Innovative
Policy Modelling and Governance Tools
for Sustainable Post-Crisis Urban Development

D2.2 Urban planning and governance: current practices and new challenges

Project acronym :	INSIGHT
Project title :	Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development
Grant Agreement number :	611307
Funding Scheme :	Collaborative project
Project start date / Duration:	01 Oct 2013 / 36 months
Call Topic :	FP7.ICT.2013-10
Project web-site :	http://www.insight-fp7.eu/
Deliverable :	D2.2 Urban planning and governance: current practices and new challenges
Issue	1
Date	1/10/2014
Status	Approved
Dissemination Level :	Public

Authoring and Approval

Prepared by		
Name & Affiliation	**Position**	**Date**
Gustavo Romanillos Arroyo	TRANSyT Research Centre. Research Associate	1/10/2014
Andrea Alonso Ramos	TRANSyT Research Centre. Research Associate	1/10/2014
Yang Wang	TRANSyT Research Centre. Research Associate	1/10/2014

Reviewed by		
Name & Affiliation	**Position**	**Date**
Dr. Andrés Monzón de Cáceres	TRANSyT Research Centre. Director	1/10/2014
Dr. Juan Carlos García Palomares	TRANSyT Research Centre. Senior Research Associate	1/10/2014

Approved for submission to the European Commission by		
Name & Affiliation	**Position**	**Date**
Ricardo Herranz (Nommon)	Scientific/Technical Coordinator	1/10/2014
Iris Galloso (UPM)	Management Coordinator	1/10/2014

Record of Revisions

Edition	Date	Description/Changes
Issue 1 Draft 1	04/07/2014	Full index of the document + first version of sections
Issue 1 Draft 2	16/07/2014	Document partially reviewed according to comments on the document by this date
Issue 1 Draft 3	18/07/2014	Integration of D2.4 Policy Cycle and review according to comments on the document by this date
Issue 1 Draft 4	19/08/2014	Review according to the comments on the document by this date
Issue 1 Draft 5	05/09/2014	Review according to the comments on the document by this date
Issue 1 Draft 6	1/10/2014	Review according to the comments on the document by this date In addition, sections 2.3 and 3.3 have been modified in order to better introduce first the concept of governance and then the objectives and the principles of good governance, avoiding redundancies and enriching the content.
Issue 1	1/10/2014	Minor editorial corrections Document approved for submission to the EC

Table of Contents

Executive Summary

INSIGHT

INSIGHT (Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development) is a research project funded under the ICT Theme of the European Union's Seventh Framework Programme. INSIGHT aims to investigate how ICT, with particular focus on data science and complexity theory, can help European cities formulate and evaluate policies to stimulate a balanced economic recovery and a sustainable urban development. The project is conducted by a Consortium composed by the Technical University of Madrid (Project Coordinator), Nommon Solutions and Technologies, the Centre for Advanced Spatial Analysis (CASA) at University College London, the Technical University of Eindhoven, the Institute for Cross-Disciplinary Physics and Complex Systems (IFISC) at the University of the Balearic Islands and the Barcelona City Council. The project started on 1 October 2013 and will run for 36 months.

The "Urban planning and governance: current practices and new challenges" report

As mentioned above, INSIGHT is focused on developing new useful tools and approaches for a sustainable post-crisis urban development. Since the project is clearly set in the particular and challenging landscape left by the economic recession, an exhaustive analysis of this new scenario is required. The main objective of this report is to set up a common and general framework for the project, by identifying the current threats and main problems that European cities are facing now and will be facing in the next few years, as well as the main goals and objectives that are being set in the urban planning and policy agendas. This report also aims to identify the current urban policy trends and measures that are planned to be implemented. In order to do so, an extensive review of different European relevant programmes, initiatives and research projects has been conducted, analysing the findings coming from reports and other documentation. These findings are then contrasted and integrated with the outputs coming from a specific questionnaire launched by INSIGHT, whose results are published in the *D2.1 Stakeholder Consultation*.

This report also aims to define a common policy cycle framework for the project that considers all the different stages from the identification of problems to the evaluation of measures. It also defines and analyses different indicators that link these stages with the modelling tools that the project will finally apply.

1. Introduction

1.1. Scope and objectives

This report is the result of the work developed in the sub-work package WP2.2: *Urban planning and governance: current practices and new challenges*. Its main objectives are:

1. To analyse the different Urban Planning, Policy and Governance approaches currently in use across Europe, in order to set up the framework of a common language for INSIGHT and then guarantee the coherence between its different parts.
2. To identify and analyse the main urban threats and problems that European cities are now facing and will also have to address in the upcoming years, in order to achieve what will be defined as a "Sustainable Urban Development", with special focus on the challenges posed by the present economic recession.
3. To identify and analyse the current and future urban trends, policies and measures that Europe is planning to foster and implement in order to overcome the above mentioned challenges, threats and problems.
4. To analyse existing methodologies for Planning and Policy evaluation and assessment, with special focus on indicators, setting up a common framework on this issue for the whole project.

WP2.2 is connected to most of the other INSIGHT work packages and sub-packages in a direct or indirect way, since, as mentioned before, it sets up the framework and some important bases for the project. The role of WP2.2 in the work package 2: *Challenges for European urban development and governance: the role of ICT* is illustrated in the next scheme:

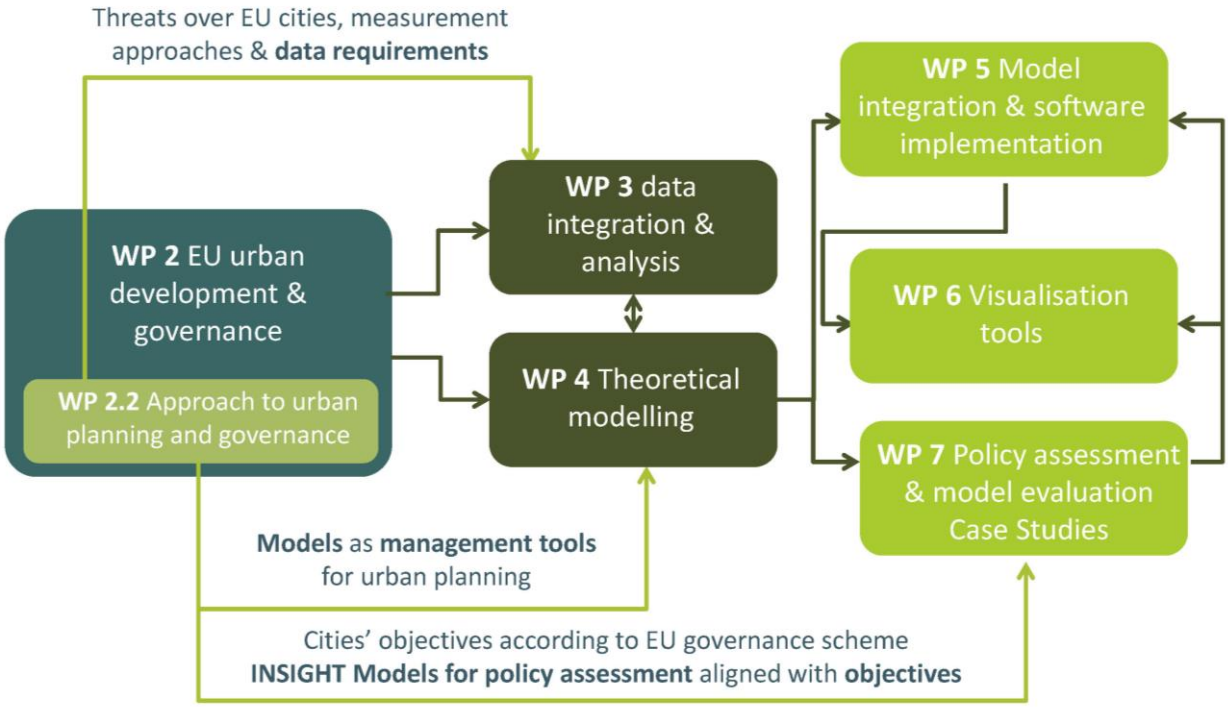
Figure 1.1. The role of WP2.2 in the work package WP2

WP2.2 has been fed with the results of the Stakeholder consultation developed in WP2.1, so that both the identification of current urban challenges and the analysis of existing methodologies and tools for modeling and evaluating policies, as well as the selection of a specific list of indicators, have been enriched with the feedback of different policy makers and technicians. In order to do so, WP2.1 and WP2.2 have been coordinated from the beginning, so that the consultation has been prepared taking into account the general framework of general definitions, the identification of urban challenges and the proposed list of indicators and methods for the evaluation and assessment of policies.

WP2.2 provides the bases for the following work sub-packages WP2.3 *Urban simulation and decision support tools* and WP2.4 *Evaluation framework and assessment criteria*, by identifying the different policies and measures that models should be able to simulate, and eventually the methodologies and indicators that these models will have to take into account in order to evaluate and assess the policies. WP2.2, WP2.3 and WP2.4 have also been coordinated from the beginning so that they have all a common language and approach in general urban planning, policy and governance issues.

Finally, the role of WP2.2 in the whole INSIGHT project is illustrated through the figure 1.2. The work package WP3 *Data integration & analysis* will collect data taking into account the list of indicators reflected in WP2.2, which are related to the identified current urban problems and threats to overcome. WP4 *Theoretical modelling* will be fed with the outcomes on indicators and methodologies from WP2.2 and, finally, WP7 *Policy assessment and model evaluation case studies* will take into account the considerations on evaluation and assessment of the policies considered in section four, as well as the indicators described in the same section.

Figure 1.2. The role of WP2.2 in INSIGHT.



1.2. Methodology and description of contents

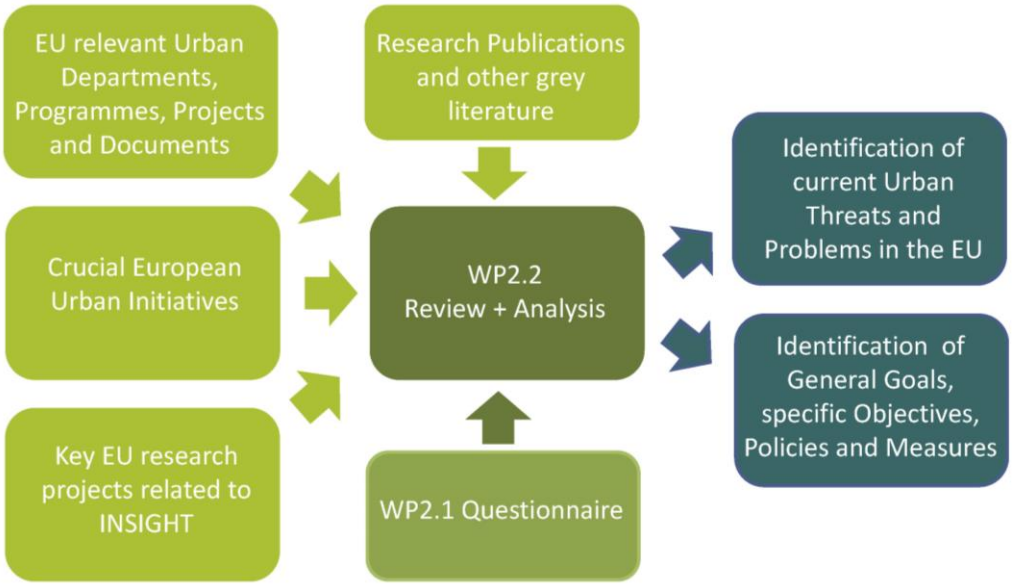
The research conducted in WP2.2 has been divided into 4 sections and one Annex, covering the different objectives of this task. Each of the sections has developed a similar methodology, based on an extensive review and analysis of different documentation, then contrasted and integrated with the inputs coming from the D2.1 questionnaire, in order to set up the common general framework for the project that this report aims to build. A brief description of each section and the particular methodology followed is provided next:

- Section 1 ***Introduction*** presents the main objectives, the scope, the methodology followed and this description of the contents of the report.

- Section 2 ***Urban Planning, Policy, Governance and Sustainable Development in the European Union***, covers the first of goal, that is, to set up the framework of a common language on current approaches to the above mentioned urban issues across Europe. The methodology followed has been the review and the analysis of recent literature coming from both institutional and research sources, and include not only research publications but recent *grey* literature sources such as technical reports, white papers or other documents that have been considered relevant. Because many of the concepts defined are usually open to different approaches or interpretations through time and across the European territory, the report does not come up with a single definition but with several ones, offering a wider view that, far from leading to inoperative and closed definitions, will connect better to the different approaches of the whole INSIGHT research.

- Section 3 ***Current European Urban Challenges, Goals and Policy trends*** is related to the second and the third goals, so it aims to identify and analyse the most important and emergent challenges that European cities will have to face now and in the next future.

Figure 1.3. Section 3 methodological approach scheme



As the previous scheme shows, this section required an extensive review of both recent research publications and documentation coming from three different institutional sources: European relevant departments and programmes on urban issues, crucial European urban initiatives and finally the key European research projects related to the INISGHT project approach. As mentioned before, these review and analysis have been enriched and contrasted by adding the feedback from the D2.1 questionnaire.

Cities are exposed to many threats in their development- which could become barriers to achieve sustainable development, due to external and internal trends. Some of them are global and concern every urban area, others have appeared or have been enhanced due to the recent economic crisis, and others are mainly specific of European urban areas. Four threats are finally considered to be affecting sustainability in European cities: regarding the social dimension, population is suffering from demographic decline, polarisation and segregation, increasing risk of poverty, and also aging; concerning the environment, natural resources are degrading, waste generation and air pollution are increasing; with respect to the economic dimension, the development and competitiveness are under pressure; and finally, we have considered urban sprawl as a trend that has become a threat affecting society, environment and economy, and therefore is pointed out as a very important problem for many European cities. This section contains the description of specific problems that have enhanced each of these threats. This led to propose objectives aimed at avoiding the problems plus some other objectives concerning good governance as a cross cutting issue.

- Section 4 ***Urban Planning tools: Indicators for modelling and forecasting*** provides a justification and description on the indicators to be used in INSIGHT, which are classified into four groups according to their role throughout the Policy Cycle: input indicators, policy strategy indicators, process indicators and output indicators. Finally, a set of indicators related to the objectives previously defined is proposed.

- Annex 1: ***Key European Urban Planning, Policy and Governance Programmes, Initiatives and Projects*** summarises the most important documents, programmes and projects analysed in section three. The thorough review conducted comprised the most relevant research papers, reports and programmes as regards INSIGHT goals. In this context, D2.2 covers the most important urban threats, problems, objectives and policies identified at a European level.

2. Urban Planning, Policy, Governance and Sustainable Development in the European Union

What is Urban Planning? The literature does not offer a clear response to this question, there is not a single definition for such a complex and interdisciplinary activity, so differently understood and applied by planners. Thus, it is even more complicated to come up with an integrated definition of Urban Planning, Urban Policy and Governance in the complex and diverse context of the whole European Union. Having said that, to what extent is urban planning a European concern? This question was addressed by the *Cities of tomorrow* document (2011): "Urban planning per se is not a European policy competence. However, economic, social and territorial cohesion all have a strong urban dimension. As the vast majority of Europeans live in or depend on cities, their development cannot be isolated from a wider European policy framework. The EU has had a growing impact on the development of cities over recent decades, notably through cohesion policy" (URBACT, 2011).

Therefore, the questions of Urban Planning and Policy are so relevant that many efforts have been done to set a common language in order to define general approaches and operative structures in the context of the European Union. These approaches have a critical importance to overcome inoperative fragmented visions, as the *Charter of European Planning* states (European Council of Spatial Planners, 2013): "There is a real danger in public policy approaches having a short term and fragmented perspective. This generally results in temporary solutions and creating further problems in the longer term. There is an even greater need for professional planning advice in government institutions if they are to have a sustainable perspective to problem solving and governance."

Thus, the main goal of this section is to provide an introduction to different and relevant approaches or considerations about Urban Planning, Urban Policy and Governance in the context of European Union, in order to define a framework for the better understanding of the current European urban challenges, goals and policies that will be analysed in the next section, and set the bases of a common language for INSIGHT.

2.1. Introduction to Urban Planning

As mentioned above, there are not clear definitions on Urban Planning. Regarding this question, the AESOP (Association of European Schools of Planning, 2014) states: "with a slight exaggeration it could be said that there are as many definitions as there are planners. Still the question is relevant, not least due to the fact that the word *planning* sometimes is used in a context which gives rise to negative associations. The challenge for planning lies in the fact that various interests and expectations for the future often hold contradiction and conflict. A professional approach, combining sensitivity and analytical and strategic skills, is required to handle the political, social, environmental and economic issues at stake."

Still, different approaches have been considered in the context of the European Union in order to define what are currently the principles and main concerns on planning processes. It is important to highlight their temporal validity, since Urban Planning should be dynamic by nature and adaptable to the different changes at many levels. As the *Charter of European Planning* declares: "the principles of Spatial Planning are embedded in theory

and practice of planning throughout Europe. These principles need to be continually reformulated and strengthened to reflect emerging issues." (European Council of Spatial Planners, 2013)

In an attempt to define the key terms in Urban and Spatial Policy in Europe, the Council for Europe edited the *Spatial Development Glossary* (2007), written by the *European Conference of Ministers responsible for Spatial and Regional Planning* (CEMAT). The Glossary provides the following definition of Urban Planning: "Urban, city or town planning is the planning discipline dealing with the physical, social, economic and environmental development of metropolitan regions, municipalities and neighbourhoods. The expression of urban planning consists in elaborating land-use and building plans as well as local building and environmental regulations. Historically (nineteenth century) urban planning was influenced by the newly formalised disciplines of architecture and civil engineering which began to codify both rational and stylistic approaches to solving city problems through physical design. During the twentieth century, the domain of urban planning was expanded to include economic development planning, community social planning and environmental planning" (CEMAT, 2007).

Urban Planning main regard is about the management of space. This is the reason why sometimes Urban Planning and, more often, Regional Planning are referred to as *Spatial* Planning. As the *New Charter of Athens* (European Council of Spatial Planners, 2003) states*, "*Spatial planning is vital for the delivery of sustainable development. In particular, it concerns the prudent management of space, a critical natural resource, limited in supply, but with growing demands upon it. It also requires trans-disciplinary teamwork involving different skills at various scales in long-lasting processes. The particular attribute of the planning profession is its ability to take a range of issues into account and to translate them into spatial terms."

In this sense, and since it has become a common denomination, the *Spatial Development Glossary* provides also the following definition of Spatial Planning: "Spatial planning refers to the methods used by the public sector to influence the distribution of people and activities in spaces at various scales as well as the location of the various infrastructures, recreation and nature areas. Spatial planning activities are carried out at different administrative or governmental levels (local, regional, national), while activities of co-operation in this field are also implemented in cross-border, transnational and European contexts" (CEMAT, 2007).

Therefore, on the one hand space management has to deal with spatial urban and regional development in terms of housing, social facilities, transportation and all kind of infrastructures, including and balancing all relevant public and private interests. On the other hand, Planning has to take into account three main dimensions: environmental sustainability, social equity and welfare, and economic efficiency in order to reach what is considered for many (S. Campbell, 1996) a Sustainable Urban Development.

Since *Space Planning* involves many different and complex concerns and interests, another important regard has to do with the cross-disciplinary nature of Planning. In this sense, *The visions for Cities and Regions-Territories of Europe in the 21st Century* (European Council of Spatial Planners, 2013) states*: "*The diversity of Europe is reflected in the local distinctiveness and cross-disciplinary nature of the planning profession across Europe. This ensures that planning takes account of the diversity of its cities, regions (territories) or other areas in terms of their geography, environments, landscapes and cultures."

2.2. Urban Policy and the definition of a Policy Cycle scheme

2.2.1 Introduction to Urban Policy

We can state that a policy is merely "a plan of action adopted or pursued by an individual, government, party, business, etc. intended to influence and determine decisions, actions, and other matters" (Collins English Dictionary definition), or "a number of rules tied in to a domain of management" (Wies, 1994). But what do we exactly mean by Urban or Regional Policy? As with Planning, there are no clear definitions. "There has been something commonly labelled *Urban Policy* since the early 1960s in the US and the late 1960s in most European countries. The starting point of this chapter is a high degree of frustration about the ways in which debates about and around urban policy have generally been conducted. Even the academic literature is increasingly dominated by a practical or practice-oriented approach" (Cochrane, 2000). Thus, not only academia but also public institutions, like the European Commission, with different concerns on Urban Policy initiatives don't give what we could understand as a definition.

Having said that, it is possible to find some definition attempts. For instance, Blackman claims that "Urban Policies are all the initiatives that affect people living in cities" (Blackman, 1995) but, as Cochrane considers, many of them make the notion virtually meaningless, since the majority of people is already living in cities or urban areas (Cochrane, 2000). Nevertheless, even if quite general, this definition takes clearly into account the concept of space. Both Urban and Regional Policy refer to policies applied in a specific area or for a specific group of people living in such area. As the same author indicates: "There is, however, at least one feature of urban policy that makes it highly distinctive. Other social policies are concerned with the delivery of services or the provision of support to clients, users, consumers, or even customers. Urban policy, by contrast, focuses on places and spatially delimited areas or the groups of people associated with them. Its problem definition starts from area rather than individual or even social group, although, of course, a concern with an area is often used as a coded way of referring to a concern about the particular groups which are believed to be concentrated in it. Instead of solving the difficulty of definition, however, this merely compounds it. Although an area focus provides a useful starting point for analysis it also masks a very wide range of policy initiatives, concerned with dramatically different definitions of the problem faced either by urban areas or by those living in them."

As mentioned before, European Commission directorates or initiatives give basically applied definitions or different explanations according to the main concern for each specific case. As INFOREGIO — the Regional Policy directorate mainly focused on fostering cohesion initiatives — declares: "Regional policy is the expression of the EU's solidarity with less developed countries and regions, concentrating funds on the areas and sectors where they can make the most difference. Regional policy aims to reduce the significant economic, social and territorial disparities that still exist between Europe's regions. Leaving these disparities in place would undermine some of the cornerstones of the EU, including its large single market and its currency, the euro."

Besides this, our aim in the context of the project is not to come up with a single and clear definition of Urban Policy for the project but to understand the processes related to the definition, implementation and eventually the evaluation of policies, that is to say, to understand the urban *Policy Cycle*.

