



Info-package 2

Urban Regeneration Model



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Urban Regeneration Model

Principles of the model

Definition and objective of the Urban Regeneration Model

The main objective of REMOURBAN project is to develop a holistic urban regeneration model, highly replicable, addressing jointly the transformation of energy in buildings and districts, urban mobility and covering the integration of the city infrastructures related to these two fields through ICTs as a technological enabler.

Objective

The **Urban Regeneration Model (URM)** developed within REMOURBAN provides solutions in both technical and non-technical fields addressing the temporal goals, the main Smart City enablers within the transformation process – towards a more sustainable and smarter environment – and innovations in the key priority areas of energy, mobility and ICTs. Furthermore, the objective is unique: to accelerate the transformation of European cities (urban areas) into smarter places of advanced social progress and environmental regeneration, as well as places of attraction and engines of economic growth.

Definition

Thus, it defines a procedure composed of several phases and decision making processes that aim to support the understanding of the city objectives and needs in order to implement a set of strategies for a sustainable and smartness-oriented regeneration of the city.



Model structure

This replicability framework developed within REMOURBAN deals with the connection between the demand from cities and the supply of technological solutions and innovations through integrating all the pieces of the Urban Regeneration Model in a single approach, establishing two ways of linkage that leads to the definition of Integrated Urban Plans (IUPs) for the cities and the related Implementation Plans (IPs).

Model replicability



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Key priority areas

Three key priority fields have been identified for the Sustainable Urban Regeneration process where REMOURBAN provides a catalogue of solutions aimed at packaging the technologies with their related financing and societal aspects.



Sustainable buildings and districts

District retrofitting	Near zero energy retrofitting of homes (Gold Standard)
Electric distributed generation	Building Integrated Photovoltaics
District heating and cooling	Optimisation of existing District Heating and Cooling Low Temperature District Heating
Advanced Management Systems for homes, buildings and districts	Home and Building Management Systems District Energy Management System



Sustainable urban mobility

Electric vehicles and bikes for public transportation	Electric buses, taxis and sharing bikes
Recharging infrastructure for electric vehicle	Public charging infrastructure for private vehicles Charging infrastructure for e-Buses and e-Bikes
Clean logistics and last mile delivery	e-Vehicles for Last Mile Delivery
Car sharing	City Car Club



Integrated infrastructures and processes

Open up intelligence in urban transport systems	Integrated mobility services for citizens
P2P transport information	Apps for transport information
City information platform	Urban platform with shared taxonomy
Energy and transport maps in real time	Agile energy and mobility map for citizens



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Key frameworks

Three key frameworks have been defined within the overall model, which establish the main enablers for the city transformation: Management, Evaluation and Finance.



City transformation management

Applying the Urban Regeneration Model, apart from the array of institutions and resources that will be necessary from outside the local government, it requires sufficient human resources, budget, collaboration, and coordination between several departments in the local administration.

REMOURBAN proposes the creation of "Transformative Alliances" (TRAL's) as highly flexible/adaptable management or rather "coordination and steering" process open to improvement and dynamic change will be suggested.



City transformation evaluation

The evaluation is sought as the main supporting mechanism throughout the various phases of the city transformation process. This framework considers two levels of evaluation: City Level, to assess both sustainability and smartness of the city as a whole, from a comprehensive and integrated perspective, and Project Level, to provide a clear identification of the impact of implementation of technologies and solutions on the three key priority areas (sustainable districts and built environment, sustainable urban mobility and integrated infrastructures and processes) aimed at achieving the city high-level goals.



City transformation financing

The implementation of Urban Regeneration Model implies financing large-scale sustainable transformations. The transformation of the existing cities into Smart Cities won't be possible without the establishment of a new economic paradigm that makes it economically feasible, even in the frame of today public expenditure constraints.

