
22@BARCELONA: CREATIVE ECONOMY AND INDUSTRIAL HERITAGE – A CRITICAL PERSPECTIVE

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Abstract

In 2000 the municipality of Barcelona launched an ambitious project called 22@bcn. This had two main goals: to make the city a leading center of scientific and technological production in the knowledge economy and to promote the integration and functional reconversion of a traditional industrial neighborhood located near the downtown area. This urban strategy is known as knowledge-based urban development (KBUD). The aim of this paper is to analyze the development of 22@bcn from the urban planning perspective, giving attention both to the theoretical framework of KBUD, as well to the social resistance and ideological, political and technical disagreements between residents, scholars and municipal advisors along this first decade. We state that 22@bcn constitutes an interesting case study of the creation of a knowledge-based district within a complex industrial area, with a rich urban heritage but also full of social diversity that must be taken into account in knowledge-based urban development initiatives.

Keywords: 22@bcn; Barcelona; knowledge-based urban development; industrial heritage.

1. INTRODUCTION

In the latter half of the twentieth century, many cities in developed countries saw their industrial areas become obsolete. Once the main economic engines of these countries, these areas became obstacles to much-needed economic and urban transformation. At first, the companies in these areas moved to the outskirts of the cities, only to see their activities outsourced later to developing countries because of the lower labor and business costs there. What were once lively industrial districts became extensive obsolete areas (indeed, sometimes completely abandoned and empty, almost falling into the category of brownfields). While their historical importance has been recognized recently, when such industrial districts occupy vast areas inside a city they are more commonly seen as a hindrance to urban expansion.

Cataluña, the most industrialized region in Spain, experienced all of this process (Garcia-López; Muñiz, 2010). When heavy industry moved to the outskirts of Barcelona during the eighties and nineties, 200 hectares of former industrial land in the core of the city began a slow but undeniable decline into economic obsolescence.

This situation has been compounded by the need for cities, as part of the paradigm of urban development since the end of the 20th century, to become competitive in a global economy and has led several cities to make desperate attempts to position themselves in a knowledge-based economy, where it is essential that there are adequate facilities for scientific and technological development. The emergence of information and communication technologies (ICTs) represents a crucial change in today's economy and makes their incorporation in any strategic regional and urban development plan essential. However, concepts and models of territorial development change just as fast as ICTs do. Instead of science or technology parks (consolidated as part of strategic development policies in the mid-20th century), local authorities now want to promote the knowledge city, encouraging the creative economy, where cultural and social assets are the basis of new businesses.

In 2000 the municipality of Barcelona launched an ambitious project called 22@bcn. This had two main goals: to make the city a leading center of scientific and technological production in the knowledge economy and to promote the integration and functional reconversion of a traditional industrial neighborhood located near the downtown area. Efforts such as this to shape an innovative district within an urban region with a strong industrial character seek to avoid one of the dangers of technological enclaves: as Richard Sennett observes (2003, p. 67), "the policy of global enclaves cultivates a kind of indifference in relation to the city (...) it does not share the responsibilities of the city where it is located."

The first ten years of the development of 22@bcn saw considerable social resistance and ideological, political and technical disagreements between residents, scholars and municipal advisors. Hence, 22@bcn during this period constitutes an interesting case study of the creation of a knowledge-based district within a complex industrial area.

2. FROM TECHNOLOGY PARKS TO THE KNOWLEDGE CITY

Since the emergence of information and communication technologies (ICTs) as one of the most important drivers of the global economy, different authors and regional planners worldwide have drawn up models for the transformation of territories based on these new technologies. At first, isolated technology parks were the main model. Their shape was inspired by Silicon Valley, in California: far

from the main urban centers, dependent on big corporations, universities and research centers and reliant on significant public investment.

This model spread worldwide in the 1980s (Castells, Hall, 1994), and in some cases particular regions were even strengthened as a result of the model rather than of national plans (Aydalot, 1985). Technology parks usually appear in suburban areas and have the characteristics of a university campus (Yigitcanlar; Velibeyoglu, Martinez-Fernandez, 2008: 11), where the production of knowledge is concentrated but the complexity of urban life is absent.