2.2.2 Definition of an Urban Policy Cycle scheme

Policy processes have been analysed according to different perspectives. Policy Science approach has been usually problem-oriented, "since policy problems are seen to occur in a specific context, a context that must be carefully considered in terms of the analysis, methodology, and subsequent recommendations" (deLeon & Vogenbeck, 2007). On the other hand, since its origins in the 1950s, the field of Policy Analysis has understood the policy process as evolving through a sequence of discrete stages or phases (Jann & Wegrich, 2007) that are repeated in a cyclic way, giving birth to what is known as the Policy Cycle framework or the *policy stages heuristic* (Jones, 1977). The term *heuristic* is frequently used to stress that the stages are described as observed in practice and not derived from a comprehensive theoretical framework. Even if this perspective has been criticised for the 'artificial' delimitation of stages that are usually intertwined, the approach sets the bases of the *stages models* of the field of policy studies from the 1960s to the 1980s and still now is the conventional way to understand policy processes.

During these years many different "Theories of the Policy Cycle" were developed. Firstly, the idea of modeling the policy process in terms of stages was first put forward by Lasswell (Lasswell, 1956). As part of his attempt to establish a multidisciplinary and prescriptive policy science, Lasswell introduced a model of the policy process comprising seven stages: intelligence, promotion, prescription, invocation, application, termination, and appraisal (Jann & Wegrich, 2007). While this sequence of stages has been contested, the model itself has been highly successful as a basic framework for the field of policy studies and became the starting point of a variety of typologies of the policy process.

Since the 1950s, several variations of the stages mentioned above have been reflected in literature and research. For instance, Cuadrado-Roura (2005, p. 83) uses six main stages: issue identification, analysis of alternatives, design of policies, consultations, discussion and decision, and implementation. Other authors widen or reduce the number of stages but maintain the basic structure. For example, in the rather complete and critical review of Jann and Wegrich (2007) the stages are reduced to five: agenda-setting, policy formulation, decision making, implementation, and evaluation (eventually leading to termination). With rather similar names and slight extensions these five stages appear in Howard (2005): agenda-setting, policy design, adoption, implementation, and monitoring and evaluation.

When it comes to the European Union approach, it is not possible to find one single policy scheme and the different institutions involved in policy processes tend to set their own perspective on the issue according to their focus of interest. For instance, the *European Sustainable Cities Platform* (www.sustainablecities.eu) considers a five stages Policy Cycle which is quite similar to the ones mentioned before. Focused on local sustainability management, a *Sustainable Policy Cycle* is defined this way: "The Sustainability Cycle leads local governments through 5 steps which, repeated periodically, help cities to gradually advance their level of sustainability, while at the same time making sure sustainability stays on the local agenda. "

These five steps are:

1. Baseline review

   The first step of the Sustainability Cycle is the Baseline Review. Here, local governments assess the local situation, both by gathering relevant data and by finding out if the existing organisational conditions allow an efficient and effective management of the local sustainability process.

2. Target setting

   The second step of the Sustainability Cycle is the Target Setting. Together with relevant local stakeholders, the local government sets measurable targets with timeframes for their achievement.

3. Political commitment

   The third step of the Sustainability Cycle is the Political Commitment. In order to make the sustainability targets the leading guideline of local policy-making for the next years, the local council adopts them in a political decision.

4. Implementation and monitoring

   The fourth step of the Sustainability Cycle is the Implementation and monitoring of activities supporting the achievement of the sustainability targets. These activities will be co-ordinated by the local government, however may include projects implemented by other stakeholders.

5. Evaluation and reporting

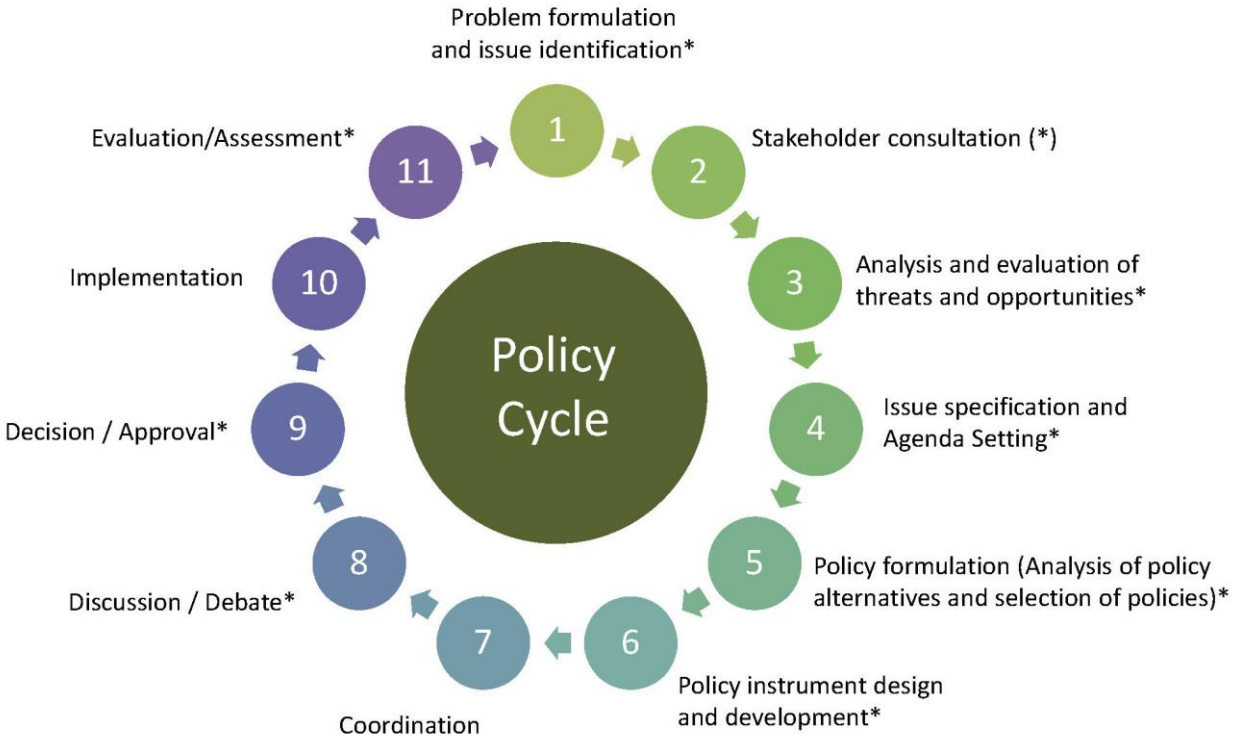
   The last step of the Sustainability Cycle is Evaluation and reporting. At the end of the Cycle, the level of achievement of all sustainability targets is measured, the implementation of the Sustainability Programme is assessed, and shortcomings are analysed. This evaluation contributes to the preparation of the next Baseline Review.

Another *Cyclical Planning Model* is defined by URBACT in order to better organise and run the activity of their Local Support Groups. The model is specifically defined in order to provide a framework for the different tools proposed by the programme, but still can be considered a general framework for the Planning of Policy processes since it has already been tested by the European Commission and other international agencies. The Figure 2.1 illustrates the different stages. The URBACT II Local Support Group Toolkit Document states: "It can be useful to think of the process as cyclical or circular so that learning along the way and from other plans can be continually integrated. The cyclical planning model is a representation of planning as a process which does not start or end. Such a cycle brings together all aspects of planning into a coherent, unified process, helping to ensure that the plan is fully considered, well focused, resilient, practical and cost-effective. It can also help to ensure that learning from mistakes feeds back into future planning and decision-making" (URBACT, 2013).

Finally, a specific Policy Cycle scheme has been defined for INSIGHT in order to introduce a common framework regarding the analysis of Policy Processes. While for many purposes, the already mentioned stages could suffice, for the perspective of the project it is felt that a more granular and comprehensive list would help to understand the role of ICTs in urban planning. The list simply highlights some sub-stages usually considered under a broader category. Figure 2.2 illustrates the different stages.

Figure 2.1: URBACT Cyclical Planning Model

Figure 2.2: INSIGHT Policy Cycle Scheme



* Stages in which additional stakeholder consultations can take place and/or is taken into account; in general consultation permeates the whole process

The proposed Policy Cycle scheme consists of the next eleven stages:

1. Problem formulation and Issue Identification

The Policy Cycle starts with the identification of specific problems, threats (issues that could eventually turn into problems in the future) or the detection of other challenges, opportunities or other issues that could improve some aspects of our society. Since we are focused mainly on public policies, the nature and scale of these problems, threats or challenges should concern and apply for the action of the state. Thus, as Jann and Wegrich indicate, "Policy-making presupposes the recognition of a policy problem. Problem recognition itself requires that a social problem has been defined as such and that the necessity of state intervention has been expressed" (Jann & Wegrich, 2007).

2. Stakeholder consultation

Stakeholder consultation is not exactly an independent stage. It could be understood as a sub-stage related to other stages. As the Figure 2.2 illustrates, consultation permeates the whole process, it is not only related to Problem Identification and additional stakeholder consultations can be taken into account. The Table 2.1 shows the potential role of stakeholders throughout the different policy cycle stages.

Consultation should take into account all the potential members of society involved on the issue a policy is focused on. As the European Union considers, "it is required to bring together all relevant local stakeholders related to the chosen policy challenge the city wants to tackle (such as youth unemployment or regeneration of a deprived area). These stakeholders are engaged in order to participate in the development and implementation of local urban development policies" (URBACT, 2013). Thus, as mentioned above, the role of stakeholders is important throughout the whole policy process.

According to URBACT, at the outset the city needs to identify the stakeholders who have an interest in the policy challenge. Local Support Groups should include representatives of:

- Different departments within the local administration
- Elected bodies responsible for the different policy areas connected to the challenge being addressed
- Beneficiaries, e.g. young people, the elderly, migrants, etc. end-users, citizens
- Third sector, NGOs, social enterprises, especially those that represent the interests of specific groups or deliver public services
- Different tiers of government in the relevant policy area (neighbourhood, city, metropolitan area, region)
- The private sector, business community, employers, public service providers
- Managing Authorities of Operational Programmes (whether European Regional Development Fund or European Social Funds).

3. Analysis and evaluation of threats and opportunities

This stage is a crucial link between the Problem Identification and the Agenda Setting ones. On the one hand, urban problems and threats are usually complex and intertwined by nature. Some problems are just consequences or manifestations of other root-problems, and only through a well oriented analysis of these interrelated causes-consequences it is possible to set the agenda and propose policies.

On the other hand, global root-problems in the context of the European Union are still more difficult to identify, as same problems may have different causes, and therefore different solutions, according to the specific context of each country and city. This is the reason why, under the *Think Globally, act locally* principle, many European commission initiatives, like Local Support Groups (URBACT) are based on From Global to local strategies.

4. Issue Specification and Agenda-Setting

Agenda-Setting stage results in the selection of problems and issues to be eventually included on the Policy Agenda. Not all the issues identified at the first stage can be considered at the same time. “Agenda setting is the process by which problems and alternative solutions gain or lose public and elite attention. Group competition to set the agenda is fierce because no society or political institutions have the capacity to address all possible alternatives to all possible problems that arise at any one time” (Hilgartner & Bosk, 1988). Thus, governments have to prioritise the issues they estimate more relevant.

Thus, the central question is: How can this relevance be evaluated? The outputs of the third analytical step have to be taken into account, but the Agenda-Setting process is sensitive to many other aspects. As Jann and Wegrich indicate: “The confluence of a number of interacting factors and variables determines whether a policy issue becomes a major topic on the policy agenda. These factors include both the material conditions of the policy environment (like the level of economic development), and the flow and cycle of ideas and ideologies, which are important in evaluating problems and connecting them with solutions (policy proposals)” (Jann & Wegrich, 2007). Within that context, the constellation of interest between the relevant actors, the capacity of the institutions in charge to act effectively, and the cycle of public problem perception as well as the solutions that are connected to the different problems are of central importance.

5. Policy formulation

Once the Political Agenda is set, all the problems and issues identified and eventually selected because of their relevance, should be transformed into Policies through government programs. The Policy formulation stage can be divided into two different sub-states: the Analysis of policy alternatives and the Selection of policies.

Therefore, as Jann and Wegrich reflect in *Theories of the Policy Cycle*, “Policy formulation and adoption includes the definition of objectives — what should be achieved with the policy — and the consideration of different action alternatives. Some authors differentiate between formulation (of alternatives for action) and the final adoption (the formal decision to take on the policy). Because policies will not always be formalised into separate programs and a clear-cut separation between formulation and decision-making is very often impossible, we treat them as sub-stages in a single stage of the policy cycle.” (Jann & Wegrich, 2007)

6. Policy instrument design and development

At this stage of the Policy Cycle, the general policies defined according to certain objectives must be turned into specific policy measures, identifying the best instruments and procedures to be implemented and developed. It is, therefore, quite a strategic and technical stage, so governments usually count with the participation of external consultants and other relevant stakeholders related to the objectives to be achieved or to the sort of instruments that must be applied. Basically, "Policy instruments have been classified into regulatory, financial, informational, and organisational policy tools" (Hood, 1983).

7. Coordination

Once specific policy measures and instruments are defined, the administration has to coordinate different issues in order to plan policy implementation. In fact, some authors include this stage as an initial sub-stage of the Implementation one (stage 10). Jann and Wegrich include here some of the tasks we consider more relevant at this stage:

- Coordination and Specification of program details (i.e., how and by which agencies/organisations should the program be executed? How should the law/program be interpreted?);
- Allocation of resources (i.e., how are budgets distributed? Which personnel will execute the program? Which units of an organisation will be in charge for the execution?);
- Decisions (i.e., how will decisions of single cases be carried out?).

8. Discussion / debate

Once the specific measures are already proposed and defined in detail, the discussion stage involves, once again, the stakeholder consultation. The discussion should be focused on evaluating the government approach and degree of connection between the general goals defined at the first stages and the specific measures implemented for the potential achievement of these goals.

9. Decision / approval

The decision stage basically results in the government approval of the policies, once a positive feedback at the Discussion stage has been received.

Coordination, Discussion and Decision can be considered as preliminary sub-stages of the Implementation stage. INSIGHT divides them into stages for reasons related to the way new ICT can support and improve all these stages by supporting the diverse stakeholders engaged in a different way (See Table 2.1 Aims and stakeholders in the policy cycle stages. Different ICT supports are defined in the INSIGHT document *D2.4 Evaluation framework and assessment criteria*).

10. Implementation

This Implementation stage covers all the process from the launch of the specific policy measures and initiatives to the end of their application, involving also the supervision of the on-going policies and their impact. Policies usually last for years, so this supervision is crucial in order to overcome difficulties and adequate possible aspects that don't work as it was expected. As Hogwood and Gunn indicate, "this stage is critical as political and

administrative action at the frontline are hardly ever perfectly controllable by objectives, programs, laws, and the like" (Hogwood, 1984). Therefore, policies and their intentions will very often be changed or even distorted; its execution delayed or even blocked altogether (Jann & Wegrich, 2007).

More general definitions of Policy implementation are considered when Implementation stage involves also the Coordination, Discussion and Decision stages. Thus, it is broadly defined as "what happens between the establishment of an apparent intention on the part of the government to do something, or to stop doing something, and the ultimate impact in the world of action" (O'Toole, 2000).

11. Evaluation / assessment

Evaluation stage closes the Policy Cycle and at the same time makes it start once again. The stage begins with the assessment of the policies implemented, according to the degree of achievement of the initial goals or other different criteria (the Cost-benefit criterion and other assessment methods are defined in the INSIGHT document *D2.4 Evaluation framework and assessment criteria*). If the results were not satisfactory, then possible causes should be analysed to figure out why the Policy Cycle did not work. It could be due to an inadequate policy formulation, a bad implementation or simply due to an incorrect analysis and identification of root problems. An adequate diagnosis is necessary to define the correct objectives. It is crucial that the evaluation process covers all these possibilities.

Finally, an evaluation of the new general scenario at the end of the cycle must be done. At the end, this analysis starts again the Policy Cycle, linking with the Problem Identification stage. As a consequence of evaluation processes, the cycle is supposed to be improved throughout its cyclical repetition, something that has been called by some authors "the policy-learning process". Thus, "Evaluations can lead to diverse patterns of policy-learning, with different implications in terms of feed-back mechanisms and a potential restart of the policy process. One pattern would be that successful policies will be reinforced; a pattern that forms the core idea of so-called pilot projects (or model experiment), in which a particular measure is first introduced within a (territorial, substantive, or temporal) limited context and only extended if the evaluation is supporting" (Jann & Wegrich, 2007).

Table 2.1. Aims and stakeholders in the policy cycle stages (adapted to urban scenario)		
Stage	**Aim**	**Stakeholders involved**
Issue identification	Information gathering	Society / citizens Public administrations Government Political parties Media Lobbies International organisations
Consultation	Deliberation with interested parties / society at large	Society / citizens Government Public administrations Media Advisers/ Experts Lobbies International organisations
Policy analysis	Policy alternatives	Public administrations Government Advisers / Experts
Policy design	Development of specific policies	Public administrations Government Advisers / Experts Political parties Lobbies International organisations
Coordination	Involvement of administrative bodies	Public administrations Government
Discussion	Debate within legislative and administrative bodies	Government (Public administrations) City Council / Parliament Political parties
Decision	Approval of policies	Government (Public administrations) City Council / Parliament
Implementation	Deployment of policies	Public administration Government
Evaluation	Overall impact assessment	Society/citizens Public administration Government City Council / Parliament Lobbies Advisers/experts International organisations

2.3. Governance

As expected, the term governance is open to slightly different approaches but, “Despite ambiguity of definitions, governance generally refers to the means for achieving direction, control and coordination of wholly or partially autonomous individuals or organizations on behalf of interests to which they jointly contribute.” (Jr, Heinrich & Hill, 2000). Thus, the term is related to means or the processes of government, in a wide open conception of this term. As Mark Bevir states, governance refers to "all processes of governing, whether undertaken by a government, market or network, whether over a family, tribe, formal or informal organisation or territory and whether through laws, norms, power or language" (Bevir, 2013).

Governance can be also defined as “the process of decision-making and the process by which decisions are implemented, monitored and evaluated” (Misuraca, Alfano & Viscusi, 2011). It is of course linked to government, but governance is more than just government as it includes both the processes that allow managing the activities of the public sector and the aims of these processes. In this sense, it is possible to talk about good governance when the authority of the government is based on the will of the people and is responsive to them. Building on these ideas, the UNDP *Human Development Report* 2002 elaborated the concept of *democratic governance*, that is, governance that would promote human development. Like the concept of good governance, democratic governance seeks efficient institutions and a predictable economic and political environment necessary for growth and effective functioning of public services.

In the context of the European Union, the main reference on Governance is *the White Paper on European Governance* signed in Brussels (2001). The paper basically launches a reform on the issue by proposing what it calls *The Principles of good Governance*. These principles and the proposals for governance change and reform will be described in the section 3.3 of this document.

E-governance

The term eGovernment emerged in the last years in reference to the new governance systems in which new ICTs play a significant role. According to the United Nations, e-Government is defined as “a government that applies ICTs to transform its internal and external relationships”. However, there are many other definitions of the term. Narrowly, e-Government indicates a system of effective provision of public services via ICTs. It also implies electronic transaction between the government and other actors such as citizens or businesses in society through new technologies including the Internet and includes all applications of ICTs that improve efficiency, effectiveness, transparency and accountability of daily administration of government. The broader concept of e-Government stands for a more citizen-friendly government that provides enhanced public services and improves productivity of the governments via extended networks and advanced technologies.

E-Government performance differs from a mere successful application of technological innovation. In fact, studies on more advanced countries imply that governments that are successful in eGovernment are those that achieve multiple values like efficiency in administration, innovation in organization, effectiveness and availability of public services, and transparency, integrity, responsiveness and participation.

E-Governance has gained prominence as a concept to encompass greater societal challenges, emerging as an instrument for more than just consumer satisfaction at government administration but as something that

promotes deeper forms of democracy. While at its most basic, it is a means of expressing efficient e-Government, at its more complex, it impacts well outside government administration boundaries, allowing the participation of civil society and citizens as active stakeholders. It is not only something that enhances service delivery, but also facilitates and enhances interactions between actors.

2.4. Sustainable Urban Development

The main objective of INSIGHT is directly reflected on its title: Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development. Thus, the project aims to investigate how ICT, with particular focus on data science and complexity theory, can help European cities formulate and evaluate policies to stimulate a balanced economic recovery and a *sustainable urban development*. Having said this, a definition of what is meant by Sustainable Urban Development is required.

The *Spatial Development Glossary,* edited by The Council for Europe provides also the following definition of Sustainable spatial development: "The concept of sustainable spatial development is the main objective of the Guiding Principles. Sustainability is related to long-term approaches: the benefits provided by spatial development policies should have long-lasting character and should not be jeopardised by the overlooking of important interferences between public policies or sectors of activity. Four dimensions of territorial sustainability have been identified in the Guiding Principles: economic, social, environmental and cultural sustainability. While numerous processes are challenging the sustainability of our common European future, policies aiming at sustainable spatial development have to achieve a variety of tasks such as reducing disparities, supporting balanced polycentric development, providing measures for the revitalisation of declining settlements, increasing the efficiency of transport and energy networks, preventing and reducing the potential damages of natural hazards, protecting and improving the natural and the built environment, promoting environmentally-friendly practices in agriculture and forestry, achieving a balance between preserving the existing cultural heritage, attracting new investments and supporting existing living and working communities in urban and rural areas and increasing public participation in spatial development approaches" (CEMAT, 2007).

Apart from this attempt, as far as we know European institutions do not provide directly a clear definition. Instead of it, different documents offer informal and indirect explanations. For instance, one of the most relevant documents on the subject, *The Leipzig Charter on Sustainable European Cities* (2007) states: "In the long run, cities cannot fulfil their function as engines of social progress and economic growth a described in the Lisbon Strategy unless we succeed in maintaining the social balance within and among them, ensuring their cultural diversity and establishing high quality in the fields of urban design, architecture and environment."

Another relevant document, *Cities of Tomorrow 2011*, when considering Sustainable urban development identifies the adoption of a holistic approach on environmental issues and energy efficiency as one of the main challenges for cities: "Cities are not just economic engines, they are unrivalled as providers of the basic ingredients for quality of life in all its senses: environmental, cultural and social. Cities have to manage a range of environmental issues, such as quality of air and water, energy, waste and natural resources. In the future, cities may also have to secure food provision, especially in a context of shorter, more local, production-consumption chains. A city is a place where the many components of the natural ecosystem are interwoven with those of the social, economic, cultural and political urban system in a unique manner. A major challenge

for all cities is to reconcile economic activities and growth with cultural, social and environmental considerations, as well as reconciling urban lifestyles with green constraints and opportunities. As focal points for consumption and innovation, cities can play a key role in shaping greener behaviour and consumption" (URBACT, 2011).