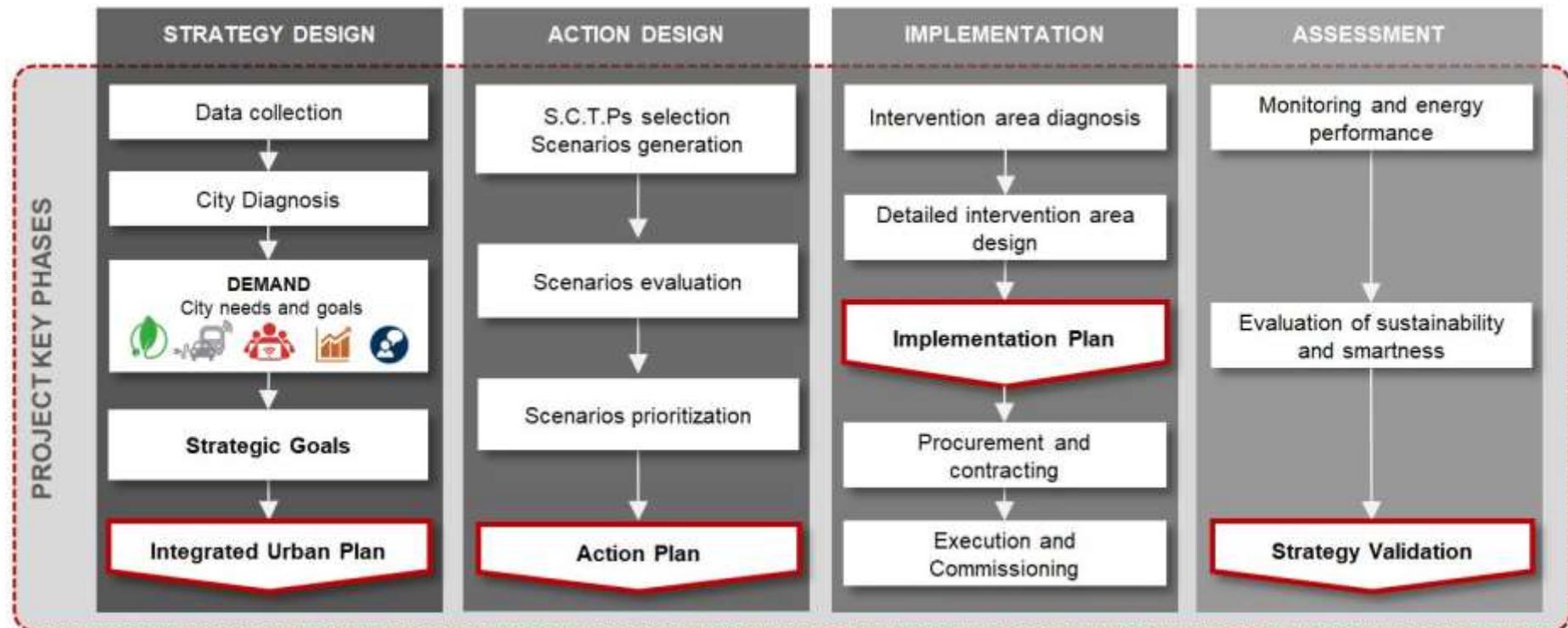
The REMOURBAN project has selected and described four different innovative financing schemes that could be used to replicate the smart interventions, thus they are:

- Public Private Partnership
- TIF (Tax Increment Financing)
- Green Bonds together with the concept proposal of 'Green Bonds Consortium'
- EPC Contract



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Addressing the temporal goals: phases of the URM



