



Methodological guidelines for the construction of Strategic Planning frameworks based on urban metabolism approach

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Abstract	<p>These methodological guidelines aim to support and guide pilot cities throughout the whole creation process of the strategic planning framework. The methodological guidelines will follow 4 main steps:</p> <ul style="list-style-type: none"> - study and analyze the urban policy in place; - define priorities and main objectives; - identify scenarios and actions; - Develop the strategic plan. <p>The methodological guidelines will be used by each pilot city in order to create its specific strategic planning framework.</p>
Keywords	Strategic Planning Framework, urban strategy, waste policies.



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1. Contents

2. Introduction	2
2.1. How to use these guidelines.....	2
2.2. Guidelines structure	2
3. Definitions and Concepts	3
3.1. Definitions	3
3.2. SPF and LSAP	7
4. Strategic Planning Framework - theoretical process	9
4.1. Introduction.....	9
4.2. Technical Analysis	10
4.2.1. Urban policy analysis.....	10
4.2.2. Urban Material Flow Accounting - UMan Model	12
4.2.3. Urban waste management analysis - DPSIR model.....	13
4.2.4. Technical synthesis.....	16
4.3. Active Involvement and SPF settings.....	16
4.3.1. Internal discussion in Pilot Cities.....	16
4.3.2. Stakeholders Agorà	18
4.3.3. SWOT analysis.....	20
4.3.4. Scenarios setting.....	21
5. Strategic Planning Framework -Document Redaction.....	26
5.1. City's profile and overview	26
5.2. Urban analysis - Technical synthesis	26
5.3. City's Priorities and Objectives.....	26
5.4. Urban Agoras: from priorities to actions	30
5.5. SPF and scenarios definition	31
6. References	32
Appendix A - Conceptual Framework Posters.....	33
Appendix B - Pilot cities resume boards.....	33
Appendix C - Pilot cities - Plan, policies and programmes analysis	33
Appendix D - Strategic Planning Framework Sheet	33



2. Introduction

The “Methodological guidelines for the construction of the Strategic Planning frameworks based on urban metabolism approach” is the first deliverable of WP4, Task 4.1. They were designed to support pilot cities in developing and writing their Strategic Planning Framework.

2.1. How to use these guidelines

The present guidelines are addressed to Urban_Wins Pilot Cities, to explain step by step how to construct the Strategic Planning Framework (SPF) both in theory and in practice. They aim to respond to the general goal of structuring the Strategic Urban_Wins Planning framework within a participatory process (Urban and Online Agoras) and to successively support the Pilot Cities in defining their Local Strategic Action Plan (LSAP) for waste prevention and management. They represent a methodological manual to design, under a common framework, the steps and the activities of SPF, tailored to support each Pilot City to achieve the project goals and objectives for their case studies.

2.2. Guidelines structure

The guidelines are organized in two main parts: the first one concerning the theoretical aspects considered into the SPF, and the second one regarding the SPF development. Within the first part, we present some basic definitions and main concepts useful for the whole project development. In the second part, we present in detail the SPF process and describe how to develop them each step in order to support discussion and decisions of “Pilot Cities” and “Agoras”.

For each step of the SPF, Pilot Cities can find: some theoretical basis, how to put in practice the process steps and their activities, and a set of tools/examples in order to better support their implementation.



3. Definitions and Concepts

In this section, first, important definitions useful to understand the Urban_Wins approach, its process and its implementation, are explained. Second, main characteristics of Strategic Planning Framework and the Local Strategic Action Plan, their differences and their complementarity, are presented.

3.1. Definitions

The language, used into the UrbanWINS project and in this document, is technical. Thus, in order to avoid misunderstanding and confusion, it is essential to share this “technical language”. Some important definitions are given below:

STRATEGIC PLAN (SP):

“Strategic planning helps decision makers to select appropriate goals that steer towards that collective vision for the future, and is created through participation and partnership with citizens and stakeholders. Strategic planning differs from urban planning, and it complements other planning tools and usually results in a planning product such as a City Development Strategy”, “strategies are flexible tools for long-term orientation and enable revision and adaptation to changing circumstances”, “strategic planning brings additional dimensions to technical planning and helps prioritise to efficiently allocate resources”, “City Development Strategies build on understanding and developing all aspects of the city, integrating technical, environmental, political, social and economic interests in the same territory” (UCLG 2010. pp 10-11).

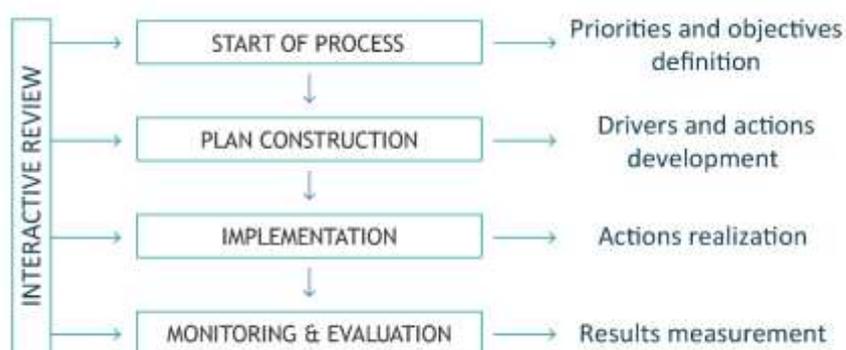


Fig. 1 Strategic Planning Phases

URBAN METABOLISM:

“Urban metabolism might be defined as the sum total of the technical and socioeconomic processes that occur in cities, resulting in growth, production of energy, and elimination of waste”, “the metabolism of cities will be analysed in terms of four fundamental flows or cycles—those of water, materials, energy, and nutrients” (Kennedy et al. 2007, pp 44-45).

In practical terms, the urban metabolism is an holistic framework that quantifies resource flows in a urban system and assigns them to different stakeholders in the society, from producers (e.g, agriculture, forestry, fishery, mining and industrial sectors), to consumers



(e.g., services, households, public administration), and to decomposers (e.g, waste sector). This allows the identification of each sector’s needs, as well as their outputs. Using this information, it will be possible to identify solutions to prevent and manage waste.

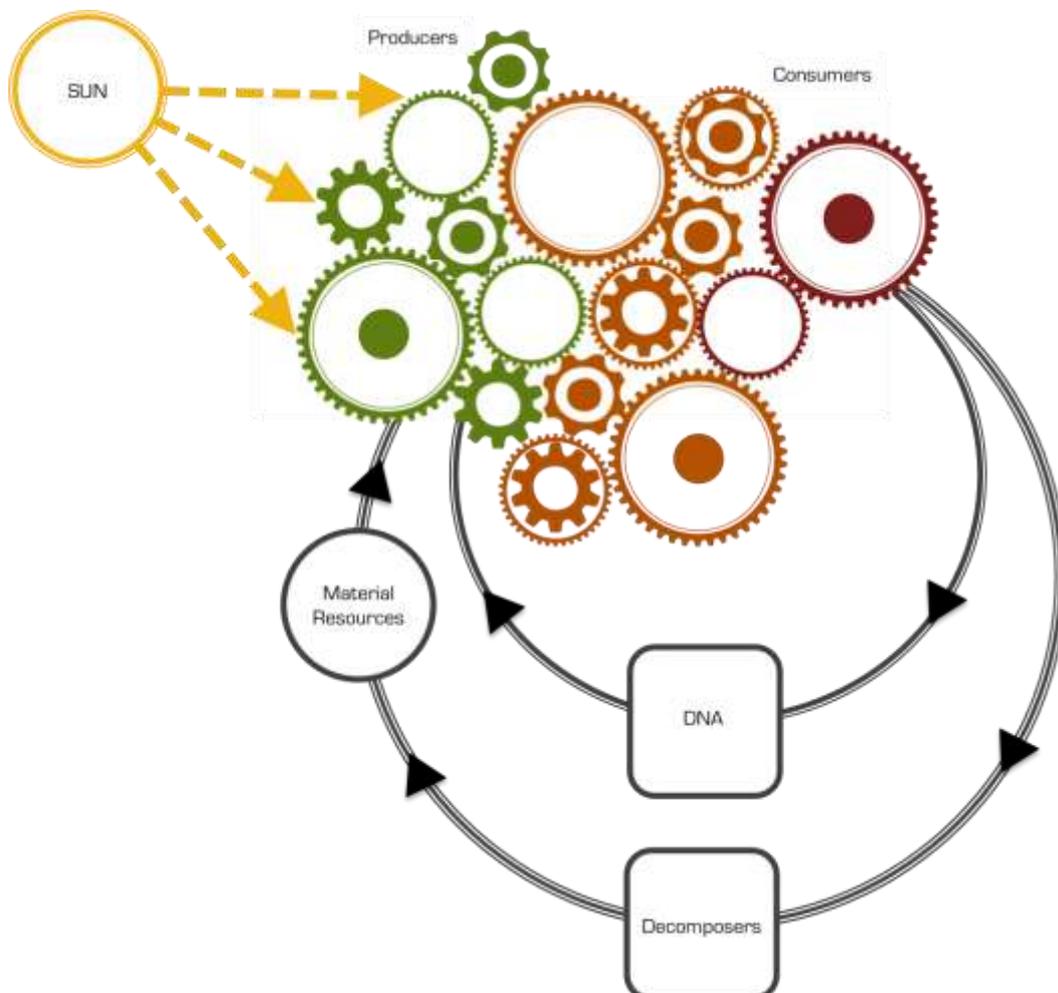


Fig. 2 Urban Metabolism theoretical framework

WASTE PREVENTION AND MANAGEMENT

“Waste management strategies must aim primarily to prevent the generation of waste and to reduce its harmfulness. Where this is not possible, waste materials should be reused, recycled or recovered, or used as a source of energy. As a final resort, waste should be disposed of safely (e.g. by incineration or in landfill sites)” (REC 2008, p 397).