More concrete approaches to a Sustainable Urban Planning definition are available in research literature. Among them, this definition has been pointed out as one of clearest and most complete in its scope: "Sustainable urban development may be defined as a process of synergetic integration and co-evolution among the great subsystems making up a city (economic, social, physical and environmental), which guarantees the local population a non-decreasing level of wellbeing in the long term, without compromising the possibilities of development of surrounding areas and contributing by this towards reducing the harmful effects of development on the biosphere"(Camagni, 2004).

The dramatic effects of the economic crisis on the three subsystems considered in the definition (a decreasing economy, a growing social polarisation and an increasing depletion of natural resources) have demonstrated how achieving this sustainable development is more necessary than ever. Moreover, urban planners, policy makers and other urban actors have to overcome the difficulties of facing contradictory forces by nature. Therefore, as Campbell states in *Urban Planning and Contradictions of Sustainable Development*: "Nothing inherent in the discipline steers planners either toward environmental protection or toward economic development or toward a third goal of planning: social equity. Instead, planners work within the tension generated among these three fundamental aims, which, collectively, I call the "planner's triangle", with sustainable development located at its centre. This centre cannot be reached directly, but only approximately and indirectly, through a sustained period of confronting and resolving the triangle's conflicts. To do so, planners have to redefine sustainability, since its current formulation romanticises our sustainable past and is too vaguely holistic. Planners would benefit both from integrating social theory with environmental thinking and from combining their substantive skills with techniques for community conflict resolution, to confront economic and environmental injustice" (S. Campbell, 1996).

Finally, on a global context, one of the most renowned references concerning Sustainable Development is the *Agenda 21*, an action plan implemented by the United Nations in 1992, in the context of the UN *Conference on Environment and Development* (UNCED) held in Rio de Janeiro. The plan, defined in a document, indicates: *"*Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century (*The "21" in Agenda 21 refers to the 21st Century).* It reflects a global consensus and political commitment at the highest level on development and environment cooperation. Its successful implementation is first and foremost the responsibility of Governments" (United Nations, 1992).

The Agenda consists of four sections, addressing Social and Economic Dimensions, Conservation and Management of Resources for Development, Strengthening the role of major groups and Means of Implementation. These sections describe the basis for action, objectives, activities and instruments. As the *Agenda 21* states: *"*Agenda 21 is a dynamic programme. It will be carried out by the various actors according to the different situations, capacities and priorities of countries and regions in full respect of all the principles contained in the Rio Declaration on Environment and Development. It could evolve over time in the light of changing needs and circumstances. This process marks the beginning of a new global partnership for sustainable development*"* (United Nations, 1992).

More than twenty years later, the ideas and principles of the *Agenda 21* underlie the current concerns of *The Division for Sustainable Development* (DSD), a division of United Nations which aims to promote and coordinate the implementations of the Agenda programme. Among the core functions of the DSD, INSIGHT is especially interested in the Planning and Policy Analysis, and the Knowledge management, communication and outreach, functions in which new ICT tools can play an important role.

2.5. The European approach: Key Urban Planning, Policy and Governance programmes, initiatives and documentation

2.5.1 From Global to Local Strategies

The European approach to Sustainable Urban Development is supported by two pillars. As mentioned before, the first one is the integrated-holistic approach; the second one is the "*From Global to Local*" strategy, that is based on the *Think Globally, act locally* principle. In other words, a participative action-planning that involves stakeholders at many levels, from European institutions and organisations to the local ones, and from politics to sociology, ecology, urbanism, economy or whatever field with urban concerns. This double approach has driven most of the relevant European Programmes and initiatives involved in Urban Development, such as URBAN I, URBACT I and URBACT II. "These programmes are based on a holistic approach that takes into consideration the physical, economic and social dimensions of urban development, from a sustainable perspective. The participative approach – the development of strong partnerships between public bodies, the private sector and civil society (including citizens and inhabitants) – is recognised as a cornerstone of efficient urban development policies" (URBACT, 2013).

Taking into account that the European Union involves so many countries with different contexts and realities, this approach seems to be the only one able to link global strategies to the specific measures that eventually have to be applied in cities. But, what are the instruments to do it? As the "urban issue" involves many different concerns and interests, there are many diverse instruments, associated to different departments, directorates, initiatives and programmes. The most relevant will be listed and briefly analysed in the next section.

Some of the most renowned on-going instruments are the URBACT *Local Support Groups* (ULSGs). These groups translate "these principles into concrete local dynamics that aim to foster shared ownership of the urban planning process and also strengthen capacities of local actors*"* (URBACT, 2013). In order to guide and structure the work of these Groups, URBACT published the *URBACT II Local Support Group Toolkit* (2013).

The ULSGs are the instrument designed to better achieve the goals of the URBACT initiative. As considered in the toolkit document: "Facilitating the exchange of experiences and learning among city policy and decision-makers and practitioners; disseminating good practices and lessons drawn from these exchanges, ensuring the transfer of know-how; and finally assisting city policy-makers and practitioners (including managing authorities of Operational Programmes) to define and put into practice action plans for sustainable urban development".

To better understand how this initiative operates, we need to define what exactly the *Local Support Groups* are and what are the *Local Action Plans* that they eventually develop. According to the Toolkit document:

- *URBACT Local Support Groups* (ULSGs) are a fundamental building block of the URBACT programme. Every city partner in an URBACT network is required to set up a ULSG to bring together all relevant local stakeholders related to the chosen policy challenge the city wants to tackle (such as youth unemployment or regeneration of a deprived area). These stakeholders are engaged in order to participate in the development and implementation of local urban development policies.

- A *Local Action Plan* (LAP) is a strategic document that addresses identified needs, analyses problems and opportunities and puts forward sustainable, feasible solutions. All URBACT network partner cities have to produce a LAP and they can be written in a variety of formats. The Local Action Plan is first and foremost a concrete and useful tool for the city to solve a local problem and/or improve a local situation.

But, how do *Local Support Groups* get to develop this strategic *Local Action Plan*? All the stakeholders of the ULSGs are brought together in order to achieve a complete local diagnosis. As mentioned before, the local approach is necessary since, depending on the different locations (countries, cities or other local contexts), the same problems may have different causes and therefore different solutions.

The base of the Local diagnosis is to have a global understanding of interconnected problems in order to identify which are the more relevant ones, and the main causes of others. In this sense, "the URBACT II Local Support Group Toolkit document defines the *Problem Tree Analysis*, a necessary analysis in order to tackle the right problems. People often tend to "jump to solutions" while the experience of previous URBACT projects suggests that there is real value in conducting detailed problem analysis, allowing time for discussion and reflection. What seems at the beginning to be the core issue might become, after thorough analysis, a secondary issue" (URBACT, 2013).

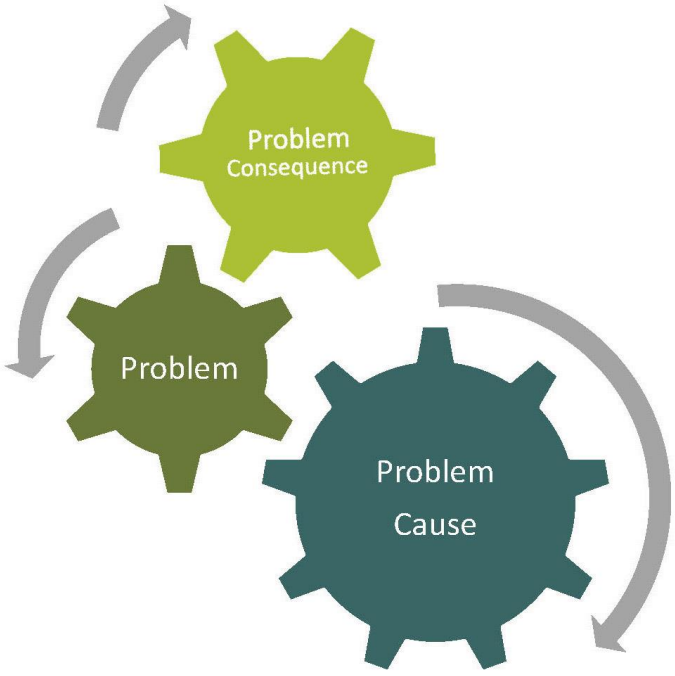


Figure 2.3. Local diagnosis

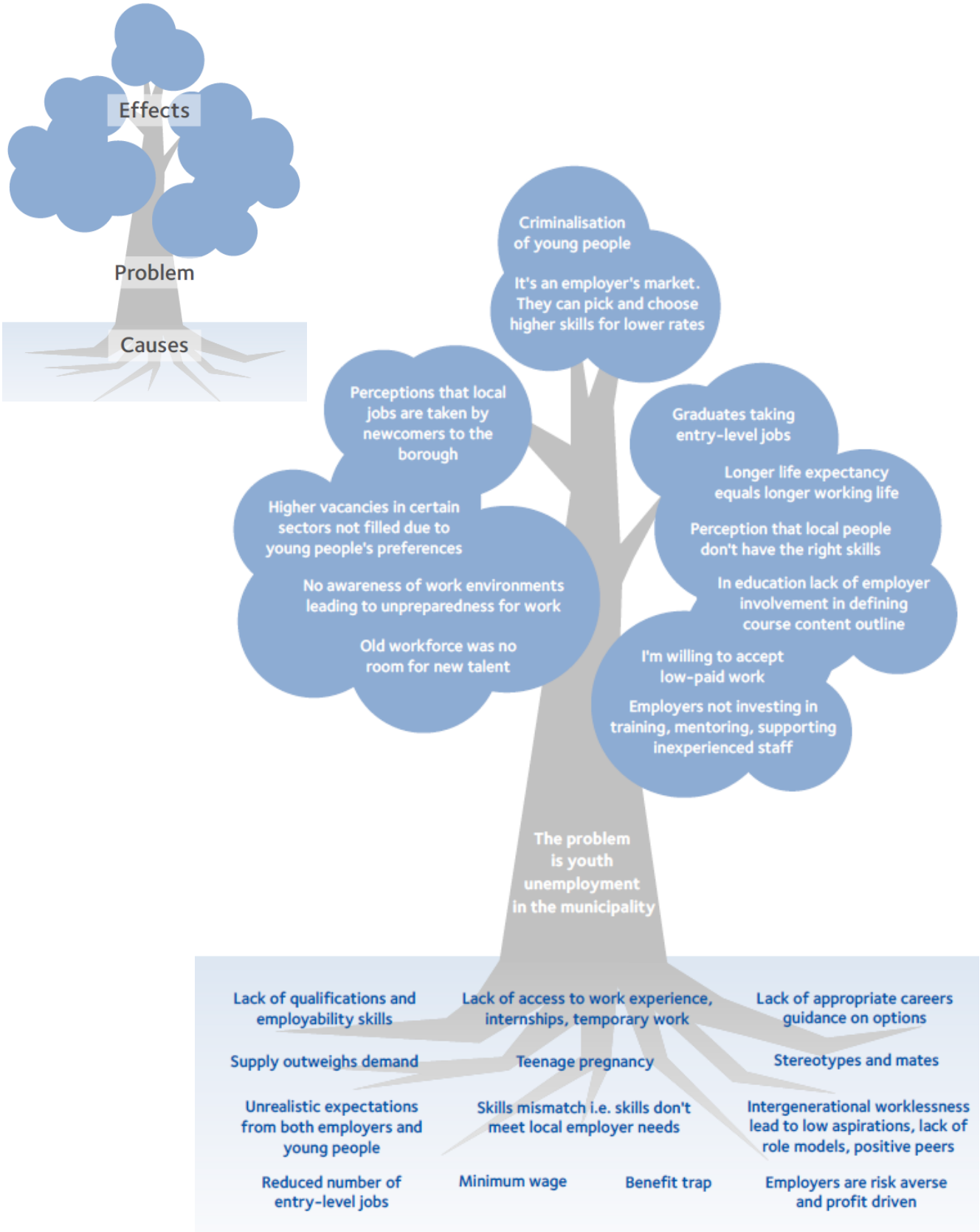


Figure 2.4. *The Problem of youth unemployment*

Source: URBACT II Local Support Group Toolkit Document, 2013

The *Tree Analysis* consists of the next steps, illustrated in the Figure 2.4:

1. List all problems that come to mind related to the main theme (e.g. youth unemployment or lack of public funding). Problems need to be carefully identified: they should be existing problems, not possible, imagined or future ones. The problem is an existing negative situation, not the absence of a solution.
2. Identify a 'Core Problem'. This may involve some trial and error before settling on one.
3. Determine which problems are 'Causes' and which are 'Effects'.
4. Arrange in hierarchy both Causes and Effects, i.e., how do the causes relate to each other, which leads to the other, etc.

Once these steps are completed, the *Problem Tree Analysis* is used, with the same structure, to identify possible solutions. "Once your 'Problem tree' is completed, you may use another blank drawing of a tree to shift from problems to solutions. Following the same principle, re-formulate all elements into positive statements, turning problem into solution (the trunk), effects into expected change/ results (the branches), and causes into actions (the roots). If you have been working with a poster and sticky notes listing effects on the branches, it can be effective to flip these over and turn them into expected results" (URBACT, 2013).

2.5.2 European Commission relevant Programmes, Initiatives and Projects

URBACT is just one of the main programmes and initiatives launched in the context of the European Union, but other initiatives also emphasise the role of local governments and authorities in developing social policy innovation and delivering positive social outcomes for European citizens. One of the most important initiatives in this sense is EUROCITIES, the network of major European Cities. EUROCITIES launches different activities, forums, conferences, gives awards to cities according to their work on sustainable development, and finally creates some 'working groups' focusing on specific urban policy issues. "Each working group consists of individuals, nominated by member cities, who are considered as having relevant knowledge and expertise. Each working group is chaired by a member city, which is also responsible for reporting back to the relevant forum on the results achieved" (EUROCITIES, 2014).

However, even if EUROCITIES *Working Groups* are similar in concept (small units of stakeholders), their approach and the one of *URBACT Local Support Groups* is really different. These groups are not local but thematic oriented, they bring people together from different locations in order to discuss about specific thematic issues: Air Quality, Climate Change, Cohesion Policies, Mobility, etc. so that people can learn from other people experience. Each group defines their own objectives and includes people from all the countries and cities involved in EUROCITIES initiative. They also include stakeholders from different disciplines, so that an integrated and holistic approach is guaranteed.

Anyway, both programmes and others like the ones mentioned in the next section, basically aim to apply the *Think globally, act locally* principle, with similar instruments. Both finally organise two sort of small action groups: *Local groups* in order to perform cross cutting and local integrated diagnosis, and thematic *Working groups* involving specialists and stakeholders from different locations, focused on thematic and specialised approaches.

Both URBACT and EUROCITIES are generally focused on cities, with a broad scope that involves different topics. Other European programmes or initiatives are focused on more specific subjects, from Transport and Mobility

(like CIVITAS, POLIS or ELTIS) to Regional Policy (INFOREGIO), Sustainability (ICLEI), Planning (ESOP or CEMR) o Youth engagement (TOGETHER network). Since many of these subjects are related or intertwined, the scope of these programmes can overlap and share similar concerns, forming a fertile resilient system if they are well coordinated by the European Commission. In Annex 1: Key European Urban Planning, Policy and Governance Programmes, Initiatives and Projects, a list with the most important programmes is provided.

Since the aim of INSIGHT is to investigate how ICT can help European cities to formulate and evaluate policies in order to stimulate a balanced economic recovery and a sustainable urban development, one of the European initiatives more related to INSIGHT is the *Global Systems Dynamics & Policy* (GSDP), funded under the 7th Framework Programme, and now running as the *Global System Science* (GSS) initiative under the *H2020 Research and Innovation Programme*. The GSS is defined as a coordination and support action plan to develop a research program for the study of Global Systems in an ongoing dialogue with decision makers. GSS operates as an open network evolving through workshops, working papers, publications and open conferences. INSIGHT is one of the EU research projects attached to it.

As GSS defines, its mission is to "make full use of progress in ICT to improve the way scientific knowledge can stimulate, guide, be used by, and help evaluate policy and societal responses to global challenges like climate change, financial crisis, pandemics, global growth of cities. A crucial part of GSS is new ways to have citizens engaged into policy processes and process to acquire data. This is linked to aspects of citizen science as social engagement" (Global System Science, 2014).

In section four, we will provide an introduction to the potential of ICT tools in the Problem Identification, the Policy analysis and the Policy Evaluation stages of the Policy Cycle. But, underlying these stages and the others of the cycle is the Stakeholder Consultation process. Today, this stakeholder engagement seems to be considered in every Planning or Policy process, but "In practice, community consultation often means tokenism" (Robinson & Shaw, 2007), that is, a simple policy perfunctory gesture intended to create an appearance of inclusiveness. However, most of the efforts of the programmes and initiatives we cited above seem to be led to achieve a real engagement of stakeholders, and ICT can provide the necessary tools to get people involved. INSIGHT aims to create new tools and models fed by non-conventional data bases, data from real people and real activities that can provide a new understanding of urban dynamics and social behaviour.

In Annex 1: Key European Urban Planning, Policy and Governance Programmes, Initiatives and Projects, a list with the most relevant Programmes, Initiatives and Projects is provided.

3. Current European Urban Challenges, Goals and Policies

European cities, the living environment for the majority of the population, are often seen as engines of their national economies. But in their development they are exposed to many threats — which could be barriers to achieve sustainable development — due to external and internal trends. Some of them are global and concern every urban area, others have appeared or have been enhanced by the recent economic crisis and finally others are just specific of many European urban areas. In order to evaluate the main threats and problems that are generally facing European cities, we reviewed existing documentation about them. Firstly, we recurred to international documentation about worldwide sustainable development dating from the moment in which the sustainability concept came out (UN, 1992); secondly, we analysed more recent worldwide cities documentation in which some problems related to the economic crisis and other recent trends like urban sprawl start to arise (UN-HABITAT, 2008; UN-HABITAT, 2009). Finally, recent documents about European cities were also revised, which served to discard some problems and threats mainly related to cities in developing countries — such as crime, or lack of access to water — included in United Nations reports, or to add some specific recent European threats such as social polarisation (not necessarily due to segregation).

The following tables (Tables 3.1 to 3.5) show the problems and threats reflected in three initiatives reviewed:

- Agenda 21- United Nations Conference in 1992.

This initiative is summarised in a document resulting from United Nations Conference on Environment & Development held in Rio de Janeiro (UN, 1992), marking the beginning of a new global partnership for sustainable development. Agenda 21 addresses the pressing problems of today, and the future challenges; although these problems and challenges are global, cities are affected or responsible of most of them. The document tries to cover problems in all countries, and some of them will not be addressed in INSIGHT, whose context is European developed cities, after the economic recession. First column of Tables 3.1 to 3.5 summarise the facts more related to urban development found in Agenda 21.

- UN- HABITAT – United Nations Human Settlements Programme, created in 2002.

"UN-Habitat is the United Nations Human Settlements Programme working towards a better urban future. Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all" (UN-HABITAT, 2014). The program is supported by a wide and diverse range of partners, such as local authorities, Non-Governmental Organisations, Academics and Researchers or Financial Institutions. The documents published within this initiative refer to problems in cities around the world, in order to provide key recommendations for achieving a sustainable urban development. Out of these, we have revised the most relevant documents (UN-HABITAT, 2008; UN-HABITAT, 2009), and summarised the main outputs regarding the problems or challenges that worldwide cities have to deal with (second column, Tables 3.1 to 3.5). In comparison with the previous analysed initiative, the challenges refer specifically to urban problems, and the problems are more recent. Some related problems refer to cities in the developing world, and therefore do not be addressed in this project, whose focus is European cities.

- URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007.

URBACT II is a European exchange and learning programme promoting sustainable urban development enabling cities to work together to develop solutions to major urban challenges and reaffirming the key role they play in

facing increasingly complex societal changes. The programme, which is the third in a series (after URBACT, and URBACT I), intends to help cites to develop solutions that are new and sustainable, and that integrate economic, social and environmental dimensions (URBACT, 2014). URBACT is nowadays composed by 500 cities in 29 different countries. The more recent outputs of this initiative are summarised in the report *Cities of tomorrow* (European Union, 2011), which contains the problems facing European cities, after the economic recession. The main outputs are presented in last column of tables 3.1 to 3.5. Both UN-HABITAT and URBACT are focused in urban challenges, but URBACT refers to cities in Europe — and therefore in the developed world — and contains also problems emerged from the economic recession, which started to be noticeable in 2008 (Directorate-General for Economic and Financial Affairs of the European Commission, 2009).

The tables contain the outputs from the documents revised, classified into five groups: On one hand, the three generally accepted dimensions of sustainability (UN, 1992; UN-HABITAT, 2008, UN-HABITAT, 2008, Newman and Kenworthy, 1999): social, environmental and economic- which could be understood as three vertical groups. On the other hand, there are some trends that could be understood as cross-cutting and conform the two remaining groups: spatial dimension, which contains trends on land occupation by urban areas; and trends concerning legal frameworks and governance issues.