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PHASE I: STRATEGY DESIGN

Objectives	To implement a set of integrated existing methods and tools that can support the evaluation of the city current conditions against a well-defined set of indicators, as well as to identify the Strategic goals of the city which can then be transformed into the City Strategy.
Inputs	<ul style="list-style-type: none">• Data collected• Existing city plans
Outputs	<ul style="list-style-type: none">• Smartness and Sustainability characterisation• City Demand (Needs and goals)• Strategic goals of the city• Integrated Urban Plan (IUP)
Management	The role of the local government with an open vision, a transformative and locomotive power, is the centre of this phase with access to all the previous strategic plans and data to be collected of the city. The shared vision of the Smart Urban Transformation Council (SUTC) with the Coordination Committees , who coordinate each main theme (energy, mobility and ICT), plays an essential role in the creation of synergies between sub-themes and other Coordination Committees in the creation of an Integrated Urban Plan.
Guidelines	<p>Governance and stakeholders' engagement. Coordination among governance, stakeholders and the procedures implied in these processes is needed, as well as the definition and deployment of a citizen engagement strategy.</p> <p>Data collection: a thorough data collection work including procedures regarding the organisation of the information collected and its assessment.</p> <p>City Diagnosis is the process including the baseline calculation and the city's needs identification and prioritisation.</p> <ul style="list-style-type: none">• City Cluster Identification Tool (C.I.T.), developed by REMOURBAN, is a support tool to allow the cities pre-evaluating the key working areas to define the city strategy.• Smartness and Sustainability characterisation. The evaluation framework provides supporting mechanisms to characterise the current status of the city towards a smart sustainable city.• SWOT analysis both in the whole city scale and in project scale, in close cooperation with the evaluation framework. <p>Strategic goals of the city. Both the definition of the medium and long-term vision of the city and its objectives through the results of SWOT analysis and the citizens' participation strategy previously defined. Priority, needs, scope and Smartness and Sustainability targets are defined.</p> <p>Integrated Urban Plan is the document that sets short-term goals and long-term goals and measures for the agreed priorities. These priorities are described using City level indicators as the main tool.</p>



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PHASE II: ACTION DESIGN

Objectives	To develop the Action Plan, in which will allocate the strategies or group of actions selected into to achieve the Strategic Objectives defined during Phase I: Strategy Design.
Inputs	<ul style="list-style-type: none">• Smartness and Sustainability characterisation• City Demand (Needs and goals)• Strategic goals of the city• Integrated Urban Plan
Outputs	<ul style="list-style-type: none">• Selected Scenario• Action Plan
Management	<p>Coordination Committees will be the driving force behind the teams when it comes to action design. Local authorities' involvement in these committees is crucial in terms of political commitment and decision-making.</p> <p>Knowledge institutions, universities, technical experts would act as a technical advisor, consultant to determine different technologies for "Smart City Technology Packages" (SCTPs).</p> <p>Transformative Alliances also play an important role in the decision making process for action design. Especially the citizens need to be engaged to the process to ensure acceptance and commitment.</p>
Guidelines	<p>Scenarios definition:</p> <ul style="list-style-type: none">• Preliminary identification of the Technology solutions according to the objectives to achieve. Identification of the suitable Packages (SCTPs).• Operational models definition including socio-technical information.• Scenarios Generation and Definition, where the operation models are combined, and are expected to be evaluated in the next stage for their prioritisation. <p>Scenarios evaluation: the objective is to identify the better combination of SCTPs for achieving the general objectives more efficiently, keeping a multi-criteria approach. Data collection, analysis and calculation of indicators are the main steps to be followed during this stage.</p> <p>Scenarios prioritisation: evaluated according to the weight assigned to each criteria of the Demo Site Index. The evaluation framework defined in the REMOURBAN project not only provide the mechanisms to evaluate the specific design alternatives and the tools to calculate the project level indicators, but also offers the adequate tools to facilitate cities to change importance criteria, weights, of each indicator and measurable objective.</p> <p>Action Plan: it will be the main result of this phase where the selected scenario will be deeply explained in order to guide the implementation plan and detail design development that will be carried out in the next phase.</p>



