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Understanding the Innovation District: Knowledge Economy and the Use of Space
Barcelona and Dubai

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Abstract:

This master thesis aims at analyzing innovation district in two cities that are internationally known to be the innovation hubs of their respective regions. The analysis of these two case studies shows that innovation districts in both cities are city-led initiatives that are aimed at promoting the knowledge economy and innovation as tools to move from the industrial or oil economy. However, each innovation district is very unique and has several economic and social dynamics that are specific to its context and to its social and economic goals. The analysis of this unique social and economic dynamic is the main focus of this thesis. In order to analyze different layers of innovation districts and how those layers make every district unique, the theories of the French philosopher Henry Lefebvre and Graeme Evans will be used. What makes Evans and Lefebvre very relevant to this study is that their analysis of space creation (innovation district for this thesis) is not confined to a structural analysis of bureaucracy and formal steps to create an innovation district. Instead, they are more concerned with the dynamic process involving every possible stakeholder who would contribute to making the district, its activities and its experience unique. Indeed, there are several other angles through which innovation districts could be analyzed and studied. There are theories on urban regeneration, revitalization of industrial areas, clusterisation and agglomeration are some examples. However, the choice of Lefebvre to analyze the district was made because it represents the dynamic nature of innovation district, the internal as well as the external economic and social interactions within and outside the district. After analyzing the districts separately, Urban Policy Mobility framework will be used to analyze both districts combined. The thesis concludes that even though innovation districts can achieve the same economic goal of creating a knowledge economy, they still can be very different because of social, economic or cultural background of the city.

It is not a goal of the thesis to measure the success or failure or each district, neither to generalize any assumptions about innovation districts as an approach to promote the knowledge economy. Instead, the goal is to look deeper into the innovation district to understand other economic and social dynamics beyond the usual quantitative measures of success and failure. Additionally, this study is not a comparative analysis. By definition, a comparative analysis would be to see how innovation districts would work in two similar cases. This study is a two case studies from different regions of the world, trying to shed the

light on a region that has a lot of work in the field on innovation economy, but very little research.

Key Words:

Innovation Districts, knowledge economy, Barcelona, Dubai, Europe, Middle East, Lefebvre, Evans, Urban Policy Mobility

Introduction, Research Questions and Research Overview:

The contemporary urban economy is witnessing a significant switch from manufacturing to knowledge intensive and service-based industries, all focused-on innovation growth. In this new urban economy (i.e. the post-Fordism production model) there is a growing importance and empowerment to the knowledge of the human capital. This capital here is considered the primary driver for growth, while the knowledge and creativity-based economy (the new economy) is considered the new source for development. Additionally, the term knowledge economy is also being circulated between scholars and it is "intended to capture a sense of the fast-growing technological change and the need for continuous innovation" (Bryson et al, 2000, p. 3). Creative Industries, creative economy and knowledge economy are considered as tools to promote the urban regeneration, economic development as well as job creation. They, therefore, have several attributes attached to economic growth as well as being social, cultural and sustainable development enhancers[1]

These creative and knowledge sectors have moved from a peripheral position, in terms of economic and social importance, towards a more central and empowered one in global policy as well as academia. The origin of this shift in city policies and city making can traced back to the 1970s. In the Global North, creative city 'making' is largely linked with the market-driven agendas of the so-called 'entrepreneurial cities'.[2] Those cities importance increased since the late 1970s, where there was a seemingly declining power of the nation-state. Additionally, there is an increasing competition between different urban nodes for capital and labor. Adding the transformation towards the new economy from the industrial economy to this competition, many cities in Europe and North America became obliged or even forced to

[1] Oakley, "Whose Creative Economy"
[2] Harvey, "Flexible Accumulation"

accept and embrace a new approach to urban development. Consequently, "making the urban core attractive"[3] has become one of the most crucial objectives attached to their policy agendas. This, in turn, has contributed to the growing number of 'creative cities', all aspiring to "differentiate themselves, and to sell themselves as centers of culture"[4] innovation and technology. In these cities, culture and the arts are used as display practices for capital accumulation and growth. Coupled with the notion of 'creativity' and 'technological innovation', they are placed at the center of the policy narratives for their supposedly wide-ranging contributions to the economy, urban regeneration, and city promotion.[5]

Cities, hence, in this context, are seen to be the driver for creativity in the globalized world, given the fierce competition to be an attractive spot and hub for the creative economy and creative workers. In this regard, authors like Michael Porter and Paul Krugman have popularized theories about the importance of agglomeration and clustering of industries to foster innovation and competitiveness. Other authors consider cities to be the ideal location for the creative and knowledge industries that constitute the new economy.[6] They also believe that cities are the poles to attract the creative workers.[7] This is significantly important because ``the driving force behind the development of a city turns out to be its ability to attract and retain creative individuals".[8] To be able to do so, cities need to transform their urban landscape; ''Variety necessitates clustering, novelty necessitates urban clustering and radical innovation demands clustering in global and world cities''.[9] Therefore, the new economy is usually considered an urban phenomenon. A phenomenon that is determinant in the development and growth of cities.[10] As a consequence, since the 1980s, flagship projects started to proliferate which involved building major facilities and infrastructure. These projects were led by city governments in top-down processes, where innovation and technology appeared to be at the center of urban regeneration of abandoned or unused spaces.[11]

[3] Grodach and Silver, "The Policy of Urban Cultural Policy", p. 4
[4] Leslie, "Creative Cities?", p. 403
[5] Harvey, "From Marginalism to Entrepreneurialism"; Zukin, "Landscapes of Power"; Gray, "Commodification and Instrumentality"; McGuigan, "Rethinking Cultural Policy"
[6] Aage, "From Fashion to Design"
[7] Florida, "Cities and the Creative Class"
[8] Lazzeretti et al, "Do Creative Industries Cluster?", p. 551
[9] Lorenzen and Frederik, "Why do Cultural Industries Cluster?", p.165
[10] Scott, Creative Cities; Jacobs, The Death and Life
[11] Morato, "Cultural Led Urban-Regeneration"

Here it is important to notice that creativity and creative economy have not been static since the 1970s. These notions have evolved, transformed and developed into other forms and types, with a new age that changed the arts and culture society into the knowledge society. The traditional creative industries were used to occupy the largest portion and the core of the definition of what is creative industries. Art was a major contributor here supplying the cultural products as well as the non-cultural ones, such as tourism, advertising and design. However, currently, these industries are a subset or a sub-category of the creative economy, or the new economy.[12] The new economy here is not defined in terms of certain sectors, but rather defined in terms of knowledge-based industries and ICT activities in various sectors.[13] To demonstrate this sub-categorization of art in the new economy, according to Duxbury, there is a significant absence of cultural activities and heritage planning in new knowledge cities.[14] They only exist in so far as they attract knowledge workers. This transformation is a reflection of the end goal and aim of the new economy.[15] The idea behind this transformation is that the new economy has a strong perceived social and economic benefits. Those benefits and externalities are realized through the 'hope values' of knowledge and innovation (i.e. land and labor markets, innovation and skills), trickle-down effects and improved quality of life. This new economy of knowledge and innovation replacing cultural and arts notions of the creative economy has also given rise to the concept of the knowledge city and knowledge based urban development. While the idea of knowledge, innovation and technologies are not new in themselves, basing the economic and urban plans as well as the city brand around the knowledge and innovation is a recent trend in city planning.

These creative and knowledge city notions did not stop or get confined at the global north. Since the 1990s, many Middle Eastern cities developed clear interest in urban creative policies. While this was a representation of the post-industrial economy in Europe, it was a representation of the post-oil economy in the Middle East[16] which was left behind in the industrial revolution[17] and have always been dependent on oil revenue. However, while these cities might be adopting very similar policy narratives and terminology, the meanings

[12] Work Foundation, "Staying Ahead"
[13] Examples for these can vary between FinTech, biomedical tech, media
[14] Duxbury, "Creative Cities, Principles and Practice"
[15] ibid
[16] The economy of Dubai is no longer dependant on oil, with its oil reserves draining up compared to other neighbour cities like Abu-Dhabi
[17] This goes back to the history of colonization of Dubai. UAE became an officially recognized political entity with control over its economic resources only by 1970s.

attached to the creative city policy discourse are reconstructed to accommodate the specific policy, political agenda and needs of the place. In other words, like any other travelling policy discourses, urban policies transform and 'mutate' as they move in time and space from one policy-making site to another.[18] Moreover, it is important to note that while European countries and cities have a strong market and marginal role of the state, the state remains at the center of all developments in the Middle East. Therefore, unlike Europe or the global north, creative city urban policy in the middle east are closely attached to the political and economic interest of the state.