Table 3.1. CHALLENGES - SOCIETY		
Agenda 21- United Nations Conference in 1992 **UN (1992)** *Sustainable development in United Nations countries*	UN- HABITAT – United Nations Human Settlements Programme, created in 2002 **UN-HABITAT, 2008; UN-HABITAT, 2009** *Development and trends in United Nations cities*	URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007 **EU, 2011** *Threats over European cities*
Demographic Dynamics • Rapidly growing cities (unless well-managed, face environmental problems) • Incapacities to asses implications of demographic trends and factors	Housing problems • Lack of affordable houses in city centres for a growing urban population • Growth of slums • Lack of access to basic infrastructure and services such as water and sanitation systems	Socio-economic polarisation, social segregation Lack of affordable housing
Unhealthy urban environments • Pollution	Lack of public spaces, infrastructures, parks and green areas for human well being	Degradation of space as human environment
	Car-centred mobility that leads to pollution, noise stress and accidents	
Inadequate supplies of water of good quality and scarcity of water	Lack of access to water from a clean, safe source, especially in the developing world	-
Lack of integration of women and youth in all development activities	Exclusion of young people from decision making, and increasing difficulties for them to break into the labour market Gender inequalities : women more affected by violence, difficulties to access to jobs, worse paid	-
-	Unemployment and poverty- related to social exclusion and crime	Rising unemployment
-	Increasing levels of crime, particularly in the developing world	-
-	-	Migration of active population and skilled workers
-	-	Ageing population

All recent threats described for European Cities are described in the following sections

Table 3.2. CHALLENGES - ENVIRONMENT		
Agenda 21- United Nations Conference in 1992 **UN (1992)** *Sustainable development in United Nations countries*	UN- HABITAT – United Nations Human Settlements Programme, created in 2002 **UN-HABITAT, 2008; UN-HABITAT, 2009** *Development and trends in United Nations cities*	URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007 **EU, 2011** *Threats over European cities*
Damage to the atmosphere • Excessive use of some energy sources • Inefficient transportation systems • Industry management		Poor air quality Fuel dependence
Depletion of the Earth's stratospheric ozone layer	Contribution to Green House Gas Emissions, mainly through energy generation, vehicles, industry and biomass use	Contribution to Green House Gas Emissions Fuel dependence
Increasing pressures on land resources (expansion of human requirements and economic activities)	Land degradation	Land occupation
Difficulties in maintaining the quality and supply of freshwater resources • Floods and droughts • Impacts of pollution in freshwater resources • Growing effects of urbanisation on water demands and usage	-	-

Table 3.3. CHALLENGES - ECONOMY		
Agenda 21- United Nations Conference in 1992 **UN (1992)** *Sustainable development in United Nations countries*	UN- HABITAT – United Nations Human Settlements Programme, created in 2002 **UN-HABITAT, 2008; UN-HABITAT, 2009** *Development and trends in United Nations cities*	URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007 **EU, 2011** *Threats over European cities*
Inefficient consumption patterns • Deterioration of the global environment (depletion and pollution)	Unsustainable consumption habits from the end users (residents, businesses and industries). • Inefficient and unsustainable sources • Lack of incentives to encourage local produce	Low productivity
Need to strengthen the role of business and industry • For a major prosperity and development • With more efficient production processes and cleaner productions	Financing needs for basic services and infrastructure • Need to create economic strategies • Need for a better comprehension of regional and global dynamics to foresee and address threats	Declining revenues and demand
	Need to provide attractive environments conductive for economic activities, investments and job creation in order to achieve development	
-	Development of informal economy- in parallel to fast demographic growth	-
-	Unemployment and poverty	Rising unemployment

Table. 3.4. CHALLENGES- SPATIAL DISTRIBUTION		
Agenda 21- United Nations Conference in 1992 **UN (1992)** *Sustainable development in United Nations countries*	UN- HABITAT – United Nations Human Settlements Programme, created in 2002 **UN-HABITAT, 2008; UN-HABITAT, 2009** *Development and trends in United Nations cities*	URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007 **EU, 2011** *Threats over European cities*
Human settlement development • Difficulties in managing metropolitan areas extended over different administrative areas • Suburbs creation and socio-spatial segregation	Rapid growth of land occupation, and cities loosing compactness • Less and more inefficient land use patterns, car-centred urban models, congestion problems • Social disaggregation, loss of accessibility to basic needs	Urban Sprawl • Socio-spatial segregation and social polarisation • Land occupation • Inefficiencies in services delivery
-	Vulnerability to severe impacts from earthquakes, surges, tsunamis and new impacts from climate change	-

Table 3.5. CHALLENGES- LEGAL FRAMEWORK		
Agenda 21- United Nations Conference in 1992 **UN (1992)** *Sustainable development in United Nations countries*	UN- HABITAT – United Nations Human Settlements Programme, created in 2002 **UN-HABITAT, 2008; UN-HABITAT, 2009** *Development and trends in United Nations cities*	URBACT II- European Union Programme to promote sustainable urban development, adopted in 2007 **EU, 2011** *Threats over European cities*
Strengthening the role of major groups • Broaden public participation • Transparency in management and decision making	Inadequate Legal systems • Preventing urban managers from creating reforms and overcoming the challenges of their cities Lack of participation promotions	-

3.1. Identification of Threats

INSIGHT is clearly set in the particular and challenging landscape left by the economic crisis, a landscape shaped by new threats and the intensification of other pre-existing problems. Thus, it is important to identify which are exactly these new challenges.

This section aims to identify and analyse the mentioned common new threats and problems by reviewing recent and relevant reports and documentation specifically oriented to the identification of these problems and by introducing the feedback of the INSIGHT Questionnaire to Policy makers and urban modellers and technicians (Deliverable 2.1).

In order to achieve this goal, the review of documentation and reports must be wide enough to include all the relevant problems that affect cities, at different scales. Though the analysis is basically set in the context of the European Union, since countries and cities are more and more interconnected, this wider overview becomes necessary. In this sense, the emergence of Global Cities has been deeply discussed and described in the recent years (Sassen, 2005), considering a re-scaling of territorial dynamics and influences, from the regional-national to the global one.

On the other hand, the European Union encompasses countries and cities with very different contexts and realities, so we should not consider just a general approach. The regional and the local scale are equally important and therefore, in order to avoid excessive simplifications, the review has to cover this local analysis too. The different initiatives and programmes that have been reviewed are aware of this importance, so that the analysis provided by their reports is usually completed with the feedback of local units.

Having said that, we will focus on the problems that are considered essentially general and common for the members of the European Union, though some of them won't be the concern of outlier cities (for instance, the problem of jobs loss in the case of London). At the same time, we have made the difference among two different sorts of problems or threats:

- Long lasting Urban threats (e.g. demographic changes, shrinking cities, gentrification, urban sprawl, natural hazards, etc.)
- Urban problems due to the Economic Crisis or significantly intensified by its impact (e.g. social polarisation and segregation, job losses, urban decay, etc.)

General Threats

Already mentioned before, one of the most relevant documents focused on identifying and analysing the most important problems and threats to be faced by cities in this century is the *Agenda 21*. Consisting of four sections, the document addresses these threats in the first two: "Social and Economic Dimensions" and "Conservation and Management of Resources for Development". This clustering of the problems has to do with the three dimensions (Social, Economic and Environmental) related to Sustainable Urban Development.

The problems and threats allocated to each of these dimensions are:

- Social: Demographic change and deficient human health conditions
- Economic: Poverty, Unsustainable consumption patterns
- Environmental: Unhealthy urban environments, Atmosphere damage, inefficient transport, etc.

Since the signing of the first document, the agenda has been revised in different moments through three international conferences on Sustainable Development held in 1997, 2002 and 2012, introducing other important concerns, such as widening inequalities in income, the increment of waste production, and the dramatic decrease of biodiversity. The importance of the urban question is evidenced in the fact that *Sustainable Cities* is one of the seven critical issues highlighted in the *Rio+20* conference (Jobs, Energy, Cities, Food, Water, Oceans, and Disasters) (United Nations, 2012).

In a European context, there are many different documents that aim to identify and analyse the most relevant urban problems and threats. Since the urban question is a common concern for many of the European programmes, it is possible to find analysis from diverse approaches, depending on the focus of each programme or initiative. A review of the most relevant threats and problems, coming from the documents of these programmes, is provided next.

The real or potential economic decline has been a long concern in Europe in the last fifteen years. Thus, and also as a response to the challenges of globalisation and ageing, the European Commission launched, in the year 2000, the *Lisbon Agenda*, also known as the *Lisbon Strategy* or the *Lisbon Process*. Lisbon Agenda basically focused on fostering the economic growth. As the same document manifests, it aims to make Europe "the most competitive and dynamic knowledge based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion by 2010" (European Commission, 2010).

The *Lisbon Strategy* was a programme adopted for a ten-year period. It was revised and renewed in the year 2005 to better achieve its objectives, but still, when finished in 2010, the evaluation report recognised not having reached the targets in terms of employment rate and GDP spent on Research & Development (European Commission, 2010), even if the report analysed figures of the year 2008, when the economic crisis was about to explode.

The evaluation report also reflected another worrying finding: often, the employment increases "have not sufficiently reached those furthest away from the labour market, and jobs have not always succeeded in lifting people out of poverty. Some groups still face specific hurdles such as poor access to training for the low-skilled or lack of enabling services. Labour market segmentation persists in some Member States. So does child poverty at a high level in some Member States. Lessons need to be drawn from these facts" (European Commission, 2010).

This lack of success in creating jobs for the low-skilled people evidenced an increasing social inequality. The situation worsened in the context of the Financial Crisis, as different European reports alert. *Notre Europe* (2010) and *Europe 2010: A European strategy for smart, sustainable and inclusive growth* (2010) considered critical threats to face the increasing social polarisation and the risk of poverty for 20 million of fewer people, together with other concerns on environment and education (Institute for International Relations Republic of Croacia, 2010).

The Leipzig Charter on Sustainable European Cities, signed in 2007 before the *Lisbon Agenda* finished, also pointed out the threat of Economic Decline (when considering necessary reforms for strengthening the local economy and local labour market policies) and other important threats related not only to social polarisation but to spatial degradation of certain urban areas and entire neighbourhoods, which was turning not only into an environmental problem but also a social one. Furthermore, as the charter states: "these deprived neighbourhoods have the additional burden of poor transport connections" (European Commission, 2007).

In *The Charter of European Planning*, signed in Barcelona in 2013, The *European Council of Spatial Planners* defines the current main concerns for planning and policy-making, and highlights the main objectives to be achieved. The definition of these concerns and goals is based on the analysis of the current threats and general problems that European cities have to face. The first part of the charter, entitled *The Vision for Europe's Cities and Regions-Territoires* (European Council of Spatial Planners, 2013), is a manifesto supported in the identification of these main problems, clustered in five big general threats :

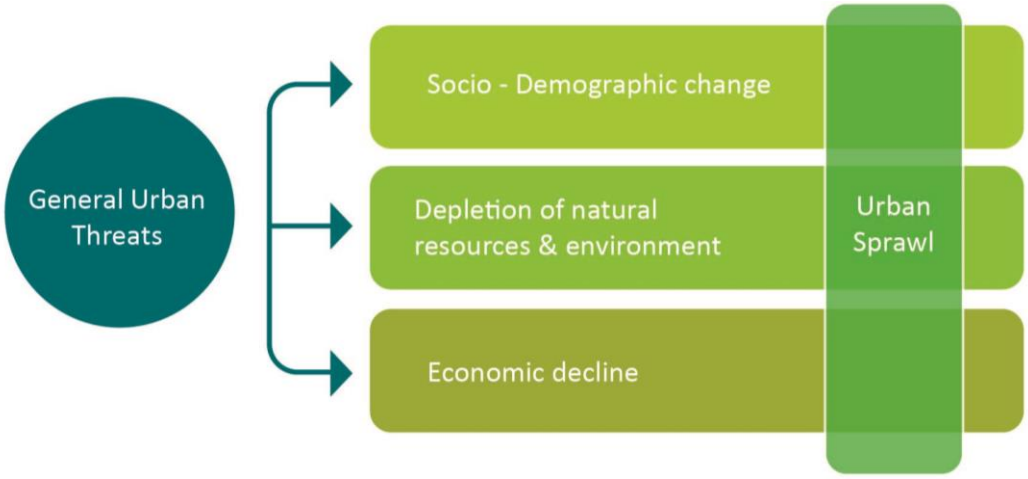
1. Territorial cohesion and integration problems: isolation of rural communities, lack of integrated city and regions plans sensitive in terms of the connection of the built and natural environment, inefficient connection between individual urban activities, infrastructures networks and ICT, etc.
2. Social cohesion problems: social polarisation and segregation, social imbalance, immigrants' lack of integration, community disaffection, disruption between generations, inefficient transport, low accessibility in marginalised urban areas, and lack of affordable housing, public facilities and services.
3. Economic problems: lack of global competitiveness in certain economic sectors, disconnection between local economies and global ones, lack of economic identity according to local needs, energy over-expenditures caused by inefficiency, lack of skilled work forces, lack of healthy and safe working environments, lack of adaptation to new changes in global market, unemployment in rural areas and ineffective institutional capacity for sustaining new economic plans.
4. Environmental problems: irresponsible management of resources, inefficiency in energy production and use, insufficient treatment and re-use of waste products, lack of consideration of landscapes diversity on identity, ecology, environment and society, lack of integrated approaches to landscape planning and policies, insufficient renewable energy resources.
5. Spatial integration problems: inefficient communication and transportation networks, natural areas, lack of well design and high quality public spaces, lack of measures to ensure individual and collective feeling of security, lack of diverse landscape and bad conservation and management of all significant elements of natural and cultural heritage.

In recent years, the European initiative that has conducted the most exhaustive analysis on the real problems and potential threats in Europe has been the *Cities of tomorrow* reflection process. In 2011, the Directorate General of Regional Policy published *Cities of tomorrow – Challenges, visions, ways forward*, a report synthesising the analysis carried out by contributors of many European organisations. The report identifies the urban challenges European cities must face today and in the next future, as a first step in order to set the general goals and objectives for the *Europe 2020* strategy. These are described as a group of four general threats to face: the demographic decline, the economic crisis and competitiveness decline, the growing social polarisation and the depletion of natural resources that put ecosystems under pressure.

These general threats cluster many different and more specific problems, usually complex and inter-related, but generally spread over most of the European cities. *Cities of tomorrow* left most of the questions open to a deeper analysis, carried out by a wide range of stakeholders from all around Europe through different workshops launched by the URBACT programme. The report *Cities of tomorrow – Action today* (2013) brought together the outcomes of these contributions, deepening the analysis of these general threats.

Finally, continuing with the scheme of *Cities of tomorrow*, we have decided to classify all the identified problems in different groups or "general threats", but according to the three dimensions of what has been defined as Sustainable Urban Development. Together with them, another cross cutting threat has been incorporated, Urban Sprawl, since, as we'll see, the problems associated to it are also at the basis of others.

Figure 3.1. General urban threats in European cities



3.2. Classification and description of main threats

Before describing the threats generally posed over European cities, the concept should be defined. Here we define *threat*s as existing or potential urban problems that should be addressed, because their effects can hinder sustainability objectives. Similar approaches have been made in other studies (Salafsky et al; 2008; Wade et al., 2011), where threats are understood as processes or trends that may cause the destruction of stated targets. In INSIGHT the main targets are related to achieving a sustainable development in cities.

Concern about evolution of human settlements and unavoidable effects society's development has on environment started to be seen as a three-dimensional problem (economic, social and environmental dimension) by the global arena in the *Conference on the Human Environment* in Stockholm, where the importance of achieving a sustainable development by cities was especially enhanced (UN, 1972). European cities — which are the living environment of the majority of the population — are essential for their countries economic and social development. But **nowadays urban areas are facing some trends that have become real threats to their sustainable development.**

The three sustainability dimensions can be said to be affected mainly by one or two general threats, due to various trends or processes that cities are going through — here understood as the causes, in reference to the tree scheme (Figure 2.4). In this section, these threats are described as well as their main causes. Regarding society, the working-age population weight is decreasing due to the low birth rate, the increase of life expectancy and the migration due to the lack of job opportunities. On the environmental dimension, the concern about damages of urban development to natural resources is not new, but still needs to be addressed, especially because of the added difficulty posed by urban sprawl over resources management; unlike in the previous case, this threat has been partially smoothed by the economic crisis. Regarding economy, the main problems have come with the general recession faced by Europe, increasing pressure over economic development and competitiveness. Finally, during the last decades many European cities are sprawling, and this affects to society, entails more environmental problems, reduces productivity and therefore Urban Sprawl is been considered a cross-cutting threat affecting the three sustainability dimensions, although all described threats are somehow related (for instance, the demographic decline is partly due to the economic problems). In this section, the specific problems that European cities have to address and that outline the four threats described are going to be analysed, as well as the relations between them.

Figure 3.2. Main threats over sustainability in European cities

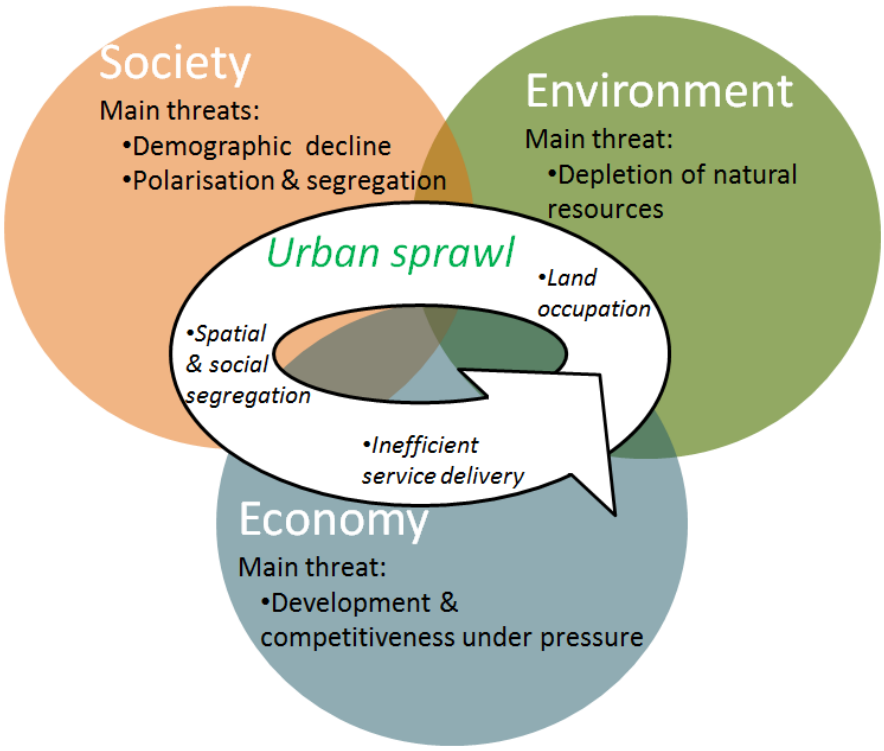


Table 3.6. Generalised threats over European cities and main causes	
Threat *(Existing or potential **problems affecting** sustainability)*	Main **causes**
Demographic decline	Migration of active population and high skilled workers Ageing population Degradation of human environment
Social polarisation and segregation	Socio-economic polarisation Socio-spatial segregation Housing problems
Depletion of natural resources and environmental impact	Contribution to Greenhouse effect Fuel dependence Poor air quality Noise pollution
Development and competitiveness under pressure	Low productivity Rising unemployment Declining revenues and demand
Urban sprawl, contributing to: • Socio spatial segregation/ social polarisation • Inefficient service delivery • Land occupation and environment degradation	Changes in core cities Individual housing preferences Increased mobility Commercial investment decisions Land use policies

Note: Bold letters refer to concepts outlines in the tree scheme (Figure 2.4)

3.2.1 Socio-demographic change

Demographic decline

The main threat concerning social sustainability in European cities is considered to be the demographic decline. On the one hand, the increase of life expectancy and the continuous drop in the number of births are causing an increase in the average age of European population, and a decrease in the percentage of working age population. On the other hand, the recent economic crisis has caused another effect that contributes to this trend: the migration of active population due to the lack of job offer. Most European countries are affected by these two trends, and so are in general the cities in those countries.

On the other side, traffic growth and other factors are causing in many urban areas the depletion of city centres regarding living conditions, due to pollution and other factors that have turned them into unhealthy environments, which are perceived by society as unsafe and uncomfortable. This has caused many people moving to the suburbs and is considered to be a very important driver of urban sprawl.

Ageing population

An ageing population presents a major challenge to society in all Member States. Together, longevity growth and a downward trend in birth will have far-reaching consequences in the EU. The working population of Europe begins to shrink, reducing the economic growth potential and exercising pressure on public finances. According to the White Paper *An Agenda for Adequate, Safe and Sustainable Pensions* (European Commission, 2012a) in the last years there has been an annual increase of around two million people aged 60+, almost twice as high as it was in the period 1990-2000. Also in this document the ageing population threat is said to be often illustrated by the doubling of the old age dependency ratio (population 65+ to population 15-64) from 26% in 2010 to 50% in 2050. The demographic changes are mainly due to a combination of continuing increases of life expectancy, as a result of considerable progress made in health care and quality of life in Europe; and continuing low birth rates due to factors such as late access to employment, job instability, cost of housing and lack of incentives (European Commission, 2005).

Migration of active population and skilled workers

The described tendency of an ageing population is linked to constraints in household budget and difficulties to find a job, both enhanced by economic crisis during the last years. In this framework, some European cities have also faced an out-migration of workers and especially skilled workers, which constitutes another trend contributing to demographic decline and related to ageing population. The recession that European economy has gone through caused a large drop in economic activity in the EU, with millions of jobs lost and a high human cost. On the other hand, changes in the international division of labour and the arrival of strong companies from emerging countries intensify the competitive pressures on European countries, where the preservation of its activities and jobs is under threat (European Commission, 2012b). Some cities have proved to be especially vulnerable to this threat, such as cities dependent on single sectors, traditional manufacturing, raw-material-based industries; or cities that strongly rely on foreign direct investment. Now cities are challenged by a need to restructure and diversify their economic base while facing out-migration and a loss of financial capacity that can lead to a loss of skilled jobs and the destruction of human capital (European Union, 2011).

Socio-economic polarisation

Even if the situation differs widely between the different countries of Europe, traditionally European cities had shown a relative high level of social integration and equality, compared to cities in other Asian or American countries. However, with some exceptions, in the last years this social condition is dramatically changing. As the *Cities of tomorrow: Challenges, visions, ways* forward report states: “Although average living standards have increased over time, there are signs not only of growing income disparities but also of the poor getting poorer. In some places, local populations suffer from a concentration of inequalities: poor housing, low-quality education, unemployment, and difficulties or inabilities to access some services (health, transport, ICT)” (European Commission, 2010).

The change seems to have started even before the global financial crisis had impact in the European welfare system. As mentioned before, based on the analysis of 2008 figures, the *Leipzig Strategy evaluation report* (2010) recognised, on the one hand, not having reached the targets in terms of employment and, on the other hand, that the slight employment increases “have not sufficiently reached those furthest away from the labour market, and jobs have not always succeeded in lifting people out of poverty. Some groups still face specific

hurdles such as poor access to training for the low-skilled or lack of enabling services. Labour market segmentation persists in some Member States. So does child poverty at a high level in some Member States. Lessons need to be drawn from these facts" (European Commission, 2010).

