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Knowledge Cities on Smart Cities: transferring the 22@Barcelona model

WORKSHOP 2: The new role for STPs: driving city change

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Abstract

Cities have become nodes of competitiveness at the international sphere. It is in cities where innovation takes place and contributes to a better economic performance of territories and a greater citizen's quality of life.

Internationally recognized models like the 22@Barcelona are considered good practices to imitate or at least, to take into account when developing strategies for stimulating innovation, knowledge and creativity in the territory. However, a better understanding of the process is needed in order to successfully implement such a tool.

The aim of this paper is to develop a meta-model of knowledge transference for the creation and development of innovation districts. Several variables will be taken into account across the timeline focusing not only in technical and social conditions strictly related to the area but also on the effect this type of development might have in the rest of the city as a driver for change.

1.- Introduction

Globalisation takes place on the local sphere: cities and societies are the ones directly affected by the increasing competitiveness at the international arena. It is in cities where innovation takes place and contributes to a better economic performance of territories and a greater citizen's quality of life. Cities need to maintain their identity and its economic, social and institutional path dependency despite opting for similar approaches in order to improve their competitiveness; the uniqueness of the city remains the most important added value. Thus, the heterogeneity of the different cities is essential to their competitiveness. The use of elements from the historical trajectories and the need to find a balance between reinventing themselves and their own identity is a challenge for most cities.

The creation of innovation districts, the numerous scientific parks and urban clusters together with the so-called 'smart city' label, have become usual tools and discourses associated to urban revitalisation. Usually, it has been applied in former industrial neighbourhoods in need of

regeneration. The top-down approach to this type of urban development requires not only of a clear methodology but also a deep knowledge of the context and actors that participate along the process. The identification of successful and failure factors contributing to the specific exercise of building up territorial have been largely studied from many academic disciplines (Moulaert & Sekia, 2003; Padmore & Gibson, 1998; Bullinger et al, 2007).

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The aim of this paper is to develop a meta-model of knowledge transference for the creation and development of innovation districts. Several variables will be taken into account across the time-line focusing not only in technical and social conditions strictly related to the area but also on the effect this type of development might have in the rest of the city as a driver for change.

2. Theoretical framework

Urban regeneration involves the participation of the community, companies, institutions and policies in order to generally improve the quality of life of citizens. However, policies have focused on different aspects to renovate or renew, pointing out at one type of regeneration (physical) or another (social). Integral approaches to regeneration are meant to combine both physical intervention but also social policies in order to improve the quality of life of citizens (Roberts & Sykes, 2000). Later on, this focus has been predominant in the regeneration of European cities and districts. An all-embedding intervention improving not only infrastructures or public spaces but also providing for intangible elements to the community to increase its quality of life has been generalized all around.

Certain cities definitely offer a better set of attributes for businesses and economic activity than others; these include simultaneously tangible assets in the form of physical elements easily measurable (i.e. highways, airports) and more indefinite elements such as image, the quality of governance and social and cultural features (Begg, 2002). According to different academic disciplines, the majority of the theories that analyze the determinants of the location economic activity follow the next scheme:

Path dependency: The historical development of the cities has a huge influence in his current situation. The association of a city to a determined economic profile does not emerge immediately:

to a large extent, the past determines the present of the cities. Consecutive economic transformations leave inexorably their legacy in the territory.

The classical factors: The availability of good infrastructures and connections of transport as well as centres of upper education. Also have been considered the availability of capital and labour with the necessary qualification together with an institutional context that favour the location of business through programs and specific actions such as fiscal exemptions or land at a below market price have been the factors considered traditionally as a determinants of the economic location of business.

The “Industrial Clusters”: Traditionally, huge importance has been given to the advantages of agglomeration economies, the economies of scale and clustering as promoters of economic growth. Industrial clusters have been analysed and reflected as a executors of a highly relevant role in the analysis of innovation and the definition of political of support to the industrial activity (Porter, 1990). Industrial clusters are defined as geographic concentrations of companies of a same sector or sectors related along the value chain that collaborate or compete and have also links with of other actors (such as the universities). According to Porter (1998), clusters reflect a top-down approach to promote a certain territory which basically consists in grouping different actors (universities, technology and research centers, business, management and financial resources private and public) interested in working together to find synergies in an economic sector.