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PHASE III: IMPLEMENTATION

Objectives	To implement the interventions for a sustainable and smart city decided by the Action Plan in the previous phase
Inputs	<ul style="list-style-type: none">• Integrated Urban Plan• Selected Scenario• Action Plan
Outputs	<ul style="list-style-type: none">• Implementation plans• Strategy Implemented
Management	<p>Political Commitment. Involvement of major political groups, including the mayor, other high-level politicians, different stakeholders and the general public in preparing the implementation plan is critical</p> <p>Design team is composed of engineers and architects and its duties are planning of interventions and implementation of projects</p> <p>The contractor will be mainly responsible for the site management.</p> <p>The implementation plans are prepared according to the vision and goals of the local government, so it should be involved in the implementation to make sure these goals will be met by the interventions.</p> <p>Financial institutions: Taking into account that this kind of project could receive a grant from institutions, they will appoint a certifier to ensure that the works are being carried out according to the executive project.</p>
Guidelines	<p>Diagnosis: a deep analysis of the current situation of area/s of intervention among other factors (technical, financial, social...) will be covered in order to calculate the baseline situation and to identify risks that would jeopardise the implementation or expected outcomes</p> <p>Design: After the interventions to be implemented are chosen, technical specifications need to be identified for the detailed design definition of the actions that are going to be implemented.</p> <p>Implementation Plan: The execution works that will be carried out need to be listed and planned.</p> <p>Procurement and contracting: Procurement details have to be considered. The applications for the licences and permits that are needed for the implementation (identified in diagnosis step) have to be carried out before or during the implementation. The selection of installers is made at this step as identified in technical specifications in the design step.</p> <p>Execution and commissioning: It is crucial to control if the interventions are being implemented according to the plan and will serve the objectives as indicated at the beginning. Controls and checklists need to be well organised and supervised during and after the implementations.</p>



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PHASE IV: ASSESSMENT

Objectives	<p>To define the methodology to assess the impact of Integrated Urban Plan (IUP) based on the previous stages of strategy design, action design and implementation. The application of identified assessment methodologies is expected to evidence the targeted emission reductions and environmental quality improvement that are defined in the IUP.</p>
Inputs	<ul style="list-style-type: none">• Project level: Methodology for calculating the evaluation indicators at project level and monitoring/measurement strategy.• City level: Integrated urban plan, action plan, implementation plan and policy mandate on carbon reduction and technical report on energy savings compiled for the city as required by the central government.
Outputs	<ul style="list-style-type: none">• Project level: indicators at project level calculated and data integrated into the ICT platform and evaluation documents to evidence the achievement of the targets at project level• City level: Strategy evaluation, verified Action Plan, enhanced Implementation Plan, improvement of citizens' health and wellbeing, initiatives of SMEs' innovation development and enhancement of project coordination extent after the consortium coalition among project stakeholders during the project period
Management	<p>The responsibility of the Leadership, focusing on the central government level, is to compile the political mandate and technical report on carbon reduction and energy saving targets and to distribute the mandate and report to local governments.</p> <p>The Directorship supervises the IUP and gives feedback to the <i>Leadership</i> if the political mandate and technical report need to be adapted when serious barriers occur in the implementation process.</p> <p>Manager of delivery reviews the actions implemented in the aspects of energy, mobility and ICT and gives feedback to Directorship when alternative solutions are needed due to time or finance resource shortage.</p> <p>Transformative alliances in the aspect of energy, mobility, and ICT are in charge of the actual implementation of defined actions.</p>
Guidelines	<p>Monitoring and analysis of the overall performance, focuses on the assessment at project level and is closely related to the evaluation methods and tools developed in REMOURBAN.</p> <p>Evaluation of sustainability and smartness assists cities to estimate the effectiveness of their implemented IUP to accelerate the process of cities' transformation towards smarter and more sustainable places.</p> <p>Strategy validation is based on the assessment framework and takes the perspective of local government to assess the IUP and its implementation at both levels of project and city.</p>





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