Therefore, this lack of success in creating jobs for the low-skilled and the youth evidenced an increasing social inequality caused by growing income disparities, even in 2008 when the financial crisis what about to explode. The impact of this crisis has dramatically worsened the situation for millions of people in many countries, not only increasing the polarisation between a minority of wealthy people and growing mass of people reaching poverty quotes, but, as a consequence, reducing the middle class population, essential in the traditional European social structure.

Social segregation

Social segregation is not only the consequence of a socio-economic inequality but also usually involves the lack of integration of diverse cultural, social and ethnic groups, in a complex dynamics in which many processes are intertwined. Thus, social segregation is not only manifested through socio-economic polarisation processes, but also through, for instance, youth segregation, gentrification and ethnic or immigrant isolation processes. Each of these manifestations is due to common but also to different causes.

Youth segregation problem, whose consequence has been the creation of the often called *lost generation*, is not due to the lack of qualification or skills but to the labour market structure. Spain illustrated the fall of the principle: "Stay in school, study hard and you will have a good life": for Spain's best-educated generation, the reward has been 50+% rates of unemployment (Adams & Arnkil, 2013).

Certainly, youth segregation is not widespread across all the European countries, specially suffered in the south and Mediterranean countries. A more generalised segregation process is the gentrification, whose main cause is basically the demographic decline combined with the lack of social inclusive initiatives for a new generation of elder people whose life expectancy is growing, and whose quality of life and healthcare are improving. Today, they are able to play a new active and more integrated role in modern societies.

Apart from youth and elderly groups, some immigrant communities and ethnic minorities are among the most segregated and marginalised groups. The reasons behind this fact are basically economic but also related to increasing intolerance behaviours. As it is considered in the '*Cities of tomorrow: Challenges, visions, ways forward*': "With fewer labour market opportunities, there is a risk of increasing intolerance and polarisation between those who contribute and those who benefit from social allocations" (URBACT, 2011). In fact, recent European elections in May 2014 have evidenced the raise of some far-right parties that support Euro-scepticism, anti-immigration policies, a manifestation of the increasing intolerance towards immigrant presence.

Socio-spatial segregation and lack of affordable housing

Spatial segregation can be defined as 'the projection of the social structure on space' (Häußermann & Siebel, 2001). Thus, spatial segregation is usually a 'natural' consequence of social segregation if measures are not implemented. As stated in the report *Against Divided Cities in Europe*: "Europe is witnessing a trend towards an increasing socio-spatial segregation of urban populations. In many cities this trend is directly linked with a

rolling back of state intervention, retrenchment of welfare support and weak social housing policies and planning regulations" (Colini, Czischke, Güntner, Tosics, & Ramsden, 2013).

Certainly, one of the main causes of this socio-spatial segregation is the lack of houses at affordable prices in certain urban areas, city centres usually. The situation in centres is becoming more extreme because gentrification processes and merchandising initiatives literally expulse not only the poorest social groups but often even what we could consider the middle class (URBACT, 2011).

Regarding residential segregation, there is another existing and very different kind of segregation, which is the so-called "self-chosen" segregation, usually identified with upmarket gated communities with high level of private security systems. This extreme settlements, very common in the more unsafe and unequal countries of Latin America, was not so widespread in Europe till recent years.

There are many other dimensions of spatial segregation which are increasing at the same time: educational segregation (private-public schools, colleges or universities, even the unaffordable public (not free) education in some countries), workspace segregation, and the one related to the ethnic background, religious, immigration or the combination of all of them (Colini et al., 2013).

At last, all these segregation processes may result in a fragmented city, a hyper-segregated city that might take the generalised formation of ghettoes or gated communities (Vranken, 2012).

3.2.2 Depletion of natural resources and environmental impact

In many ways, cities offer solutions for a more sustainable way of life, but despite improvements in air and water quality, as well as efforts to mitigate climate change, European cities still face a number of environmental threats (European Union, 2011). As the living environment for most European population, engines of growth and generators of wealth, cities are also drivers of consumption and use of material resources. Urban areas consume more than two thirds of the total energy in EU, mainly due to building and transport sectors. In addition, most of the energy sources are not renewable, and are responsible for air pollution; especially in the transport sector where the strong dependence on cars and therefore on fuel cause also air pollution and noise.

Energy consumption and contribution to greenhouse effect

Cities are major contributors to climate change: although they cover less than 2 per cent of the earth's surface, cities consume 78 per cent of the world's energy and produce more than 60% of all carbon dioxide and significant amounts of other greenhouse gas emissions (GGE), mainly through energy generation, vehicles, industry and biomass use (UN-HABITAT). In developed cities, most energy is used to heat and light residential and commercial buildings; transport and industry follow as the second and third greatest consumers of energy (UN-HABITAT, 2009).

According to the International Environmental Agency, European urban areas account for about 69% of the total primary energy demand of the European Union. Still, energy consumption and CO_2 emissions are much lower in towns than outside them (IEA, 2008). The density of urban areas allows for more energy-efficient forms of housing, transport and service provision, and measures to address climate change may be more effective. Therefore, cities are both the problem and the solution, especially in regard to housing and transport sectors

(European Union, 2013a). In the general European framework, the residential sector together with services sector accounts for 40% of the total energy consumption, while the transport sector accounts for 32% (EUROSTAT, 2012). The problem with the transport sector is the low rate of renewable energy it uses — 5%, while for all sectors it is 14% (EUROSTAT, 2011a) — and the high contribution to GGE — 20% of total GGE (EUROSTAT, 2011a) — a quarter of which correspond to urban transport (European Commission, 2011).

Therefore, urban areas have an important role to play in EU general framework to steer its energy and climate policies up to 2020, which includes three targets to be achieved: GHG emission reductions of 20% relative to emissions in 1990; 20% share for renewable energy sources; and 20% savings in energy consumption compared to projections. In addition, there are specific targets for renewable energy for the transport sector (10%) and decarbonisation of transport fuels (6%). Regarding the first target, in 2011 GHG emissions were estimated at 16% below 1990 levels; the trend in the use of renewable energies has also been positive (globally from 9% in 2005 to 14% in 2011, in the transport sector from 1 to 5%), and finally, the energy consumption has decreased a 5% from 2005 to 2011. This evolution is partly due to the economic crisis, and partly due to the effectiveness of implemented policies (European Commission, 2013). Unlike the previous threats and problems, these one has been lightened by the economic crisis.

Fuel dependence

The main environmental issues in towns and cities are related to the predominance of oil as a transport fuel, which generates CO_2, air pollutant emissions and noise (European Commission, 2007). In European cities, a 59% of the total demand is oil consumed, and finishing with this fuel dependence is now a European priority in the next future. Raising the share of EU energy consumption produced from renewable resources to 20% is one of the objectives for 2020. This fact involves also economic consequences, but here we present it as one of the drivers of environment depletion.

Poor air quality and noise pollution

Air and noise pollution in cities lead to environment degradation due to the various negative effects; the most important ones are health impacts, which are related to the subject previously discussed — degradation of space as human environment — and both of them but especially air pollution create also problems to ecosystems and affects biodiversity (CE Delft, 2011). Some of these impacts are the contribution to acid rain, water pollution, or soil pollution.

Although in many European cities air quality has improved over the past decades due to national and European initiatives, it is still a main concern and a common problem to almost all major cities. In urban areas transport routes and residential areas are often very close to each other and therefore transport is a major contributor to urban air pollution. Though residential and industrial areas are often separated air pollution travels over long distances and industries contribute either directly, or through background concentrations to poor air quality as well. The typical air pollutants in cities are particulate matter ($PM_{10/2}$) — coming mainly from road traffic emissions, nitrogen oxides (NO_x) — mainly from transport, industrial processes and power generation, and sulphur dioxide (SO_2) — mainly from power generation (AIR QUALITY IN EUROPE, 2014).

Degradation of space as human environment

Urban areas constitute the living environment for most European Population, and it is imperative that the quality of life in these areas should be as high as possible (European Commission, 2007). This concern is globally widespread; in fact, *meeting the urban health challenge* was one of the objectives set by United Nations in *Agenda 21*, where the poor living conditions in urban and peri-urban areas around the world were reported, chiefly due to environmental pollution and inadequate housing (UN, 1992). Actually, the main causes of this degradation in EU city cores are pollution, noise and insecurity, but also factors such as lack of green spaces, poverty, or minorities with integration problems are contributing to this threat (EEA, 2006). In addition, this negative perception of cities in contrast to the attractions of suburbs is a very important driver of the urban sprawl threat, specially affecting families with small children.

The major problems within this threat are related to transportation; throughout Europe, increased traffic in town and city centres has resulted in congestion, with the many adverse consequences that this entails in terms of noise and air pollution — urban transport is responsible of 70% of emissions of some pollutants arising from road transport (European Commission, 2007). Both considered as serious hazards to human health, as noise is related to cardiovascular diseases, blood pressure, nervous stress, sleep disorders and air pollution to cardiovascular and respiratory diseases (CE Delft, 2011). In regards to urban safety, one in three fatal accidents now happen in urban areas, and is the most vulnerable people, namely pedestrians and cyclists, who are the main victims (European Commission, 2007).

3.2.3 Economic decline. Development and Competitiveness under pressure

Economic recession in the EU has caused a large drop in demand and the loss of millions of jobs. Cities — where the majority of European population live and where most of the GDP is created — are challenged to come across this threat. For this, urban areas need to create a competitive framework, enhancing productivity.

Low productivity

Almost 85% of the EU's GDP is created in urban areas, which are the drivers of the European Economy, attracting investment and jobs (European Commission, 2007). Therefore, urban areas need to respond to the European competitiveness challenge, being especially exposed to the threats derived from some changes in the economic productivity framework. These changes are described in the Green Paper *Restructuring and anticipation to change: what lessons from recent experience?* (European Commission, 2012a): at the present time, the rapid technological progress and innovation are constantly forcing business and the labour force to adjust; in addition, international competence especially from emerging countries is intensifying pressures over European productivity systems and companies. Cities, as major generators of employment, are challenged to raise their economic competitiveness through innovation and adaptation to change, in order to preserve its activities and jobs and moreover achieve new market development.

Human resources development and skills enhancement are very important to enhance competitiveness. In this sense, the productivity system in some European cities has shown some weaknesses that it is necessary to address. The system is inadequate to ensure that human resources are reallocated from declining to emerging activities, and incapable of giving workers a real chance of professional development when their jobs are at risk, because it does not nurture their ability to adapt to change, partly due to a lack of active labour market policies

to allow labour and other resources shift from less to more successful businesses enhancing competitiveness (European Union, 2013b).

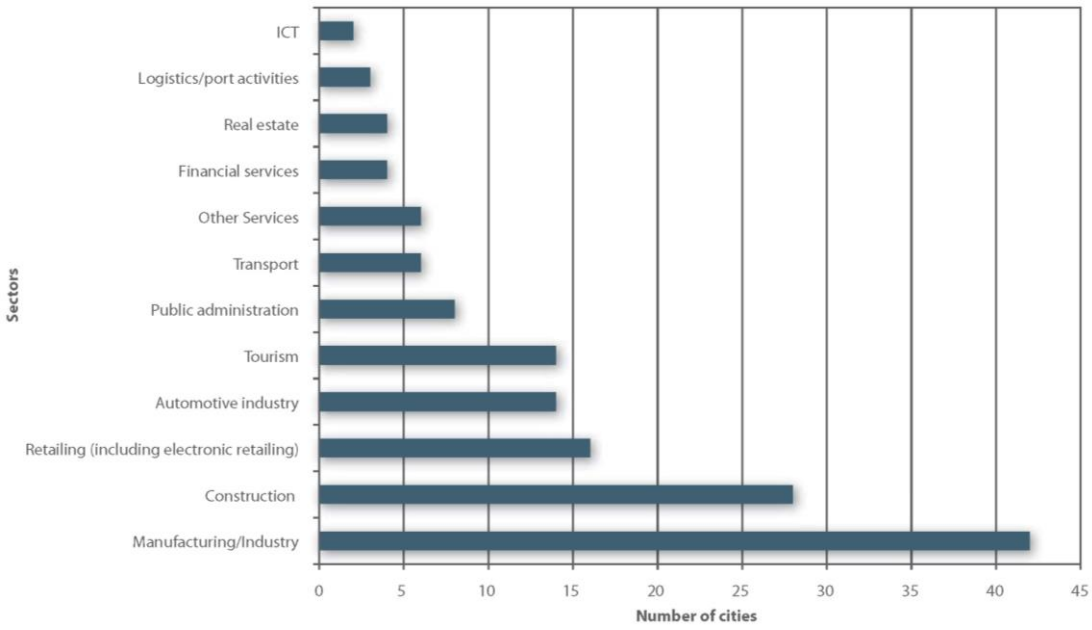
Through public awareness, innovation and implementation of technological progress, European cities could smooth **inefficient energy consumption patterns**, a very important barrier to achieve economic competitiveness. Although the situation has improved compared to last decades, and although energy consumption patterns are more sustainable in urban than in rural areas (IEA, 2008), European cities still have a lot to improve, especially regarding buildings and transport sectors. Buildings are the largest energy-consuming sector in the EU, and offer the largest opportunity for savings (European Union, 2013a). The problem in this sense is a gap between consumer's actual investments in energy efficiency and those that appear to be in the consumer's own interest; there seems to be not enough financing for renovations. Regarding urban transport, it is a sector characterised by a predominance of non-renewable energy sources — mainly oil — apart from the high energy consumption. Despite the progress in car technology, excessive car dependence is generating inefficiencies and environmental problems; the challenge is to smooth traffic in cities and promote alternative modes of transport (European Commission, 2007). These objectives have become more difficult and more important due to the urban sprawl trend, which is threatening competitiveness in energy management (Theodoridou et al., 2012).

Another consequence of excessive traffic in urban areas is **congestion,** which affects productivity of cities and constitutes a barrier to achieve competitiveness. Throughout Europe, increased traffic in towns and city centres has resulted in chronic congestion with the many adverse consequences this entails in terms of delays and pollution. Every year economic losses due to this phenomenon are estimated on 100 billion euros (1% of the GDP), mainly due to time losses.

Unemployment

European recession has caused a large drop in economic activity in the EU, with millions of jobs lost (European Union, 2011a). With more than 25 million people unemployed (more than one person out of ten), and with 18 million jobs required to reach the Europe 2020 employment rate objective of 75%, the jobs agenda is a top priority across the European cities. More than two thirds of the European Union's workforce lives in cities. Enterprises benefit from agglomeration economies. But many of these cities are now exhibiting a dual personality of economic strength co-existing with weak demand and unemployment (European Union, 2013b), related to factors such as the lack of competitiveness, an ageing and declining workforce or urban sprawl. Urban areas are therefore challenged to provide a business friendly environment with competitive local conditions, a strong entrepreneurial culture or fostering job-rich sectors and occupations.

Figure 3.3. Main sectors affected by unemployment increase due to the economic crisis (URBACT II Cities, 2010)



Declining revenues and demand

Economic growth depends on demand of consumers and businesses for the goods and services that the local economy produces. As seen before, policies to develop the local economy are insufficient because economic growth may not create enough jobs, or people may not easily be able to get access to the job opportunities that do exist (European Union, 2013b). In addition, government spending represents over 25% of GDP and jobs in many EU countries. Especially in times of austerity, we cannot ignore the implications of this part of the demand.

3.2.4 Urban sprawl

Historical concerns about demographic dynamics and sustainability were focused on the growth of cities linked to increasing population (UN, 1992). In contrast, urban sprawl is a more recent phenomenon, resulting from the spread of low-density settlements, and is one of the main threats over cities (European Union, 2011), because of the environmental, social and economic impacts associated to it. Urban sprawl is tied to a variety of factors such as the development of the modern city, individual housing preferences, increased mobility, commercial investment decisions and the coherence and effectiveness of land use policies at all levels. Trends since the mid-1950s show that cities have expanded on average by 78% whereas the population has grown by only 33% (EEA, 2006).

The idea that dense cities are actually greener cities (Batty, 2013) is being recently and rapidly widespread all around the world, once different cities have been compared in terms of size, density, energy consumption and transport efficiency.

Socio spatial segregation and social polarisation

From a social point of view, there are two main drivers of urban sprawl, and the sprawl itself reinforces those drivers. Some European institutions have described both of them in several reports (EEA, 2006; European Union, 2011). On one hand, the degradation of some parts of the cities regarding human living conditions, due to environmental depletion, noise, social problems and safety issues, in contrast to the apparent attractions of the suburbs, are making many families — especially those with children — settle in peri-urban areas where they can find better quality housing with more living surface per capita; some of these are suburbs that attract wealthy social classes leaving poor and run-down city centres. On the other hand, the increased gentrification of other parts of the core-cities drives less affluent social classes look for more affordable housing further from the city. Therefore, from a social perspective urban sprawl is due to the segregation of residential development according to income and exacerbates urban social and economic divisions, enhancing differences between the different zones inside and outside the cities. Furthermore, urban sprawl makes it more difficult the provision of services and this leads to a reduction of the accessibility to basic needs such as health care, education or transport and ultimately contributes to social exclusion.

Land occupation and environment degradation

Urban development involves the substantial consumption of numerous natural resources. The consumption of land and soil are of particular concern as they are mostly non-renewable resources. Infrastructure development and urban sprawl result in a continued expansion of artificial surfaces across Europe, at the expense of agro-ecosystems, grasslands and wetlands (European Union, 2011).

Another consequence of sprawl is the growing consumption of energy. Generally, compact urban developments with higher population densities have more efficient consumption patterns. For instance, individual households tend to be less efficient regarding energy and water consumption per person than larger households (Theodoridou et al., 2012). Regarding transport energy, and as it has been evidenced by EEA (2006), there is a significant increase in travel related energy consumption in cities as densities fall. Disperse cities are characterised by an excessive car use, due to the lack of alternative modes — because of the difficulty in providing services — and the longer trip distances. These factors also result in more air and noise pollution.

Economic losses and inefficiencies in services delivery

City centres have been always characterised by functional mix, but urban sprawl contributes to fragmentation of living and working spaces and pushes companies or research centres outside city centres, which may be adversely affected regarding economic dynamics (European Union, 2011). Finally, sprawl is at the very least a more costly form of urban development due to increase household spending in housing and transport, the cost to business of the congestion in excessively car dependent areas, and the additional costs of the extension of urban infrastructures including utilities and related services.

3.3. The Agenda Setting: specific objectives for desirable future urban scenarios. Definition and importance of indicators

The agenda setting for European cities in the INSIGHT framework has been designed in order to avoid the described threats, by addressing their causes (following the tree scheme) that are affecting the overall sustainability in European cities. These threats lead to the definition of the several main objectives that are represented in Figure 3.4 and in the following table. In order to **implement the objectives and achieve a sustainable development** it is necessary to involve all social groups and a broad public participation in decision making (UN, 1992). For this reason we have **included in INSIGHT Agenda Setting** some objectives related to a more inclusive and liable policy making, according to the **Good Governance** principles defined in the last European documents (European Commission, 2001). Therefore the **Agenda setting** is **composed** on one hand **by objectives related** to the **main threats** and their **causes** previously identified and, on the other hand, by **objectives** related to **Good Governance** principles, which should be **horizontally applied** to fulfil any target.