The “soft” factors. These factors underline the importance of some equipments or urban attributes that contribute to create an attractive environment for people. Since talent has become the engine of the new economy based on creativity and knowledge, these aspects associated with the territory become more important as location factors of the economic activity. Quality of life, ‘atmosphere’ or tolerances are, among other some of these elements.

Networking or relational factors: The personal or professional networks, implicit or explicit become the connectors between the actors that take part on the different parts of the economic activity. In fact, network factors are an alternative formulation to the classical location factors, much related to the aspect of connectivity that offers a good provision of infrastructures. Besides, they also involve those aspects which point out at the individual path of people and its attachment with the territory.

Areas of excellence as the 22@ create a model of dynamic innovation based on the concept of the “triple helix” (Etzkowitz, 2003) which enhances the confluence Public Administration, Universities and Companies in order to develop synergies between these strategic agents that increase the competitiveness of the production system and assist in the creation, growth and consolidation of employment. Collaborative relationships are on the basis of the development of the triple helix: this interaction results from the synergies created in the territory among actors rather than from a

'prescription' from the authorities. Besides, the different actors involved are supposed to assume different roles than the traditional ones, providing therefore, the opportunity for innovation.

3.- 22@Barcelona: A model of transformation

Origins and aim

22@Barcelona began as a unique opportunity to partially transform Poblenou, a neighbourhood with productive vocation which conformed the old textile industrial district of Barcelona, into a platform for innovation and knowledge economy at an international level.

In 1998, after a considerable political debate about how to regenerate the 200 Ha of obsolete industrial area; two clear positions were established: on the one hand, the regeneration should aim at preserving the productive vocation of the area, on the other, it should be transformed into a residential area, given the scarcity of social housing in Barcelona. Despite this confrontation, a mixed solution was adopted on the basis of creating a compact city where knowledge based industry would be combined with residential uses. With the approval in 2000 of the "Modification of the General Metropolitan Plan for Transforming Poblenou Industrial Areas, District of Activities 22@", Barcelona bet decisively and unequivocally to preserve the production profile of this territory but also aiming at combining residential uses in the area.

22@Barcelona looked for an urban transformation along time that progressively regenerated industrial areas, both from the revaluation of its architectonic environment as from improving the quality of his public space. Instead of the conventional form of changing completely the urban space, this process was developed establishing a balance between maintaining and renewing, which allowed the definition of new urban images in a context of continuity with earlier forms.

With this idea, Barcelona started the transformation of the Poblenou neighbourhood, which for over a hundred years was its main economic engine, in a new model knowledge urban space that encourages collaboration and synergies between universities, government and companies with the aim of developing innovation and entrepreneurship together with the creation of a good quality of life for its citizens.

Poblenou occupies practically the east quadrant of "Eixample" that Cerdà projected for the year 1859. During the second half of the nineteenth century and the first of the twentieth century were installed in this industrial area, called "the Catalan Manchester", first activities on textile sector and later diversified into sectors such as mechanical, chemical and food industries. In the 60s begins the decay of the area as a result of the new dynamics of industrial location deriving, on one hand, the needs of the large-scale production, and secondly, improvements in the mobility systems. Both

favor the creation of specialized flooring in the corridors and metropolitan area, and therefore the relocation of traditional industry from the city center. This process was intensified with the economic crises of the 70s and 80s and was meaning the physical and economic degradation of the district.

The transformation of the industrial areas of the Poblenou is not isolated from other interventions taking place in Barcelona; not only the 1992 Olympic Games - with the construction of the Olympic Village and the ring roads around Barcelona together with the recovery of the Mediterranean city beaches- but also with the opening of the Diagonal and the construction of the high speed train station in Sagrera.

The process

The process started in 2000 with an initial phase of urban renovation and the provision of high quality infrastructures. In 2004, 22@Barcelona approached a new era of intense economic and social renewal: several strategies were developed aiming to create in the district Urban Clusters of Innovation focusing on various emergent sectors which Barcelona considered should be represented in the city's economy. They were media, information and communication technologies (ICT), medical technologies and energy. In some cases, these sectors were clearly rooted in the territory like the media or ICT, in some others, they were a clear bet for attracting and promoting them in the city. Later on, in 2009, design was added to the first four. The process aspired to concentrating on the territory businesses, public administration agencies and scientific and technological centers of reference in these strategic sectors.