ICTs have gradually become an inherent component of the economic, social and cultural dimensions of our society. While in the past the information economy was based essentially on hardware, it is now predominantly centered on the software and multimedia industry. In this context, some cities have been trying to attract ICT companies to inner urban areas, even using them to stimulate the recovery of central or former industrial districts, such as the Multimedia City, in Montreal (Duarte, 2005; Tremblay; Rousseau, 2005). For some authors, industry in the emerging knowledge economy is independent of specific locations (Aurigi, 2008, p. 5), while others argue that this may be true when knowledge is coded but that when knowledge is tacit, location still matters (Elisabet Viladecans-Marsal and Josep-Maria Arauzo-Carod, 2009. p. 6). A region dense in tacit knowledge represents an asset to innovative industries in a competitive market. This principle underlies the “knowledge city” project launched by the municipality of Barcelona (Trullén, 2002; p. 18).

This change in the ICT industry, where the production of knowledge instead of devices predominates, has led to a new kind of territorial development strategy called Knowledge-Based Urban Development (KBUD). The basic features of this strategy involve:

- a) creating mixed-use environments where business and housing complement each other;
- b) providing a focal area in an urban context, with privileged access to communication and transportation infrastructure together with high quality public spaces and facilities;
- c) establishing a symbol, a hallmark of an innovative region;
- d) ensuring a mix of learning and fun, where the area's qualities are attractive both for work and living; and
- e) encouraging social "connectivity", with an urban design that favors personal contacts and social networking. (Yigitcanlar; Velibeyoglu, Martinez-Fernandez, 2008, p. 12)

Although these features seem desirable for any neighborhood, according to Yigitcanlar and Velibeyoglu (2008) KBUD is a selective planning process that does not consider the whole city but tries to enhance the competitive advantages of specific areas, implying, consequently, that priority is given to particular social groups and districts over others. Some critics argue that “knowledge” is just another denomination for science and technology and that it does not fully embrace any other kind of knowledge (Collinge; Staines, 2009, p. 166). Ludovic Halbert (2010, p. 44) states that even allegedly culture-friendly economic development programs are actually only a “neoliberal agenda” for stimulating competitiveness among cities.

The European Commission declared 2009 the Year of Creativity and Innovation, promoting “creative” industries as a factor for economic development. This echoes Richard Florida’s statement that in contemporary society creativity and economic growth are bound together. People involved with art, design, entertainment and communication, law, finance, management, health, education—and, certainly, science and technology—form what he calls the creative class. There is a growing interest on researches correlating the so-called creative activities and the actual economic growth – with the emergence of a creative class (Reese, 2012). Creative activities represented 10% of jobs in the United States in 1950 and 30% in 2005 (Florida, 2008, p. 107). Florida (2010, p. 295) argues that regions and cities should therefore work hard to attract and retain creative industries, as they generate a virtuous circle of economic development. Creative cities are dependent on and stimulate three important characteristics of the knowledge economy: technology, talent and tolerance. Vergara Gómez (2010, p. 17) even suggests that the convergence of these three characteristics is one of the most important challenges contemporary cities face.

Nevertheless, Florida points out that there are only a few places in the world “where significant innovations are generated” and that the tendency is for the global economy to make them increasingly stronger, leading to growing economic and social disparity between cities (Florida, 2008, p. 38). In that sense, it is clear that the creative, or knowledge, economy tends to create gaps or deepen existing gaps despite a discourse of social integration and economic diversity.

3. THE GREAT URBAN TRANSFORMATION OF BARCELONA

Many observers of the European urban scene regard Barcelona as a contemporary success story. Indeed, Barcelona’s transformation from a city with huge service and infrastructure deficits in the midst of a deep economic crisis in the eighties to a restructured, dynamic, outward-looking metropolis in the mid-nineties shows that the city was able to change its own history based on its own resources.

