Smart City – Good Practice

Transport and Mobility, Governance, Biodiversity, Social Inclusion

Superblocks

Barcelona, Spain

Barcelona´s neighbourhood transformation program

The Superblocks project, designed by the Municipality of Barcelona in collaboration with the Urban Ecology Agency, represents an innovative planning approach for addressing urban challenges such as mobility, public space, biodiversity and social cohesion [3]. Superblocks are territorial units imagined as bigger than one block of the dense Barcelona´s urban matrix with strict grid pattern, but still smaller than a whole neighbourhood. [1] The aim of creating such superblocks is to recover space for the general public, to preserve biodiversity in the city, to improve sustainable mobility as well as to encourage social cohesion and collaboration. The Superblocks is open projects, so that any proposed action undergoes a participatory process involving local residents and organisations. [3] The duration of the pilot program is four years, starting in 2014 [18]. The vision of the city council in implementing the pilot program, as stated in the Public Commitment for Sustainability 2012-2022, is to promote five superblocks and to create a city that works in a more mixed, compact, efficient and diverse way [14,18].

Country/ City profile

Country		City	
Population (2013)	46.4 million [8]	**Population (2014)**	1.63 million (city) [11] 4.73 million (metropolitan) [13]
Land area (km²)	505,940 [9]	**Land area (km²)**	101.9 (city) [12] n/a (metropolitan)
GDP per capita (2014, current international $, at purchasing power parity)	33,211 [10]	**GDP per capita (2014, US$, at purchasing power parity)**	n/a (city) 36,157 (metropolitan)[13]
Region	South Europe	**Region**	Catalonia/ Coastal

City's physical geography	**Location**	✓ Situated on the southeast coast of the Iberian Peninsula**(risk of rising sea level and temperature level, changes in rainfall patterns)** ✓ The city developed on a plain surrounded by the mountain of Collserola to the northwest, the Llobregat river to the southwest and Besos river to the east ✓ High population density and impervious land
	Climate	✓ Mediterranean climate (average temperature 21°Cduring the day,11°Cduring the night) ✓ 560 mm/year annual rainfall, rainfalls with high intensity **(flood risk)**

Initiating context

As a result of implementing global ´Agenda 21´agreed at the Rio Summit in 1992, Barcelona has managed to establish a collective document named ´Citizen Commitment to Sustainability´. In 2002, it was signed by more than 800 organisations (small and large enterprises, community groups, professional associations, political parties and educational institutions, etc.) ready to contribute actively to the achievement of the common set goals. In 2012, the commitment was evaluated and revised for the next 10 years. One of the main targets of Barcelona´s ´Citizen Commitment for Sustainability 2012-2022´ is to improve the city at the people level, including participation and focusing on small-scale interventions. In complying with these targets several actions were defined in the document, among them the creation of superblocks [14]. The idea of superblocks has already existed for decades in urban planning. However, in the case of Barcelona it was a novelty to introduce retroactively the superblocks concept as a way to rethink and regenerate existing city neighbourhoods. This project was first launched in the districts Ribera and Gràcia to solve the problem of traffic congestion, while the currently running program covers five districts and works towards the fulfilment of not only mobility but also other sustainability objectives [1].

The concept of superblocks is also positioned in the Urban Mobility Plan of Barcelona 2013-2018 as well as in the cities Green Infrastructure and Biodiversity Plan [18].

Project description

Superblocks are new urban organisational units, with a size of around 400 x 400 m, comprised of several smaller blocks [1]. They are fringed by peripheral roads open for motorized traffic, while interior roads are closed to through traffic but open (by using a system of cards and bollards) to residents, public transport, disabled people, emergency vehicles and, in some streets, bicycles. In this way, the interior public or common areas are relieved of redundant traffic, thus leading to traffic calming of interior roads [6]. Consequently, the areas can be recovered for other uses and thus returned back to inhabitants of the area. The process of stakeholder participation is there by intended to ensure that all the solutions are implemented according to the needs of inhabitants [3].

Aims of the superblocks project are:

1. To improve sustainable urban mobility: The establishment of new transportation networks or routes is reducing traffic bottlenecks and car congestion inside the residential areas; decreasing the attractiveness of using a car; encouraging pedestrian and bicycle traffic (increased sidewalks, extension of cycling lanes); improving conditions for public transportation (faster lines, better connectivity, frequent stations) and increasing safety (speed limits) [4,16].

2. To revitalize streets and public spaces: Releasing occupied space in the interior of a superblock (by closing roads for through traffic, constructing underground parking places) fosters the creation of new common leisure spaces; improves the vitality of streets and encourages development of small local enterprises [4,16].