22@Barcelona society was created to manage the district from the very beginning looking for its economic promotion and the international projection of business and academia (research, education and knowledge transfer). Up until now, leading projects and providing the support services to the companies has been the tool used to stimulate innovation at the district.

The results

Since 2000, renovation has begun on approximately 65% of the Poblenou industrial areas through 117 approved plans, of which 78 (66.7%) were promoted by the private sector. The plans establish the location of land for private use ceded by the municipality for subsidized housing, facilities and green zones, the characteristics of new buildings and the urban parameters that, after the corresponding urban-planning management processes, will allow for the development of building projects and commercialization of the resulting real estate products.

The total approved plans account for 2,830,596 m² of floor space. This is more than 136,837 m² of land for facilities, 119,720 m² of land for open spaces and nearly 3,000 housing units with some sort of public subsidy.

Licenses had been granted for a total of 1,323,000 m² of floor space, 908,000 m² of which are aboveground and 415,000 m² underground. 70% of this floor space is to be used for economic activities, 18% for housing and 12% for facilities.

Quantitatively, a little more than 39% of the PEI (Special Infrastructures Plan) has been executed, with more than 12,700 lineal meters of resurfaced streets, out of a total of 37 km, and all infrastructures transformed, including 5,063 lineal meters of new collectors, 50 conducts built and 3 under construction.

Regeneration of the district has led to the establishment of 10 universities with a total of more than 25,000 students, 12 R&D and technology transfer centers, and the current census of businesses in the 22@Barcelona area shows a continued growth.

Since 2000, more than 1500 companies have been located in 22@, and more than 44.600 knowledge jobs are new in the district. The entrepreneurial activity have been noticeable, more than 40% are new companies.

3.1.- Provision of hard factors

The objectives of the 22@Barcelona Plan will be renew the urban and economic Poblenou, suggesting a compact model and diverse city that instead of a model specialized on industrial land promotes the social cohesion and the urban and economic development more balanced and sustainable. So the new economic activities coexist with research, training and technology transfer, housing, equipments and trade, in one high quality environment, which density makes it compatible with a balanced allocation open space and equipment.

The 22@Barcelona plan modifies the characteristics of the regulation of industrial area by the code "22a" of Poblenou planning a new code "22 @" which regulates the use and intensity of building the new subzone, defines a new qualification of equipment- called 7@ equipment -, sets new standards for comprehensive redevelopment sector, establishes the rights and duties of owners of the land and determines the forms and mechanisms of planning derivative to develop transformation. The Infrastructures Special Plan of Poblenou (PEI), which specifies the 22@Barcelona plan for different infrastructure networks and service, was approved on October 27, 2000.

Through a system of incentives for the real state - increase of the building floors from 2 to 3 meters every square meter-, urban renewal processes contribute to the redevelopment of all streets with the renewal of infrastructure, improved quality and capacity of the urban services and of the new organization of the urban mobility. Also, is generated free land for the community- from initial 100% private land, with the transformation, 30% of the land will become public land-to create new green zones, facilities and social housing. On the other part, are favored in the presence of so-called @ activities, which are those that use talent as a main productive resource. They shall be

predominantly urban activities, intensive use space and information technologies and communication and dense in skilled jobs.

Thus, the progressive transformation of the industrial flooring solves historical deficits sector and restore the social and business dynamism that has historically characterized the Poblenou.

Since the project's inception in 2000 until now, the urban renewal project involves the creation a diverse and balanced environment where most innovative companies coexist with research centers, training and technology transfer and with shops, housing and green zones, that promote social and entrepreneurial dynamism.

3.2.- Favouring the creation of synergies

In 2004, with the will enhance and add value physical transformation (urban and infrastructure) the 22@Barcelona, policies were undertaken promoting economic activity centered on sectors emerging in which to achieve a competitive internationally: the media, information technologies and communication (ICT) medical technologies and energy. In 2008 began a new line of action in fifth strategic sector to Barcelona: the design sector.