In the last quarter of the 20th century, Barcelona developed increasingly sophisticated urban and metropolitan plans, all derived in one way or another from the 1976 General Metropolitan Plan (Winn, 2010). This period had three phases: preservation and modernization (until 1986); innovation (1986 to 1992); and consolidation and efficiency (from 1992 to date).

The first phase started in the midst of a profound economic crisis, when former local authorities were suffering a loss of moral authority and there was a serious deficit in infrastructure and services. In this critical environment, the majority of citizens, civic organizations and trade unions jointly supported major administrative and financial reform under strong municipal leadership.

A comprehensive policy of land acquisition helped to promote some urgent projects needed to meet the considerable demand for housing, schools and open spaces. The result was a patchwork of projects that, although dispersed, were of outstanding quality.

Even before Barcelona was nominated in 1986 to host the 1992 Olympics, the city already had a mature, original urban policy. This was the beginning of one of the most fertile and innovative periods in the city's very rich planning history. However, although the Olympics had fostered innovative projects as the games approached and many projects had to be completed urgently, it soon became apparent that traditional management instruments were inadequate for the task.

In 1989, the consequences of the pressure imposed by the Olympic Games were evident: the resignation of some local authorities and technical staff; difficulties in keeping to the objectives of the previous master plan; and the lack of a comprehensive urban strategy. Customized institutions were set up to coordinate the Olympic projects, and public participation declined dramatically. A management policy driven by efficiency was put in place but was limited to a shrinking circle of decision-makers.

In March 1989, Vittorio Gregotti, a privileged spectator of the urban transformation of Barcelona, praised the efforts made and results achieved during the eighties. Nevertheless, he also expressed his fears that the extraordinary drive to renew the city was disappearing in the face of a "succession of complexities, obstacles, contradictions, favoritism and political and administrative bureaucracy, and administrative decisions that have a certain tendency towards the showbiz and towards politics understood as a simple matter of consensus" (Gregotti, 1989, p. 05).

In the nineties, the population of Barcelona decreased, but the number of consumers, workers and visitors increased considerably. The decade inaugurated the internationalization of Barcelona, and many foreign investors flocked to the city. Large international real estate groups became important and

constant partners of the municipality and started playing a leading role in the reshaping of some neighborhoods.

A walk along the last section of Diagonal Avenue (Sabaté, 2006, 2007) shows the recent urban policy of Barcelona as a story of lights and shadows. The city finally extended its main avenue to the seafront, as Cerdà had originally intended. The renewal of a degraded area was also part of this project, including an incipient social housing program in a traditional industrial neighborhood. However, the project was clearly driven by private interests and did not allow for public participation in the decision-making process.

Therefore, while urban planning in Barcelona in the eighties had as its general framework the General Metropolitan Plan of 1976 and was characterized by clear rules and a constant call for public participation after decades of a brutal dictatorship, in the last quarter of the 20th century and early 21st century urban strategies in Barcelona were marked by an attempt to transform the city into a global city without a general planning framework but rather through fragmented urban interventions marked by iconic buildings designed by architects belonging to the star system. As Joaquin Sabaté (2008) states, this is opaque urbanism, not openly discussed or negotiated.

4. 22@BCN: THE GENESIS OF AN URBAN PROJECT

In 1999, the City Council created the Knowledge City Department. The 22@bcn plan is the urban manifestation of an overall strategy to consolidate Barcelona as a knowledge city and a reference in technology innovation in Europe. The intention of the City Council is to make 22@bcn "the main economic and technological platform in Barcelona, Cataluña and Spain, in the perspective of the 21st century" (Barcelona, 2000, p. 14).

In line with this objective, the General Metropolitan Plan was amended to adapt land zoning in the industrial neighborhood of Poblenou to cater for a wide range of ICT industries, media companies and housing. In 2000, Barcelona City Council set up a municipally owned company to administer 22@bcn, with responsibility for assessing the plans and projects proposed by private companies and implementing the required infrastructure and urban facilities. Since 2010 its duties have also included the management of other rehabilitation projects in the Poblenou area.

