Supermanzana in Practice. Ability to Create People Friendly Spaces upon the Example of Selected Barcelona-Based Projects

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Supermanzana in Practice. Ability to Create People Friendly Spaces upon the Example of Selected Barcelona-Based Projects

Mateusz Gyurkovich [1], Damian Poklewski-Koziell [1], Carlos Marmolejo Duarte [2]

[1] Institute of Urban Design, Faculty of Architecture, Cracow University of Technology, ul. Podchorążych 1, 30-084 Kraków, Poland
[2] Escola Tècnica Superior d'Arquitectura de Barcelona, Centre de Política de SòliValoracions, Departament de Tecnologia a l'Arquitectura, Av. Diagonal, 649, 4ª (Arq. Legal), 08028, Barcelona, Spain

mgyurkovich@pk.edu.pl

Abstract. This paper is a result of an in situ study carried out in September 2017 in Barcelona. Its objective was to assess the effectiveness of the spatial policy of the city in terms of promoting sustainable mobility, traffic restrictions, increasing the share of public spaces, and improving basic ecological indicators, such as biodiversity, the area of green spaces, or air pollution. The analysis focuses on measures implemented within the scheme of the concept of 'a superblock' (original 'supermanzana') on the example of two selected neighborhoodsof Barcelona: Gracia, and a part of El Poblenou, demarcated by the streets: Carrer de Badajoz, Carrer de Llacuna, Carrer de Tanger, Carrer de Pallars. Special attention was paid to the ability of the changes implemented to create people friendly spaces, where people wish to stay, and subsequently to their ability to create positive functional and spatial changes, especially on ground floors of buildings. The paper shall give the reader a sense of the exact scope of implemented measures, presented on the example of selected analytical layers, such as transport, public spaces, visual information, street furniture, etc. The study results demonstrate an improvement in terms of the majority of the urban and ecological indicators referred to above; nevertheless, the assessment in terms of the actual increase of the attractiveness of the place and its ability to create people friendly spaces, is not explicit. In El Poblenou in particular one can observe certain weaknesses in this respect, which could be particularly disturbing considering subsequent plans of the authorities of Barcelona to implement the concept of 'a superblock' in other parts of the city within the scheme of the urban grid of Eixample. Doubts are additionally raised by the legibility of the new traffic network in this location, which constitutes an impediment in uninhibited and intuitive moving around for city inhabitants themselves. A similar spectrum of measures does not always bring about the same results. The assessment of the quality of public space cannot be limited to some selected figures, which confirm – as they must – effective implementation of the assumed goals, much to the satisfaction of the authorities who are behind them. Such an assessment carried out independently from other placemaking factors, such as the plot ratio, the diversity of the functional programme, spatial relations in the existing development structure, which should be adjusted to man's scale, or – finally - the quality and character of greenery projects implemented, will never be credible.

1. Introduction

For 150 years now, ever since the time when the most characteristic part of the urban structure of Barcelona – Eixample - came into being, Barcelona has been constantly in the process of forming, and the processes of adaptation, revalorisation, and revitalisation of urban structures have been concentrated on the creation of optimal living and working conditions [1,2,3,4,5]. Efforts of the municipal authorities have been also concentrated on attempts to turn the city into a global metropolis. It was possible not only thanks to the mild Mediterranean climate, the proximity of the sea and the mountains, or the historical and artistic heritage of the city, but also thanks to its rich industrial tradition[1], which already at the beginning of the 20th century entailed considerable tourist traffic on the wave of common interest in urban and social transformations[2] [p.132] [6].

The development of Barcelona based on a plan drawn up by Ildefonso Cerdà was much different than the one we know e.g. from Paris[3]. Thanks to a smaller scale and cheap land located beyond the historical city walls, it was possible to develop the city further in a way that left the existing historical settlement structures intact. Consequently, the new urban layout consolidated the medieval town, today known as Barri Gotic, with other urban systems: Gràcia, Sant Gervasi, Sants, San Andreu, and San Marti into one compact urban organism [p.31] [6] that were administratively part of Barcelona but separated from it in morphological terms. Today it is this clearly legible diversity that decides about the unique climate of this city.

As one of few metropolises in Europe, and most probably globally, as well, Barcelona made urban design a visible and most effective public service amongst those offered by individual levels of authorities, although usually it is one of the most difficult tasks of cities. It was possible thanks to constant changes occurring in the physical space of the metropolis and it can be observed by everyone. [p.74] [7].