The EU waste policy provides a framework to improve waste management, stimulates innovation in separate waste collection and recycling, limits the use of landfilling, and creates incentives to change consumer behavior. It also aims to reduce the actual quantity of waste generated and the amount of harmful substances that it contains.

To protect the environment and human health, the EU Waste Framework Directive has two key objectives: to prevent and reduce the negative impacts caused by the generation and management of waste and to improve resource efficiency. The Directive defines a



hierarchy to be applied by EU Member States in waste management (European Commission 2017).

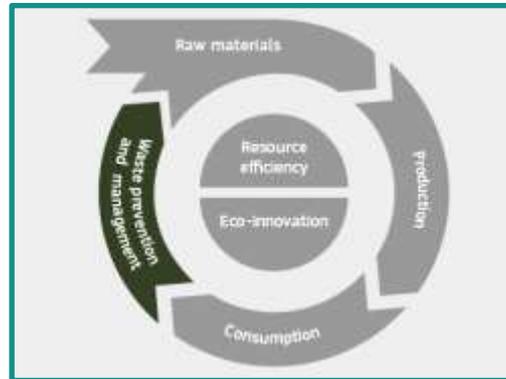


Fig. 3 Waste prevention and management (from European Commission 2017)



Fig. 4 The waste hierarchy (from European Commission 2017)

CIRCULAR ECONOMY:

“The circular economy is a new way of thinking about our growth model in the face of global competition for resources and the environmental impact of their use.”

“Circular economy systems keep the added value in products for as long as possible and eliminates -to the maximum extent- waste. Resources are kept within the economy when a product has reached the end of its life, so that they can be productively used again and again and hence create further value. Transition to a more circular economy requires changes throughout value chains, from product design to new businesses and market models, from new ways of turning waste into a resource to new modes of consumption behaviour. This implies full systemic change, and innovation not only in technologies, but also in organisation, society, finance methods and policies. Even in a highly circular economy there will remain some element of linearity as virgin resources are required and residual waste is disposed of” (EU, 2016).



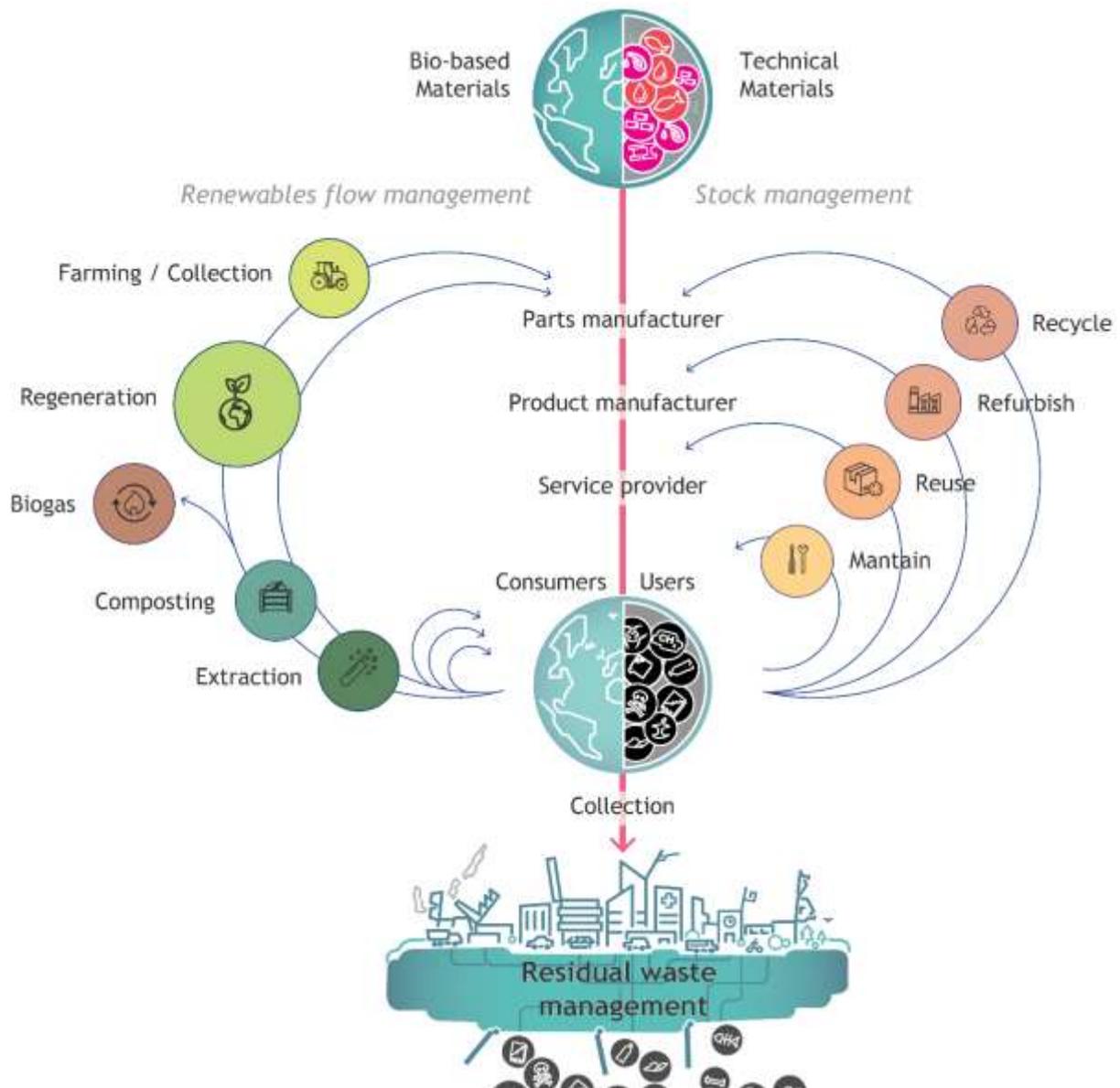


Fig. 5 Circular Economy

Elaboration based on Ellen MacArthur Foundation

Graphic credits to: ICLEI - Local Governments for Sustainability, the Noun Project



3.2. SPF and LSAP

STRATEGIC PLANNING FRAMEWORK (SPF)

The Strategic Planning Framework (SPF) is an exhaustive description of the city's strategy. It organizes and defines the role of every actor involved, their responsibilities and tasks. It provides clear recommendations on the way actors are connected and how they should cooperate in order to achieve the best and shared result. The main function of a SPF is to give a clear direction of a process or work from the beginning to the end, it clearly explains the path to take to get to the final objective, it explains how things should work and it leads users through a step by step experience. A SPF is designed to provide structure to the process in all its components and it determines intermediate steps and a sequence of activities that are essential to eventually implement the strategy.

SPF's main steps can be summarized as follows:

- Identification of local actors to involve in the process
- Identification of a priority shared between the city administration and local key actors
- Identification of priority areas of intervention
- Identification of scenarios which are strategic, ambitious and feasible
- Identification and description of intermediate steps and impacts

In short, the Strategic Planning Framework sets a solid structure for organizing and coordinating the entire process in which the contribution of each individual is clear.

The SPF helps to keep the focus on key priorities, individual contributions and identify opportunities for improvement. It makes the process more readable and understandable in all parts and the general strategy can therefore be operationalized.

A SPF is not only a finished output, but it is also the input for the following design process. In our case, the Strategic Planning Framework is preparatory to the development of the Local Strategic Action Plans.