22@bcn is intended to recover 200 hectares of industrial land in the Poblenou district, where there are more than 1 million square meters of mainly obsolete industrial plants in the very center of the city — less than 5 kilometers from the Ramblas.

Poblenou was the most vigorous industrial region in Catalunya and Spain in the 19th century, but, like other industrial areas in the developed world, its activities shrank during the last quarter of the 20th century. Indeed, between 1970 and 1986, Barcelona lost 250,000 industrial jobs, and 92,000 more in the following ten years. Nonetheless, during the same period, 240,000 jobs were created in the tertiary sector, and the city entered the 21st century with 80 percent of its jobs in services and retailing (Marrero, 2003, p. 2), indicating a shift in its economic profile.

The 22@bcn plan has at least three aims. The first is to attract high-tech industries in five well-defined areas: media, information and communication technologies (ICTs), medical technologies, energy and design. The second is the large-scale recovery of industrial heritage, to be integrated into a renewed urban environment, improved with transportation, parks, leisure amenities and public equipment. Broadband telecommunications is universally available; renewable energy is used in all new buildings, and a green energy plant was built at the southern extremity of the Diagonal Avenue; garbage is collected in a pneumatic system and rainwater is recycled and reused; a bus service has been extended to the area, which is also served by the metro; two tram lines link the area with Barcelona and the neighboring cities; and, finally, dozens of public bicycle-sharing stations have been installed all over the district (Barcelona, 2010c).

New squares and parks will provide an additional 7.5 hectares of green area in the region. To boost the housing industry, approximately 4,000 new housing units for a range of social classes are under construction.

To achieve 3.5 million square meters of built area, 3.2 million of which are intended for economic activities, 7.5 ha of new green areas and 14.5 ha of urban facilities, the zoning of the district is more flexible than elsewhere. This third aim is thus intended to boost social housing and the so-called @ activities — companies, offices and training facilities related to ICTs, media, medical technologies, energy and design.

The current construction potential in other industrial areas of Barcelona is 2 m² for each square meter of land (2 m²/m²). To promote the intended transformation and offset higher development costs, the construction potential was increased to 2.2 m²/m² inside the 22@bcn perimeter and to 2.7 m²/m² for specific activities related to the knowledge economy. Additionally, a further 0.3 m²/m² was allowed for subsidized social housing, and another 0.2 m²/m² for the so-called @ facilities. Therefore, the construction potential can vary between 2.2 m²/m² and 3.2 m²/m² depending on the use to which the land is being put.

Most of the land in the 22@bcn area is private. A transfer to the municipality of 31 m² for every 100 m² of construction is mandatory, allowing more green areas and public equipment to be provided.

Some critics say that the transformation is taking place more slowly than expected and that only a few new companies have set up in the area. A good city, however, is created slowly and gradually adjusts to meet the needs of the different actors. According to Miquel Barceló (2010, p. 76), director of the 22@bcn plan until 2008, the infrastructure is funded almost entirely by private property owners, but for Jose Maria Sen Tato (2010, p. 78) the costs of the intended transformation far exceed the local investment capacity. Consequently, foreign investors interested in the project have been imposing their own values on the neighborhood, bringing an alien volumetry to the traditional image of Eixample.

5. INDUSTRIAL HERITAGE AND URBAN PLANNING IN POBLENOU

The social interest in industrial heritage in Spain stems from the deindustrialization that affected Europe in the eighties. The importance of industrial areas as cultural heritage was first stressed by academics and professionals from a variety of fields, such as geography, architecture and economics. In the nineties, when it was clear that the industrial activities in these areas would no longer recover, their testimonial value for urban history was recognized. The areas where these industrial activities took place could not only help revitalize the economy and reinforce the identity of territories in cultural and social crisis, but also become a tourism product.