2. Strategic objectives of the city – the key to understanding the changes

When on 21 July 2011 Barcelona changed its administrative organisational structure from 3 metropolitan units into one metropolis[4] along with 35 communes surrounding it, another process of gradual transformation of the city in the spirit of sustainable mobility was initiated, this time by the City Council of Barcelona[5]. To this end, a development strategy was drawn up, basing on 4 fundamental objectives: safe, sustainable, fair, and efficient mobility[6]. In terms of safe mobility, emphasis was put on the decrease of the number of accidents[7], the increase of the general sense of safety, and mutual respect among different users of roads.

In the area of sustainable mobility, activities which reduce transport needs, promote respect for the natural environment, reduce air pollution, including the one caused by the noise generated by urban life, and reduce the dependence from fossil fuels by favouring the use of renewable energy sources were recognised as priorities. The group of crucial activities in this respect also includes the promotion of the so-called soft modes of transport[8], and if the use of car is really necessary, it should be a vehicle which has a weaker negative effect on the environment. Basing on the above, detailed and very specific directions of further processes of the city transformations were formulated, the best visible of which will be the implementation of the concept of supermanzana, which constitutes the main subject

1 Until the mid-20th century Barcelona was perceived as an industrial city.
2 Which was quite a phenomenon in the then Europe.
3 Where considerable areas of the medieval town were demolished, giving place to broad boulevards, squares, and municipal parks, due to which Paris lost some of its historical / medieval identity forever.
4 AMB Àrea Metropolitana de Barcelona, [8] (access 16.03.2018)
5 Implemented basing on the municipal mobility plan PMU.
6 Fair, that is perceived in the category of the right of all people to move around, irrespective of their funds, sex, or physical and intellectual condition.
7 Especially the fatal ones.
8 Understood as a form of mobility alternative towards the car, with special emphasis on pedestrian and cycling traffic and public transport.

of this study. Dysregulations in terms of indicators of parking spaces formulated in the spirit of the principle once expressed by Andreas Duany: *change the code and you will change the city*[9] [9,10] is also worth mentioning in this context.

3. Deficit areas

However, a question arises whether the activities of municipal authorities referred to above are necessary at all. The municipality of Barcelona, and a very selected number of municipalities around it, is a nearly exemplary model of a walkable city, which can be confirmed by applying assessment criteria borrowed from the book *Walkable City* by Jeff Speck [11]. It has a high development density, which contributes to the rationality of the public transport. It is characterised by a rich functional offer, thanks to which most everyday matters can be handled within a distance of a several-minute walk. In the Eixample District (the largest one) the streets, based on an urban grid with a 133x133 m module, are characterised by a high degree of interconnections, thanks to which one can take a shortest path. Furthermore, a considerable group of streets are flanked with tree lines, and cars park parallelly, contributing strongly to increasing pedestrians' sense of safety. Moreover, even as of the time of drawing up these plans, walking around the entire metropolis constituted nearly 32% of the total number of trips taken per day, and considering the city itself this ratio reached an exorbitant level of 46% [p.99] [10].

3.1. Basic intervention areas

There are no perfect cities, and Barcelon a is not an exception from this rule. Its weakness is visible most of all in the insufficient share of public spaces, including green areas, and the ubiquitous cars[10], which emit noise [11]and deteriorate the quality of air. In the 1960s and 1970s the car and its needs were in the centre of urban planners' attention, and it gradually dominated the image of the city. Roughly since 1992, when the ring road was built, a gradual withdrawal from car dependence has been observed in favour of limiting it by means of diversified planning tools [p.203] [10]. Nevertheless, it is worth emphasising that a change in the attitude towards cars is already visible in the city statistics. Between 2007 and 2011 an over 10% drop in the total number of car trips was observed [p.226] [10]. The relative absence of greenery in the Eixample comes from the speculative evolution of the Cerdà's Plan that originally envisaged the construction of only 2 sides of each block leaving the remaining of the plots deserved to green spaces. Nonetheless, such idea was eroded as real estate interests propelled the increase of the floor area ratio.