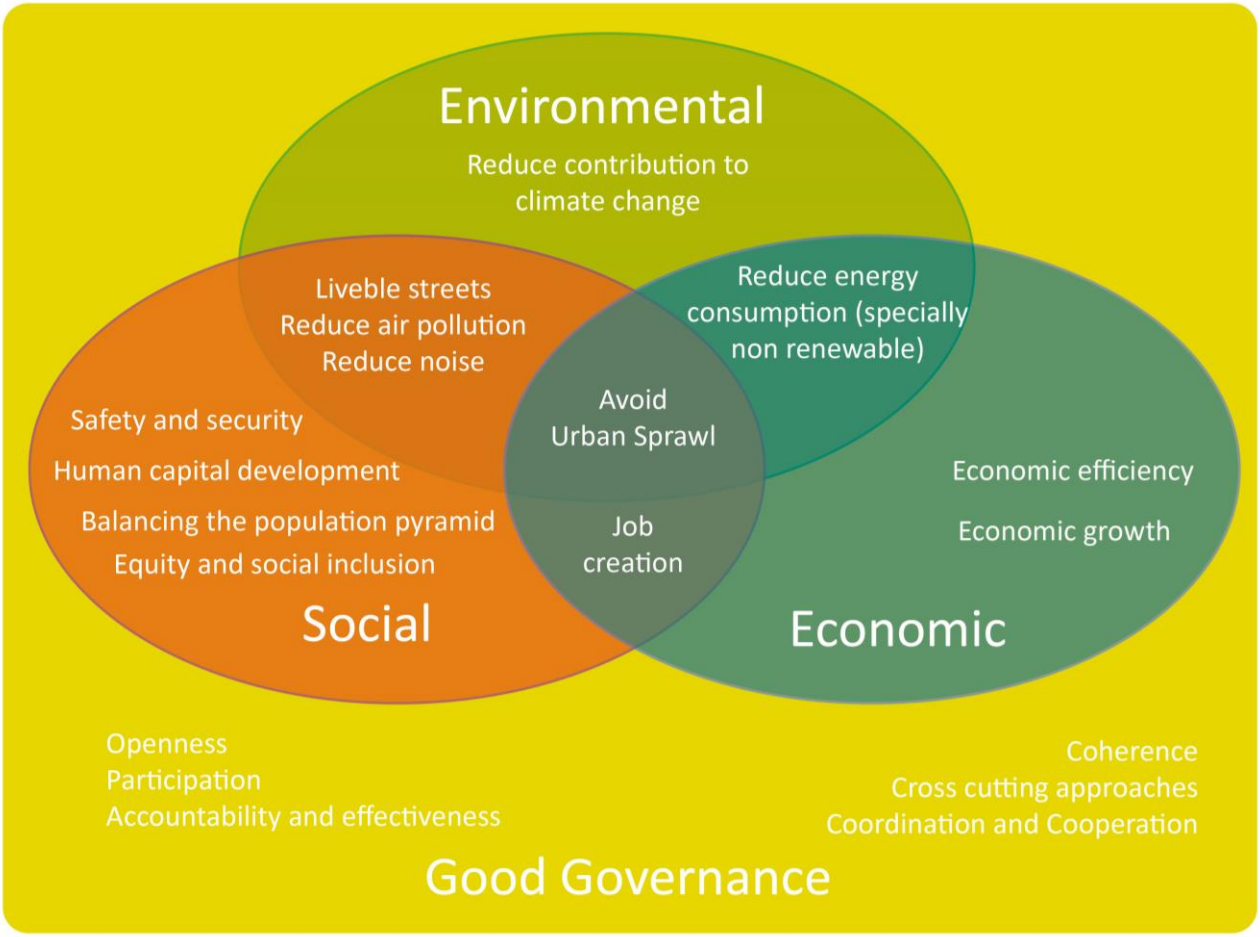


Figure 3.4. Main objective in EU cities

Table 3.7. Dimensions, objectives and problems addressed			
Dimension	Objectives		Problems addressed
ECO	Economic growth	Rise revenues Rise production and demand Reduce unemployment Job creation	-Declining demand -Unemployment -Ageing population -Workers migration
ECO	Economic efficiency	Reduce the number of unoccupied flats or buildings Reduce congestion levels Reduce time spent travelling	-Low productivity -Energy consumption, contribution to GGE & fuel dependence -Air & noise production
SOC **ENV**	Liveable streets and neighbourhoods	Safer streets for vulnerable users Increase space for human activities and leisure Increase the use of soft modes Reduction of space dedicated to traffic Increase green areas	-Degradation of space as human environment -Urban sprawl and related problems
SOC	Equity and social inclusion	Major and better supply of public transport services Smooth the income inequality Improve for all affordability of fundamental needs: housing, nutrition, health, education and transport Improve essential services supply in each zone (hospitals, educational centres and stores)	-Socio-spatial segregation and social polarisation -Degradation of space for human environment
SOC	Safety and security	Reduce traffic accidents and reduce their severity Reduce crime	-Degradation of space for human environment
SOC	Stop demographic decline	Rise the share of active population Increase births rate Stop skilled workers migration	-Ageing population -Workers migration
SOC	Human capital development	Provide high levels of education Provide formation adapted to jobs demand Increase cultural offer and cultural demand (museums, cinema, libraries, theatre, concerts…)	-Unemployment -Low productivity -Workers migration
ENV **ECO**	Reduce energy consumption	Reduce energy consumption per productivity unit Increase the share of renewable energy	-Low productivity -Depletion of natural resources and all related problems
ENV	Reduce contribution to climate change	Reduce Greenhouse Gases Emissions	-Reduce energy consumption and contribution to GGE
ENV	Reduce air pollution	Reduce the rate of diseases potentially related to air pollution Reduce air concentration of NOx and particles	-Degradation of space for human environment -Poor air quality
ENV **SOC**	Reduce noise pollution	Reduce the noise intensity levels Reduce the proportion of population living in households suffering from noise	-Degradation of space for human environment -Noise pollution
ENV **SOC** **ECO**	Reduce urban sprawl	Maintain city compactness Reduce land occupied by transport infrastructures Avoid segregation and urban polarisation	- Urban sprawl related problems -depletion of natural resources and all related problems -Degradation of space for human environment

The principles of good Governance

Today, all the definitions on Sustainable Urban Development include the concept of "good governance". The term Governance was defined in section 2.2 by providing several definitions with different approaches. But, what is generally meant by good governance? The *White Paper on European Governance* (URBACT, 2001) proposed a reform of governance and defined what it calls The Principles of Good Governance. At the bases of this reform is the wish of changing the Policy Making paradigm by opening policy processes. "Reforming governance addresses the question of how the EU uses the powers given by its citizens. It is about how things could and should be done. The goal is to open up policy-making to make it more inclusive and accountable. A better use of powers should connect the EU more closely to its citizens and lead to more effective policies" (URBACT, 2001). Thus, the change of paradigm is based on the empowerment of citizens and the commitment for different policy instruments. The same paper states: "The Union must renew the Community method by following a less top-down approach and complementing its policy tools more effectively with non-legislative instruments."

All the policy objectives should be addressed taking into account the good governance guidelines, which according to the White Paper are underpinned by five principles: openness, participation, accountability, effectiveness and coherence. On a slightly different approach, but always considering this White Paper as the main reference, here we reflect accountability and effectiveness principles together and we introduce two other principles: *cross cutting approaches* and *coordination and cooperation. Cross cutting approaches* are not acknowledged as a principle itself, but is implicit throughout the document, and has become increasingly important in the last years (European Union, 2011). Coherent policies need to be prepared, implemented and enforced in a more inclusive way, as the challenges become more diverse, crossing the boundaries of the sectorial policies. Cross cutting approaches are necessary to integrate all sustainability dimensions and to face complex challenges concerning cities governance. *Coordination and cooperation* seem to be underlying other principles, but we think they must be remarked and highlighted together as an independent one for two reasons. The first one is that, without strong coordination and cooperation, the multiple initiatives currently launched and promoted by the EU in order to open policy processes take the risk of atomisation, with many separate groups of people working on similar things without producing any complementarity and synergy. The second reason is that coordination and cooperation will increase the effectiveness of policies and will reduce the cost of achieving the policy goals, something always important but absolutely crucial in times of economic crisis or recession.

Thus, the main *Principles of Good Governance* we consider are:

- **Openness**. Institutions should work together and in a more open manner, they should actively communicate about what they do and the decisions taken, in a manner accessible for all. This is of particular importance in order to improve the confidence in institutions.

- **Participation**. The quality, relevance and effectiveness of policies implemented depend on ensuring wide participation against the policy cycle. Improved participation is likely to create more confidence in the end result.

- **Accountability and effectiveness**. Accountability is related to clearer roles in all processes; institutions must explain and take responsibility for policy making. And policy making should at the

same time be effective; policies implemented must be timely and deliver what is needed on the basis of clear objectives. Therefore, effectiveness needs accountability, to state the objectives and responsibilities as well as to monitor the progress.

- **Coherence**. Policies and action must be coherent with the range of tasks, threats and challenges. This requires political leadership and a strong responsibility.

- **Cross-cutting approaches**. Decisions taken at all levels should address the impact of policies in different areas, and avoid a logic too sector-specific (European Commission, 2001). Concrete sectorial interventions will never result in sustainable answers and can have negative social, environmental and spatial consequences (European Union, 2011).

- **Coordination and cooperation**. They play a crucial role in the current governance form the EU is fostering and trying to implement. Since policy processes are getting more inclusive and being opened to more participation at all levels, and because cross-cutting approaches involve also the engagement of more groups, coordination and cooperation are crucial in order to avoid redundancies and create the necessary synergies to reach the policy goals with efficiency.

Apart from these principles, The *White Paper on European Governance* also defined some general *Proposals for change*, organised in these four different groups:

- Better involvement and more openness. Stronger interaction between regional/local governments and civil society, establishing a more systematic dialogue. The EU will also provide up-to-date online information about policies.
- Better policies, regulation and delivery. The Union aimed to improve the policies by acting at all the different policy cycle stages, from the analysis to the implementation and the final assessment.
- Global governance. The Commission would boost the effectiveness and enforcement of international institutions, and, when implementing policy proposals with international dimensions, will foster the dialogue with governmental and non-governmental actors of third countries.
- Refocused Institutions. The EU aimed at reinforcing policy coherence by identifying long-term objectives and strategies and by defining essential elements of policies.

Since the publication of the above mentioned paper, the principles of good governance have evolved according to the new circumstances. The paper was implemented in 2003 after the public consultation related to the paper (European Commission, 2003) but the principles of good governance still remain similar in essence. Recent approaches have pointed out the necessity of creating Governance systems adapted to evolving circumstances and of adopting more integrated and holistic models (URBACT, 2011), necessary changes to face the huge problems consequence of the recent economic crisis. There is an attempt of changing the principles of good governance, and adapting them to the new extreme circumstances. *From government to governance* is the title of the Introduction to Governance section in the document of *Cities for Tomorrow* (2011). Considering that the concept of Governance had been already highlighted above the one of government in the White Paper of 2001, this title doesn't seem to announce but a definitive change in traditional policy processes. In fact, the paper discusses what it calls a multi-scalar governance system: "It is clear that different levels of fixed government structures alone are not well suited to addressing the future challenges in a sustainable way. Adapting government structures to better respond to challenges is a futile task: not only would the dynamic

nature of challenges demand a constant re-adaptation, but their multi-dimensional nature requires responses at different scales. Instead, different government levels will have to play different roles in a multi-scalar governance system (URBACT, 2011). The White Paper also defines the key elements of a multi-scalar governance system: a holistic and integrated approach to challenges; long-term strategic planning, foresight and vision-building; community involvement and collective mobilisation around long-term objectives; inter-city partnerships and cooperation and the city–regional level of governance.

Table 3.8. Good Governance: Objectives and problems addressed	
Objectives	
Openness	Increase transparency of Public accounts
	Publish performance delivery standards
Participation	Increase voter participation
	Creation of programmes/projects adopting participatory approaches in recent years
	Increase participation and role of public forums and civic associations
Accountability & Effectiveness	Address policy objectives linked to strategic plans including phases and deadlines
	Increase the number of achieved policy objectives
Coherence	Reduce overall budget deficit
	Achieve rate expenditures by sector coherent with the objectives and needs public
Cross cutting approaches	Increase policies impact assessment regarding different areas
	More cooperation and coordination between institutions involved in city management
	Avoid too sector-specific approaches on interventions
Coordination & Cooperation	Create synergies among different programmes, initiatives of projects tacking similar issues
	Generate effective structures, avoiding the redundancies, contradictions and atomization
	Implement effective policies, reducing the cost of their implementation

3.4. Current policy trends and measures

INSIGHT aims to investigate how ICT can help European cities to formulate and evaluate policies to stimulate a balanced economic recovery and a sustainable urban development, so our main goal is to create innovative policy modelling and governance tools. In order to achieve this aim, the identification and analysis of the planning, policy and governance trends and measures that the European Union is implementing now and will have to foster in the next future is required.

The identification of these trends and measures is closely related to the previous analysis of threats and problems, and to the goals addressed in the Agenda setting since, at the end, these policies are basically the government response in an action-reaction approach in order to achieve some goals. Thus, in the previous sub-sections, we focused on the analysis of these problems not only to analyse and study the potential use of new ICT tools in identifying these new challenges, but also to better understand the reasons that underpin the current and future policies that we will include in this section.

The review of documentation and reports has been wide enough to include the main actions launched by the European Union, although other important initiatives have been considered out of the European context. We will analyse these policies and trends next, in a chronological order.

As mentioned before, one of the most important initiative and documents in charge of a deep and general analysis of current urban problems and threats was the *Agenda 21*, elaborated by the United Nations in 1992. Since the *Agenda 21* is basically an action plan implemented to *address the pressing problems of today and also aims at preparing the world for the challenges of the next century* (United Nations, 1992), this document is also relevant in terms of the policies and measures proposed. In other words, as its preamble claims, the Agenda basically aimed to support the bases for action.

The Agenda consist of four sections that address different groups of goals to be reached. Each section considers also some general trends, that is to say, some general and specific policy ideas in order to help governments to achieve their objective. The last section is specifically focused on describing different "Means of Implementation" related basically to get funding for the implementation of the Agenda. The four sections are:

1. Social and economic dimensions.

   Having identified unsustainable patterns of production and consumption, the Agenda suggests different means to develop national policies and strategies to encourage changes in these unsustainable consumption patterns. It also tackles poverty and demographic problems also in terms of unsustainability, "developing and disseminating knowledge concerning the links between demographic trends and sustainable development, and formulating integrated national policies for environment and development, taking into account demographic trends and factors" (United Nations, 1992).

2. Conservation and management of resources

   The Agenda studies an integrated approach to the planning and management of lands resources, and points out different policies in order to protect the atmosphere, combat deforestations, manage fragile ecosystem, promote sustainable agriculture and rural development, conserve biological diversity and promote a responsible management of different kind of wastes.

3. Strengthening the role of major groups

   The Agenda fosters trends and local initiatives in order to strengthen the role of women, children and youth, as well as indigenous people and their communities, support workers through their trade unions, and also measures to promote business, industry and scientific and technological development.

4. Means of implementation

   This section is specifically focused on *identifying ways and means of providing new and additional financial resources for development programmes and projects in accordance with national development objectives, priorities and plans* (United Nations, 1992). In general, the funding for implementing Agenda 21 ideas was expected to come from country's own public and private sectors, so it's particularly focused on developing countries as well as to reinforce national programmes.

In a European context, one of the most relevant strategies has been the *Lisbon Agenda*. Also known as the *Lisbon Strategy* or the *Lisbon Process*, the Agenda is an action and development plan for the European Union. Focused on making Europe "the most competitive and dynamic knowledge based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" by 2010 (European Commission, 2010), the Agenda is a detailed strategy for achieving this goal. The basic aims were:

- Preparing the transition to a knowledge-based economy and society by better policies for the information society and Research and Development, strengthening links between research institutes, universities and businesses as well as stepping up the process of structural reform for competitiveness and innovation and by completing the internal market.
- Modernising the European social model and combating social exclusion.
- Sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix.
- Investing in people — to adjust to globalisation, the EU's fast-changing economy requires a flexible and highly skilled workforce. Lifelong learning projects help people to adapt to a changing job market.
- A more dynamic business environment — less red tape and easier access to credit, especially for small and medium-sized businesses.
- A greener economy — leading the fight against climate change, the EU aims to reduce the environmental impact of economic growth by saving energy and promoting new, environment-friendly technologies.

Since it was launched, the *Lisbon strategy* was revised every year, in order to assess the degree of achievement of goals and adjust the strategy according to it. In 2005 the *Lisbon strategy* was re-launched with a special focus on jobs and growth, but still, as mentioned before, when finished in 2010, the evaluation report recognised not having reached the targets in terms of employment rate and GDP spent on Research & Development (European Commission, 2010).

Some "Proposals for change" are also considered regarding the achievement of the principles of "Good governance" in the already mentioned *White Paper- European Governance* (European Commission, 2001). Each proposal specifies different "Action Points" allocating tasks, responsibilities and a schedule to European Institutions and the Member States, in order to go beyond a general and diffuse approach. The proposals are:

1. Better involvement: create a "space" where citizens can discuss what is perceived as being the important challenges for the Union and play an active role in shaping policies by working in associations of regional and local government. Also increase the awareness of the responsibility that a greater participation should involve. Some specific initiatives regarding the use of Telecom are considered in the Action points.

2. Better policies, regulation and delivery. Increase flexibility according to local conditions that make it difficult to establish one set of rules for the whole European Union. Create awareness of the damage generated by the lack of flexibility.

3. Define the EU's contribution to global governance, by strengthening the Union representation in international and regional forums, improving cooperation and openness.

4. Refocused policies and institutions, connecting better the European Union to its citizens.

In recent years, the most relevant European initiative defining new policy trends, measures and new governance approaches have been the URBACT programme, through the report Cities of Tomorrow – Action today (2013). This report is the result of a deep analysis carried out by a wide range of stakeholders from all around Europe through different workshops, based on the previous analysis coming from the '*Cities of Tomorrow – Challenges, visions, ways forward*' report, published in 2011. This report, as we have seen before, was at the same time the result of the Cities of tomorrow reflection process, the most exhaustive analysis of current problems and threats in the European Union, carried out by the Directorate General of Regional Policy.

The report *Cities of Tomorrow – Action today* continued the work of the 2011 report and developed an exhaustive analysis focused on finding new policy and governance approaches in order to face the four threats identified by Cities of Tomorrow 2011, through six different *workstreams*. Six thematic reports summarise the analysis carried out by these workstreams and their main ideas:

1. Shrinking cities and demographic change

   The report advocates a paradigm shift from growth-oriented to "smart shrinking" planning. Sustainable Urban Development is conceived as an ongoing cyclical process of constant change, not that linear and predictable and static as is considered by current urban planning practices. Since the report states: "the lack of adequate instruments for developing existing complex settlements structures with unused or underused building stocks and surplus infrastructure requires not only new tools but a new planning paradigm" (Schlappa & Neill, 2013).

2. More jobs: better cities. A framework for city action on jobs

   The report provides a framework in order to support cities in job creation in the extremely difficult conditions of the economic recession. With more than 25 million of people unemployed, this is a top priority across the European Union (M. Campbell, Partridge, & Soto, 2013). The report focuses on three key elements: increasing city internal and external demand, creating the conditions for competitiveness and creating the right economic structure, in terms of a balanced sectorial composition and a more specialised economy.

3. Supporting urban youth through social innovation

   The report takes the threat of unemployment one step further by pointing to the risk of the permanent marginalisation of many young people and "the development of closed subcultures with fundamentally hostile attitudes to mainstream society" (Soto, 2013). The report underlines the European Commission commitment to foster activation measures, quality traineeships, youth mobility and youth guarantees, as

well as measures focused on entrepreneurship for all ages, with special focus on community-led local development (Adams & Arnkil, 2013).

4. Against divided cities in Europe

   Considering spatial segregation is the projection of the polarised social structure on space, the report states that the solution lies in a careful blend of area-based neighbourhood policies and city-wide (or larger scale) people-based policies. This, in turn, means that cities have to cooperate with higher levels of government and also with other stakeholders (Soto, 2013).

5. Motivating mobility mindsets

   The report focuses on the ways in which cities can facilitate the transition to a new urban mobility, which is more fundamentally linked to the quality of space, to a new mind-set and is built on integration between policy priorities and multi-stakeholder buy-in (Enemakr & Kneeshaw, 2013).

6. Building energy efficiency in European cities

   Pointing to both the economic and environmental benefits of comprehensive programmes for the energy efficiency of buildings, the report aims to foster the retrofitting of existing buildings, taking into account that buildings are the largest energy consuming sector in the EU (Lewis, Ní Hógáin & Borghi, 2013).

The table 3.9 synthesises the policy trends and general measures fostered by these three different programmes in the last years. Some specific measures are not included since the goal of this report is just to identify a general framework and since, in the last years, most of the specific measures eventually depend on local analysis. Other European programmes may define different policies, but the considered ones reflect very well the current policy approaches and concerns, and their evolution over the course of the last 20 years. As a conclusion, on the one hand the review of these three key programmes evidences that most of the policies were already focused on the same concerns and oriented to solve certain long lasting and "pre-economic crisis" existing problems that have been sharpened with the economic recession. This is the reason why the three have much in common. On the other hand, the failure of the previous initiatives, specially the Lisbon Strategy in terms of economic re-activation, has led to a change not in the general goals but in the policies and the way these are implemented by specific measures.

Table 3.9. Current policy trends and specific measures

Dimension	Agenda 21	Lisbon Strategy (LS) / White Paper on European Governance (WP)	URBACT
Governance	• Increase the support of Science for improving the understanding of urban phenomena, support management and assessment based on existing and emerging innovations. • Strengthen the role of Information for decision-making. Different policies to bridge the data gap and	• Better involvement and communication between European Institutions and local authorities through a more proactive Committee control and the exchange of best practice reports (WP) • Improve regulation of increasingly complex and rigid policies, with	• Promote from Global to Local strategies through the creation of Local Support Groups and the publication of Guidelines like the Local Support Group Toolkit • Define a cyclical planning model and the role of

Table 3.9. Current policy trends and specific measures			
Dimension	Agenda 21	Lisbon Strategy (LS) / White Paper on European Governance (WP)	URBACT
	improve information availability • Identification and allocation of specific financial resources and mechanisms for the development of national programmes and projects. • Integrated approach to planning and management of land resources • Foster integrated, coherent and effective national policies	unnecessary level of detail. • Promote more effective and transparent consultation and dialogue with civil society and networks (WP) • Publication of guidelines to build minimum standards for consultation (WP) • Strengthen the role of Telecom for more effective and transparent consultation processes (WP) • Foster the use of ICT for improving this communication and guarantee policy coherence (WP	Stakeholders. • Increase stakeholder engagement and active participation. A methodology to reinforce participative action-planning is proposed in different reports. • Promote multidisciplinarity and cross-cutting approaches
Social	• Strengthen the role of social minorities, indigenous people, children, youth, and women • Reinforce the role of workers and trade unions • Reorientation of education towards sustainable development awareness	• Policies to combat social exclusion (LS) • Policies to increase competitiveness (LS)	• Promote coordinated local and global policies to avoid spatial segregation • Foster urban-national dialogue on social polarisation issues
Economic	• Changing consumption patterns • Diversify in order to reduce dependence on commodity exports • strengthen the role of business and industry • Reinforce the role of farmers	• Promoting a dynamic business environment: Easier access to credit, less red tape, etc. (LS) • Foster Research & Development • Improve macro-economic approach and analysis in policies (LS)	• Intensify city internal and external demand • Increase competitiveness • Foster a more specialised economic structure
Economic + Social	• Development and dissemination of knowledge linking demographic changes with sustainable development • Poverty through economic sustainable development	• Policies fostering the transition to a knowledge-based economy (LS)	• Increase awareness on problems related to youth unemployment and social marginalisation • Foster quality traineeship and entrepreneurship • Foster youth mobility and guarantees

Table 3.9. Current policy trends and specific measures			
Dimension	Agenda 21	Lisbon Strategy (LS) / White Paper on European Governance (WP)	URBACT
Economic + Environmental	• Foster sustainable production and consumption • strengthen the role of non-governmental organizations		• To increase knowledge about "smart shrinking" urbanism
Environmental	• Transfer of Environmentally sound technologies	• Policies to save energy (LS)	• Promote sustainable urban mobility and transport
	• Policies to protect the atmosphere, combat deforestations, manage fragile ecosystem, promote sustainable agriculture and rural development and promote a responsible management of different kind of wastes.	• Promoting new, environment-friendly technologies	• Foster comprehensive programmes for the energy efficiency of buildings

4. Indicators as urban planning tools in INSIGHT framework

Once the necessity of achieving a sustainable urban goal in cities has been stated, it is convenient to measure its accomplishment in an objective way by creating tools for global control and assessment. In INSIGHT, indicators will be used for this purpose, since they are considered appropriate tools to tracking concrete policy objectives (TERM, 2000). Actually, there is a common consensus as to the usefulness of indicators to highlight the different dimensions of sustainability (Newman and Kenworthy, 1999; European Union, 2011). In this chapter, the desirable characteristics that indicators should fulfil in order to serve for management purposes are firstly analysed, as well as the role of indicators in the different stages of the policy cycle. Secondly, a set of indicators for measuring the objectives proposed in INSIGHT agenda setting (Section 3.3) is proposed. Finally, we bring up the role of indicators in models, regarding the importance of both tools in the project framework as well as the strong relations between them.