As an example, in the eighties the Mel Clot Special Plan was developed. Mel Clot is a suburban area located next to the former garrison of Barcelona, in the San Martin de Provençals neighborhood, near Poblenou. During the twentieth century, the eastern metropolitan region of Barcelona underwent constant transformation from a patchwork of agricultural land crossed by streams to a site crossed by radial roads and railway facilities that imposed a limit on urban growth, and from a landscape of fields and mills to another of industrial sheds and chimneys. This burgeoning industrial growth made San Martin de Provençals Barcelona's economic engine, in blatant disregard for the urban fabric guidelines proposed by Cerdá.

At the end of the twentieth century, abandoned industrial sheds gave way to housing. The street pattern proposed by Cerdá was resumed, along with the regeneration of the neighborhood and the setting up of new public spaces. These were some of the main objectives of the Mel Clot Special Plan, which also stressed the extent of the industrial heritage in the region, emphasizing the importance of keeping a mix of uses and a balance of different urban patterns characteristic of the diverse urban occupation that could still be found in the area.

Even greater emphasis was placed on the preservation of Poblenou's industrial heritage in the proposal to open Diagonal Avenue. As a team of experts had compiled the cadastral history of the area from 1891 to 1929, safeguards for a considerable number of industrial buildings could be proposed. Nevertheless, when the works to open the avenue started, part of the plan had been abandoned by the municipality. As a result, some industrial buildings and small factories were knocked down, causing a drastic change in the socioeconomic characteristics of the neighborhood.

A more recent recovery plan for the Diagonal-Poblenou Avenue was expected to be a key opportunity to implement some land-purchase mechanisms in the public interest in order to support a strong social housing policy and retain the neighborhood's social mix.

Such expectations, however, turned out to be exaggerated, or the mechanisms were not well designed. Indeed, in most cases it was medium-sized or large real estate companies that bought—probably at good prices—vacant sites and huge historical buildings, speculating over zoning reclassification, which would eventually allow these to be used for new purposes. Thus, it was these private real estate companies that ultimately effected the transformation of this area. While this process has accelerated the opening of some sections of Diagonal Avenue and fostered the creation of some public areas, the hard tasks remained unfinished—social housing projects, for instance, have virtually disappeared from this transformation.

Some of the perverse effects (radical changes in existing uses, gentrification) were already present in other areas of the district, like the Olympic Village and the Maritime Front. Indeed, in all these plans the expected effects should be exactly the opposite. This would suggest that the mechanisms put in place were not sufficiently clear to avoid such perverse results.

Possibly because of such setbacks, the development of the 22@bcn plan was always accompanied by intense local debate over the eventual expulsion of residents and the disregard for industrial heritage.

Until the nineties, this area of Poblenou was occupied by large building ensembles that did not fully respect the urban and architectural guidelines proposed by Cerdà. These ensembles stood out in the midst of industrial sheds and agricultural fields because of their remarkable size and height, and could only be accessed over bumpy dirt roads. Small houses were irregularly distributed in agricultural parcels or along traditional axes, and most were of substandard quality. Many of the factories had already shut down. While some of these were beautifully crafted and had significant historical value, there were also many industrial sheds that were of little historical value and were generally used as warehouses because of Poblenou's strategic location in the heart of the metropolitan area.

Large companies have long since closed their facilities or moved out, speculating over the announced transformation of the area. Meanwhile, many of the sheds occupied by these companies have been subdivided and sublet and are occupied by other companies carrying out a range of minor, barely legal activities with a lifespan of only two or three years.

Areas reserved for the opening of avenues or the construction of public parks, as planned by Cerdà, were occupied by buildings, soccer fields or orchards.

At the time the 22@bcn plan was approved, in 2000, 46 industrial buildings were listed as industrial heritage, although in the case of 18, only the chimneys were intended to be preserved (Barcelona, 1999). There was a strong critical reaction from residents, professionals and scholars, who pushed for a major review of the plan.

This resulted in the creation of the Industrial Heritage Plan, under which the original industrial heritage list was recompiled to include 114 items of architectural interest.