Hence, this thesis aims at looking with a close lens at the creative and knowledge cities from two different regions of the world. Given the importance of cities' urban regeneration to the innovation economy, those notions will be examined through an urban perspective. The urban regeneration flagship projects studied in this thesis are the creative and innovation districts. Creative and innovation districts here are defined as the area or zone where the main economic activities happening are related to the creative, technological and innovation industries across various sectors. While there are abundant resources on the creative city, creativity, and innovation based urban regeneration policies in Europe, there are very few works done on the Middle East adoption of these policies. This study aims at understanding the urban policy mobility in knowledge cities and therefore address this gap in the literature. The main purpose is to understand how and why city policies are adopted and embedded in a different cultural, economic and historical setting. In order to do so, two cities were selected from Europe (Barcelona) and the Middle East (Dubai). In specific, both cities used the innovation urban regeneration projects (i.e. innovation districts) as a kickstart to launch their cities' economic transformation path. Therefore, an analysis and interrogation of the innovation districts in both cities will be done as well as comparing the rationales behind the adoption of their respective policy practice. Accordingly, the main question that this research will aim at answering is: ***Why was it important for Barcelona and Dubai to initiate creative and innovation districts? And what makes every innovation district unique economically and socially?***

The main question is the second one, and it will also be the focus of the analysis. This is because it is important to understand that the notion of urbanism cannot be confined to the

[18] Peck, "Creative Moments"; Peck, "Geography of Policy"

western perception of it. Rather, the adoption means and reflects the constraints, aspirations and opportunities faced by rising world-class cities. Here comes the gap in the literature that is sought to be addressed. The general assumption by international organizations like UNCTAD or even by some proponents of the knowledge and creativity-based development is that if one policy moves from one place to another, it will have the same effect it had in its original location. Nonetheless, this analysis aims at looking at this critically by addressing a strikingly similar notion of innovation and knowledge-based urban development but in two different parts of the world which blossomed into significantly different outcomes. Even though both cities' innovation districts are perceived by their respective planners as the technology and knowledge hubs of their regions, the two districts took different shapes and forms based on the historical, economic and social backgrounds of their cities. In this regards, Urban Policy Mobility field is very useful in order to look at the transformations happening to a single policy from one place to another. The use of urban policy mobility in this study does not aim at generalizing a cause-effect relationship of a certain city policy or action. Instead, the goal is to stress on the uniqueness of each case and how important for other cities that consider following same policies to acknowledge this uniqueness' impact on their projects. It is important to stress here that this thesis focuses more on the economic and social dynamics rather than the outcomes. There have been several studies focusing on the investment versus outcome, along with the planning and political process. While these studies are crucial to empirically asses the viability of innovation districts, they do not address the daily residents' life, the planners' evolution of ideas and adaptation to change in the world, and the companies' daily interests and concerns. Hence, this thesis tries to have a more in-depth analysis of the innovation districts rather than an impact analysis.

To be able to analyze the two districts and answer the research questions, there are two elements that should be addressed. First element is the creative districts,[19] and second is the two case studies of Barcelona and Dubai. The next chapter will theoretically analyze creative districts, but it is worthwhile to briefly summarize the history of them to be able to understand the research questions and the relevance of innovation districts to the knowledge economy. Historically, creative quarters and districts would develop and flourish organically through cultural producers and works and through the fringe workshops within the low rent

[19] Creative districts and innovation districts will be used interchangeably thereafter, since creativity currently encompasses a knowledge and innovation economy in both cities (more intensely in Dubai than Barcelona)

and loose control areas; controls like planning, licensing and policing.[20] Through the study of the high-tech industrial complexes in the United States, it was established that one of the main reasons to the restructuring of the US regional economy was the rise of those military and industrial complexes and the industries emerging within them based on the defense and Pentagon spending.[21] Later, Florida's work on the creative class and how to attract them have recreated and accelerated the new economy through technocratic planning, regeneration and policy intervention.[22] This acceleration required a very fast learning process by governments and investors which then relies on evidence and policy models to minimize risks, justify the spending and resource allocation to promote this new economy, as well as secure the economic advantages and returns that the knowledge economy allegedly offers.

Consequently, looking at cities' creative and innovation districts can be an articulate representation of city policy and cities' trials to be part of the global creative and knowledge environment. This is because cities are spending billions currently in order to create innovation districts to stimulate innovation, knowledge and creative economy. Examples are "Fashion City and World Jewellery Centre (Milan), Orestad (Copenhagen), Digital Corridors (Malaysia), Digital Media City (Seoul) and campus-based science/R&D and creative precincts in Brisbane (QUT, South Bank), Berlin (Adlershof), Helsinki (Arabianranta) and Toronto (MaRS)".[23] Some of these cases were rushed with speculative real-estate with no real element of innovation -or an innovative façade-, while others did indeed have been integrated in a larger city plan for boosting the knowledge economy. Those billions indicate that the results of these investments and policy intervention cannot be confined to the geographical space of the creative district, but rather they apply to the city as a whole.[24] In other words, creative and innovation districts policies are seen as a representation of general city policy to support the creative and knowledge sectors in the whole city.

Then comes the second element to the questions, which is the two cities of Barcelona and Dubai. As mentioned earlier, this research is using the case studies which adopted similar project in different historical and economic contexts. This also will be further discussed in the

[20] Wilson, Bohemians: The Glamorous Outcasts; Evans, Cultural Planning; Wedd, Creative Quarters
[21] Markusen, "The Artistic Dividend"
[22] Florida, "The Rise of the Creative Class"
[23] Evans, "Creative Cities, Creative Spaces and Urban Policy.", p. 1007
[24] Morato, "Cultural Led Urban-Regeneration"

coming chapters. However, it is important to layout an overview of both cities' history and how their creative districts came about to stress the importance of the cities' choice logic.

Since the 1980s, and specifically linked to the Olympics of 1992 developments, Barcelona has been led by a strong city council which led to a significant transformation to its urban landscape. The study of this transformation led several academics and policy makers to name this transformation as the 'Barcelona Model'. This model includes elements like consensus in public administration, introducing strategic planning, involving the private sector in financial projects, creating autonomous entities in charge of finance and planning, and supporting architectural approach to redevelopment. In the 1990s, Barcelona initiated a cultural-led regeneration strategy which implied physical transformation of main districts in the city. Part of this strategy came the project of reusing the old industrial district of the city, Poble Nou, as a space for the creation and vitalization of the new economy in the city. The Barcelona model was very apparent in this process, and currently Barcelona is taken as an exemplar for any city that is willing to start its own creative initiative. Each detail of the Barcelona's innovation district speaks about the Barcelona's model and also relates to the general goal of the city to transform its economy in the post-industrial era.

Dubai, on the other hand, has a similar trajectory in a different context. Dubai has been one of the very few Arab cities that learned the lesson early on that it is not an age of industrial based development any longer. The Emirate has also been aware of the risk of running out of oil and by default oil money since the financial crisis. Therefore, and throughout the 21st century, Dubai started realizing the importance of diversifying its economic activity. The city's official economic transformation plan was to do so through the focus on tourism, finance and trade. The new economy in this context is a determinant for their future success and development in three ways. First, technology companies are in need of large infrastructure which made real-estate value higher. Second, tech companies bring in large investments to the city which will stimulate the financial services. Third, knowledge economy is the perfect city brand for the city promotion to attract all types of events and thus stimulating the city's tourism economy. The sheikh of Dubai then started the transformation of the Emirate's economy into a knowledge economy, with an intensification of knowledge and the formation of the knowledge capital of the Middle East. Dubai's formula for development within this context included several mechanisms; things like the visionary leadership, high quality and top-notch infrastructure, zero tax on personal and corporate

income, an expatriate-friendly environment as well as low import duties.[25] These factors combined made authors and politicians alike call Dubai the instant city model. In early 2000s, the Dubai Sheikh, Mohamed bin Rashid Al Maktoum, started one of the very first innovation districts in the city, Dubai Internet City (DIC), and made it a free zone. As with Barcelona, Dubai's formula was also significantly present in its innovation district approach.

The purpose of using the two cities as case studies is to look at two different models of city state-led urban regeneration initiatives that are aimed at promoting the innovation and creative economy. Therefore, even though the two models are significantly different in context and history, they started at the same moment in time (early 2000s), with the same city state-led instant goals of promoting the knowledge economy, with different long-term goals of the city's overall economic structure.[26] Hence, this research will focus specifically on the two main urban regeneration projects of both cities. In Barcelona, the research will study and analyze the innovation district of 22@ Barcelona. In Dubai, Dubai Internet City and Dubai Design City will be analyzed. When necessary for the analysis, other districts within the same city will be analyzed to evaluate the differences within and whether this difference is significant to the policy model in each city. Again, the goal is to understand the uniqueness of two cases that used innovation districts to promote the creative and knowledge economy. Each district had the specific goals, politics and ideas of its city represented within the geographical space, which led to seemingly two different types of innovation districts. Yet, both managed to achieve their goals, in their own terms, in promoting the knowledge economy.

After understanding how and why those two elements are the main focus of this thesis and the research questions, it follows then to explain how the questions will be answered. To answer the first and second questions, this research will be using Graeme Evan's and Henri Lefebvre's theories about space and space creation in order to understand the two models of Barcelona and Dubai. What makes Evans and Lefebvre very relevant to this study is that their analysis of space is not confined to a structural analysis of bureaucracy and formal steps to create an innovation district. Instead, they are more concerned with the dynamic process involving every possible stakeholder who would contribute to making the district, its

[25] Bagaeen, "Brand Dubai"
[26] In both Barcelona and Dubai, the "state" refers to the city-government. This usually is because everything is planned and financed by the city, but officially, the city is part of the state as a political unit.

activities and its experience unique. Indeed, there are several other angles through which innovation districts could be analyzed and studied. There are theories on urban regeneration, revitalization of industrial areas, clusterisation and agglomeration are some examples. However, the choice of Lefebvre to analyze the district was made because it represents the dynamic nature of innovation district, the internal as well as the external economic and social interactions within and outside the district. It is worth mentioning that this thesis' purpose is not to critically analyze the theory but rather the cities. Therefore, the theoretical framework functions as a tool to understand how to analyze a space that has multi-layers of planning, social, economic, and political aspects.

After answering the first and second questions through Evan's and Lefebvre's theory, A further understanding of the second question will be made through looking at both case studies combined using urban policy mobility. The latter will help putting into context the two cities' policies, dynamics, approaches and goals. This would function as a way to understand how every district is unique even though they both are city initiative to create a space aimed at promoting innovation economy.[27]

The structure of the research will be as follows: the first chapter will be the conceptual and theoretical framework for the analysis. This will include brief definitions of the main used concepts and theories in order to analyze and examine the creative districts in the two cities. At the end of the same chapter there will be a discussion on the data sources for this case study-based research. Second chapter will be the first case study (Barcelona), third chapter will be the second case study (Dubai) and final chapter will be the chapter to analyze the two cities with concluding remarks through urban policy mobility.