3.2. Problematic street junctions in the Eixample

Corrective steps could be also carried out within the very geometry of street junctions in the Eixample. The characteristic angled corners make the walk longer, in terms of its duration as well as its distance. A dense grid of streets causes the need to stop nearly at each junction. The average stopover time along a section of three city blocks constitutes ca. 8% of the total duration of the walk [p.90] [10].

3.3. Biophilic needs

The city is characterised by high development density and by scarcity of arranged greenery, compensated by very few parks, trees along streets, and broad ramblas. Inside the urban tissue there are no places where one could relax and take a rest from the hustle and bustle of the city. To make things worse, this deficit in the urban structure is not compensated by the vicinity of greenery within

[9] Other measures worth a mention are in particular the development of the cycling infrastructure and improvement of the air quality to the condition compliant with the EU standards and other documents (e.g. Kyoto agreement).

[10] Paradoxically, despite a high share of walks in the distribution of transportation tasks.

[11] The most recent document referring to the noise issue in Barcelona is reachable in the Internet: C.M. Duarte, C.G. Tamez, "Does noise have a stationary impact on residential values?", Journal of European Real Estate Research, Vol. 2 Issue: 3, pp.259-279, https://doi.org/10.1108/17539260910999992 [12] (access 21.03.2018)

internal city blocks. The covered area of courtyards often reaches 100% of the surface area of the plot. This results from specific urbanisation processes which operated within the city over the years[12]. Their effect was covering plots of land more and more, which cut residents off from contact with nature. Deliberations on the role of nature, its influence on our sense of well-being, health, and social behaviour are not the subject matter of this paper[13]. Nevertheless, it is worth quoting a sentence which seems to be crucial from the perspective of the needs discussed herein: *"Everyone who lives in a city with a high plot ratio will tell you that it is impossible to live only amongst crowds"* and noise [p.124] [9].

3.4. Cycling mobility

A bicycle offers a high level of independence and mobility. It is recognised as the fastest mode of transport in the city along routes up to 5 km. It is healthy, cheap, and quiet; it can be combined with other forms of transport and it provides constant contact with the city. Authorities are fully aware of all these advantages [p.102] [10]; nevertheless, moving around on the bike is still at a low level, despite data which confirm a constant growth in its popularity. Cycling constitutes ca. 3% of the total number of trips [p.10] [13][14]. A low share of the use of bikes visible upon the example of the cited table of "modal split" is definitely a factor which may be disturbing for municipal authorities, especially that most city territory (60%) is located in the close vicinity of cycling lanes[15], and the gentle land relief covers, with minor exception, nearly three thirds of the area of the city [p.104-10] [10]. Due to the land relief many bicycle rides in the city are rides from more elevated city districts towards the sea and the historical city centre. It can be seen upon the example of the operation of the bicycle-sharing system.

4. Analysis of selected areas of the city

4.1. What is Supermanzana?

The presentation of examples cannot be commenced without answering what supermanzana is in the first place. This term signifies a set of measures in which preferences for the pedestrian traffic are implemented at the expense of the car traffic. Supermanzana in practice is a part of the city of the surface area of ca. 400x400 metres[16] where the transit car traffic takes place along the external outline of the unit, and the internal traffic is gradually calmed thanks to a hierarchical traffic system of access control zones[17]. This is accompanied with the bus network reconfiguration. Public transport stops are eliminated from the interiors of supermanzana and moved – if possible – to each of the sides of the perimeter of the unit. Supermanzana also stands for a reduction of parking spaces for cars along

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[12] Despite initial experiments with diversified typology of architecture, such as detached buildings or one-family houses, eventually the tenement house dominated the urban tissue. Its characteristic element is the preserved parallelism to the street, a compact frontage form with services in ground floors, and five residential floors located above them. It is a model which eventually settled in 1891. Ever since then a constant speculative process of increasing the plot ratio was observed, through adding subsequent floors. It was stopped by the General Metropolitan Plan from 1976, which referred to the spirit of the planning provisions of 1891. Under the regulations currently in force, the plot ratio within itslimits is 4.4 m^2t/m^2s, although there are locations where the plot ratio reaches the value of 7.7 m^2t/m^2s [p.99] [6].

[13] This subject is written about extensively by e.g. Montgomery [9].

[14] With an optimistic approach, and only according to the statistics of the city itself. In the scale of the entire agglomeration we can only speak of the share at the level of only 2.1%.

[15] Measured as the distance of up to 200 metres from the edge of a cycling lane.