4.1. Indicators for management purposes. Characteristics

Indicators are frequently referred in the literature as tools for management; authors such as Newman and Kenworthy (1999) state that "sustainability goals and indicators are ways to incorporate the many overlapping areas of sustainability into a city's consciousness about what it values", and also institutions, such as TERM (2000) consider that "You can't manage what you can't measure… the success of current and future integrated policies can only be judged by identifying key indicators that can be tracked and compared with concrete policy objectives"; or the EU (2011): "city administrations must have the capacity to share and analyse information, to establish causal links between indicators and action, and not least to formulate and measure long-term objectives". Therefore, indicators can help states to monitor the progress of urban planning strategies, to identify changes in the key leverage points for policy intervention (such as investments, economic instruments, spatial planning and infrastructure supply), and to make results accountable for society. But not all indicators are appropriate for management purposes or able to support decision making towards sustainability objectives (Newman and Kenworthy, 1999). Based on this approach, several studies have analysed later on the requirements that indicators should fulfil to face this challenge (May et al., 2008; Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). The outputs from these studies can be summarised in seven desirable characteristics, which are described below.

- **Sensitive enough to reveal changes** (Newman and Kenworthy, 1999; May et al., 2008; Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). Indicators should be able to reveal important changes on the phenomenon being indicated.

- **Target relevance** (Newman and Kenworthy, 1999; Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). Indicators for management and decision making purposes must measure performance with regard to articulated objectives.

- **Transparent and easy to understand** (May et al., 2008; Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). A transparent indicator is one which is feasible to understand and possible to reproduce for intended users.

- **Validity** (Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). A valid indicator must measure the aspect it is supposed to measure.

- **Unambiguous** (Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). The indicators should be interpretable; they should allow drawing clear conclusions from reading the indicator.

- **Measurability, data available and reliable** (Joumard and Gudmundsson, 2010; Haghshenas and Vaziri, 2012). A measurable indicator should be straightforward and relatively inexpensive to measure (Dale and Beyeler, 2001) — using easy tools and simple data (Joumard and Gudmundsson, 2010). The data required should be accessible at reasonable cost and time; and should come from reliable sources.

- **Standardised by city size** (Haghshenas and Vaziri, 2012). Ideally cities should be able not only to assess their own situation, but also to compare themselves with other cities (European Union, 2011). Indicators for benchmarking and comparison purposes should allow standardisation per city size.

INSIGHT framework considers indicators as main tools for management purposes in urban planning. Regarding this, several indicators will be proposed in the project. All of them should fulfil the exposed requirements. However, the adequacy of the different indicators to compare cities, achieve objectives or identify problems should be one of the outcomes of the project, especially in the context of policy assessment and validation (WP7). This capability can be evaluated using these criteria, and analysed for the case studies in WP7.

4.2. The role of Indicators and Targets in the Policy Cycle

Since INSIGHT aims to develop innovative ICT tools in order to analyse, formulate and evaluate urban plans and policies, the project considers an evidence-based policy-making approach. This means that the analysis of problems and the assessment of policies must be quantified in order to get the necessary inputs to run the models and tools. A definition and a classification of the different input and output Indicators and Targets will be detailed next, even though a short introduction is provided here in order to understand the role they play at the different stages of the Policy Cycle.

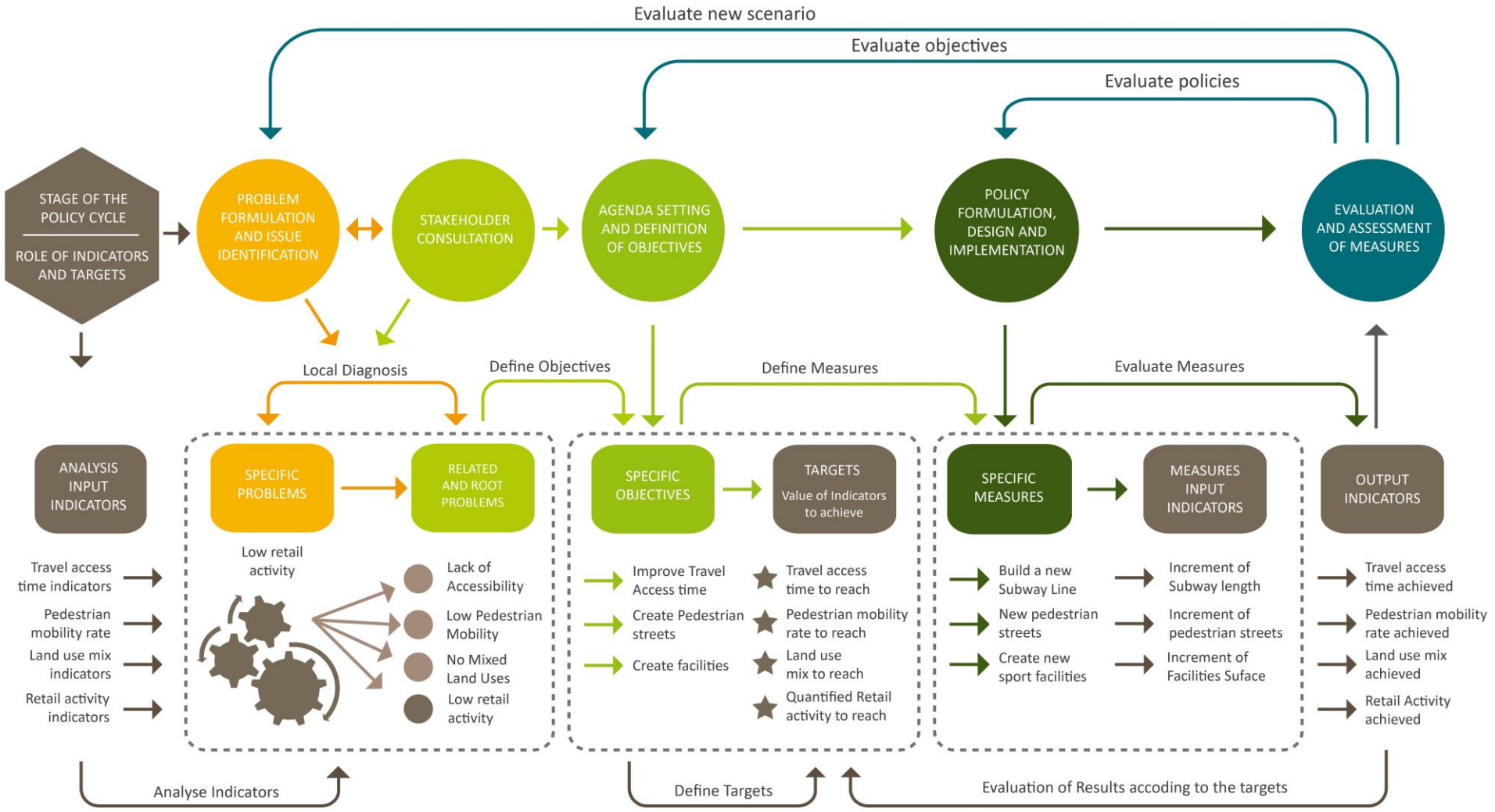
At the first stage, problems or threats can be identified from the analysis of the negative values on certain relevant indicators, the Analysis Input Indicators. These indicators play an important role in the diagnosis process, in which different stakeholders will be involved in order to provide a better lecture and interpretation, comparing and relating problems in order to find out the causes or the root problems.

Then, at the *Agenda Setting* stage, objectives must be clearly set, and targets also must be defined. These targets are basically the numeric values we want some indicators to achieve, since the new values should be the manifestation of having reached the objectives previously defined.

At the *Policy Formulation, Design and Implementation* stage, other indicators must be taken into account, related to the specific measures defined. These can be understood as “Process Indicators” or Measure Input Indicators, and will specify the existing values and the ones to achieve on the variable that is going to quantify the measure or policy to be developed.

Finally, once policies have been implemented, the *Evaluation* stage will measure the degree of achievement of the objectives. The assessment will be based on comparing the value of the "Output Indicators" to the targets initially defined. The Figure 4.1 illustrates the role of Indicators and targets throughout this process.

Figure 4.1. The role of Indicators and Targets in the Policy Cycle. Example tackling a hypothetical low retail problem



4.3. Indicators for the Agenda Setting: measuring specific objectives

Sustainable development is an obligatory goal for all developed and developing countries. Since the majority of the population and economy production is located in cities, these must apply sustainable principles to their management. Currently, different urban trends have become barriers to achieve the sustainability targets. Therefore, sustainability in cities should be measured so that governments can become aware of the existing deficiencies and can evaluate the degree of achievement of sustainability goals. Good approaches to these measures are indicators, also used to compare different cities in order to evaluate their well-doing or to learn from each other, and also able to identify achievable targets. There is a need of developing tools that allow benchmarking and classifications at a global scale. Finally, once the management objectives for cities in INSIGHT framework have been defined, and the need of measuring them with appropriate assessment tools has been enhanced, we propose a set of indicators for INSIGHT agenda setting (Tables 4.2 and 4.3). All of them are considered adequate regarding the criteria exposed in Section 4.1. These indicators have also undergone an evaluation process by some stakeholders involved in European cities management, which were surveyed about the capacity of each indicator to measure a stated objective as well as the importance of the objective itself. The surveys were carried out in WP2.1 Stakeholders consultation; and the rating of the different objectives and indicators, which are showed in Tables 4.2 and 4.3, are within the results of these consultation.

The summary of the participants of this survey can be found in the deliverable D2.1 of INSIGHT: at the moment of writing this report we had the answers from 10 stakeholders involved in European cities management, accounting for 9 countries. Table 4.1 shows the list of these cities and countries.

Table 4.1. List of cities and countries represented by participants in the D2.1 Questionnaire

Region	Country	City
Northern Europe	Sweden	Stockholm
	Denmark	Aarhus
	Norway	Oslo
Southern Europe	Spain	Madrid
		Barcelona
	Greece	Thessaloniki
	Italy	Province of Bergamo
Western Europe	Austria	Vienna
	Belgium	Brussels
	Netherlands	Rotterdam

The amount of Countries and cities per Geographical region is balanced for Northern, Southern and Western Europe, but we have no feedback from any country in Eastern Europe and the amount of cities per geographical region is not large enough to claim that the vast diversity of European cities is represented in the answers of the questionnaire.

Profile of the respondents was: regarding institution affiliation, 33% of them belong to the urban planning department of which one belongs to the environmental planning department and 66% of them work in the city council/municipality, one of which belongs to the smart city department. As for the position they hold, 44% of them were advisers, 33% urban planners and 22% project managers.

Table 4.2. Objectives and indicators in the D2.1 Questionnaire related to Good Governance

Objectives		¿Is it a main objective? (% of respondents)	Proposed indicators for INSIGHT framework
Good Governance	Openness	For a 40% of policy makers is a main objective	Transparency of Public accounts
			Published performance delivery standards
	Participation	For a 20% of policy makers is a main objective	Vote participation
			Rate of programmes/projects adopting participatory approaches in recent years
			Volume of public forums and civic associations
	Accountability and Effectiveness	For a 20% of policy makers is a main objective	Rate of policy objectives linked to strategic plans including phases and deadlines
			Rate of achieved policy objectives
	Coherence		Overall budget deficit
			Share of public expenditures by sector: health, culture and education, transport, environment protection, equity promotion, safety and security, telecommunications, employment creation and productivity…
	Cross cutting approaches	Not asked	Existing regulations for multidimensional policy impact assessment
			Existing legal agreements or partnerships between different institutions involved in city management (different governance levels, different sectors, public and private…)
			Rate of multi-sectorial strategic city plans
	Coordination and Cooperation	Not asked	Number of communication and dissemination activities
			Periodical *state of the art* reviews
			Existence of coordination and cooperation departments

The survey shows an interesting result: economic and energy savings objectives are the most valuable for policy makers (a 50-60% considered them as main objectives in management), then environmental objectives follow in order of importance and finally social objectives.

Table 4.3. Objectives and indicators in the D2.1 Questionnaire according to the different dimensions				
Objectives		Is it a main objective? (% of respondents)	Proposed indicators for INSIGHT framework	Importance (1-5)
Economic	Economic growth (in global economy and local economy)	For a 50% of policy makers is a main objective economic growth in global economy and for a 60% in local economy	Household budget	3.50
			PIB	
			Unemployment rate	3.63
			Job creation	3.63
			Land prices	2.88
Economic	Economic efficiency	For a 50% of policy makers is a main objective	Unoccupied flats or buildings	3.00
			Congestion levels	2.75
			Time spent travelling	2.38
Social-environmental	Liveable streets and neighbourhoods	For a 50% of policy makers is a main objective	Vulnerable users injured by traffic accidents	2.63
			Space for pedestrian use	3.63
			Length of bicycle lanes	3.50
			Road land occupation	3.00
			Green areas	3.75
Social	Equity and social inclusion	For a 30% of policy makers is a main objective	Supply of public transport services	3.75
			Income inequality	Not asked
			Share of the budget devoted to fundamental needs: housing, nutrition, health, education and transport	3.13
			Essential services supply in each zone (hospitals, educational centres and stores)	3.50
Social	Safety and security	For a 20% of policy makers safety is a main objective and for a 30% is security	Traffic accidents with casualties	2.63
			Fatalities occurred in traffic accidents	2.63
			Crime	2.50
Social	Stop demographic decline	For none of the policy makers surveyed is a main objective (0%)	Share of active population	3.25
			Share of population over 60 years	2.88
			Share of population under 25 years	2.88
			Skilled workers and migration tendencies	3.13
Social	Human capital development	For a 10% of policy makers is a main objective	High school and University completion rates	3.63
			Cultural offer and cultural demand (museums, cinema, libraries, theatre, concerts…)	3.71
Environmental-economic	Reduce energy consumption, and specially from non-renewable sources	For a 50% of policy makers is a main objective	Energy consumption	3.75
			Share of energy consumption by sector (transport, industry, residential, services…)	3.63
			Share of energy consumption from renewable sources	3.75
Environmental	Reduce contribution to climate change	For a 40% of policy makers is a main objective	Greenhouse Gases Emissions	3.13
			Share of Greenhouse Gases Emissions by sector (transport, industry, waste…)	3.13
Environmental-social	Reduce air pollution	For a 40% of policy makers is a main objective	Rate of diseases potentially related to air pollution	3.00
			Trends in air concentration of NOx and particles	3.38
			Emissions of NOx and particles generated by transport modes	3.25
Environmental-social	Reduce noise pollution	For none of the policy makers surveyed is a main objective (0%)	Noise intensity levels	2.75
			Proportion of population living in households considering that they suffer from noise	2.88
Environmental-social-economic	Reduce urban sprawl	For a 40% of policy makers is a main objective	Urban density	3.38
			Land occupied by transport infrastructures	3.25
			Share of the metropolitan area population living in the main city	3.00

4.4. Indicators role in urban models

Urban planning and management are complex tasks for policy makers due to a high degree of uncertainty. The long-term planning horizon, the wide spectrum of potential policy packages, the need for effective and efficient implementation, the large geographic scope, the necessity to consider economic, social, and environmental goals, and citizens' response to the various action courses and their political acceptability make policy design and assessment complex and uncertain (Shiftan et al., 2003). This immense complexity requires the use of impact analysis tools as well as tools for objectives measurement. In this framework, two main tools are proposed for INSIGHT framework: models and indicators, both of them will be described and enhanced as appropriate for the project purposes.

Transport and land use interaction models (LUTI models) have been used for a comprehensive evaluation, including energy consumption and GHG emissions, of the relations between land use, the transport system and the different characteristics of mobility within metropolitan areas, like trip length, modal share, etc. both for passengers and for freight (Vieira, et al., 2007).

LUTI models are useful to measure the footprint of urban developments in relation with their associated mobility patterns, in order to understand to what extent a better coordination between land use and transport can help metropolitan areas to reduce greenhouse gas emissions, enhance air quality and contribute to mitigate climate change. In particular, they could analyse what are the most favourable configurations of both land use and transport systems in terms of energy minimisation and could find an answer for relevant questions. For instance, is congestion pricing positively contributing to optimising energy consumption? Moreover, using LUTI tools to examine the potential policy measures could help policy makers to better understand the influence of the transport system on location decisions of both people and economic activities at different spatial scales, especially when energy becomes more and more expensive.

Type of indicators for modelling activities

Models highly rely on the use of indicators. Such indicators should be carefully selected to provide useful information. In most situations, no single indicator is adequate, so a set of them should be selected. Modellers using indicators should understand their perspectives and limitations (Litman, 2011).

All indicators have many uses for planning and management. These data can be useful to establish baselines, identify trends, predict problems, assess options, set performance targets, and evaluate a particular jurisdiction or organisation. By the different use of such indicators in the model, they can be categorised into four groups: input indicators, policy strategy indicators, process indicators and output indicators.

Input indicator

Input indicators are used to establish the baselines of the models, for example, number of residents, car ownership, the threshold speed, etc. The data of input indicator should be accessible and transparent. Much of the data required for these indicators may be available through existing sources (general monitor), such as censuses and consumer surveys, travel surveys and other reports. Some data can be collected during regular planning activities. For example, travel surveys and traffic counts can be modified to better account for alternative modes, and to allow comparisons between different groups (e.g., surveys can include questions to

categorise respondents). Some indicators require special data that may require additional resources to collect. It is noted that data collection of input indicators is one of the most important parts of setting up a model. Without good data the best model delivers bad results. For the integrated land use and transport model MARS a considerable amount of data is needed.

Policy Strategy indicator

Policy Strategy indicators can be considered as Input indicators, since they are also used to establish baselines of the model. The difference with the previous is that they are related to planning decisions such as changing the supply by investment or disinvestment, controlling demand by enforcing regulations or modifying prices by taxes or subsidies (Hunt and Simmons, 1993). Road charging or changes in road capacity are examples of planning decisions that could be measured by means of indicators, and also could be used to establish baselines for the model.

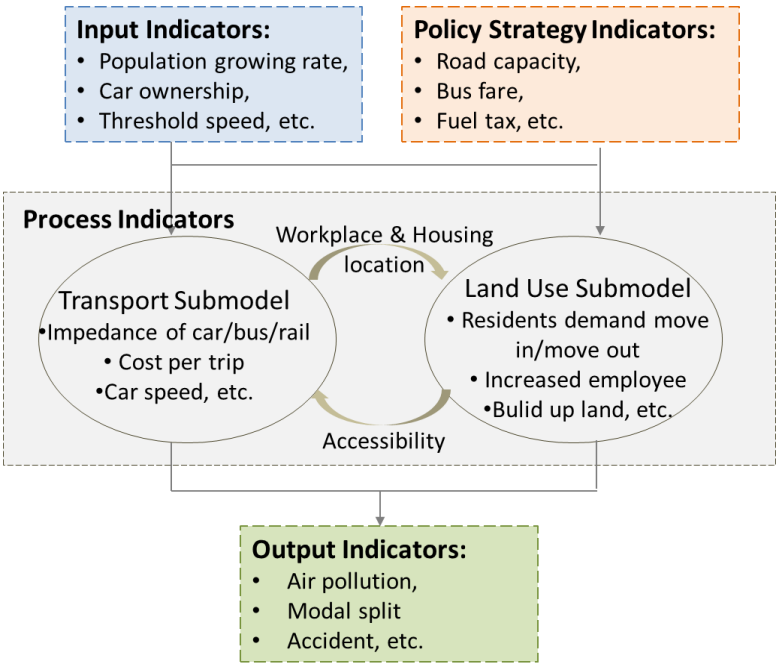
Process indicator

Process indicators are variables processed during the simulation of policy measures aiming to eventually obtain output indicators based on the analysis objectives. This type of indicators include impedance of transport mode (car, bus or rail), number of trips distributed per zone, attracted number of residents/workplaces, etc. For the case of MARS model, the process indicator can be developed by modellers depending on specific requirements.

Output indicator

Model output indicators reflect defined objectives (such as economic, social and environment impacts) and various transport activities. This type of indicators should be comparable, easy to understand, and should performance targets (for example, a particularly emission reduction policy is to be implemented if pollution levels reach a specific threshold).

Figure 4.2. Models and indicators. MARS example



References

Adams, E., & Arnkil, R. (2013). Supporting Urban Youth though social innovation: stronger together.

Air quality in Europe (2014). Retrieved from http://www.airqualitynow.eu/pollution_home.php

Arentze, T., Hofman, F., van Mourik, H., & Timmermans, H. (2000). ALBATROSS: multiagent, rule-based model of activity pattern decisions.Transportation Research Record: Journal of the Transportation Research Board, 1706(1), 136-144

Association of European Schools of Planning. (2014). What is Planning? Retrieved from http://www.aesop-planning.eu/

Batty, M. (2013). The new science of cities. MIT Press.

Batty, M., & Hudson-Smith, A. (2007). Imagining the recursive city: explorations in urban simulacra. In Societies and Cities in the Age of Instant Access (pp. 39-55). Springer Netherlands.

Bevir, M. (2013). Governance: A very short introduction (Oxford Uni.).

Blackman, T. (1995). Urban Policy in Practice (p. 337). Psychology Press.

Camagni, R. (2004). Sustainable urban development: definition and reasons for a research programme. Environment and Sustainalbe Development, 10.

Campbell, S. (1996). Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development. Journal of the American Planning Association, 62(3), 296–312. doi:10.1080/01944369608975696

CE Delft, Infras, Fraunhofer ISI (2011). External Costs of Transport in Europe. Update Study for 2008. Delft.

CEMAT. (2007). Spatial development glossary. (C. of E. Publishing, Ed.).

Cochrane, A. D. (2000). The Social Construction of Urban Policy. In S. Bridge, Bridge; Watson (Ed.), A Companion to the City (pp. 531–542). Blackwell Publishing Ltd.

Colini, L., Czischke, D., Güntner, S., Tosics, I., & Ramsden, P. (2013). Against divided cities in Europe (p. 52).

Cuadrado-Roura, J. (2005). *Política económica. Elaboración, objetivos e instrumentos* (3rd ed.). Madrid: McGraw Hill.

Deakin, M., Reid, A., (2013). Sustainable urban development: Use of the environmental assessment methods. Sustainable Cities and Society.

Directorate-General for Economic and Financial Affairs of the European Commission. (2009). Economic Crisis in Europe: Causes, Consequences and Responses. Brussels: European Communities.

EUROCITIES. (2014). EUROCITIES. Working Groups. Retrieved from http://www.eurocities.eu/

European Environmental Agency (2006). Urban Sprawl in Europe- The ignored city. Copenhagen.