[27] Thus far, the main element discusses in all policy documents are economic development and employment.

Chapter I – Creative Economy and Urban Regeneration Projects

This chapter will lay down all of the theoretical analyses that this research is based on. It is divided into four sections. The first section will be a general and concise summary of the creative and knowledge industries economic benefits arguments in the literature and their relation to urban development and city policies. This section is based on the concept that the understanding of urban regeneration projects cannot be separated from the understating of the creative and knowledge economy as a driver for economic development. The second section is going to discuss the main theories and analyses used in the literature to analyze innovation districts. Namely, the section will be using the works of Henri Lefebvre and Graeme Evans. This will include the analysis of how to see innovation districts as a representation of city policy to promote the creative and knowledge economy. It will also include the main analytical points that will be used to analyze and understand space in innovation districts. In the third, section the chapter will tackle one of the main theoretical grounds for the analysis (i.e. urban policy mobility). This section shall serve to understand how to bridge the gap between two seemingly different models in innovation districts. The importance of this section lies within the understanding that regardless of how the two models are different, there are ways to comprehend them together and therefore comprehend districts as a notion with its different shapes and forms. Figure 1 below represents how this chapter is structured and how the analysis of the innovation districts in Dubai and Barcelona will be conducted. Last section will be discussion the methodology and data sources.

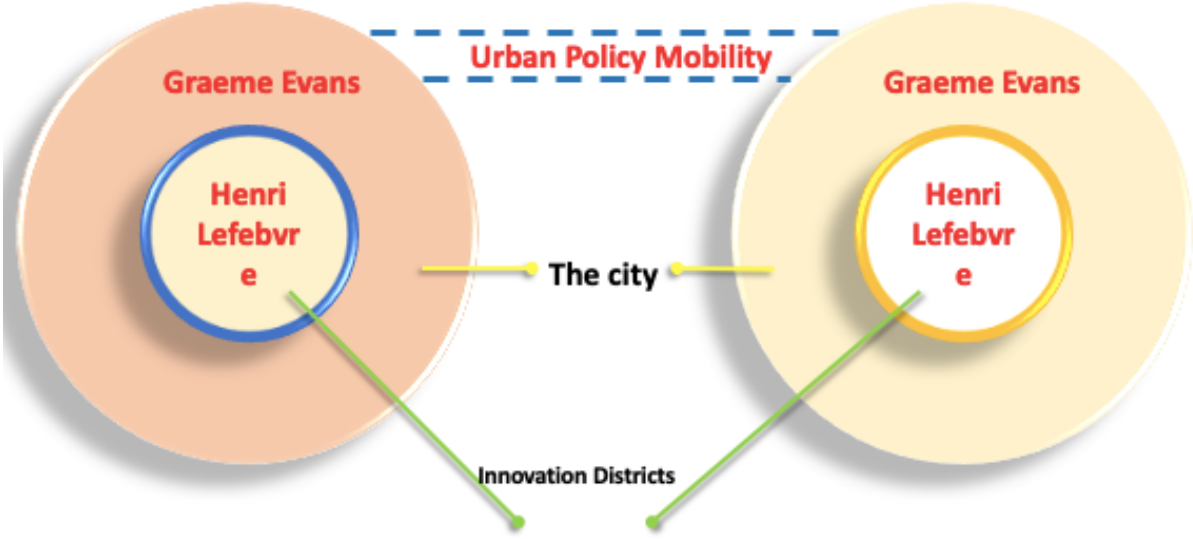

Figure 1: Structure of analysis

Source: Author's illustration

Creative Economy and Policy Intervention

Before going deeper into the creative and innovation districts, this section will highlight the general and mainstream goals for the adoption of a creative city brand. This will be discussed mainly through Evans[28] and other authors ideas and analysis of the creative industries clusters. Those cluster are one of the main rationales of creating innovation districts. This section is meant to addresses the literature that will help analyze and answer the first research question of: "***Why was it important for Barcelona and Dubai to initiate creative and innovation districts?"***

The main reason that policy makers and academicians have promoted creative and knowledge industries is their high performance and growth potential perception since the 1990s, towards the turn of the new century and until the present moment. This performance and potential that usually underpins the policy intervention is typically measured through three main quantitative indicators: first, the contribution to employment; second, the proportion of contribution to the national and regional economies' gross domestic product (as a percentage of GDP); third, the gross value-added, which is usually measured as sales or turnover per employee. In that regard, the creative and knowledge industries are now commonly utilized alongside major industrial sectors in regional, national and city-level economic strategies as well as international and global trade forecasts.[29]

A demonstration of this is the World Bank's estimation of creative industries' combined annual growth rates being around 10% between 2000-2005, and their share to employment is about 7%.[30] Additionally, the cultural sector, strictly speaking, represents 2.5% of employment, conservatively. These rates are usually quoted and referred to in local, national and regional policies. Until recently, the cultural industries themselves were of a minor economic value and of a very narrow interest to planners and academicians.[31] These industries were more occupied with the local cultural cluster, partnered with established economic activities like tourism, or contributing to high value industries like design in manufacturing or services like architecture. This can be clearly seen in global city rankings

[28] Evans, "Creative spaces: an international comparison"
[29] ibid
[30] UNCTAD, Creative Industries and Development; Wu, "Dynamic Cities"
[31] Evans, "Creative spaces: an international comparison"

where single sectors feature the lion's share of international trade and headquarter activity, such as media and advertising.[32] Those world city rankings have started to include the cultural and creative industries and their competitive advantage since the 1990s,[33] which was still referring to them as part of the arts and culture impact on the quality of the place rather than their industry location per se.

Later, with the knowledge sector gaining more importance in the economic development, a synergy was believed to be happening between the different businesses within the field but also between the businesses and society at large. This synergy and spill-over effects have been supported by several studies on the creative and knowledge industries clustering. A study done in 2000 by Antonelli has concluded that knowledge in the technological and innovation fields are usually collective goods.[34] This means that the generation of knowledge is a result of the collection process of pieces of information from different parties and partners, and it cannot be traded. Antonelli has also proves that transaction and communication costs for technological externalities are very low which, consequently, affects the increasing returns and positive feedback. Being able to optimally achieve the communication process necessary for those externalities can be a very well-grounded explanation for the clusters of innovation and knowledge activities in well-designed spaces. Additionally, Antonelli's study has suggested that the localization of industries in the innovation districts supports the access to external knowledge as well as the production of local technological advances, which leads to a self-reinforcing mechanism of knowledge production. This localization creates what is known as the innovation networks.

These economic benefits and indicators are often cited in order to support policy intervention to promote the sector and support the innovation districts projects based on the clustering, agglomeration, networks and communication justifications. These are often used as a support and justification to policy intervention to create this synergy and developmental effect of the new economy. Following that, as mentioned briefly earlier, several cities are spending billions to create an innovation district where the knowledge industries are localized, which will be analyzed in the two case studies of this researching order to understand how the innovation districts came to happen in the knowledge economy support context. The coming

[32] Taylor, "Leading World Cities"
[33] Comedia, London World City; LPAC, "London World City"
[34] Antonelli, "Collective Knowledge"

section will be discussing the innovation districts, their brief history, their purpose of creation, but most importantly, it will discuss how to analyze an innovation district. That section shall help as a first step to answer the second and core question of this research: "***And what makes every innovation district unique economically and socially?"***

Urban Regeneration Projects: Innovation Districts

As mentioned earlier, this research will be using urban regeneration projects, or innovation districts, as a unit of analysis to represent city policy in promoting knowledge economy; or what is called in academic work 'economic development through urban transformation'. Those innovation districts have tangible and intangible characteristics. Tangible includes mobility, infrastructure; the intangible includes purpose of creation, and business regulation. Additionally, creative districts have both economic and social contexts. The economic context has been briefly mentioned before in the creative industries and policy intervention section. This includes the important role networks play in inter-firm communication and trade. The networks for creative and knowledge industries secures the access to the market and also supports the exchange of ideas as well as social interaction which is an essential input for the new economy. The social context of the creative districts supports the idea that a strong involvement of the local identity and the existing community is a major factor to the success of the urban regeneration process of the district. This does not mean that cultural-based urban regeneration aims or should aim at a wide choice of cultural offerings for the creative workers. Rather, it means that the district should rediscover a sense of belonging.

To be able to use those projects as a unit of analysis, this section will lay out the analytical framework to analyze the case studies. Firstly, one needs to understand what the projects are, their characteristics and history as part of the promotion for the creative industries and knowledge economy. Secondly, the theory analysis of Henri Lefebvre and Graeme Evans about space and space creation with economic purposes and goals will be laid out. This will be used as a tool to analyze both cities historical and current practices and plans for their respective creative districts. Finally, the critique in the literature on innovation districts projects will be also summarized which will help to assess where both cities stand from the criticism on innovation districts.