Four interventions in the industrial heritage of Poblenou

The transformation of this district is analyzed here with reference to four projects: Poblenou Central Park, a public space that was planned long ago but until recently occupied by a variety of activities and buildings; Can Aranyò, which represents the desire to attract universities to the region by granting them use of historic buildings; Can Framis, a private museum of contemporary art; and Can Ricart, an industrial complex that will combine different uses and epitomizes what can be achieved by public mobilization of residents, scholars and professionals advocating the preservation of industrial heritage.

One of the most symbolic projects in this district is Poblenou Central Park. In the mid-eighties, the Diagonal-Poblenou Special Plan proposed this site as the main open space for the district.

The proposed space would have had an area twice that available today but was occupied by companies and workers' housing until the early twenty-first century, when a project was commissioned from Jean Nouvel, the architect who designed the Torre Agbar, Barcelona's new global icon.

Although the project was an opportunity to reintegrate the rich but fragmented complexity of industrial ruins and a unique urban fabric, the walled park shows a startling autism, ignoring the potential permeability it could have represented between the new Diagonal Avenue and remaining industrial areas.



FIGURE 1 - POBLENOU CENTRAL PARK, MAIN ENTRANCE
Source: Authors

In the first inventory of the industrial heritage of Poblenou, only one of the chimneys in the Can Ricart industrial complex — the largest industrial complex in the neighborhood (Tatjer et al, 2005) — was listed. Following protests by local citizens, the Industrial Heritage Group (Grup de Patrimoni Industrial, 2005b) presented a more thorough and better-documented report attesting the historical value of the Can Ricart ensemble. The original design of the Can Ricart complex is attributed to Josep Oriol i Bernadet, one of the first architects to design a mechanized factory. The complex occupies the equivalent of four blocks of Cerdà's Eixample and, as usually occurs with manufacturing plants, is the result of several parts that were combined over more than 150 years, each reflecting the prevailing industrial architectural design of a particular period. As the Grup de Patrimoni Industrial (2005a, p. 3) stated, the result is a "kaleidoscope of companies in a variety of situations and diverse potential." Despite the historical value of Can Ricart, the first design for this industrial complex proposed that many of the existing buildings be demolished. The Grup de Patrimoni Industrial advocated careful intervention restricted to the elimination of a few recent additions, i.e., step-by-step intervention to retain the ensemble.

As a result of pressure from local residents, media and scholars, the municipality abandoned the first design. Following this, in 2006, the architectural office EMBT won an international competition to design the House of Languages in the main building. The design is intended to recognize and value the architectural differences between the different buildings in Can Ricart (EMBT, 2009: 13).



FIGURE 2 - CAN RICART: RUINS AND PROTESTS AGAINST 22@BCN
Source: Authors

Can Aranyò is a former flour mill designed by a British firm in the mid-nineteenth century and adapted to Catalan construction techniques by a local master builder, Josep Marimon. Today it is occupied by a department of Pompeu Fabra University dedicated to audiovisual activities. The design by Josep Benedito and Ramon Valls shows a refined balance of industrial heritage and contemporary interferences.



FIGURE 3: CAN ARANYÒ, POMPEU FABRA UNIVERSITY. ON THE BACK, FUNDACIÓN VILA CASAS
Source: Authors

Can Framis is another example of the successful functional and architectural conversion of industrial heritage by the architectural office BAAS. It occupies four blocks in Eixample, but the urban fabric is dismantled into smaller pieces. The businessman and art collector Antonio Vila Casas has transformed it into a contemporary art museum. The design is a reinterpretation, rather than simply a mimetic recovery, of the industrial heritage and has received several awards. Two original sheds have been maintained, and a contemporary but discrete building was built in exactly the same place as one that was demolished. Cristina Arribas (2010) notes that although the remaining buildings do not have a special value from an architectural point of view, they have been kept as testimony to the urban fabric typical of this industrial neighborhood, which does not follow the urban fabric proposed by Cerdà.