[16] Comprising 9 city blocks in Eixample.

[17] Car traffic calming measures have been implemented in Barcelona for many years now. The first zone, the so-called "zone 30" with the speed limit was created in 2006 in Sant Andreu. By July 2011 traffic was successfully reduced in 790 streets of the total surface area of 696,670 m^2 and the total length of 120 km [p.90-95] [10]

streets[18]. The policy of managing them is regarded as a fundamental instrument of controlling mobility in the city. It takes place through a system of several typologies of parking spaces depending on fees and addressed to different users, with respect for the interests of residents of the unit.

One of the main goals of such a policy is reclaiming as many public spaces as possible for the needs of pedestrians as they foster social interactions. The car and its needsaredefinitely overrepresented in the space of the city. The goal is to reduce the general number of roads addressed to the car traffic by over 60%, from 912 km to ca. 355 km [14]. These measures are to result in a decisive improvement of basic ecological indicators: reduction of air pollution measured by – without limitations – the level of nitrogen dioxide and noise pollution.

4.2. Car traffic calming tools

The city has developed a rich array of planning tools. Four typologies of the traffic calming policy could be differentiated. First, areas addressed most of all to the pedestrian traffic are separated. The car traffic is allowed only in speeds adjusted to the speed of a walk and not exceeding 10 km/h. In such areas it is absolutely forbidden to stop the car, with the exception of goods loading and unloading. The surface of the carriageway and the pavement is on the same plane (figure 1).

The second type of traffic calming measures are spaces shared by pedestrians and vehicles, with the invertedmobility priority. Here pedestrians have the right of way and the driving speed is limited to 20 km/h. There are three traffic signs: residential zone, speed limit, and no stopping.

The third type is a zone which is guarded by removable bollards. The traffic in these zones is allowed only for their residents, in case of emergencies, and for good deliveries (figure 2, 3).

The fourth type are the so-called “zones 30”. These are limited speed zones. Their principles, however, go beyond the limitation itself. Most of all they stand for sustainable distribution of public spaces amongst street users, which improves the efficiency of traffic calming. “Zones 30” are about providing a higher level of safety for pedestrians and improving the environmental factors. Cycling takes place on carriageways [p.90-95] [10].

Nonetheless the most effective historic measure was the policy to limit the parking slots producing 2 kind of parking plots: one for neighbours and the other for passing traffic limited to 2 hours and charged with an important fee. The provision of public transport alongside allowed to produce a modal shift from car users.

4.3. Gràcia Supermanzana

The manner of organising car traffic within the city district derives from planning decisions included in the Mobility Plan for Gràcia from 2005, which based on the concept of hierarchical traffic organisation. The car traffic was distributed from several main traffic arteries to 28 so-called superblocks. In their internal part all the traffic calming policies were implemented. Thanks to changing traffic directions and removable bollards, traffic is effectively limited to exclusive needs of residents, as well as to the needs connected with goods loading and unloading [p.78] [6]. Although Gràcia has a definitely lower share of spaces dedicated to pedestrians than the historical district of Ciutat Vella, comparable in terms of its size and morphology, it is still a place dominated by pedestrians, best perceived while low-speed driving or walking. Every step one takes, one can see pedestrians taking strolls, occupying the total surface of the street, and not necessarily its parts addressed exclusively to pedestrians. Narrow streets do not foster fast driving; hence the best solution

[18] Including the change of the centre of gravity from generally accessible parking spaces in favour of private car parks servicing the neighbourhood.

for motorists are mopeds, present everywhere in the space of the city. Vehicles that can be seen now and then are mainly trucks delivering goods to shops. The streets are full of cars parked along them, but it is only understandable due to the fact that it is difficult to build underground garages under existing buildings[19].