First, it is important to understand why those districts and their policy initiatives can be a representation of an overall city policy towards the support and promotion of creative industries. Creativity is usually considered an urban phenomenon, one of the determinants in the development and growth of cities.[35] Creative and knowledge industries show an ‘‘urban nature’’, as they tend to cluster in the localized urban locations, where they play an important role for the local economic base.[36] Each of these clusters need a hub or set of hubs through which the major transactions with the rest of the world occur, these can be identified as the creative hubs/districts in the city.[37] While those districts and hubs were spontaneously created in the past as mentioned earlier, policy planners have decided to follow suit and purposefully create a similar process. This decision and path towards creative and knowledge industries promotion can be understood in light of the rising importance during the late 1990s and early 2000s of the agglomeration and clustering economies. With authors like Paul Krugman and Michael Porter popularizing theories about the concertation of industries in a specific confined physical location and space. As Simmie summarized:

> *“The cluster idea … has taken many academics and policy-makers by storm. It has become the accepted wisdom more quickly than any other major idea in the field in recent years … at the expense of previous explanations and lacking in relevant empirical evidence”.*[38]

However, it is not only the business-cluster led economic development associated with Porter’s growth theory that contributes to the significance of employment and investment in the creative sector, it is rather city policy.[39] With regard to city policy to support business development, especially with the new economy, Comunian added the creative and knowledge city is a complex system. This means that city policy is not limited to a certain social, political or geographical boundary, even though it might be directed at a limited scope.[40] This is complemented with Evans argument that urban regeneration projects (innovation districts) are a representation of general city policy since they are the direct scope of intervention by city planners.[41] Therefore, a city policy to create an innovation can be both a representation

[35] Jacobs; Scott
[36] Lazzeretti et al, “Do Creative Industries Cluster
[37] Landry, “Toolkit”
[38] Simmie, “Do clusters or innovation systems drive competitiveness?”, p. 184
[39] Evans
[40] Comunian, “Rethinking the Creative City”
[41] Evans

of a general policy and also an interactive policy with the whole city planning and branding approaches.[42] Therefore, studying the innovation and creative districts from the view point of policy planning can help understand the dynamics and economic goals of the city planners, which goes back to the previously discussed creative economy and growth relationship.

After understanding the bigger goal and purpose of innovation districts, a look at the theoretical analysis of creative districts as an economic and social space is important to know what to analyze in each case study. In studying the creation of space in general and creative and innovation districts in specific, several authors have used the work of the French philosopher Lefebvre. Lefebvre is a French Marxist sociologist, who is famous for his "Critique of Every Day Life". Lefebvre added his own perspective on Marx's notion of production. He perceived production in a broader sense (this is to include signs, writing, culture, space, etc). He also considered the problem of reproduction of the mode of production and its associated forms of alienation. These are central to understanding Lefebvre's long-term project as best represented by the three volumes of The Critique of Everyday Life.[43] Lefebvre has also considered capitalism in the terms of urban space. He argues that capitalism creates its own urban space that allows the conditions for the reproduction of the bourgeois. Lefebvre, therefore, suggests that capitalism reproduction happens through the force of concretizing a space, being abstract in the way that it has no existence save by virtue of the exchangeability of all its component parts, but also is concrete in as much as it is socially real and as such localized. Adding to this approach, Lefebvre suggests that the production of this space is at the same time a process of the reproduction of alienated social relations. "The human subjects that go about their individual everyday lives locked into a seemingly self-regulating circuit of production-consumption-production socially constitute such a space."[44]

While Lefebvre's theory is not the only one to describe, analyze or criticize space and space creation, Lefebvre seems to be the most specifically relevant author to this thesis. This is mainly because other authors, like Manuel Castell's, do not look at the creation of space in specific policy terms, or as seen above, did not analyze the space as a deliberate political creation and a result of state's imaginary. Lefebvre has also analyzed the labor and labor

[42] Bagwell, "Creative Cluster and City Growth"
[43] Lefebvre, Critique of Everyday Life V. 2; Lefebvre, Critique of Everyday Life V. 3
[44] Charnock, p. 616

division through space in the new economy. In that context, space and space creation are not equated with a mere social function but are rather viewed as a material crystallization of a complex, over-lapping and multi-layered political and economic process. Lefebvre is also particularly interesting to this research because of his consideration of space dynamics as a product of globalization pressure and the need for competitiveness enhancement. This globalization pressure is a main driver for promoting the new economy as discussed earlier. Hence, Lefebvre's theory on space is in line with the alleged goals and benefits of the new economy. Most importantly, Lefebvre's theory is analytical, yet is broad enough to encompass the different innovation districts with their different economic, political and social settings. Therefore, his theory is the most relevant to this research given the different nature of the two districts in question.

To be able to analyze space and space creation in economic and social terms, Lefebvre has developed 'triangle of interconnected spatial concepts: physical space, mental space and social space'. These three are also usually referred to as the perceived, conceived and lived space. The first space (physical/perceived) means the form once can perceive with their senses which is an intuitive definition of what is a physical space. The second one (mental/conceived) means the concept and technical rendering created by policy makers and urban professionals. This can include master plans, zoning plans, activities plan and initiatives, etc. The last one (social/lived) is derived from and based on the first two spaces. However, it is significantly defined through the lived experience within the space, and the symbolism of this experience. This experience is influenced by the imagination of both creators and inhibitors of the space. Therefore, it can be changed with temporal or physical needs. Hence, space creation is not merely an objective act for the enhancement of businesses or collaboration. Instead, it is an inter-play the three space that produce and reproduce the social, political and economic goals.

The states take the lion's share of responsibility in this view. For Lefebvre, the state has assumed an increasing responsibility for delineating and cohering the process of urbanization and sustaining the alienation inherent to everyday life.[45] He argued that the state devotes extensive attention to create an ensemble of ideas. The state not only takes role in creating the

[45] Lefebvre, Critique of Everyday Life V. 3

space, but also takes role in mediating the socio-spatial polarization to secure the social homogeneity.

This homogeneity makes Lefebvre critical of the intellectual division of labor. He argued that the state's role as a maintainer of social relations upon different geographical scales is a tool to create an intellectual division of labor with geographical boundaries. The state continues to reconfigure social space to create a hierarchy an undeniable homogeneity, of territorial organization, one that can be secured, maintained and reproduced. Finally, Lefebvre has also been repeatedly stressing on the history of the creation and recreation of space and how it affects its present social interactions.

To sum up, using Lefebvre's theory on state intervention in the creation of social space in the urban economy gives the necessary and critical tool through which once can analyze different policies, their directions, and how seemingly similar set of economic goals to promote the new economy can affect the narrative of space differently. In other words, Lefebvre gives the tool to answer the second question of how every city's goal and approach affect the uniqueness of their respective innovation district. Therefore, it is stimulating to apply his theories to case studies and reflect on the real-life processes and dynamics of innovation districts.[46]

To further understand the districts and to be able to dig deeper in Lefebvre's triangle, other authors' theories on space in the new economy should be considered. Graeme Evans is a key contributor in the field of the economics of space in the creative and new economy. First, he argued that it is essential to look at the types of organizations existing and who is involved in the execution of their initiatives within the space. In that context, interdependency is essential in the new economy. There is always the question of who is empowered and entrusted to the execution of the strategic plan in a way that sustains the original purpose of the plan and at the same time keeps it dynamic and internationally attractive. There are several points that revolve around the execution; like transparency (the public should be aware of the processes and the spending mechanism of the project), efficiency and beneficiaries. All these points would be indicators on who are the stake-holders, what are the goals, and who is targeted by those urban regeneration projects.

[46] Brenner, "The Urban Question as a Scale Question"

Here comes the second point of Evans and other authors analysis. Besides the execution of plans, it is important to examine the types of programs and initiatives taking place and who is targeted by them. There are two approaches to launch initiatives in innovation district, summarized by Abdelraouf. [47] The first approach is the top-down one. It can be seen as urban engineering and the construction of public works. Over time this developed as a bureaucratic, professionalized and centralized planning system that is largely closed. This approach is largely criticized for lacking the collaborative approach, methodology and mechanisms that ensures the participation of the diverse groups of stakeholders in decision making[48] which, as mentioned earlier, a necessary factor to the networks of the innovation districts. This means that there is very little space for the creative and even non-creative workers to participate in the creation of the space process, which might lead to a reinforced division of labor that Lefebvre criticized. The second approach is more of a liberal one. It requires a democratic and structured society that allows for a grass-root engagement of the space inhabitants and workers.[49] In this thesis, both case studies have followed a top-down approach with variation in the level of direct city involvement. This approach suited their economic goals at the specific historical moment they started their innovation districts. This top-down approach is yet another reason why Lefebvre is very crucial to understand innovation districts. His theory and analysis are based on the thesis that the state assumes the main role in the social and economic relations in the space. What is further interesting about these two approaches to innovation districts is that they correspond to Charles Landry's[50] analysis of the types of urban planning in the city as a whole.[51] This resembles the earlier stated interconnection between the urban projects to support knowledge economy and the creative and knowledge city as a whole.

Finally, Evans also argued that creative and innovation clusters in the districts do not, on their own, guarantee knowledge spill-over, employment or growth (i.e. the claimed benefits of innovation districts and the new economy). These clusters require other connections and factors. To name some of these crucial factors are connectivity with established producers

[47] Abdelraouf, "The Myth"
[48] Landry, "toolkit"
[49] Abdelraouf, "The Myth", p. 16
[50] Landry is considered one of the major academic and consultants working on creativity and innovation in cities since 2000.
[51] Landry, "toolkit"

and intermediaries, and with markets and consumers/visitors from a wider area. Hence, innovation districts must be well planned and regularly evaluated to achieve their intended goals.

While this research's main concern is not to criticize the innovation districts but rather to understand them, it is quite significant to this understanding to see what the possible negative impact of such districts are. Throughout this section, arguments made by Lefebvre and Evans regarding how innovation districts and planned space can cause alienation is one major concern. This not only relates to the division of labor, but also related to the residents and locals of the area. Another concern is related to the lack of synergy and knowledge spill-over between businesses and the city, which would not yield in benefits attached to innovation districts. Those two major concerns will also be addressed in both cities to see how the two cities are addressing them and whether they are mitigating the issues those concerns are attached to.

