youth in city management, decision making process, in the means of youth and the city problems, with the responsibility of problem solving, to represent youth of the city in the national and international level, to develop an urban identity and sense of belonging among youth, to develop solidarity and teamwork among youth from different cultural backgrounds promotion and development of youth rights both at the national and international level to support and promote the decision making ability of youth through the cultivation of an innovative and entrepreneurial ethos among youth to increase the participation of youth in social, cultural, innovative and artistic events in the city contribute to the creation of an inclusive youth policy at the local and national level through the promotion of a democratic and reconciliative ethos establishment of a partnership between government, private sector and civil society in order to create a platform that facilitates the integration of youth into the society as active and productive individuals establishment and preservation of an independent youth platform for open dialogue and exchange between youth and local authorities establishment and implementation of a sustainable strategy that aims to solve local problems of the youth contribute to the creation of opportunities for disadvantaged youth taking into consideration the youth part of "Universal Human Rights" in all action plans of the council.

Within all Youth Council activities, they promote and apply the principles of tolerance to diversity, open discussion, active initiatives, shared experiences, volunteering, non-formal education and informal learning.

The key for Youth Council is to work on both local and international projects that append to each other and try to cover broad scale of themes and topics according to what the target group finds interesting. The focus is mainly on youth participation, youth policy, intercultural dialogue, active citizenship, entrepreneurship, but also art and culture are more often utilized as the working method.

The high number of young people in Youth Center, and together with the potential of Tepebaşı Youth Council the awareness about the Remourban Project and low energy districts will be raised through informational meetings both in the youth center, and the two universities in Eskisehir with the help of young volunteer friends.

Covenant of Mayors SEAP

The Sustainable Energy Action Plan (SEAP) is the key document that shows how the Covenant signatory will reach its commitment by 2020. It uses the results of the Baseline Emission Inventory to identify the best fields of action and opportunities for reaching the local authority's CO2 reduction target. It defines concrete reduction measures, together with time frames and assigned responsibilities, which translate the long-term strategy into action.

There are 23 actions for 18 targets within the below categories of interventions planned to reduce GHG emissions;



1. Urban Development – Buildings
2. Transportation
3. Renewable Energy
4. Waste and Waste Water Management
5. Awareness campaigns