Final remarks

The 22@bcn project is one element in the City of Barcelona's strategy for positioning the city in the knowledge economy. While this aim may be similar to that of other countries and even other cities in Spain, the chosen area—Poblenou—is unique, having once been known as the "Spanish Manchester" for its industrial activities. However, these industrial activities and their unique urban fabric, which disregarded the guidelines of the Cerdà plan, fell into decay in the eighties, when part of the neighborhood was in an unequivocal state of abandonment.

Poblenou is strategically located in the core of the Eixample plan proposed by Cerdà, with logistical facilities and a road system linking the city to France. Several interventions have been proposed for the area in different urban projects, including the 1992 Olympic Games and Forum 2004 (also known as the Universal Forum of Cultures).

Therefore, 22@bcn would seem to demonstrate Barcelona's ability to reinvent itself based on a comprehensive urban plan (Clos, 2004; Masbounji, 2008; Rowe, 2006).

In part this is a feature of what Jordi Borja (2010: 25) calls a method of urban planning typical of Barcelona or, as Busquets (2004, p. 350) has put it, a method that highlights the urban project as the "overcoming of the sterile debate between urban planning and architectural design, which had reduced the first to a zoning and the second to an isolated proposal". Additionally, Oriol Bohigas (2004) notes that the continuity of Barcelona's urban development depends on a series of coordinated projects, rather than a uniform general plan. Although very critical of the so-called "Barcelona model", Horacio Capel (2005, p. 22) recognizes the positive changes in the city under a "legal framework that allows public action over land use (...) with compensation rights, and social appropriation of the values induced by municipal plans."

In the case of 22@bcn, the approach adopted to construct a knowledge-based urban environment was quite unusual, as the project occupies part of a decaying industrial neighborhood. Despite the municipal discourse recognizing the importance of industrial heritage, when the first plans were revealed, it became clear that the municipality did not appreciate its importance both for residents and for scholars.

In the first industrial heritage inventory, only 46 elements were listed. Of these, 18 were isolated chimneys, which would have made the 22@bcn an immense De Chirico tableau. The political pressure generated by residents in protest against some measures proposed by the municipality also exceeded government expectations. Residents were stunned by the demolition of some of the industrial heritage, which seemed to indicate a deep disregard for the community. In a document published with the support of the City Council, David Marín (2007, p. 132) described how numerous social conflicts arose when 22@bcn began, mainly because it was likely that residents would be relocated and small industrial workshops would disappear as they were forced to move out because of the expected increase in real estate prices. Supported by professionals and scholars, the City Council reviewed the industrial heritage inventory and classified 114 industrial items—including parts of the urban fabric—because of their historical importance.

Nevertheless, the relationship between the knowledge economy and urban planning instruments in Poblenuou continues to be a cause for considerable concern and the subject of criticism. Peter Rowe (2006) questions the capacity of Barcelona to become a reference in the knowledge economy, and, in particular, the usefulness of the 22@bcn project. For Rowe, it is simply an urban project with all the risks of gentrification that accompany the conversion of industrial areas. Horacio Capel (2007, p. 82) raises a similar criticism of the "expropriation of cheap public housing and a significant public investment" with no mechanisms to prevent land speculation.

In response to such criticisms, the City Council argues that 22@bcn will result in more than 90,000 jobs being created in the area, half of them for university graduates (Barcelona, 2009). Almost half of the companies already in place are start-ups, illustrating the vitality of the knowledge economy (Barcelona, 2010). More than 70% of the approved projects are funded by the private sector, and over two thirds of these are related to the key areas of 22@bcn: media, ICT, medical technologies, energy and design.

All these controversies reinforce the idea that 22@bcn is a knowledge-based urban development project that deserves close attention because it represents an important economic transformation in a former industrial area, which has been accompanied at all stages by an extensive debate involving residents, scholars and the local authorities and echoed by the media. Finally, 22@bcn shows how vibrant city life continues to be even in the information society.

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