Considering these theories, Barcelona and Dubai would be interesting case studies to analyze their different approaches in promoting knowledge economy through innovation districts. In both cities, the state took the role of space creation through the knowledge and innovation districts. Both cities used those districts to promote the new economic activities. Yet, each had different contexts, political and economic approaches and perspectives on how to achieve this goal. It would be the aim of this research to see how Lefebvre's theory interacts with other theories on creative districts and with real-life cases. For example, how would Lefebvre's conceived space would contextualize the top-down or bottom-up approaches of Alraouf. Another example is how the social space be influenced by the types of organizations involved, their programs, their target audience, and the execution process of their initiatives.

Urban Policy Mobility

This section is intended on providing the analytical tool to further answer the second question of: ***And what makes every innovation district unique economically and socially?***

The choice of case studies of Barcelona and Dubai to analyze their creative and innovative districts policies, their purpose and their dynamics go under what is called in academia "urban policy mobility". While the two city models have significantly different paths, they

still have similar foundational start of the innovation district initiatives as a method to establish the city as an innovation hub. To be able to bridge the gap between the similarities and differences between the two city a brief understanding of what the term of urban policy mobility connotates is necessary.

Urban policy mobility is a recent term that has emerged to refer to several new trends that study the urban policymaking process.[52] This term and its researchers focus on two things mainly, the making and the moving of urban policy. They aim at developing a practical analysis that can encompass what is global and what is local. In that regard, urban policy mobility is becoming prevalent in several fields like economic development, creativity, and sustainable planning. The common goal of all researches in the urban policy mobility studies is the close attention that should be paid to "benchmarking, comparison, consultants and think-tanks".[53]

Urban Policy mobility is usually characterized by dualisms. These are defined as "clean and neat divisions of things into opposing categories, described as A/not-A" by Rose.[54] The first dualism is success/failure. An example of this dualism is the success of Barcelona's post-industrial urban regeneration against the failure of Detroit.[55] Here the fundamental study of the politics and power of policymaking. William and Pendras have pointed out that the study of success and its material consequences has usually came at the expense of the study of failure.[56] Since neither success nor failure can be determined in absolute terms, a middle ground or slow change/adoption is rising into the academic discussion. In that sense, success and failure cannot be separated from each other and would not make sense without each other; together, they comprise the politics in policymaking. Therefore, according to McCann, "studies of urban policy mobilities should, then, reflect critically on approaches to success/failure and their relational constitution, even as they simultaneously study the effects of their empirical separation and their reification in policymaking."[57]

[52] McCann and Ward, "A Multi-disciplinary Approach to Policy Transfer"
[53] McCann and Ward, "Thinking Through Dualisms"
[54] Rose, "Feminism and Geography"
[55] McCann and Ward, "Thinking Through Dualisms"
[56] Williams, "Urban Stasis"
[57] McCann and Ward, "Thinking Through Dualisms", p. 828

Second dualism is presence and absence, in which policies in a certain location are taken in contrast to their absence in others. By its nature, urban policy mobility tends to focus on presence rather than absence. This means a study of presence of a certain policy in a location, its movement through another, and its simultaneous (sometimes modified) presence in several locations. In most urban policy mobility studies, the focus is usually on the presence of a policy rather than absence, ignoring locations where the policies have not emerged or have not been successful. However, being critical about this approach, Prince has argued that there are ways to think of presence and absence as complementary processes, not absolute and are not necessarily opposing.[58] Therefore, it is constructive to think through the absences in the presences studied.

Third and most significant dualism for the purpose of this research is the mobility/immobility dualism. Mobility, by its very own meaning, focuses on policies that can move from one location to another or appear to be connected in multiple locations. In some cases, this policy movement is a whole process and in some other cases only aspects of the policies move, like the institutions, name, or the underlying philosophy. The other side of this dualism are the policies that appear to not travel from one place to another. This means that mobility and immobility in the literature are absolute and can be mutually exclusive. However, in reality, they are mutually constitutive. According to McCann, policies prove to have inevitable elements of immobility when they travel, whether institutional or physical.[59] For example, when business improvement districts were introduced into the UK from the US, their bottom-up emphasis (an element associated with the character of the American state) was left immobile and replaced in Britain by what might be called 'centrally prescribed localism', reflecting the centralized nature of the UK state.[60]

Adding to these three dualisms in urban policy mobility, there is the path dependency arguments that are usually spotted in urban comparative studies. While authors analyzing urban regeneration projects and innovation districts might not directly and intentionally refer to path dependence theories, their argument are clearly indicating that path dependence plays a role in the why and how of the policies creating the innovation districts. The definition of path dependence usually refers to the irreversible and dynamical processes that can be

[58] Prince, "Metaphors of Policy Mobility"
[59] McCann and Ward, "Thinking Through Dualisms"
[60] Ward, "Policy in Motion"

described as evolutionary. Or as David negatively defined it "Processes that are non-ergodic, and thus unable to shake free of their history, are said to yield path dependent outcomes."[61] This does not mean that each historical event, if repeated somewhere else must result in the same consequence somewhere else; it rather means that context matters when it comes to economic phenomenon as much as it matters in social and human sciences. Path dependence, in that sense and in theory, can be a rational and logical tool for governments to understand when and where to intervene. This can help as a departure point in policy intervention in the case studies as well as possible future studies regarding urban policy and the innovation districts. In that line of logic, a very similar or even exact urban policy can change shape, form and essence when moved to another location because of the historical legacy of that location. Consequently, success and failure, as mentioned, cannot be absolute because each location has its own measures of success of the same policy based on its legacy and expectations.

Based on urban policy mobility and path dependence analyses, studying Barcelona and Dubai in the same research would allow to contrast the presences and absences of certain urban policy decisions instead of focusing on one model and the presence of certain policies in it, ignoring the absences or vice versa. This would be the final step to answer the second research question; every case has its own specificities even with the same policies, approaches, and goals.

Therefore, after examining the creative and innovation districts in Barcelona and Dubai, the last chapter of this research will be a thorough analysis of the urban policy mobility in both cities. It will examine the existence and absence, the mobility or immobility, the success and failure of policies and what is in between all these dualisms. This analysis will aim at showing how these dualism can explain why two districts aimed at promoting innovation economy had such unique identity and dynamics.

[61] David, "Path Dependence", p. 5

Methodology:

As Harrison advises, the study of urban policy requires looking into thick and wicked problems.[62] Furthering Harrison's idea of urban policy mobility, Evans has also warned against falling into the trap of studying urban policy and regeneration through a thin lens.[63] Therefore, this research is using a case study methodology which suits best studying cases in detail to allow a multi-layered analysis of the cases in question. The layers, as discussed above are the districts, their planning process, social dynamic, their relationship with the city's economic goals, and the analysis of the two cases. In research methodology, comparative case studies are usually two or more similar cases with one difference that is introduced and analyzed in those similar cases. This usually helps generalizing how would that difference work out in similar environments. Given the different historical and economic nature of the two cities of Barcelona and Dubai, comparative case study is not an entirely suitable description of studying their innovation districts. Again, the goal is not generalizing what would happen if a city introduces innovation districts. If that was the goal, it would have been more methodologically accurate to choose two cities with similar history and economy to analyze their innovation districts. Instead, the goal is to understand that different contexts and backgrounds can be suitable for creating innovation districts to promote the new economy in a way that suits this exact context and not others. Therefore, case selection has been based on the understanding of the creative city literature, and how the two cities of Barcelona and Dubai can serve as similar cases in the policy-oriented approach to the creative city and the construction of innovation districts. At the same time, both cities have significantly different implications of their policies. This gap between the similarities and differences is what this research aims at addressing.

This thesis' methodology is of a qualitative nature and is based on three main sources. First is the current literature on both cities' legacy, history and current state. Second, official websites, policy documents and strategic plans, that are primarily concerned with the creative districts, will be examined. Third, in the case of Barcelona, interviews with different stakeholders in the innovation districts of the city have been conducted. In the case of Dubai, interviews with city planners was not easy. Therefore, the city policy documents have been

[62] Harrison, "Urban Policy"
[63] Evans

used instead as an indication of the goals and purposes for the creation of the innovation districts. This might be leaving a gap on what is happening in real-life since some initiatives, projects or policies might not be very clearly stated and would require field study, but logistically it was not feasible. Therefore, the Dubai chapter is a more preliminary study than the Barcelona one. The choice of this approach to analyze the case study is also related to the understanding of creative city literature and thereof the lack of empirical proof regarding the cause-effect relationship between creativity, innovation and any of their attributed positive or negative consequences. Therefore, understanding policy logic, processes and dynamics can be a first step to empirically test the positive or negative corollaries to city policies promoting creative industries.

Finally, it is important to understand that the coming two sections will be not be following the exact structure of the theoretical analysis. This is due to the complexity of the different layer of the district. For example, both sections of conceived and social space will be discussion labor and housing policies. Hence, the theoretical framework is used as a guide through the different layers of analysis.

Chapter II – Barcelona:

The Barcelona and Dubai chapters will be organized in sections that address the first two research questions using the theoretical framework addressed above. First section will be looking at the economic and social targets of the city as well as why and how they chose the innovation district as part of the endeavor to achieve this target (i.e. why innovation district is connected to the creative city attempts and economic goals). Starting from the second section, the second question will be addressed through the general framework of Lefebvre. The section will analyze the perceived space, or what the district is as one can observe with their senses. The third section will be assessing the conceived space and the planning process with its different dynamics and layers. Fourth sections will delve deeper into the social relations and interactions happening in the district between the different parties involved. The fifth section will then look at the connection between the innovation district and the city in reverse method (i.e. how the city is connected to the district's economic activity). Section six is particular to the Barcelona chapter and will be looking at another innovation district creation attempt in 2010 that was not realized. This serves as an example to understand how and why the model of 22@ achieved its current position with the new economic activities. Last section will be briefly addressing the possible challenges faced by the district and how/if the city is addressing them. While each section is representing a different concept using the theoretical framework, it will be noticed that none of the sections can be understood without referring to sections before or after it. This shows how, indeed, inter-connected triangle of Lefebvre's analysis of space is, but also shows how complicated each layer of analysis can be and how it needs to be understood in light of the whole context of what the city is, its history, it goals and its performing "model". This is the case of Barcelona in this chapter and also Dubai in the coming chapter.