The solutions described above would have been impossible had it not been for the specific organisational structure of the present road system within the entire perimeter of Barcelona. In principle, two categories of streets can be distinguished in this respect. The first category – the grid of basic roads – constitutes only 27.5% of all roads, but is has a decisive significance for mobility in the city due to the fact that it absorbs as much as 81% of all vehicle traffic, expressed as a product of the number of kilometres driven and the number of vehicles. It needs to be clearly stated that it is the core of the entire traffic system. The remaining 72.5% of all roads – the grid of local roads – are responsible only for 19% of the traffic in the city, although they are the most numerous ones. Therefore, local roads are not responsible for effective mobility in the city, and hence they are a perfect "adaptation material" for all sorts of traffic calming measures [p.204] [10]. Increasing the accessibility of urban areas for pedestrians is inseparably linked with improving their attractiveness. Frequently it attracts new investors on the property market, which in turn implies the rise of their prices. This happened in the analysed area. Gràcia, thanks to its characteristic urban tissue, narrow streets and numerous squares,[20] and thanks to its rich cultural offer has become an extremely popular location of get-togethers and meetings. Today it is famous for its bars, cafés, and nightlife. Its popularity, caused also by its central location, has contributed to a rapid rise in real estate prices. New residential investments are predominantly luxury apartment buildings and holiday apartments. Newcomers gradually replace less well-off people from the district. It is a process which, as the author of the book Walking *the city* puts it, is also a derivative of the lack of an effective urban policy [p.76] [6].

4.4. El Poblenou supermanzana (area within the perimeter of the streets Carrer de Badajoz, Carrer de Llacuna, Carrer de Tanger, Carrer de Pallars).

The analysed area is one of the pilot projects of the concept of supermanzana. It is located within the perimeter of one of the three largest urban projects currently in progress in Barcelona – revitalisation of post-industrial areas in El Poblenou – the project known under the name of 22@Barcelona, which is to transform this area into a district of innovation. Furthermore, it is located in the vicinity of the

[19] Historical units of Barcelona, such as Ciutat Vella or Gracia, are characterised by the lowest ratio of parking spaces beyond roads per hectare in the city [p.218] [10].

[20] The squares came into being in the mid-19th century in a spontaneous process initiated by plot owners, who - driven by the willingness to obtain more profits - converted internal arable lands into squares. The idea was to simulate the emergence of a grid of streets culminated with public spaces [p.80] [6].

second largest area subjected to revitalisation, Plaça de les Glories Catalanes[21], and a number of important cultural facilities[22] [p.74] [7].

According to the initial plans, the car traffic in the El Poblenou supermanzana was to be organised exclusively in the form of clockwise traffic. This was the initial assumption, which later on was slightly modified. Nevertheless, car users still find it difficult to move around. Their confusion is so strong that even drivers of public buses find it difficult to cope with this situation. Without a thorough knowledge of the logic of the system, driving a car here is an irritating experience.

The photographed solution presents a modification of the initial system (figure 4,5,6). It consists in allowing traffic in a straight line in one of the streets (Carrer de Roc Boronat). The carriageways are one-way and shared by cars and bicycles. The maximum speed is limited to 20 km/h. The reclaimed space, in compliance with the initial plans, has been allocated to public spaces of different types of use, furnished with street furniture elements, such as benches, flowerpots, table tennis tables, bike racks, or electric vehicle charging stations (figure 4,5,6). Asphalt surfaces have been visually warmed up by means of colourful decorations, which also demarcate places of sports and recreation (e.g. a track – figure 5). There is no doubt that all urban indicators assumed by the city have been improved.

Evaluation of the quality of public space cannot be brought down to numbers only, which – much to the satisfaction of the authorities which are behind them – confirm, as they must, effective achievement of the assumed targets. Such an evaluation conducted irrespective of other place-genic factors, such as the plot ratio, the diversity of the functional programme, spatial relations of the existing development structure, which should be adjusted to the human scale, or finally the quality and nature of implemented greenery projects, will never be reliable.

This type of thinking was absent when decisions concerning the selection of this place as a location of supermanzana were made. According to critics, and they are quite right to believe so, this part of the city is not similar to other areas of Barcelona, which contribute to the identity of the city much more[23]. El Poblenou is characterised by a low plot ratio and few services in ground floors, as for Barcelona standards [15]. The low plot ratio results also from quite a lot of undeveloped grounds, due to which street spaces lack in buildings which could define them.