European Commission (2001). White Paper- European Governance/COM/2001/428 final/Brussels.

European Commission (2003). Report from the Commission on European Governance.

European Commission (2005). Green Paper- Confronting demographic change: a new solidarity between the generations/COM/2005/94 final/Brussels.

European Commission (2007). Green Paper- Towards a new culture for urban mobility/COM/2007/551 final/Brussels.

European Commission. (2007). Leipzig Charter on Sustainable European Cities.

European Commission. (2010). Lisbon Strategy evaluation document.

European Commission (2011) White Paper- Roadmap to a single European Transport Area- Towards a competitive and resource efficient transport system COM/2011/144 final/ Brussels.

European Commission (2012a) Green Paper - Restructuring and anticipation of change: what lessons from recent experience? COM/2012/7 final/ Brussels

European Commission (2012b). White Paper - An Agenda for Adequate, Safe and Sustainable Pensions/COM/2012/55 final/ Brussels.

European Commission (2013). Green Paper- A 2030 framework for climate and energy policies/COM/2013/169 final/Brussels.

European Council of Spatial Planners. (2003). The New Charter of Athens (pp. 1–21). Retrieved from http://www.ectp-ceu.eu/index.php?option=com_content&view=article&id=85&Itemid=229

European Council of Spatial Planners. (2013). The Charter of European Planning (p. 86). Retrieved from http://www.ectp-ceu.eu/index.php?option=com_content&view=article&id=276&Itemid=229

European Union (2011). Cities of Tomorrow. Doi:10.2776/41803

European Union (2013a). Cities of Tomorrow – Action Today. URBACT II Capitalisation. Building Energy efficiency in European Cities. Saint-Denis.

European Union (2013b). Cities of Tomorrow – Action Today. URBACT II Capitalisation. More jobs: better cities- a framework for city action on jobs. Saint-Denis.

EUROSTAT (2011a). Retrieved from http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsdcc340&plugin=1 & http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsdcc110&plugin=1 (last accessed 3 June 2014)

EUROSTAT (2011b). Retrieved from http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsdcc210&plugin=1 (last accessed 3 June 2014)

EUROSTAT (2012). Retrieved from http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdpc320&language=e n (last accessed 3 June 2014)

EUROSTAT (2013). Retrieved from http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdec450 (last accessed 4 June 2014)

Global System Science. (2014). Global Systems Science. Retrieved from http://global-systems-science.eu/gss/

Häußermann, H., & Siebel, W. (2001). Integration und Segregation – Überlegungen zu einer alten Debatte.

Hilgartner, S., & Bosk, C. L. (1988). The Rise and Fall of Social Problems: A Public Arenas Model. The American Journal of Sociology, 94(1), 53–78.

Hogwood, B. W. (1984). Policy-Analysis for the real world.

Hood, C. (1983). The tools of Government.

Howard, C. (2005). The Policy Cycle: A Model of Post-Machiavellian Policy Making? *Australian Journal of Public Administration*, *64*(3), 3–13.

Hunt, J.D., Simmonds, D.C. (1993). Theory and application of an integrated land-use and transport modelling framework. Environment and planning B: Planning and Design 20, 221-224.

International Energy Agency (2008). World Energy Outlook. Paris

Institute for International Relations Republic of Croacia. (2010). From Lisbon Strategy To Europe 2020. (V. Samardžija & H. Butković, Eds.)Srpska pravna misao (Vol. 18, p. 332). doi:10.7168/spm.12.1845.04C

Jann, W., & Wegrich, K. (2007). Theories of the Policy Cycle. In Handbook of Public Policy Analysis. Theory, Polictics and Methods (pp. 43–62).

Jones, C. (1977). *An introduction to the study of public policy* (3rd ed.). Belmont: Wadsworth.

Jr, L. E. L., Heinrich, C. J., & Hill, C. J. (2000). Studying Governance and Public Management : Challenges and Prospects, 10, 233–261.

Litman, T. (2007). Developing indicators for comprehensive and sustainable transport planning. Transportation Research Record: Journal of the Transportation Research Board, 2017(1), 10-15

Lasswell, H. D. (1956). The Decision Process: Seven Categories of Functional Analysis.

Manville, C. et al. (2014) . mapping Smart Cities in the EU. European Parliament. Directorate General for Internal Policies. Policy Department A: Economic and Scientific Policy. http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOLITRE_ET%282014%29507480_EN.pdf (last accessed 15th July 2014)

Misuraca, G., Alfano, F., Viscusi,G., (2011). A Multi-Level Framework for ICT-Enabled Govrernance: Assessing the Non-Technical Dimensions of "Government Openness".

Newman, P., Kenworthy, J., (1999). Sustainability and Cities. Overcoming Automovile Depencence. Island Press, Washington.

O'Toole, L. J. (2000). Research on Policy Implementation. Assessment and Prospects. Journal of Public Administration Research Adn Theory, 19(2), 263–288.

Pfaffenbichler, P (2011). Modelling with Systems Dynamics as a Method to Bridge the Gap between Politics, Planning and Science? Lessons Learnt from the Development of the Land Use and Transport Model MARS. Transport Reviews, Vol. 31 (2011), 2; S. 267 - 289.

Robinson, F., & Shaw, K. (2007). Urban regeneration and community involvement. Local Economy, 6(1). Retrieved from http://www.tandfonline.com/doi/abs/10.1080/02690949108726081?journalCode=rlce20#.U4uK_vl5PFk

Salafsky, N., Salzer, D., Stattersfield, A.J., Hilton-Taylor,C., Neugarten,R., Butchart, S.H.M, Collen, B., Cox, N., Master, L.L., O'Connor, S., Wilkie. D. (2008) A standard lexicon for biodiversity conservation: unified classifications of threats and actions. Conserv. Biol., Vol. 22 (4), 897–91

Sassen, S. (2005). The Global City : introducing a Concept. Brown Journal of World Affairs, XI(2).

Shiftan, Y., Kaplan, S., & Hakkert, S. (2003). Scenario building as a tool for planning a sustainable transportation system. Transportation Research Part D: Transport and Environment, 8(5), 323-342.

TERM, 2000. Are we moving in the right direction?. Indicators on transport and environment Integration in the EU. European Environment Agency. (accessed June 2013) Retrieved from http://www.eea.europa.eu/publications/ENVISSUENo12 (last accessed 2 June 2014)

Theodoridou, I., Papadopoulos, A.M., Hegger, M., (2012). A feasibility evaluation tool for sustainable cities – A case study for Greece. Energy Policy 44, 207-216

United Nations., (1972). Declaration of the United Nations Conference on the Human Environment. Stockholm Retrieved from http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503 (last accessed 2 June 2014)

United Nations (1992). Agenda 21. United Nations Conference on Environment & Development. Rio de Janeiro. Brazil. 3-4 June 1992.

United Nations. (2012). Rio+20. Retrieved from http://www.uncsd2012.org/

UN-HABITAT (2014)- About us- http://unhabitat.org/about-us/un-habitat-at-a-glance/(last accessed 3 September 2014)

UN-HABITAT- Urban Themes- Climate Change. Retrieved from http://unhabitat.org/urban-themes-2/climate-change/ (last accessed 2 June 2014)

UN-HABITAT (2009). State of the world's cities 2008/2009. London

URBACT (2014) http://urbact.eu/en/about-urbact/urbact-at-a-glance/urbact-in-words/(last accessed 3 September 2014)

URBACT, E. C. (2001). European Governance White Paper.

URBACT, E. C. (2011). Cities of tomorrow: Challenges, visions, ways forward. doi:10.2776/41803

URBACT, E. C. (2013). The URBACT II Local Support Group Toolkit, (June).

Vieira, J., Moura, F., & Manuel Viegas, J. (2007). Transport policy and environmental impacts: The importance of multi-instrumentality in policy integration. Transport Policy, 14(5), 421-432.

Waddell, P. (2002). UrbanSim: Modeling urban development for land use, transportation, and environmental planning. Journal of the American Planning Association, 68(3), 297-314.

Wade, A.A., Theobald, D.M., Laituri, M.J., (2011). A multi-scale assessment of local and contextual threats to existing and potential U.S. protected areas. Landscape Urban Plann. 101, 215-227.

Wegener, M. (2004). Overview of land-use transport models. Handbook of transport geography and spatial systems, 5, 127-146.

Wies, R. (1994). Policy Definition and Classification : Aspects, Criteria, and Examples (pp. 10–12).

Annex I. Key European Urban Planning, Policy and Governance Programmes, Initiatives and Projects

The purpose of this Annex is to provide a list of the reviewed Programmes, Initiatives and Projects that have been considered for setting up a framework for the project goals. The review of these Programmes has been divided in three parts: the review of the Documents and Programmes of the general Directorates involved in the urban issue, the review of the Networks, Initiatives and other Programmes launched in the European context and finally, the review of recent Research Projects funded by the European Commission which concerns are similar to those of INSIGHT.

European Commission relevant Department, Programmes, Projects and Documents

As mentioned above, it is difficult to organise clearly all the Programmes and the relevant documentation related to Urban Planning and Policy in the framework of the European Union, since it's a cut-crossing concern for many of the Directorates of the European Commission. In this section we list the most relevant programmes and Documents associated to or launched by different General Directorates. For each of these Directorates, we have included only the most recent ones, and most of them are actually ongoing programs.

Among the complete list of Directorates, Department or Services, we have selected only the ones that have launched specific programmes with urban concerns, as far as we know. Since many Policies affect and have an indirect impact on urban issues, this list only considers the ones reviewed in the context of INSIGHT.

Table A1. European Commission relevant Department, Programmes, Projects and Documents			
Directorate General / Secretariat / Bureau	**Programme**	**Document / Project**	**Year**
DG for Regional & Urban Policy	European Regional Development Fund (ERDF)	Cities of Tomorrow	2011, 2013
	Cohesion Fund	Connecting Europe Facility	2014-2020
DG for Mobility & Transport	EU Transport Strategies	White Paper: Towards a competitive and resource efficient transport system	2011
DG for Communications Networks, Content and Technology	EU Digital Agenda for Europe	A vision for public Services	2013 - 2020
		Smart Cities	2013 - 2020
		eHealth and Ageing	2013 - 2020
		Mobility	2013 - 2020
		Environment	2013 - 2020
DG for Research & Innovation Programme	FP7	Urban ERA-NET	2007-2013
	HORIZON 2020	See specific Section	2014-2020
DG for Environment	EU Urban Environment	Making our cities attractive and sustainable	2010
		Ensuring quality of life in Europe's cities and towns	2008
	EU Urban Environment	Making our cities attractive and sustainable	2010
		Ensuring quality of life in Europe's cities and towns	2008
DG for Employment, Social Affairs and Inclusion (EMPL)	European employment strategy	The employment guidelines	2013 - Ongoing
	Social Protection & Social Inclusion	Social Europe. Many ways, one objective	2013 - Ongoing
	Youth on the Move	The Youth Guarantee	2013 - Ongoing
Bureau of European Policy Advisers (BEPA)	Citizenship and social innovation	BEPA Action Programme	2013 - Ongoing
	European Strategy and Policy Analysis System (ESPAS)	ORBIS, open repository	2013 - Ongoing
Secretariat General & others	European citizens' initiative	-	2014 - Ongoing
	EUROSTAT	-	1953 – Ongoing

Key European Urban Initiatives

Table A2. European Urban Initiatives

Initiative / Programme / Network	Document / Project	Year
URBACT I and II Sustainable Urban Development	Cities of Tomorrow	2011
	Cities of Tomorrow	2013
	Local Support Groups document	2013
ESPON 2013 European Observation Network for Territorial Development and Cohesion	FOCI - Future Orientation for Cities	2008-2010
EUROCITIES The network of major European cities		1986 - Ongoing
INFOREGIO	REGIONS 2020	2009 - Ongoing
	Cohesion Policy and the Europe 2020 strategy	2013 - Ongoing
	The cohesion policy of tomorrow	2007-2013
CIVITAS. Sustainable Mobility Network		2002 - Ongoing
ICLEI. Local Governments for Sustainability		
European Sustainable Cities Platform		1994-2013
The Aalborg Charter	The Aalborg Process for Local Sustainability	1986 -
CEMR The Council of European Municipalities and Regions		> 1951
AESOP Association of European Schools of Planning	New Technologies & Planning	1987-Ongoing

Table A3. European Urban Initiatives		
Initiative / Programme / Network	**Document / Project**	**Year**
The Lisbon Strategy Programme	The Lisbon Strategy for growth and jobs	2000-2010
European Urban Knowledge Network POLICY LABS	Public Participation in the Development Process	2013
	Solidarity and Diversity: New recipes for Urban Social Policy	2013
	Sustainable Housing Quarters	2013
	Integrated territorial approach	2013
	Policy Lab Housing and Care	2013
	Integrated approach in urban planning and development	2013
	Cooperation between towns, cities and their neighbourhoods	2013
European Urban Knowledge Network (EUKN) DOSSIERS	Food and Cities	2013
	Health and Quality of Life	2013
	Urban Climate Resilience	2013
	Sustainable Urban Mobility	2013
	Integration of ethnic minorities and migrants	2013
	Demographic Change	2013
	MLG - Multilevel Urban Governance	2013
The European Anti-Poverty Network	EAPN Position Paper and Anti-Poverty Magazine	1990 - Ongoing

Key EU Research Projects related to INSIGHT

Table A4. Key EU Research Projects related to INSIGHT

Project name	Description / Summary	Year
Urban ERA-NET Coordination of the funding of urban research in Europe	The URBAN-NET project addressed issues of urban sustainability in Europe. Its overall aim has been to increase the cooperation and coordination between European Member and Associated States through networking and the collaboration on joint research activities.	2006-2010
PRIMUS Policies and research for an integrated management of urban sustainability	The PRIMUS project has been designed to bridge the gap between research on the European level on one hand, and policy-making at (and for) the local level on the other hand.	2009-2012
SUDPLAN Sustainable Urban Development Planner for Climate Change Adaptation	The SUDPLAN project aims at developing an easy-to-use web-based planning, prediction, decision support and training tool, for the use in an urban context, based on a what-if scenario execution environment, which will help to assure population s health, comfort, safety and life quality as well as sustainability of investments in utilities and infrastructures within a changing climate.	2010-2012
PLUS Participation, leadership, and urban sustainability	The objective of this proposal is to accumulate and disseminate practical knowledge about the complementarily of political leadership and citizen involvement in cities that are leaders in promoting sustainable development. By researching alternative approaches to urban leadership and community involvement in local decision-making in nine countries the project will identify aspects of good practice, and disseminate the research findings to cities, national governments, and the EU.	2002-2004
BRIDGE Sustainable urban planning decision support accounting for urban metabolism	Like any living system, urban communities consume material and energy inputs, process them into usable forms, and eliminate the wastes from the process. This can be seen as "metabolism" of industry, commerce, municipal operations, and households. Understanding the pattern of these energy and material flows through a community's economy provides a systemic reading of the present situation for goal and objective setting and development of indicators for sustainability.	2008-2011

Table A5. Key EU Research Projects related to INSIGHT		
Project name	**Description / Summary**	**Year**
URBANAPI Interactive Analysis, Simulation and Visualisation Tools for Urban Agile Policy Implementation	In the context of European initiatives to improve policy as a more transparent and understandable process, the urban API project aims to support activities such as issue identification, policy analysis, consultation, decision and evaluation in urban planning and land management policy.	2011-2014
PLUREL Peri-urban Land Use Relationships - Strategies and Sustainability Assessment Tools for urban-rural linkages	PLUREL will develop new outward looking strategies for sustainable urban, peri-urban and rural land use relationships. New planning and forecasting tools will support the analysis of urbanisation trends in a range of different economic, social and environmental contexts. The aims are to identify optimal strategies to support these interactions on a mutually beneficial basis, minimise their negative impacts, and improve the quality of life of the urban population.	2007-2011
SUPER Sustainable urban planning and economic (re)development	SUPER is directed at the clustering of four projects in the area of sustainable urban planning and economic development. This clustering will enhance the coordination of the outcome of the four projects and will strengthen their individual impact. As a result, the following mission is set for SUPER: the cluster SUPER will add value to the individual research projects and policy development through exchange of information and exchange of views across topics related to urban planning and economic (re) development and if necessary partly re-focusing of the individual projects. It will strive to set an agenda for future R&D in the area of sustainable economic urban development. Following the objectives and work plan.	2003-2005
VISIBILITY TOOLS Towards sustainable urban design; developing automated visibility analysis tools to be used along the urban planning and design development process	In order to develop and maintain sustainable urban design, new methods and tools are needed to evaluate the environmental quality of the urban fabric. This research proposes development of 3- dimensional visual analysis models and automated tools based on GIS technology in order to evaluate urban environments relating to privacy aspects, on one hand, and openness to the view on the other. This research aims to emphasise the point of view of urban designers and architects. Most of the current state-of-the-art analysis methods relate to 2-dimensional reality.	2008-2011
EUNOIA Evolutive User-centric Networks for Intraurban Accessibility	The goal of EUNOIA is to take advantage of the opportunities brought by smart city technologies and the most recent advances in complex systems science to develop new urban models and ICT tools empowering city governments and their citizens to design better mobility policies.	2012-2014

Table A6. Key EU Research Projects related to INSIGHT		
Project name	**Description / Summary**	**Year**
CIVITAS CATALIST CIVITAS transfer action leading to innovation & sustainable transport	The objective of CIVITAS CATALIST is to ensure that the experiences of the CIVITAS Initiative are exploited up to a maximum level. This means deploying actions aiming to: consolidate, validate and deepen the knowledge of the wider impacts of CIVITAS through an integrated assessment of the CIVITAS measures; promote the results of CIVITAS through a continuing knowledge transfer process; increase the visibility of the CIVITAS policies to the external world of target groups, primarily citizens, institutions, scientists and industry, using innovative means for dissemination and easy to grasp language;	2007-2011
VITRUV Vulnerability Identification Tools for Resilience Enhancements of Urban Environments	The vulnerability of urban environments remains an undeveloped theme. With half of the world's population currently living in urban centres, and with this figure set to increase to two-thirds by 2050, the issue of security and citizen safety is of paramount importance and a growing concern. In view of the growing number of threats from global terrorism, natural disasters or crime, urban planning practice must incorporate appropriate security measures for vulnerability identification and resilience enhancements	2011-2014
TRANSIT Transformative Social Innovation Theory project	TRANSIT (TRANsformative Social Innovation Theory) is an ambitious 4 yearlong research project that aims to develop a theory of transformative social innovation useful for academics and policy makers as well as practitioners. This will be achieved by studying how networks of social entrepreneurs and families of social innovation projects contribute to systemic societal change. Examples of case-studies include Living Knowledge science shops, time banks, Makerspaces and FabLabs, Transition Towns, eco-villages and energy cooperatives.	2014-2017
EURO-URHIS 2 European urban health indicators part two: using indicators to inform policy	Urban health is important due urbanisation and requires specific information not captured by national datasets. The EURO-URHIS (www.urhis.eu) project funded by DG SANCO, identified urban health indicators and their availability. EURO-URHIS 2 aims to develop methodology and validated tools useful to policy makers at all levels to make health gains via evidence based policy decisions for urban populations.	2009-2013

Table A7. Key EU Research Projects related to INSIGHT		
Project name	**Description / Summary**	**Year**
SHRINK SMART Governance of shrinkage within a European context	It is the aim of SHRINK SMART to study the role of policies and governance systems in different types of shrinking urban regions. It is based on comparative case studies from seven urban regions throughout Europe with a focus on disadvantaged urban regions in Eastern and Southern Europe that will provide a basis for analysing different trajectories of shrinkage, understanding main challenges for urban planning and elaborating alternatives for urban governance.	2009-2012
TURAS Transitioning towards Urban Resilience and Sustainability	The "TURaS" project aims to bring together urban communities, researchers, local authorities and SMEs to research, develop, demonstrate and disseminate transition strategies and scenarios to enable European cities and their rural interfaces to build vitally-needed resilience in the face of significant sustainability challenges.	
URBAN NEXUS Furthering Strategic Urban Research	European cities face many significant challenges, including the current economic crisis, urban sprawl, and the longer-term implications of climate change and resource scarcity. To face up to and overcome these challenges, it has become urgent for all concerned stakeholders to collaborate. URBAN-NEXUS, a coordination action, will develop and use structured dialogues to encourage communication, exchange knowledge and experiences, and build partnerships to promote joint research.	2011-2014
URBAN INEQUALITY Planning in Equality? Urban Strategy and Inequality in Global South Cities	The rapid urbanisation in the Global South is one of the greatest challenges of the 21st century, taking place through highly unequal and largely informal development. In this context, various urban strategies are promoted to harness urbanisation to deliver equitable and inclusive growth. However, there is insufficient knowledge to date on the adeptness of such strategies and other strategic plans and visions to address the challenges of urban inequality in a way that corresponds to local conditions and lived experiences in Global South cities.	2012-2015

Table A8. Key EU Research Projects related to INSIGHT		
Project name	**Description / Summary**	**Year**
CHANCE2SUSTAIN Urban Chances: City growth and the sustainability challenge; Comparing fast growing cities in growing economies	In this programme we want to examine how governments and citizens in cities with differing patterns of urban economic growth make use of participatory(or integrated) spatial knowledge management to direct urban governance towards more sustainable development (SD). Participatory spatial knowledge management is the main concept we use to study this issue, as it reflects a strategic resource, which all stakeholders can contribute to urban governance processes towards SD	2010-2014
SUSTAINCITY Micro-simulation for the prospective of sustainable cities in Europe	The goal of this project is to address the modelling and computational issues of integrating modern mobility simulations with the latest micro-simulation land use models. The project intends to advance the state-of-the-art in the field of the micro-simulation of prospective integrated models of Land-Use and Transport (LUTI).	2010-2013
FUPOL Future Policy Modeling	The FUPOL project proposes a comprehensive new governance model to support the policy design and implementation lifecycle. The innovations are driven by the demand of citizens and political decision makers to support the policy domains in urban regions with appropriate ICT technologies. It will specifically target domains such as sustainably development, land use, urban planning, urban segregation and migration. The scientific approach is based on complexity science. It aims at reducing the complexity through a comprehensive policy spiral design lifecycle approach deemed appropriate for complex societal problems.	2011-2015
CROSSOVER Policy making 2.0	The Crossover Research Roadmap provides a comprehensive overview of Policy-Making 2.0 practice and research, illustrated by real life case studies.	2013 -