The Strategic Planning Framework is mainly addressed to the internal use of local administrations and stakeholders participating to the Agoras. It is meant to be a route map for the subjects involved in the definition of the city priorities. Users of the SPF will not necessarily be involved in the implementation of the Local Strategic Action Plan.

LOCAL STRATEGIC ACTION PLAN (LSAP)

The Local Strategic Action Plan (LSAP) is the practical operationalization of the city strategy, which results from the Strategic Planning Framework process. Each city will have its own Local Strategic Action Plan tailored on city's characteristics and SPF outputs. It consists of a first part with the current situation of the city (A), followed by a synthesis of the city priorities (B). The Local Strategic Action Plan explains how the city will move from (A) to (B) and will support the city strategy providing a way to reach (B), i.e. through the implementation of identified key actions. The LSAP details how city priorities are converted into concrete actions. It describes in detail how actions will be implemented to accomplish the objectives developed earlier in the process.



The Local Strategic Action Plan specifies:

- Actions needed to address each priority,
- How actions fulfil strategic objectives,
- Timeline for the actions implementation,
- Who will be responsible for actions implementation,
- Which actions shall have precedence over others,
- Expected impacts of the actions,
- Practical steps and the necessary resources,
- A monitoring phase, where actions are assessed through indicators.

The Local Strategic Action Plan is designed to be used by local administrations and by all actors that will be involved in the implementation and monitoring of the actions. Users may be different depending on action's typologies, implementation methods, involvement of different required actors. Users, in this phase, might also be subjects that have never been involved during the definition of the SPF.

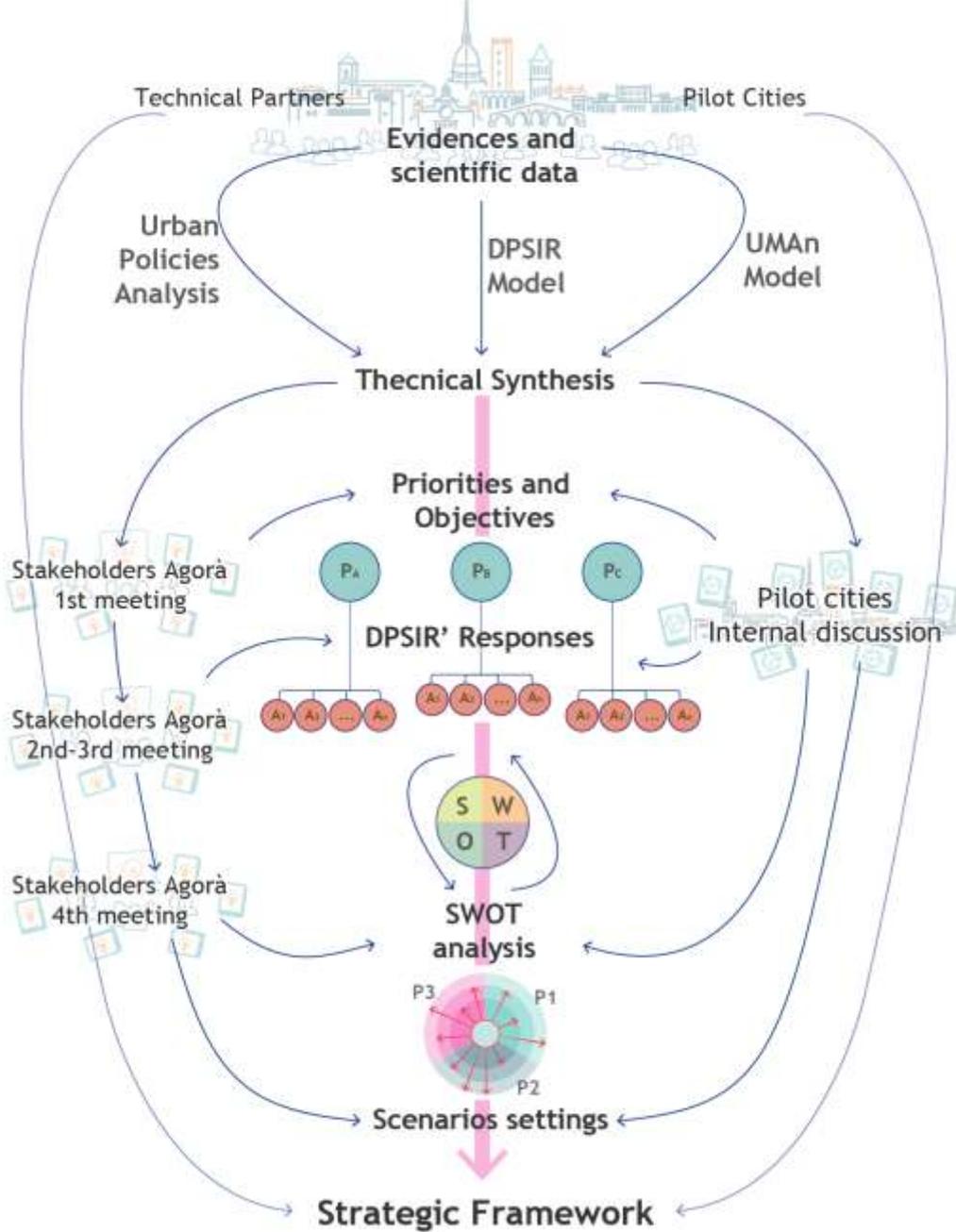


4. Strategic Planning Framework - theoretical process

4.1. Introduction

Fig. 6 Strategic Framework Process

Graphic credits to: ICLEI - Local Governments for Sustainability, the Noun Project



The workflow shown above is a diagram of the strategic framework thought for the Urban_Wins project. The framework aims at providing innovative urban strategic planning based on the idea of urban metabolism, and promoting circular economy. It includes all the activity clusters that the Urban_Wins partners and target groups will do all along the strategic planning process, starting from the urban policy analysis to the redaction of the Strategic Planning Framework.

Each city should use the flow chart to check and find in which step of the process they are and what following steps are, being aware that the main goals, in both practical and theoretical terms, are:

- to build a quantitative and qualitative knowledge of the urban system (Urban Policies, DPSIR and UMAN model of analysis);
- to involve the whole local administration and stakeholders in defining priorities (Pilot Cities Internal Meetings, Urban Agoras);
- to involve stakeholders in providing proposals to get from priority to actions definition (Urban Agoras);
- to match inputs from local authorities and stakeholders in order to set a range of potential alternative scenarios.

In other words, pursuing these main goals deals with:

- a pro-active and fruitful discussion within the municipality, as to share and define the municipal priorities; a participatory process, taking place within the physical agoras, which are located outside the local authority, but where the municipality is an essential stakeholder. In the physical agoras all the involved urban stakeholders can express their ideas, proposals, and initiatives, and discuss them with the others.
- a set of sectoral or multi-sectoral scenarios, that could represent the possible pictures of what the city could be in the future, on the basis of different development processes.

Thus, the general objective of these processes is to reach a level of urban planning in the city, which includes not only mainstream environmental issues and/or an efficient waste management, but also the urban metabolism approach: the idea that all the activities, practices, actions and policies within the city should be assessed also considering their direct and indirect resource consumption, their direct and indirect waste production, their capacity of recycling and the possibility of reusing waste as a resource to create closed material loops.

4.2. Technical Analysis

4.2.1. Urban policy analysis

The urban policy analysis (Appendix B and C) is the first analysis developed in order to support discussions and decision-making in Pilot Cities and in Agoras. This analysis has been developed for each pilot city in two main steps:



- data collection;
- data elaboration and synthesis.

The data collection (started in January 2017 and ended in March 2017) foresees the collection of all information (contained in plans, documents, reports, and so on) that are necessary to build the state of the art of the urban and metropolitan strategic planning in each pilot city. This activity is preparatory to the data elaboration (April 2017), i.e. an in-depth plan and programmes analysis focusing on territory and policies, for each pilot city. It should deepen the understanding of each city and the relation with their own territory.

During the data collection, sectoral strategies and initiatives are gathered and analysed in order to identify elements and actions that could have an effect on resource consumption and waste production. The legislative frameworks considered are:

- National: directives determining policies to implement in regions and municipalities;
- River Basin - Interregional: river basin sectorial plans;
- Regional: Regional legal provisions, included the ones from autonomous communities;
- Provincial - Metropolitan: provisions on resource consumption, metropolitan plans;
- Municipal: local activities, programs, action plans, agricultural parks, energy savings initiatives.

The data collection has been organized through filling a table (Appendix C) where each one of the plans and programs are summarized.