<u>Urban and economic history of the city – how the new economy and the innovation district came about:</u>

Barcelona's urban development was, for a long time, conditioned by its confinement to the limits of its medieval walls. This was changed through the implementation of the Cerda© `extension' plan from 1860. Later, during the 1970s, Barcelona's development was stimulated by fast industrialization which resulted in sprawl, high-density housing, and larger economic migration to the city from different areas in Spain. Such factors contributed heavily to the

mobilization of anti-Francoist workers' movements, student movements, as well as neighborhood associations.[64] These factors have also contributed to drawing up of the General Metropolitan Plan in 1974; a plan which sought to compensate the effects of unplanned urbanization that happened earlier.[65] Nonetheless, like the case during earlier periods of the Spanish history, urban development in Barcelona remained dependent upon the limited access to the Spanish central state and finance capital resources. In response to this limited access to finance, the capital spur for most of the major urban development projects has been sought through the hosting of events with an international profile, this has been happening from as early as the Universal Exposition in 1988. In 1986, the city of Barcelona successfully secured being the host of the 1992 Olympic Games. Afterwards, the elements of the Barcelona model have started to appear in its urban development plans. This means that the urban transformation of the city was an entrepreneurial one (with heavy support for city branding and attracting foreign tourism and investments) that was combined with some kind of public support (things like volunteerism and public consultation, practitioner community and the active neighborhood associations).[66]

Those urban transformation as well as general city programs and projects in Barcelona, until the 1990s, have not been aimed at developing the economic or global competitiveness of the city. However, whether intentional or not, that was the end result of these programs.[67] By mid-1990s, the Olympic-driven development of the city has attracted capital and talents to the city. Since the 1990s, and with the intensive competition with Madrid for capital, the city started to take an initiating economic role in the planning process, addressing the shortcomings of the Olympic-based urban development (i.e. the lack of coherence and unity in the government strategy, especially after the abolishing of Barcelona Metropolitan authority in 1987). The city's goal was not only to promote economic growth, but rather to create a better quality of life to its inhabitants.[68]

To understand the logic behind the choice of innovation and new economy adoption in the city, it is significant to look at its brief economic history. Barcelona was considered the

[64] This was a movement against the dictatorship of the Francoism in Catalonia that appeared after the Spanish civil war. Camos, "The associational movement"
[65] Ferrer, "El pla general metropolità: la versió de 1976''
[66] Calavita, "Behind Barcelona's Success Story"; Garcia-Ramon, "Pre-Olympic and Post-Olympic", p. 1332
[67] Pareja-Eastway, "The Barcelona Metropolitan Region"
[68] ibid

factory of Spain, it exported around 22.5% of Spain's total exports, more than Madrid by 10.5% and more than Valencia by 7%.[69] With the wave of de-industrialization, the city needed to sustain it leader economic position in the country through the technological force. According to the 2000 Municipal General Plan, most of the traditional manufacturing companies had no comparable value to the newly emerging technology and, knowledge and information (ICT) companies. This necessitated a change of the means of production, creating a society based on knowledge that people possess and provide to the city. The plan predicted that by 2010, only 10% of its work force will be employed in manufacturing industries and concluded that it is logical to invest in the knowledge industries since economic growth will depend on the productivity of information and knowledge economies. By the time of the initiation of the creative district in the city, Barcelona's export of high or medium-tech products were about two thirds of its total exports. At this point, the city mayor and policymakers realized that its competitive capacity depended on its ability to excel in knowledge and technology intensive industries. From here came the decision to start the innovation district of Poble Nou. The purpose of 22@ in Poble Nou was not defined in number of companies, employment, or exact amount of capital attraction. 22@ was intended to transform the understanding of the city and not just a planning initiative to change the urban landscape. The objective was to transform Barcelona into a leading knowledge society.[70]

Poble Nou – The Innovation District: Perceived Space:

The perceived space, according to Lefebvre, is the physical features of the place. This includes two factors, what the space was and what it became. This section will discuss the process of transforming 22@ at Poble Nou from the industrial factory area to the technology activities one. Historically, Poble Nou was left out as a marginal area of the planning process of Barcelona. It was an industrial district, but after the deindustrialization, the district became an area that caused "heavy traffic and unwanted squatting", according to Marc Lopez, director of Llobregat Delta Plan Strategic Office. The district was unplanned, unstructured and sometimes even disconnected within its own streets, let alone the rest of the city. After the Olympics, and after the previously mentioned transformation in Barcelona's urban

[69] Clua, "Bringing Barcelona Forward"
[70] Pareja-Eastway, "Reinventing the City"

strategy, the city needed a new urban expansion that is well planned, matching the historical designs of Eixmple[71] yet also includes heavier economic concentration to match the new economic goals of the city.

This creation of 22@ decision was not a natural evolvement of the urban fabric of the district, but rather a political decision. However, the decision was not a straight forward one, it involved adaptation and consideration of what the district is and what the district can be. What the district was has already been mentioned and will be reflected on further in the coming section about the planning process. What the district can be was a political decision since the policymakers and planners could have decided to make the district's model into several other uses and not necessarily a mixed-use urban project. It was not the most cost-effective decision that could have been made. According to Angels Santigosa, an economics professor and the research director at Barcelona Activa: "At this time of history, real-estate economy was booming, and the city could have decided to go for this direction of building blocks instead of a mixed-use innovation district."

Additionally, to further the argument that it was a political will to create this project, more than one of the interviewees asserted that the mayor himself, back then, made the phone calls to large companies convincing them, on his own account and at his personal responsibility, to come to the district and locate there. The mayor had a plan to ask companies like Media Pro to come to the city, help rebuilding the district in exchange for a right to remain in the district for 70 years. "It was a success because people trusted the mayor", said David Martinez, urban architect and project director at the 22@ committee at BIT Habitat.

Originally, the logic behind the district's creation corresponded to Krugamn and Porter's theories of clustering and the collective nature of the new economy. The districts main urban planners at the time of its creation have affirmed that it was very true to their intention to create several clusters of the new economy to enable the development of the district. Michel Barcelo, the back-then CEO of 22@ project and current head of an urban consultancy company, has confirmed that the plan was to build clusters of the main technology related industries in order to build a strong base for the district. He mentioned that:

[71] The discussion about the Eixpmple district and the history of urban design in the city will follow later in the conceived space section.

"In the beginning, we mainly wanted to establish clusters of major knowledge activities to improve the capacity of innovation. We made sure we develop several sub-systems, like energy, research, education, as well as a governance system to manage these sub-system"

Therefore, the district's perceived space ended up (in the early 2000s) being a mixed-use space based on the concepts of clusters and agglomeration of different sectors, like media, design, energy and ICT. While narrowed down definitions of what is a sector is more fluid currently (there are several interconnections between different sectors that defining one business into one or another sector proves to be challenging; like the sports tech industry), it was not two decades ago. Hence, clusters and agglomeration are no longer in play in the innovation district of 22@. Instead, what Evans called networks is the current focus of the city as well as private partners. Those networks will be analyzed further in the conceived and social space.

Currently, the district occupies 198 ha with over 115 blocks, 4 million m2 (of which 800 m2 are dedicated to housing facilities and services and the rest for productive activities). The district also has around 114k m2 of green areas and over 8000 companies from different economic activities, 42.5% more than the number of companies in the district in 2002 (which is higher than the average of increase of number of businesses in the city as a whole) and about 93k jobs. However, to reach those numbers, there remained one challenge for the city back in the early phases. In the late 1990s and early 2000s, the land was not owned by the government and they did not have enough fund for the needed transformation and adaptation of the industrial district to the new economy (in terms of needed services, infrastructure, etc.). Here comes the conceived space and the planning process.

Poble Nou – The Innovation District: Conceived Space:

After the layout of Barcelona's perceived space of Poble Nou and how it came about to be the innovation district of the city, it is important here to look at the conceived space of the district. This means the planning, process, schedules, and policy documents that political figures and policy makers create the space through. The conceived space will be looking at the following factors that have been discussed in the theoretical analysis of understanding the innovation district: 1) the economic goal and its relation to the urban planning, 2) role of the

government and other stakeholders in creating and managing the district, and 3) the dynamics and evolution of the governance process through the past two decades.