Promoting urban clusters in the territory of 22@ has been to improve the innovative capacity companies through the creation of environments productive to focus the presence of companies, institutions, public agencies, universities and R&D reference in each sector. In these, are promoted value chains of innovation of each projects sector through science-technology-industry-market.

Companies located in the district are benefited from an ecology of innovation that gives them better ability to compete internationally.

Each of the five clusters of 22@ are in a development time differently depending on their characteristics and level of maturity. The methodology followed by 22@Barcelona in all cases has been based on establishing a close relationship a managing body that brings together the industry cluster and have the mission, shared with 22@Barcelona, boost the competitiveness of companies.

Since late 2007 and early 2008 there were strategic plans for ICT, Media, Energy and Medical Technologies. In 2008 were developed operational plans to implement strategic plans and governance and management models each cluster. Concerning the cluster design led together with Barcelona Design Center (BCD), in 2009 the Strategic Plan was completed, and was recognized by the Ministry of Industry as AEI (Innovative Business Association).

22@Barcelona has promoted the creation of sectorial centers of technology transfer as tools for

connection between research (universities) and companies. 22@Barcelona was working on consolidating these, as Barcelona Media Foundation in the sector audiovisual and Barcelona Digital Foundation sector ICT. In 2009, support was given to the creation of Technology Center of Medical Technologies and consolidation IREC (Institute for Energy Research Catalonia) which together with the b_TEC are leading Energy Cluster.

3.3.- Accompanying companies

In 2008, with the strategic objective of strengthening the support to companies that wanted to live in the 22@, is promoted the initiative 22@PLUS, initiative has continued developed during the years 2009 and 2010. The 22@ PLUS is conceived as a face value proposition companies looking at possible implementation district and consists of a catalogue of services where have all the elements of value added 22 @: technological infrastructure, knowledge infrastructure, business cooperation networks, strategy clusters, access to public and private funding, access talent, market access, facilities and spaces innovative companies and entrepreneurs, landing platforms for international business, etc. Within this Business One Door Service exists through which a company wishing to settle in the district will receive support in this installation process, the information necessary for integration into the cluster and access to services and tools developed 22@Barcelona.

The schedule of performances with the 22@Network, Business Association of 22@, has been to facilitate integration of companies and institutions installed on it, as well as its employees, and deepen relations between them and the Poblenou and its rich associations. 22@Update Breakfast monthly has been a very effective tool, developed together with 22@Network with the aim of share current issues and publicizes business and connects the companies located in the 22@ District.

In order to support and improve the adequacy of offer spaces to the needs of companies is coordinated marketing tasks with promoters and real estate consultants.

3.4.- Attracting and retaining talent

The Knowledge Economy has the talent as raw material. The territories challenge is to have qualified talent that companies can develop, and also be the platform for the talent in order to be developed.

The development of an innovative environment should be accompanied by a Talent management strategy in both its creation and development of local talent and in the attraction and retention of international talent.

22@Barcelona has managed the implementation of university centers in the district with the

objective of locating talent in the district and has installed critical mass of talent and new generations of Talent.

It has promoted a performance in primary and secondary schools with the aim of influencing scientific and technological vocations, entrepreneurship and understanding of global citizenship. These actions have connected schools with clusters developed in the District (CreaTalent Program).

22@Barcelona has led to an approach of schools with businesses, promoting career guidance (Porta 22) and workplace internships (Staying in Company) and employability (Talent Marketplace 22@).

With the aim of developing a community of professionals in the District, 22@Barcelona has promoted events such as the 22 @ Update Breakfast which has served to interrelate across profiles and create a sense of belonging.

Universities and companies have acted as true International magnet Talent. In this sense, landing performances have promoted for the international community, ensuring a comprehensive welcome. Publications such as "Welcome to Barcelona" which describes international schools or practical processes of life in Barcelona facilitate the implementation and integration of newcomers.

In parallel, 22@Barcelona has been developed social programs in order to involve the neighbourhood. Programs as Digital District have included grandparents and parents in the process of the district by digital training programs.

3.5.- Articulating governance

The 22@Barcelona was driven from public initiative with a long-term (20 years). For its development it was necessary to share the vision with Investors, companies, universities, civil society and other public authorities.