In particular, for each plan and program, the pieces of information that are going to be resumed are the following:

- Type of Plan/Program/Tool;
- Legislative Framework (multi - scalar approach);
- Type of flow/resource (assessment of resources' availability);
- General Objectives / Specific Objectives/ Specific Actions (multi - level visioning).

Starting from the results of this synthesis, each pilot city will have to consider for this planning process:

- Stakeholders involvement (implementation and participation);
- Relation between existing plans and programs with Waste Prevention and Management Priorities;
- Expected Results and Impacts;
- Scenario and roadmap settings;
- Monitoring phases.



The table (Appendix C) provides an overall vision of cities' environmental policies, how plans and programs are related to each other and at which level of sustainability pilot cities are involved.

During the analysis, for each city, relevant information were synthesized in an easy and communicative way, in order to highlight issues, synergies and problems. The analysis will be used both for the technical synthesis and for the Agoras.

4.2.2. Urban Material Flow Accounting - UMAN Model

The results of this model can be presented in two phases. The first one is a general analysis similar for all the cities and the second one is a specific in-depth analysis upon Agoras' proposals. This means, that upon Pilot Cities' interests in studying specific activities, types of products or resources, the results of the model can be adapted to provide relevant information.

From the general analysis, each city obtains different kind of information:

- A general overview about consumption patterns in the city, in order to highlight the most important category of consumed products and to activate a general discussion on resource consumption;
 - o Accounting results by groups of products
 - o Accounting results by disaggregated flows per specific product/s
 - o Accounting results by economic activity/sector origin (NACE - Nomenclature Statistique des Activités Économiques)
- A specific focus on “products and materials consumed by households” (extrapolated from the retail trade) in order to activate a general discussion on citizens' “lifestyles” and trends of consumption.
- Upon Agoras's request, “household related consumed products” can be accounted on the principal categories of recycling (plastic, paper, glass, metals, compostable etc.) in order to support cities in the re-organization of basic waste collection. These information on Municipal wastes (household waste and similar commercial, industrial and institutional wastes) will relate to the accounted products of the economic sector “Wholesale and retail trade” of the UMAN model.
- Upon Agoras's request, a specific focus on “specific economic sectors” accounted products, materials and potential waste quantities. This kind of result can support tailored policies on waste prevention and management for specific kind of waste and/or specific industrial/economic activity. This focus will be developed depending on the economic characteristics of each city and on the direction the actors want to shape their local strategic action plan.



From this in-depth analysis, each city can obtain further detailed studies on specific flows of materials in order to support the discussions in the Agoras regarding planned actions and final decisions.

4.2.3. Urban waste management analysis - DPSIR model

DPSIR is a framework describing interactions between society and the environment. This framework has been adopted by the European Environment Agency (Bradley and Yee, 2015) and is an extension of the pressure-state-response model developed by OECD.

The components of this model are:

- Driving forces
- Pressures
- States
- Impacts
- Responses

Within Urban_Wins activities, a model framework for waste management in urban areas has been developed. Hence, urban activities have been identified as DRIVING FORCES and corresponding outputs represent the PRESSURES.

We thus have to look first at what are the activities that characterise our cities, i.e. what activities are determining the material flows (input/outputs) happening in the cities, and then at how/if these activities are shaped and managed from a material/waste point of view.

Apart from this, and according to the intensity and the composition of those PRESSURES, changes occur in the STATE of environment with consequential IMPACTS on ecosystems and society. At the end of this interrelated process, waste prevention and management policies and strategies represent the RESPONSES. They aim to:

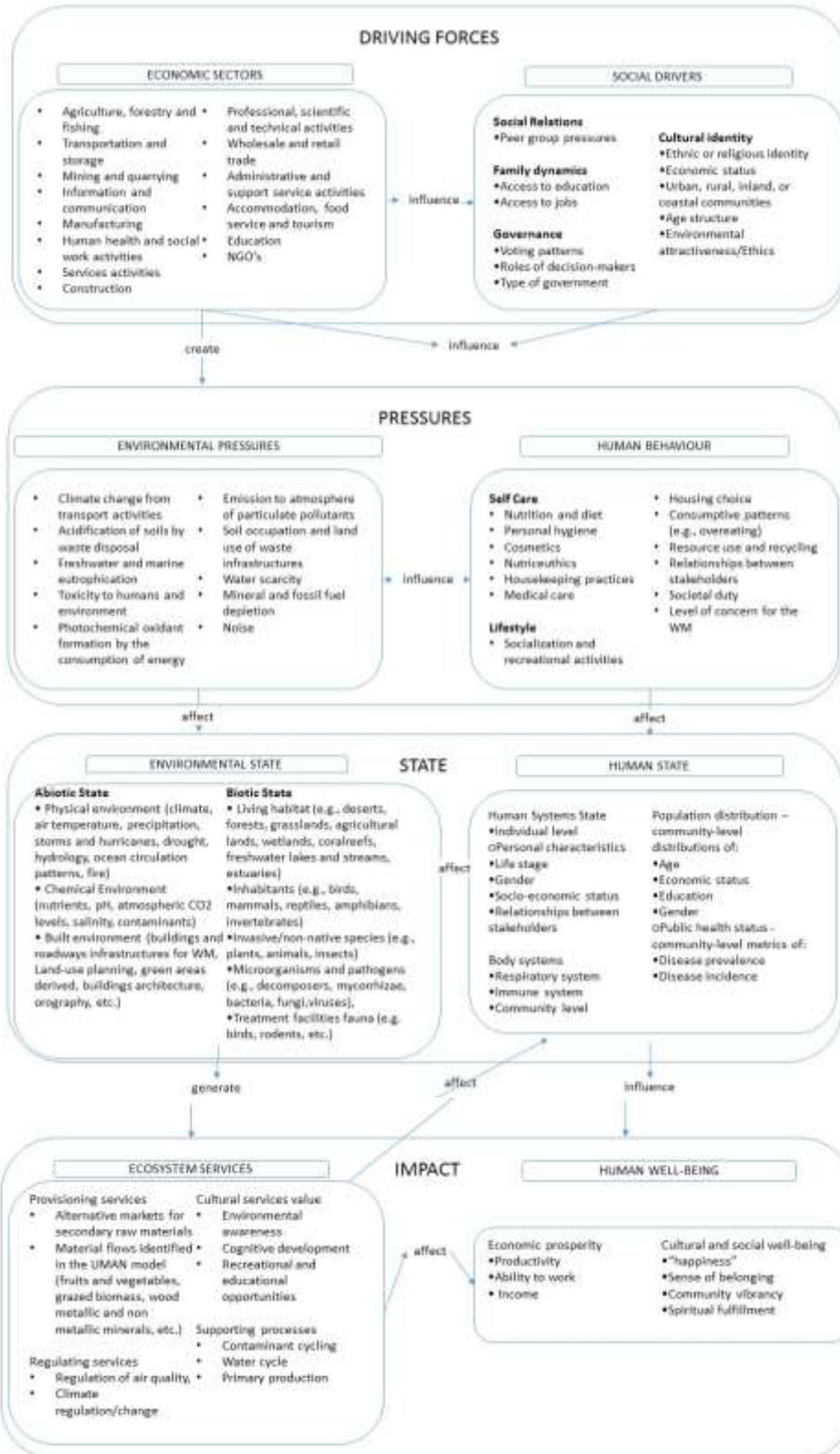
- Change determinants (prevention)
- Reduce pressures (prevention/management)
- Mitigate changes in the state of the environment and impacts or adapt to them (management).

With this whole approach, qualitative information related to different elements in the DPSIR chain have been collected and are summarized in the figure 6. Thanks to the use of the DPSIR modelling framework, the effectiveness and sustainability of responses put in place can be better assessed. The framework defined for Urban_Wins contributes to the urban analysis with an environmental approach including economic and social factors.

As will be later explained (see 4.3.1), the DPSIR framework supports Internal discussion in Pilot cities in linking each Priority of intervention to possible RESPONSES in accordance to DRIVER - PRESSURE - STATE - IMPACT analysis.