First, going back to the planners' decision of using the mixed-use model. In Barcelona, 22@ district is a mixed-use space as mentioned earlier. There is a factor in this key decision that is worth exploring, which is how to look this mixed-use function with the context of the historical mixed-use in Barcelona (i.e. path dependence). The history of mixed-use plan was deeply integrated in the Barcelona urban strategies since the 19th century. The grand plan of L'Eixmple district was done in the 19th century with this purpose in mind. Therefore, the fabric of mixed use is not new to Barcelona. Additionally, the creative and knowledge industries have also had their roots in the city. Barcelona has been the publishing capital for Spain for a very long time before it starts the creative city branding strategy, artists have always been to Barcelona before Paris like Picasso and Pearson. Explaining the choice of mixed-use in 22@ plan, Angels Santigosa said:

> *"It's in our DNA the idea of mixed-use where there is housing, shops, walkable area, parks, etc. Sants and Eixmple were her since the 19th century, the specific clause related to 22@ was also connected to how economic activity was prominent in there since the industrialization period. So, we are mixing the Barcelona's philosophy of a Mediterranean city with mixed-use and no segregation with the fact that the area had strong economic activities. We are then adapting the space to the different requirement of the new economy"*

What is interesting about this quote is that it relates to what was described in the perceived space as the adaptation of the existing urban fabric to the new economy. This adaptation was based on the economic goal of the city to promote the knowledge economy, but it also affected the type of companies that would exist in the district. The activities designated to 22@ district were seen as the main economic driver as well as the promotor of the district. These activities were not seen as compatible with the existing urban structure (again, in terms of services and infrastructure), and therefore the urban plan to be redesigned to suit those technological and knowledge activities (MPGM 11). Oriol Estella has also confirmed the effect of the adaptation of the existing area to be suitable for the new economy; in his words:

> *"The mixed-use option affected the pace of development. If it were an isolated park, it is easier and quicker where you provide space and infrastructure. In mixed-use, you act over an*

existing urban fabric. So, the district plan indicated that either very flexible companies in terms of space usage, like SMEs that locate in coworking spaces, or very large companies that will build their own space are the types of companies that can locate in the district. Other types of companies would find locating outside the city more convenient than 22@"

It was not only the transformation decision that shows the connection between the perceived and conceived space. Another factor that shows this interconnection and dependence is how the municipality handled the land ownership of the district in order to enable this economic and urban transformation. Lefebvre argued that the government takes the role of a planner in order to create an ensemble of idea with homogenous urban and social environments. Barcelona city government could not fully assume that role because of their limited ownership of land and capital. The policymakers of Barcelona needed to make use of the Poble Nou area, as mentioned earlier. Hence, they decided to utilize their abilities and position as coordinators to manage the types and nature of activities happening in the district. Therefore, Barcelona assumed the role of a mediator to mitigate the logistical limitations it faced in creating the innovation district.

What the original plan of the district in 2000 aimed at was increasing the density of the district. It allowed land owners to increase the building's ceiling's m2/m2 of land if they dedicate their building to the new economic activities, higher if they specifically work with one of the five targeted new economy activities, and higher if dedicated to social housing (see figure 2 below). This was not a simple construction policy. Instead, this was the economic argument made by the city in order to convince the business partners and land owners of the project.

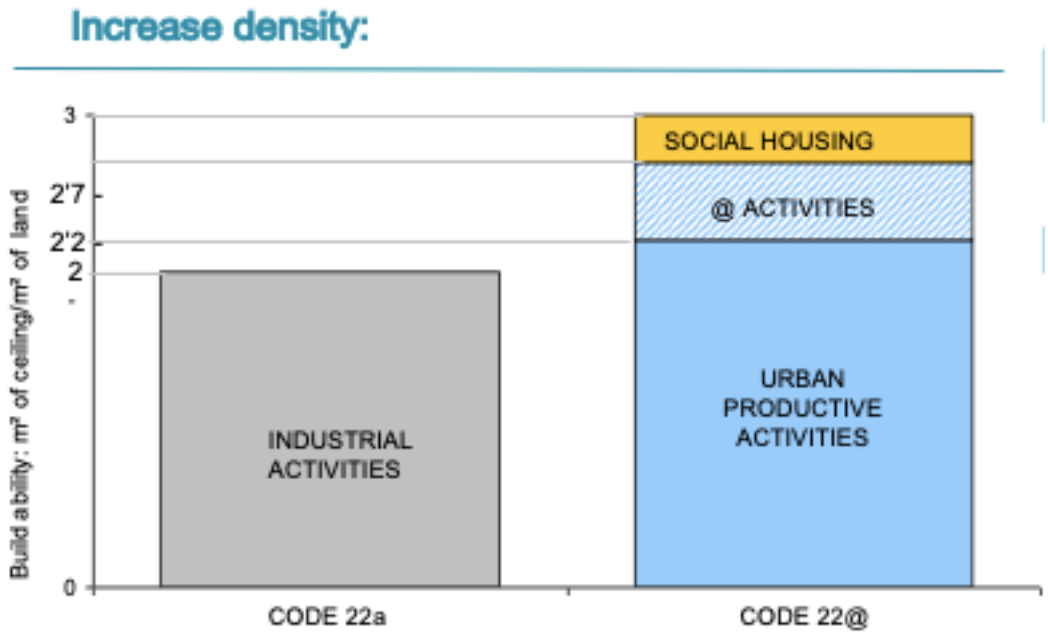

Figure 2: construction policy of plan of 22@
Source: 22@ MPGM

According to this plan, Barcelona participatory model is very evident. The city public policy makers collaborated with land owners to increase benefit for everyone from the project. However, the model's presence did not stop at that urban plan only, but also for the governance and execution of the project's goals. The execution of the plan to promote the new economic activities was done through creating autonomous parties that are responsible for the execution of certain parts of the plan. For example, part of creating the autonomous entities was creating the Technical Commission in charge of defining the technical and technological activities to be held as part of the of the @activities. Additionally, figures 3 – 4 below are an elaborate explanation of how the Barcelona model came into play when organizing the original five economic activities/clusters in the district. Each activity had several partners varying from the business partners, universities, incubation centres, etc. Again, those clusters are not in place any longer. Yet, this illustration's purpose is to elaborate on the Barcelona model in 22@ at the early phase of its creation. There are indeed several other examples to how the Barcelona model was present in the process of creation, execution and governance of the district like the early 22@ company that incorporated several stakeholders into the management and promotion process of the district, which was later dissolved for a more decentralized management system. However, Barcelona's 22@ has already been well-studied in this regard, therefore, the present analysis is more focused on the

general notions, like the participatory governance model and collaboration in this instance, rather than the details of every possible illustration of these notions.

Companies	MediaPro, Lavinia, Cromosoma…
Institutions	RNE, Barcelona TV…
Specifics spaces	Audiovisual Production Centre (PBM)
Universities	UPF, UB, UOC
Technological centers	Barcelona Media-Innovation Centre
Incubators	Barcelona Activa - Almogàvers
Residences	Melon District / Ciutadella
Dissemination	Media Factory

Companies	T-Systems, Indra, Telefónica
Institutions	Mobile World Capital, GSMA, AENOR
Specifics spaces	Interface building, Media-TIC building
Universities	UB, UPC
Technological centers	BDigital Tech Centre
Incubators	Barcelona Activa - Glòries
Residences	Melon District
Dissemination	Cibernarium

Figures 3 – 4: Different stakeholder involved in each of the five main sectors in 22@
Source: Josep Pique – 22@ Barcelona

Another remarkable asset to the Barcelona model in its planning process is that it was built on flexibility and also guaranteed future flexibility and long-term sustainability of the project. The flexibility shows in the adaptation to the market and company needs with time. In the beginning of the project, clusters were strictly defined as a grouping and geographical proximity of the same industry in the same location. However, now the understanding of clusters is different. The understanding of what is an industry to begin with is also different. Currently, the district's planners and main figures understand that clustering and agglomeration economy per se is not what attracts companies to the district. Rather, there are

other factors that do contribute to its attractiveness which they promote while seeking companies to locate in the district. This was demonstrated during the talk with several of the actors currently involved in the extension plan and they all affirmed that there is no such a thing as a clear-cut sector on which to base a clustering strategy. Therefore, they changed their strategy to “diverse environment and strong connections” between all types of economic activities.

The plan is also adapting to the understanding of local needs in order to achieve the original economic and social goals pursued through the new economy. In the early phase of the creation of 22@, the purpose was to make the space more attractive to international talents. However, afterwards, the city planners are more interested in not only attracting the international talent, but also making sure that this talent creates a spill-over effect on the locals, absorb their experience and exposure. Flexibility is also very clear in the governance model of the district. The district started with a centralized governance model but with stakeholder involved, which suited the phase and its requirements and needs to attract companies to settle in the city. Later, when the district reached a mature position, the Barcelona model dominated the governance system. Currently, there are several city government partners, public organizations, private networks as well as neighbourhood associations involved, figure 5 below shows some examples of these organization. Overall, according to Antoni Oliva and David Martinez, the city of Barcelona never had a timeline of events or concrete ROI. The city’s success stems from its ability to accept the changes and alterations it faces along the process of transforming the city’s economic activities.

Figure 5: different independent institutions in 22@
Source: Josep Pique – 22@

Poble Nou – The Innovation District: Social Space:

The social space, according to Lefebvre, is the meaning and symbolism of space. It is where and how the interactions happen. This means the interaction that happens between different stakeholders; locals, companies, universities, public entities, private owners, etc. In this section, the discussion will include housing, businesses, labour, the government, and the interaction between different organizations representing each party.

The first common argument about the symbolism of Barcelona innovation district's model is that it is compact built, diversity and mixed use are not a product of natural evolution. That would be in line with Lefebvre's idea that a space creation model is coherent, planned and politically conceived. Therefore, even though the planning of Barcelona is built as a diverse and with a mixed-use purpose, it is still a model that is conceived by the city government. Here, some authors believe that ``Like those a century ago, today's new urbanist and compact city architects prepare a design for a place to be built according to a plan. It is not evolutionary ... ".[72]

[72] Neumann, "the compact city fallacy", p. 22

While this argument might seem like a very valid one at first glance, it has some overstretch of Lefebvre's ideas about the homogenous space. 22@ Barcelona, being a planned model that is a result of the process of the globalization pressure towards the shift to the new economy, is entirely valid. However, extending the argument to see 22@ as a homogenous plan that results in creating a reproductive system of capitalism denies the possibility for creating any other following models that would try to mitigate the negative social effects while realizing the positive economic impact of an innovation district. In other words, being planned and not naturally evolving does not necessarily mean a purposed social alienation.

The extension to this argument follows from the role of the state as mediator of the socio-spatial relations in the district in order to maintain its social and economic homogeneity. However, it is far from what the city aspires to achieve which means that cohesion and homogeneity are not the same and might not be sought together in order to create a goal-oriented consistent space. In other words, cohesion ensures functionality and consistent understanding of the space and its ultimate goals, while homogeneity creates alienation and social division.