3. To preserve biodiversity within the city: The reduction of car traffic in interior roads is improving the condition of existing biodiversity; and allowing the creation of new green alleys, gardens, parks or façades (habitats) that can restore ecosystems and improve people´s contact with greenery, water, soil, birds etc. [4,16].

4. To encourage social cohesion and collaboration: Encouraging social cohesion and collaboration is creating new jobs (by opening small local businesses); creating new partnerships between inhabitants and organisations; and enhancing the meetings of neighbours and the organisation of educational workshops [4,16].

5. To introduce participation and new models of governance: The project aims to include the general public and various organisations before making decisions and starting actions, thus listening to the needs of inhabitants [4].

6. To promote sustainable energy production and consumption: The project aims to take measures to reduce energy consumption; improve energy efficiency (buildings, public lightning); encourage the production of energy from renewable energy sources and selective waste collection; decrease the demand for drinking water, and enable a better use of greywater and river water [4,5,16].

7. To reduce noise, air pollution and carbon footprint: A decrease of motorized traffic is leading towards the achievement of advanced environmental standards, a reduction of traffic noise and GHG emissions as well as a reduction of air pollution [16].

8. To adopt flexible solutions: At any time, superblocks can simply be opened for car traffic or returned to the previous state of the area [16].

Implementation process

The superblock pilot program is currently being implemented in five different neighbourhoods of Barcelona: Les Corts, Plaça de les Glories, Sant Martí, Eixample and Hostafrancs. The duration of the program is four years, starting in 2014. Each superblock project is being implemented with collaboration of local residents, different organisations and the city council. Meetings are held at different project levels, and interested citizens can participatedirectly in the vision creating process and decision-makings or contribute by taking specific actions. The

same procedure of involving citizens in the implementation process is followed for each superblock, but the outcomes are different as each neighbourhood has its own distinctiveness (e.g. dynamic economic activity, higher density, less educated inhabitants, etc.) [6]. Despite that the project is currently still in its initial stage, many workshops have already been organised and some outcomes are already defined. The Les Corts superblock is the one where the implementation has proceeded the furthest. Within this area the first smart crossroad (using sensor systems for traffic lights regulation) has been installed [4]. Also, several interventions concerning the usage of public spaces have been undertaken, e.g. a provisional parking space has been turned into a temporary green zone [5,17].

Projects implementation details [6]	
Process	The program started with the consultation of experts and citizens;the organisation of workshops and meetings in each district. Decision groups consisting of different stakeholder representatives were set up in each superblock.In the first year of the program, the proposals for implementation of different stakeholders were collected. In the next two years, it will be decided which projects will be implemented and how it will be done. In the final year an evaluation process should be started, considering indicators designed to measure the impacts of the actions taken in the course of the project.
Financing	Financing is secured from the city budget.
Leadership	The superblock project is being implemented by the Municipality of Barcelona in close collaboration with the Urban Ecology Agency.
Involved stakeholders	**Operators** ✓ Municipality of Barcelona (Department of Urban Habitat) ✓ Urban Ecology Agency ✓ District organisations ✓ Non-governmental organisations ✓ Universities and other expert institutions ✓ Private companies ✓ Inhabitants of city blocks **Users** ✓ City residents ✓ Tourists

Results

The superblocks project provides many benefits in terms of sustainability ranging from sustainable urban mobility through an increase of public spaces, social inclusion and biodiversity to the optimization and intelligent management of the use of resources, etc. [4]. The Urban Ecology Agency has already developed a whole set of indicators to measure outcomes, however an evaluation of results is not expected before the end of the project (2017) [6]. Despite this, the program will certainly significantly reduce energy consumption, water demand, the environmental impacts of vehicles and hence reduce GHG emissions in the area [18].

In the district Gràcia, where the superblock program was initially developed, the project achieved first prize for their innovation from BMW, a German automobile manufacturing company, in 2011 and was recognized as a sustainable best practice by the UN-Habitat in 2010 [2,7]. In addition, it has been found that the proportion of space occupied by vehicles was significantly reversed due to an increasing number of journeys in the area undertaken by foot and bicycles. At the same time, a higher level of commercial activities was noticed [1,2]. Based on the good experiences in Barcelona, the idea of superblocks is already spreading to other typologically diverse cities in Spain, such as Vitoria-Gasteiz, La Coruña, Ferrol, Viladecans and El Prat [7].

Lessons learned

The superblock project proves that it is not necessary to implement major changes in urban planning or invest in huge infrastructure solutions to improve the lives of citizens [2].. Sometimes small-scale or low-cost actions can induce the same or even better effects. The superblocks model is a great tool to rethink and change existing urban mobility patterns. At the same time, it has become a model for the total transformation of urban neighbourhoods, and superblocks can easily be replicated and modified tosuit any other location. Citizens involvement in the whole process is crucial because it is the best way to ensure social acceptance of new lifestyles.

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