Fig. 7 DPSIR model



RESPONSES

DRIVING FORCES-BASED RESPONSES

WM policies, legislation, restrictions, and guidelines that allows to minimize waste generation, and or a proper treatment, including:

- Best waste management practices
- Environmental education and outreach – including training, demonstrations, or brochures
- Manufacturing and trade policies to control the transport of waste
- Equity policies seek to improve fairness and access to waste services among populations through:
 - Elimination of barriers to access

- Programs and actions to enhance diversity

Decision support tools

- Development or application of models, websites, and other tools related to waste planning and management
- Statistical analysis of waste generation
- Visualization and geospatial analysis of waste generation points, treatment infrastructures, etc
- Cost-benefit analysis for waste management
- Trade-off evaluations for waste and sub-products (industrial symbiosis and circular economy approach)

PRESSURE-BASED RESPONSES

Land-use management which seeks to plan and control development of needed infrastructures for waste management:

- Land-use zoning
- Building permits
- Designation of restricted areas

Discharge limitations which place limits on and monitor pollution derived for waste disposal, treatment and valorization:

- Non-point source discharge regulations
- Point or mobile source discharge regulations

Technological innovations, which involve research and development to improve the use of technology applied to the life cycle of waste planning, treatment and management

- Improved technology
- Alternate energy sources – such as solar or wind power

Resource use management in regulations, policies, and actions designed to control the use of natural resources

- Setting new uses for waste
- Designating protected areas

Responses may be designed to modify individual human behaviors that contribute to health risks:

○ **Human behavior modification** is an attempt by an individual to modify their own behavior, which may be negatively contributing to increase impact derived from uncontrolled waste generation or inadequate disposal

○ **Outreach and Education** attempts to get an individual or group of individuals to modify their behavior by providing materials and information through presentations, brochures, and other promotional tools that encourage a responsible attitudes to waste

STATE-BASED RESPONSES

○ Environmental responses which seek to control the physical, chemical, and biological environment affected by the waste management practices including:

- Water quality monitoring
- Air quality monitoring

- Setting water or air quality criteria
- Biological monitoring
- Scientific research

- Setting biological criteria

Restoration, remediation, and revitalization activities –

- Community planning seeks to modify the state of the community by promoting and implementing actions such as
- Expanded economic opportunities derived by waste activities

IMPACT-BASED RESPONSES

○ Monitoring involves tracking the success of implemented decisions related to waste management on one or more indicators measuring environmental or human well-being impacts derived through:

- Surveys and opinion polls
- Field observations

○ Ecosystem Services Valuation is the process of estimating the monetary or non-monetary merit of potential or implemented decisions, including:

- Market valuation
- Non-market valuation

○ Mitigation is an effort to alleviate burdens on persons or the environment caused by some action by compensating for the

loss of environmental benefits, including:

- Compensatory mitigation
- Mitigation banking
- Pay by generation schemes

○ **Compensation for losses** is an effort to alleviate burdens on individuals caused by some action or offense by compensating for economic, social, or emotional losses with money or other things of economic value, and includes:

- Financial compensation
- Statutory environmental damage insurance

○ **Human Well-being Index** is an effort to quantify the condition of humans and society, defined in terms of the basic material and other natural resource needs for a good life, freedom and choice, health, wealth, social relations, and personal security⁴¹



4.2.4. Technical synthesis

As soon as the urban policy analysis is concluded for each pilot city, the UMAN model has produced the first set of results (for what concerns the material flow accounting) and the DPSIR model is implemented, a technical document, summarizing all the outputs and outcomes for the above mentioned analysis is provided. It represents the document supporting the provision of orientations for the discussion both within the involved public administrations and within the Urban Agoras.

In the document, there is a first part that is equivalent for all the cities, containing the common methodology used to build this synthesis and the common evidences from all the cities. After that, the second part is based on specific evidences of each city.

This kind of support is useful not only to provide orientations to public debates (especially in the Agoras starting phase), but also to lead the decision-making process towards more accountable policies, as already based on scientific analyses, and quantitative data. Thus, if suggestions provided at this stage is taken in consideration, all priorities that are defined, will be able to be coherently followed by their integration in the strategic plan.

At the current stage, the DPSIR and the UMAN model constitute a theoretic reference of the technical synthesis for Urban_Wins Pilot Cities. The DPSIR and the UMAN model results are used at a later stage to orientate, validate and support outcomes of Urban Agoras discussions. From a methodological point of view, if data are available earlier in the process, they can be integrated since the starting phase in the participatory process.

4.3. Active Involvement and SPF settings

4.3.1. Internal discussion in Pilot Cities

Each city is already aware of its own challenges and the political goals of each local administration. However, a reflection on urban problems and practises can help decision-makers to see the same problem from different perspectives and find different solutions. Therefore, it is crucial to introduce the phase of internal discussion within the local administration offices, which has to be carried on among different sectors, departments, and levels: councillors, officers, technicians, internal, or external experts of any kind, from different municipal departments (for example, Environment, Energy, Building, Urban planning, Mobility, Smart City initiatives, European Projects, but also Social affairs, and so on).

Each Urban_Wins project officer, internal to each municipal administration, have to begin an internal round of meetings with all his colleagues who could be actively involved into Urban_Wins. This in order to promote the reflection and the debate on the Urban_Wins issues, first inside the municipal administration, where the largest decision making and



taking capacity is concentrated, and then outside the administration, involving all the urban stakeholders in the Urban Agoras.

The internal discussion is not only a preparatory phase for the participation of the municipal representatives in the urban agoras, it is also the moment for each municipality to set its own internal priorities with respect to a vision of urban development based on the urban metabolism and the circular economy. In other words:

what does each municipality want to do in order to base its own urban policies on the urban metabolism, e.g. on the optimization of resources’ consumptions, on the promotion of the circular economy and on the recycle and reuse of resources?

To conclude, during two months, each Urban_Wins municipal project officer has to organize a series of internal meetings (at least 3) where all the interested and potentially involved colleagues have to be invited. The internal activator can support the project officer in this activity. After a first internal meeting, each municipality shall write its own document: “MUNICIPAL PRIORITIES”, which can be made also as “instant report” and based on the collaborative list of priorities.

As an expected result from this internal meeting, the following excel sheet is filled by Municipalities. Here they can explain and describe priorities and objectives emerged from their discussions.

		Local Strategic Framework			
		Priority 1			
Priority name					
Priority description					
Main reasons and needs related to/causing this priority					
		Objective 1	Objective 2	Objective 3	Objective ...
		<i>For each objective, explain in the following fields:</i>			
Pilot City	Objectives name				
	Objectives description				
	Actors involved (Financial, Political, Expert ...)				
	Implementation responsibilities (Financial, Political...)				
	Expected Resources to involve				
	Expected Impacts and Timeframes (short - long term)				

A second internal meeting in cities is held, in which each priority is expected to take into account the UMAN model data (if available)¹ and to cross each component of the DPSIR model: such process should reorder the different needs, opinions and contributes emerged from the first Urban Agora.

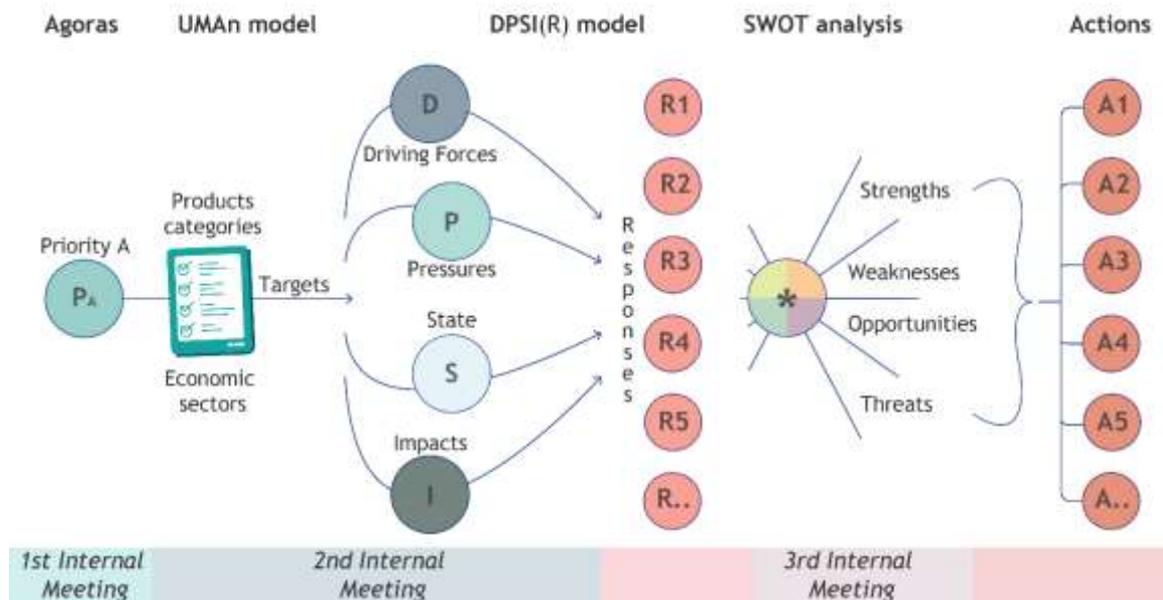
A third internal meeting could be held before the fourth Urban Agora in order to carry out a preliminary SWOT analysis as better explained in section 4.3.3.