The involvement of agents in the process has been a key factor throughout the development. It has been promoting different hybrid structures (University, Industry, Public Administration) that ensured alignment interaction and collective project.

Vertically Triple Helix structures were promoted to take responsibility for each of the clusters. Barcelona Media Foundation and Barcelona Digital Foundation are good examples of governance.

Horizontally it had promoted the formation of the 22@Network, the Association of Business and Institutions of 22 @ Barcelona. This partnership with the body of trustees and the commissions on

Innovation, Talent, Sustainability and entrepreneurship acts transversely, bringing together enterprises and professionals of the District.

The horizontal and vertical institutionalization has served to strengthen the district beyond its initial impetus public, creating a governance matrix. The annual agreement with the 22@Network has facilitated the alienation and commitment to the development of the District.

5.- CONCLUSIONS

22@Barcelona is a case that shows the creation of an innovation ecology in a city from a public policy.

The project layering in Hard Factors, Soft Factors, Business and Talent, vertical integrated by Governance is establishing a model exportable to other cities.

In Hard Factors, urban management and the development of infrastructures and buildings as platform of a mix of economic and social uses.

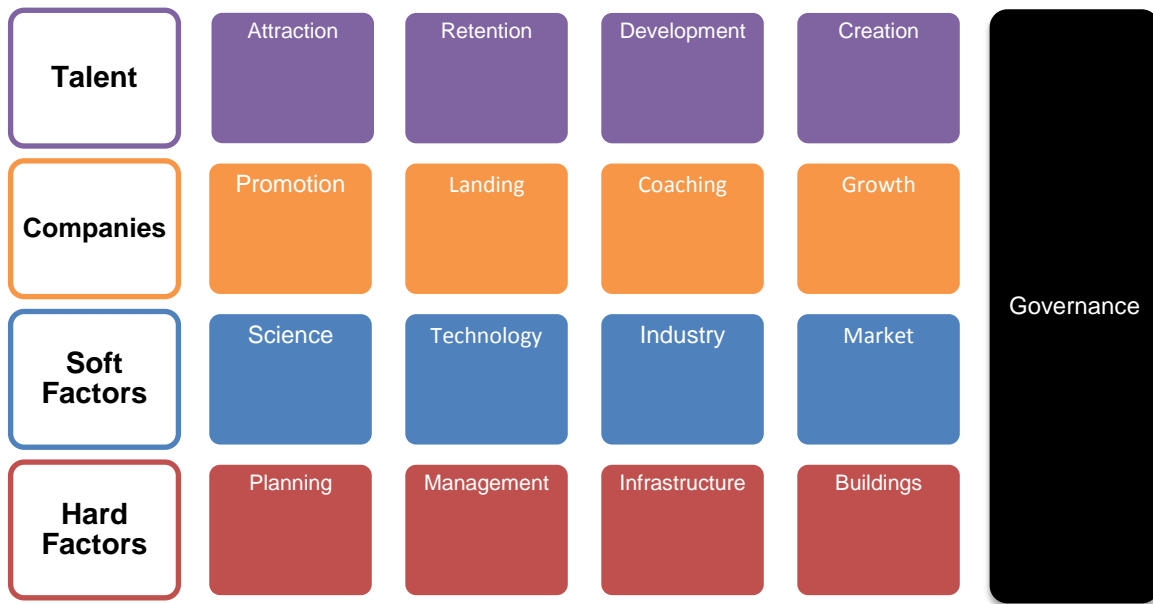
In Soft Factors, an ecology of innovation that promotes science-technology-industry-market with a strategy on Urbans Clusers that create externalities in companies and institutions installed. An ecology of innovation where demand is included. A district that is an open innovation platform.

A Business district, combining international promotion for locating companies and new entrepreneurs who are born and raised in the district.

A Talent district, where you create and develop new generations of talent combined with international talent.

The communication process has been a key project. From the constitution of the trademark (22@) to media appearances, have responded to a communication strategy to position both locally and internationally.

From an international perspective, 22@ has been a landmark project visited by hundreds of delegations. 22@ is a model of inspiration. But the challenge of every city is find their own 22@, one that maximizes its assets and articulates a smart strategy to create the best economic and social development.



22@Barcelona Metamodel

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