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[21] A square located at the intersection of three most important urban axes of the city: Av. Diagonal, Av. Meridiana, and Gran Via, which was planned by Cerdà as a new, central square of Barcelona. Despite this, until today it has served merely as an important traffic hub, with a multi-level overground roundabout. *The revitalisation project plans to implement central functions and improve the prestige of this area in the scale of the metropolis. The main actions are connected most of all with the reorganisation of the road system and the creation of an important intermodal transport hub in the place which after 150 years has found its central location in the urban structure of the city. In 2007 the change of the plan of the square and its surroundings, covering 48 city blocks of Eixample, was approved. The land development design prepared by Daniel Mòdol i Detell, assumes replacing the existing multi-level roundabout with a huge municipal park, whose concept follows the model of New York's Central Park. Parc de Glories is to occupy the area of nearly 12 hectares, 3.3 ha of which is to be allocated to public functions, with the local as well as metropolitan significance* [p.74-7] [7].

[22] For example, the existing ones, Teatre National de Catalunya and Auditori de Barcelona, located at the southern border of the planned park, at Av. Meridiana. Their position will be more exposed now, and along with new buildings they will form another important hybrid complex of culture in Barcelona, located at the edge of a large municipal park. An addition to and a keystone of the existing complex of large detached buildings of culture will be a new seat of the Design Centre, located to the south from the park, opposite the theatre and the auditorium [p.74-7] [7].

[23] It is particularly important especially in pilot programmes, which if they succeed should be copied by future projects.

Figure 1. Gràcia. Del Topazi Street.
photo: Damian Poklewski-Kozieł

Figure 2. Gràcia. Zone guarded by removable bollards.
photo: Damian Poklewski-Kozieł

Figure 3. Gràcia. Plaça del Diamant.
photo: Damian Poklewski-Kozieł

Figure 4. El Poblenou. Dels Almogàvers street.
photo: Damian Poklewski-Kozieł

Figure 5. El Poblenou. Dels Almogàvers street.
photo: Damian Poklewski-Kozieł

Figure 6. El Poblenou. De Roc Boronat street.
photo: Damian Poklewski-Kozieł

What is worse, façades of newly-designed buildings in the ground floors do not add to street edges. Using Gehl's terminology, they should be referred to as sharp edges, which is particularly well visible in e.g. de Bolivia street [16]. This comment refers also to an office building which stands out owing to its architecture - Comisión Nacional de los Mercados y la Competencia. What is worse, there are more such examples to be found. Similar problems can be encountered in other streets: de Sancho de Avila, or de Roc Boronat.In this case the arrangement of buildings in a free standing typology is mandatory because of the height of them. Such height is the solution to create public spaces that were missing in the area.

The weaknesses of the project described above are overlapped by other disadvantages, which are additionally raised by critics focused around the Supermanzana P9 Platform Association. They relate – without limitations – to traffic issues. They argue that the solution is wrong as it hinders access to bus stops. This affects particularly the elderly, who inhabit this district in great numbers. Furthermore, according to adversaries of the project, excluding the interior areas from the transit traffic has resulted in the creation of areas that reduce the level of safety. Depopulated places have become attractive for alcohol amateurs and drug addicts. [15].

5. Conclusions

The concept of Supermanzana is a new tool in the revitalisation policy of the city[24], hence the fears it evokes are justified. Spatial planning is an extremely complex process, and making decisions far from the order of things, constituted for over one hundred years, requires courage and is all the more difficult. However, today planners have much more input data, which Cerdà's contemporary planners could have only envied. They can, but they not necessarily will, help in making the right decisions.

The challenges posed by the city should be recognised as legitimate. They correspond with the global trend in urban planning, and they even put Barcelona in its avant-garde, setting directions which others wish to follow. Will the undertaken measures prove to be successful? We need to wait many years to find out. Examples of the districts El Born and Garcia discussed herein clearly demonstrate how good changes imply further transformations, spontaneous this time, independent from the authorities. Empty plots of land in El Poblenou can be covered with buildings. There is room for positive transformations, the way is open.

Nevertheless, when thinking about the city we must not forget what a street is and what conditions should be satisfied for it to be a place where one wishes to stay. In this respect Barcelona is very experienced, although it seems it is not able to notice it. With great surprise we discover that newly designed buildings, valuable in architectural terms, ignore the needs of an attractive, stimulating street, as if the street was necessary only to provide entrance to the building. We fear whether the asphalt space will attract crowds of people, although we do understand that the change is a pilot programme. The city needs the flow of people and goods, which seems to be completely forgotten here. It is thanks to the proximity of a rich offer of services, its plot ratio, and a high connectivity level, that Barcelona is in the lead amongst walkable cities of the world – we must not forget about it.

[24] Although gaining in popularity. [17]

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