¹For each priority, Chalmers, in collaboration with IUAV, can present to Pilot Cities relevant Products and/or Material categories and Economic Sectors. These possible strategic targets are included in the DPSIR model of analysis that is carried out for each priority with the support of National Technical Partners and CTM.



Meetings	Focus	Expected results
1 st internal meeting	Priorities and objectives' setting.	At least 3 priorities and related objectives
2 nd internal meeting	DPSIR analysis for each priority	A set of responses, tools, activities and tasks that could support the achievement of the established priorities.
3 rd internal meeting (optional)	SWOT analysis	List of proposed actions

Figure 8 Active involvement - Internal meeting



4.3.2. Stakeholders Agora

Under the supervision of NOVA.ID.FTC, in close collaboration with IUAV and ECOSISTEMI and in accordance to Urban_Wins urban stakeholders' participation procedure (see documents on physical and virtual Urban_Wins Agoras for more details), a physical stakeholders' agora is established in each pilot city and outside the municipal administration, on the basis of the list of actors invited by each municipality.

The physical Urban Agoras are face-to-face sessions held with the stakeholders to debate, analyse and produce joint solutions/documents addressing the issues identified by Urban_Wins in a friendly constructive environment.

The physical Urban Agoras will formally focus in assessing the specific local waste management measures, building a common problem definition and constructing a common vision. This will constitute the launching for collectively explore innovative practices and



solutions. These Agoras will gather main local stakeholders on waste prevention and management in periodical meetings to co-design the Strategic Planning Frameworks (WP4) and to adapt them to each pilot city and develop joint methodologies for its implementation (WP5). Meetings will be organized and managed according to specific techniques for stakeholder involvement and participation simultaneously promoting mutual learning among participants.

The physical stakeholders' Agora, in the strategic planning process phase foresees 4 main meetings per city, that are scheduled as in the table below:

Meetings	Focus	Expected results
1 st meeting (June 2017)	Priorities and objectives' setting.	At least 3 priorities and related objectives
2 nd meeting (September 2017) 3 rd meeting (October 2017)	From DPSIR model to responses (Regulatory, bottom up and voluntary tools, awareness and education campaigns).	A set of actions, tools, activities and tasks that could support the achievement of the established priorities.
4 th meeting (November 2017)	SWOT analysis	List of proposed actions.

At the first meeting of the Agoras, all urban stakeholders will discuss their views for the city's strategic framework in order to get to a list of shared priorities. The municipal representative can bring as a starting point for the discussion the "Municipal priorities" emerged from the internal meeting.

The second and the third meetings of the Agoras will serve the purpose of discussing "Responses". Responses are related (for each priority) to Driving forces, Pressures, States and Impacts according to the application, in the second internal meeting, of the adopted DPSIR model.

In the 4th Urban Agoras, a list of actions will be proposed on the basis of the SWOT analysis as better explained in the section 4.3.3.



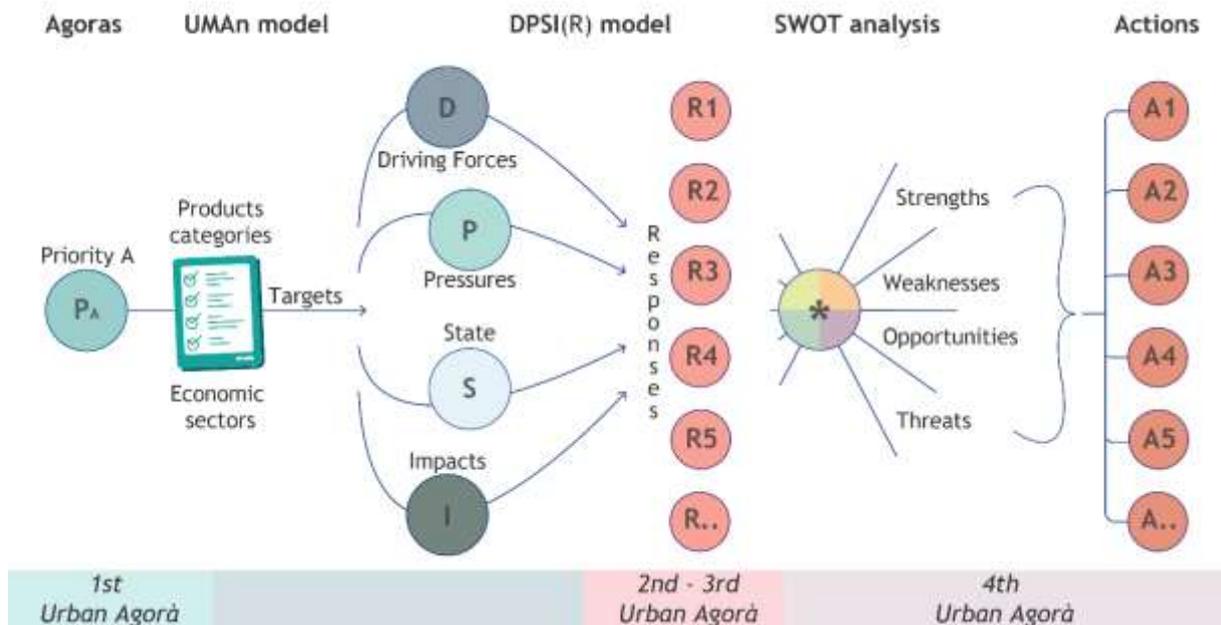


Figure 9 Active Involvement - Urban Agoras

4.3.3. SWOT analysis

The list of Responses resulting from the DPSIR analysis carried out in the 2nd and 3rd Agora is presented, discussed and integrated in the last Agora (4th meeting, November 2017). This step gives to the last stakeholders meeting the chance to discuss and approve responses according to a SWOT analysis. The SWOT analysis will be developed for the set of identified responses in each priority. This will help to highlight strengths, weakness, opportunities and threats for each priority and facilitate the identification of the list of proposed actions.

In the following image, you see the sample of the SWOT analysis frame.





Fig.10 Swot analysis frame (adapted from Wikipedia)

In conclusion, this kind of framework represents the analytical synthesis of a long participatory process between local administration and Agoras. The resulting list of priorities and related actions will be useful to understand the drivers of alternative scenarios in each city.

4.3.4. Scenarios setting

After the establishment of city priorities, the most important issues and related actions are clear and shared for all the involved actors. For each priority and objective (and for each sector), the most influent variable factors must be identified. These variable factors are called ‘drivers’, and represent the elements whose measure makes the different among different development phase. For each driver, it is possible to define both quantitative and qualitative indicators (from those defined in WP2 in T2.2 and T2.3). The quantitative ones are also called performance indicators (defined in WP2 as KPI, Key Performance Indicators), because they measure the level of performance, performed before or after the implementation of a policy. It also deals with the ex-ante and ex-post monitoring activities.

For example:

(1) Priority: the intercultural/interethnic city >>>

(one possible) driver: the ethnical mix in the same neighbourhood >>>

Drivers deal with policy sectors, so: mixed-use urban development (residential and commercial activities), urban cohesion (reduction of inequalities between neighbourhood)

(Related) performance indicator: the level of ethnical mix in percentage >>>

Consequent qualitative indicator: the level of quality of urban life, and wellbeing.



(2) Priority: the zero energy building city >>>

(one possible) driver: the potential of building energy retrofitting in a city >>>

Drivers deal with policy sectors, so: urban energy provision & distribution (local, renewable, or fossil energy production), urban building sector (investments in retrofitting)

(Related) performance indicator: the level/increase of investments in retrofitting

Consequent qualitative indicator: house owners' behaviours (availability to invest)

(3) Priority: the zero biological waste community >>>

(one possible) driver: the potential numbers of locations for compost in private gardens >>>

Drivers deal with policy sectors, so: urban waste management (in situ management, or separate collection), urban private building regulation (obligation in in-house composting)

(Related) performance indicator: compost mc/inhabitant; compost mc/garden m2

Consequent qualitative indicator: level of consensus built upon the initiative

From the examples above, it is possible to understand that the priority setting process, that represents the base of strategic planning, is strictly linked to drivers' identification.

On the one side, we could say that if you have a precise idea/priority of city, then you have to identify the appropriate drivers to develop it. On the other side, if you identify meaningful and relevant drivers, you can use them to build your priority upon them.

For example:

(1) We desire that our city is intercultural, so we search the appropriate drivers to develop this idea of city. It is true, that this kind of city could be so independently on our will, but it is also true, that if it is currently like that, we could implement a policy that reduces the level of inter-ethnicity.

Opposite, we collect as an evidence that the level of inter-ethnicity is relevant, and we imagine how to develop this trend in order to make this city more and more inter-ethnic.

(2) We desire to stop using as much fossil energy as possible, so we imagine a city consuming the least possible energy in the building sector.

Opposite, we observe a high potential of building stock for energy retrofitting, and we work on that to achieve a zero-energy building city.

(3) We desire a city without (organic) waste, and we investigate how we could reduce the impact of their management. Opposite, we identify that there is a large



availability of private gardens in certain areas of the city, and we imagine that they could be used to solve a part of the problem related to organic waste management.

Further, a city scenario could not be based just on one driver, so each driver can be combined with others, and the impacts obtained by the drivers' development in each scenario could be at short, medium, or long term.

With reference to Urban_Wins, on the basis of the selected priorities, each pilot city, with the support of Urban_Wins technical partners, defines the related series of drivers, and prepares a series of scenarios, at different terms. The compresence of different priorities and related drivers also deals with the fact that we can achieve higher impacts if integrated policies are implemented at the same time, thanks to the so called 'integration effect'.

In case there are 3 urban priorities: A, B, C, the possible scenarios can be:

(low* performance scenarios, sectoral policy implementation)

- Scenario 1a: only the objectives of the priority A are achieved;
- Scenario 1b: only the objectives of the priority B are achieved;
- Scenario 1c: only the objectives of the priority C are achieved;

(average* performance scenarios, partial multi-sectoral policy implementation)

- Scenario 2a: only the objectives of the priority A; B are achieved;
- Scenario 2b: only the objectives of the priority B; C are achieved;
- Scenario 2c: only the objectives of the priority C; A are achieved;

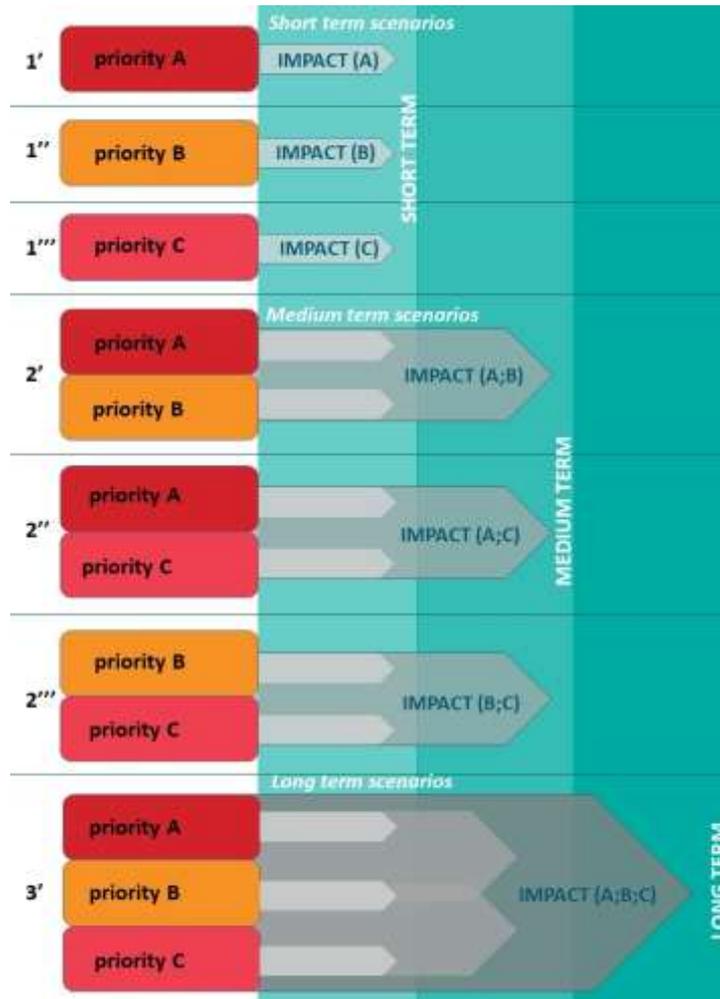
(high* performance scenarios, full multi-sectoral policy implementation)

- Scenario 3: the objectives of the priority A; B; C are achieved.

* In this case the level performance depends on the integration level among policies.



Figure 11 Scenarios' level of integration and performance

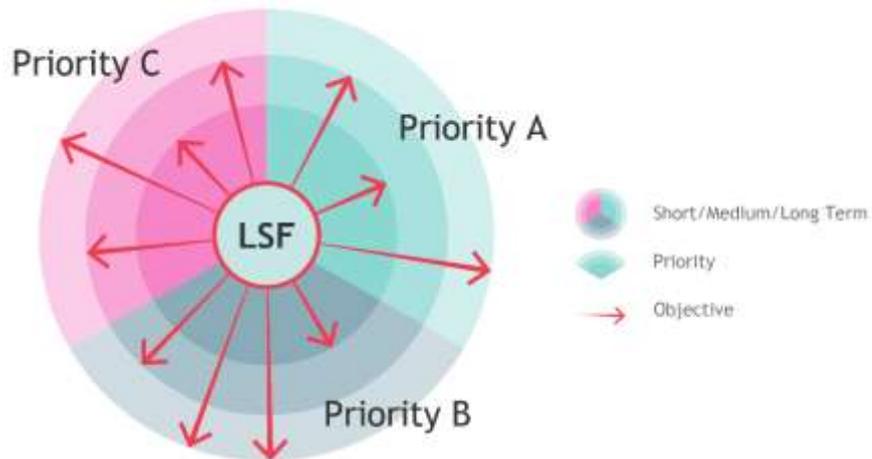


Besides the policy integration and the related impacts at different time span, a city scenario arises from the definition and the development of a range of drivers, characterized by the following elements:

- Time spans and horizons,
- Multiplicity of involved policy sectors per priority,
- Mix of actions to implement to reach the priority,
- Mix of material and energy flows targeted and involved by the action,
- Impacts,
- Available funding and costs combinations.

The following figure shows the circular conceptualization diagram of a scenario.

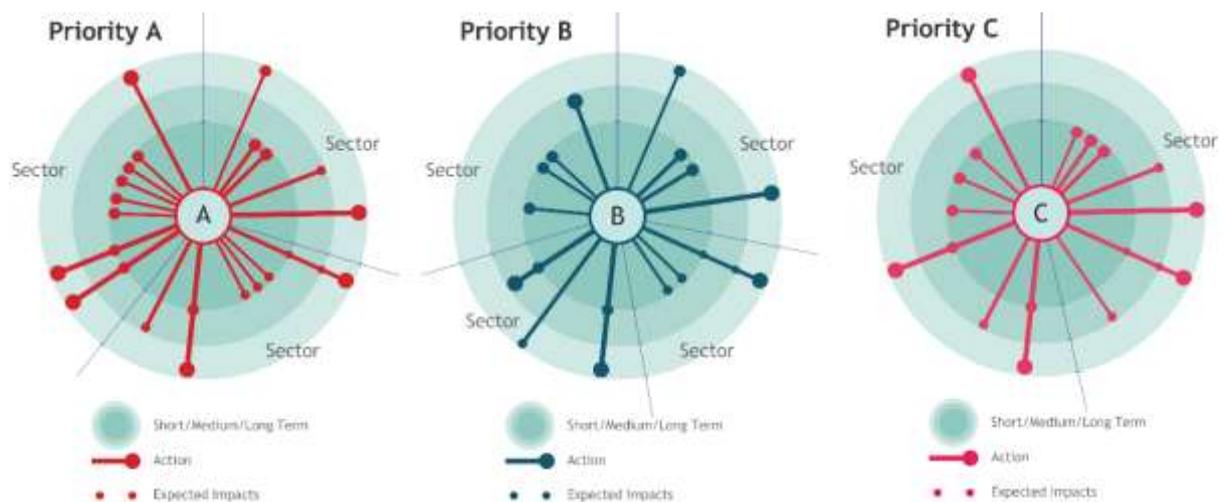




Since a specific Strategic Planning Framework, the conceptual scenario illustrated in the figure above, is composed of three priorities (priority1, 2, 3). Each of them pursues some objectives that are reached at a short / medium /long term (for example, within 2, 10, 20 years). Each specific objective is reached by the development of one or more corresponding drivers. So, the red arrows represent the development of different drivers, and end when the process brings to the achievement of an objective.

To conclude we can state that a scenario is like a picture showing at the same time the development of different drivers, belonging to the same priorities that are pursued by the same local system, along the time. Anytime an objective is reached, a number of impacts could be achieved. The monitoring and assessment activities aim to measure and assess these impacts.

Furthermore, this conceptualization can be downscaled, and show all the involved sectors per priority. In this case coloured lines represent the implantation of specific action along the time.



5. Strategic Planning Framework - Document Redaction

Bearing in mind the process and the key concepts stated in these guidelines, the actual redaction of the Strategic Planning Framework for each Pilot City should be structured as illustrated in the following paragraphs.

5.1. City's profile and overview

A first introductory part should give a general overview on the City profile and on the state of the art concerning natural and relevant resources, land uses (built environment, infrastructures ...), social and economic relevant data.

5.2. Urban analysis - Technical synthesis

A second step should integrate and assess information resulting from the technical synthesis of urban policies, UMan Model and DPSIR analysis (see 4.2 in this document).

A third step should resume references among the information highlighted in the Technical synthesis as well as best practices and actions collected in the state of the art (D1.1), that are relevant for this planning process.

5.3. City's Priorities and Objectives

Once stated in the internal discussion the three (or more) priorities for the Strategic Framework, each city defines and describe them and explain the main factors leading to such definitions. Later on, Stakeholders Agoras will result with other priorities and objectives and will need to discuss, modify and integrate the ones emerged from Pilot Cities' internal meetings.

Once agreed in the first Agora, the final list will constitute the basis of the Strategic Planning Framework (SPF). The data sheet's extracts that follow in this chapter (for a complete version see Appendix D) are to be considered as reference structure for the redaction of the SPF. A more detailed description of both priorities and objectives can be given in a report.



For each priority, explanations needed should outline as follow:

		Local Strategic Framework			
		Priority 1			
	Priority name				
	Priority description				
	Main reasons and needs related to/causing this priority				
		Objective 1	Objective 2	Objective 3	Objective ...

After this, information related to objectives, a part from the description, should define actors and different responsibilities involved in the process, both for financing and implementing it.

Furthermore, as shown below, Pilot Cities should outline for each objective desired impacts, estimate expected resources needed as well as their implementation timeframes (i.e. short, medium or long term).

		Local Strategic Framework			
		Priority 1			
		Objective 1	Objective 2	Objective 3	Objective ...
		For each objective, explain in the following fields:			
Pilot City	Objectives name				
	Objectives description				
	Actors involved (Financial, Political, Expert ...)				
	Implementation responsibilities (Financial, Political...)				
	Expected Resources to involve				
	Expected Impacts and Timeframes (short - long term)				

With reference to the Urban policy analysis (Appendix B and C) Pilot Cities should link and integrate each objective to existing ongoing and/or already implemented Policies, Plans and Programs and to their own general and specific objectives. This step of the planning process should help to avoid overlapping strategies and to focus the efforts.

			Local Strategic Framework			
			Priority 1			
			Objective 1	Objective 2	Objective 3	Objective ...
			For each objective, cross and explain in the following fields:			
Urban Planning	Existing Plans and Programmes	Related Existing Plan/ Programme/ Policy				
		Related Existing General Objectives				
		Relate Existing Specific Objectives				

With reference to the adopted definition of “Urban Metabolism” (see 3.1), Agoras should also compile in the excel sheet a first description of targeted urban flows related to each objective.

			Local Strategic Framework			
			Priority 1			
			Objective 1	Objective 2	Objective 3	Objective ...
			For each objective, cross in the following fields:			
Urban Metabolism	Related Urban Flows	Energy				
		Water				
		Waste				
		Land uses				
		Air pollution				

Referring to the results from the analysis of the UMAN model and from the DPSIR, each objective should relate to one or more specific economic sectors: both priorities and



objectives can focus on one or more sectors, affect specific economic activities, target certain flows of consumption and/or waste reduction related to certain economic processes. A first assessment of concerned sectors, especially in the participatory process and for the plan implementation, should be made with the support of involved technical partners.

		Local Strategic Framework				
		Priority 1				
		Objective 1	Objective 2	Objective 3	Objective ...	
		For each objective, cross in the following fields:				
DPSIR: Driving Forces	Related Economic Sectors	Agriculture, forestry and fishing				
		Transportation and storage				
		Mining and quarrying				
		Information and communication				
		Manufacturing				
		Human health and social work activities				
		Services activities				
		Construction				
		Professional, scientific and technical activities				
		Wholesale and retail trade				
		Administrative and support service activities				
		Accommodation, food service and tourism				
		Education				
NGO's						

If priorities and objectives emerging from both Pilot Cities' internal discussions and physical Agoras focus on waste prevention and management, a first list of targeted waste streams is expected in order to recall the corresponding materials accounted from the UMAN model. The list below is a simplification of the European Waste Catalogue; if needed, a more detailed list is available at <http://ec.europa.eu/environment/waste/framework/list.htm>.



		Local Strategic Framework				
		Priority 1				
		Objective 1	Objective 2	Objective 3	Objective ...	
		<i>For each objective, cross in the following fields:</i>				
EU Waste Catalogue	Related waste streams	Municipal waste				
		Packaging waste				
		Tyres				
		Waste electrical and electronic equipment				
		Construction and demolition waste				
		Hazardous waste				
		End-of-life vehicles				
		Healthcare waste				
		Waste oil				
		Sewage sludge				
		Organic residues (garden waste)				
		Cardboard				
		Plastics				
		Iron				
		Other metals				
		Agricultural waste				
		Industrial waste				
		Wood waste				
		Food and organic waste				
		Paper				
Textiles						
Inert residues						
Batteries						
Bulky waste						
Mining waste						
Animal by-products						

The last step of the redaction of this part of the LSAP addresses the main references, as stated in the definitions of this document (see 3.1), with respect to waste prevention and management: the European Waste Hierarchy (adapted from Gharfalkar et al. 2015) and Circular Economy System (based on Ellen MacArthur Foundation models). For each objective, Pilot Cities should consider and assess which strategies can be a reference for the implementation part.



			Local Strategic Framework			
			Priority 1			
			Objective 1	Objective 2	Objective 3	Objective ...
			How do you imagine to accomplish these objectives? Cross in the following fields:			
EU Waste Hierarchy	Non Waste	Prevention: Replacement - Reduction				
	Waste	Preparing for reuse				
		Recycling: Reuse - Reprocessing				
		Other recovery				
		Disposal: Rectification - Return - Waste Export				
			How do you imagine to accomplish these objectives? Cross in the following fields:			
Circular Economy	Regenerate	Shift to renewable energy and materials				
		Reclaim, retain, and restore health of ecosystems				
		Return recovered biological resources to the biosphere				
	Share	Share assets (e.g. cars, rooms, appliances)				
		Reuse/secondhand				
		Prolong life through maintenance, design for durability				
	Optimise	Increase performance/efficiency of product				
		Remove waste in production and supply chain				
		Leverage big data, automation, remote sensing				
	Loop	Remanufacture products or components				
		Recycle materials				
		Digest anaerobically				
	Virtualise	Extract biochemicals from organic waste				
		Dematerialise directly (e.g. books, CDs, DVDs, travel)				
		Dematerialise indirectly (e.g. online shopping)				
Exchange	Replace old with advanced non-renewable materials					
	Apply new technologies (e.g. 3D printing)					
	Choose new product/service (e.g. multimodal transport)					

5.4. Urban Agoras: from priorities to actions

Once carried out the 2nd, 3rd and 4th Urban Agoras the last step of the redaction is to list and explain for each priority the emerged actions (regulatory, bottom up and voluntary tools, information and education campaigns) as shown below.



			Priority 1
			<i>For each priority, explain in the following fields:</i>
Urban Agoras, SWOT-DPSIR analysis	Action 1	Type of Action	
		Short Description	
		Timing (short/medium/long term)	
	Action 2	Type of Action	
		Short Description	
		Timing (short/medium/long term)	
	Action 3	Type of Action	
		Short Description	
		Timing (short/medium/long term)	
	Action 4	Type of Action	
		Short Description	
		Timing (short/medium/long term)	
	Action 5	Type of Action	
		Short Description	
		Timing (short/medium/long term)	
	Action 6	Type of Action	
		Short Description	
		Timing (short/medium/long term)	

5.5. SPF and scenarios definition

As a conclusive resume of the participatory process, Technical and National Partners will support Pilot Cities in the construction of a scenario for each Priority. Scenarios will be based on the information collected in the Strategic Planning Framework Sheet, taking into account what previously explained (see [Scenarios setting](#)) and relevant indicators collected in WP2.



6. References

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- <http://www.recyclingpoint.info>



Appendix A - Conceptual Framework Posters

Appendix B - Pilot cities resume boards

Appendix C - Pilot cities - Plan, policies and programmes analysis

Appendix D - Strategic Planning Framework Sheet





Waste | Resources | Innovation