The housing situation in the district can be taken as an exemplar to explain this idea. The original plan of 22@ included 10% of the land to housing, out of which 25% to go to rented housing in order to ensure that there are enough homes for the existing residents as well as new comers who are willing to work and live in the district. Currently, rental prices are so high that even social housing cannot be affordable except for middle class knowledge workers, making the district more exclusive to a certain class (and probably also corresponding to Lefebvre's argument about the intellectual division of labour). The average rental price in the whole city has increased by 55% and in the area of Sant Marti, where Poble Nou is located, by 61% (the rent in the district increased by 6% above the average increase in the city).[73] The housing issue here does not stem from an initial plan of the municipality to create the social homogeneity between workers and residents. Instead, it is a market dynamic that occurred with the attractiveness of the district and made the rental prices even higher by time. According to all of the interviewees, the city is trying to mitigate this effect, but there is no law that allows the municipality or any other entity to put a cap on the price range and it has to be left to market dynamics. However, currently the extension plan for 22@ has added a

[73] Barcelona Stats

new policy that assigns 30% of the housing area for rental properties instead of 10%. This might not solve the housing rental price increase, but it is a proof that the city is not and does not necessarily have to actively take the role of a homogenizer when building a cohesive space.

Another example within the extension plan that shows how the district is aware of the problematic of creating an exclusive space is the inclusion of different partners and stakeholders to sign the extension documents. The original plan in 2000 was fully created by the city planners and policy makers. However, in the extension plan, 11 partners (universities, neighbour associations, independent foundation and the municipality) were organized in different groups (social, economic, etc.) and each partner was represented in each group. They were all in continuous discussion about the future of the extended area of the district, its housing, businesses and working environment.

While the state plays a role in bringing those partners together in the planning and policy processes, the real-life social interaction between the different groups in the district is more complex. Describing the dynamics between local residents and businesses, Antoni Oliva said:

> *"So, the other day several companies held a sporting event for the workers in the district. But did that include local population? Mostly not. I do not know, it can be the culture, the language influencing the distance between the business and social parts of the district. As much as the companies are not inviting, the locals too do not want to participate. I got comments from several heads of companies saying that 'people don't like us here, not residents and not even shops'"*

This quote shows that it is a reciprocated process between companies and individuals that they do not want to be mutually involved in social or economic activities. Hence, even though the city is trying to bring everyone together to create an extension plan, it proves to be difficult to apply in real life without an individual willingness to cooperate. Some of the reasons that individuals are not cooperating are mentioned in the above quote, and some are not. However, it is beyond the analysis in this thesis to find an empirical explanation. It is sufficient for the goal of this analysis to understand that there are several complexities to the social interactions within an innovation district.

Another side of social interactions that can be discussed within the district is labour relations. One of the major analytical point in Lefebvre's theory is about labour and their relation to the

space and the government, or the city government in the cases here. Hence, is worth to discuss the labour situation in the district and how they relate to the city, what they represent and what the district represents to them. In Barcelona, the regulative system is also flexible when it comes to labour. More than 54% of total hires in the innovation economy have open-ended contracts, and about 18% of the artists are self-employment. Yet, according to Oriol Estela, the city does not have enough concrete measures to provide more job security to these workers. At any point, their contracts can end, and they get no more jobs to perform. The city is also aware that while the economy can be booming at one point, securing the open-ended contract workers is essential for the sustainability of the district. In other words, and also according to Oriol, the more measures to protect the workers in the districts, the safer and more prominent environment can be created where more tech workers would like to come and work. He also added that the struggle now is that the city deals with all labour the way they did with the blue collar from the industrial era, with no adaptation for the nature of jobs workers perform. Additionally, several interviews expressed a desire to have a counterpart for 22@ network that's for businesses but for the labour. For example, During the research process, PEMP organized an event for Indycube, a Welsh organization that works on supporting freelancers and self-employed that existed for about 10 years. However, the attendees were only about 4-5 planners and around 35 freshman economics students.[74] Hence, there is awareness of the labour insecure situation, but there is limited action done towards it. While the above applies to Catalan, Spanish and international workers, the international labour in particular have another complex issue to deal with; they are not fully integrated in the neighbourhood. Most of the interviewees attributed that to cultural and language differences. Still, those planners are well aware of the issue and are trying to find creative solutions to allow the connection to happen in the district which would finally create the synergy between the businesses and the community.

From the above discussion, it is seen that mitigating the gap between locals and businesses and between workers and locals is a tough task that Barcelona city government is trying to work through. Initiatives done by Barcelona Activa and 22@ network are strong examples of how the knowledge economy is in a process of integration into society. Figure 9 shows the detailed initiatives taken by Barcelona Activa during 2017 that engaged local uneducated workers, knowledge workers, large businesses as well as entrepreneurs with small business

[74] I was personally invited to this event during the research period in Barcelona

ideas. 22@ network also has its own weekly or bi-weekly events in which all its member and non-member businesses are invited to discuss one topic or another, which usually involves the district and its local residents, schools, or even common spaces. During the research process, one event that was held was about the circular economy in 22@ and how companies can apply the concept among each other and in their business models. A final example is CREC, a city owned co-working initiative that locates in different parts of the city, including 22@. CREC does not have a revenue stream. The city provides the space for companies to work, and in exchange, those companies have to provide something back to the neighbourhood or the district they work at. Hence, even though the locals have issues with the prices in the district and how the businesses are intruding and gentrifying the area, the city is aware of the issues and is trying to mitigate them and allow the district to work in cohesion in order to achieve its end goal of transforming the local economy from industry to knowledge economy. The city is also trying to create a sustainable environment where uneducated local industrial workers do not feel alienated or left out of the developments going on in the district.

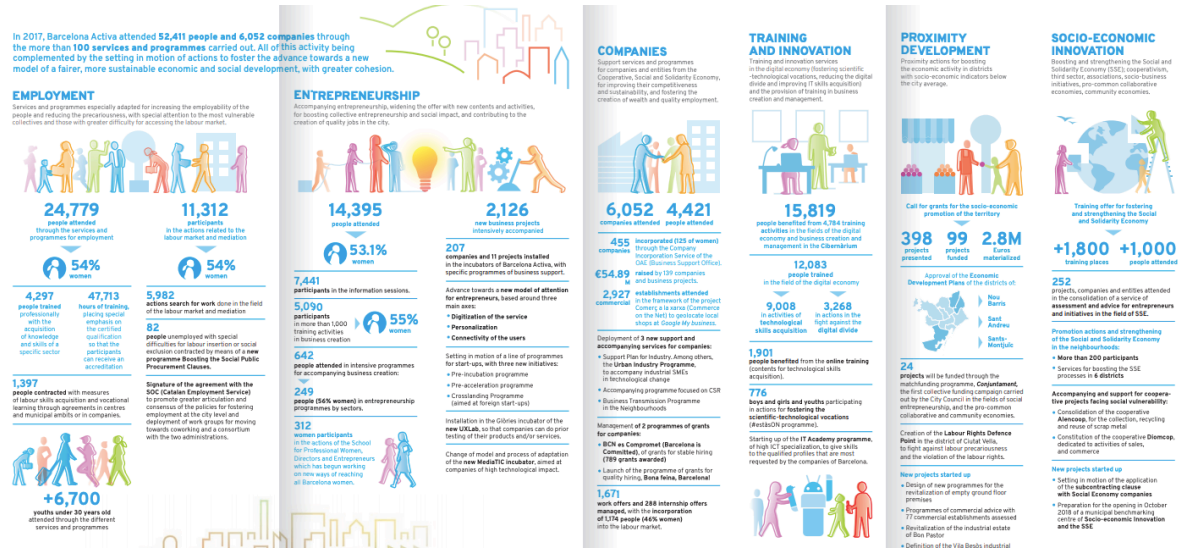

Figure 7: Barcelona Activa local initiatives

Source: Barcelona Activa

Lefebvre also emphasized the importance of understanding the symbolism of the district, or what it represents to analyse the social space. The evolvement of the nature of companies in 22@ show an interesting pattern as to how the district is perceived as a symbol to the knowledge economy. While Barcelona census is not very accurate in telling the exact number

of companies and their fields in the district,[75] several researchers, like Ribera Fumaz in his interview and Casellas, have confirmed that the district was not always the mecca for high-tech with great value-added companies.[76] According to Ramon Ribera Fumaz,

> *"until very recently, 22@ was not a centre for high-tech companies. The companies that located here came mainly to be able to stay within Europe, their target market, yet be able to attract cheap talent for its low-end jobs, mainly call centres"*

However, Ribera Fumaz also agreed that currently the status is changing and that

> *"Companies exist in other places in Europe, they have their headquarters in other places in Europe, but when they want to expand their IT and tech team, they come to locate in Barcelona."*

Hence, the district was and still is evolving with the nature of activities it hosts. As a consequence, what the district symbolizes has also been evolving. Throughout time, there were several networks, activities, and branding initiatives that the city has put effort into (as discussed in this and the previous section). Through those activities, the district was able to transform its image and its economic activities; something that in turn contributed to the changing image of the city of Barcelona as whole.

<u>Understanding the district outside its geographical boundaries:</u>

It is important then to understand how the innovation district affects the city as whole. Looking at the economic activities in the city and the district can help as a start illustrate this connection. Barcelona is the city of design in Spain. While design, architecture and publishing (Barcelona is Spain's publishing capital) represent over 60 per cent of total cultural industries employment in the city, the expansive information and media sectors employ over half of all the much larger creative knowledge sector workers in the region. By extending the creative to the knowledge economy, ICT overtakes the cultural industries and is more widely dispersed within the city than the cultural cluster which is concentrated in two

[75] Casellas, "Public Sector Intervention
[76] ibid

or three of Barcelona's central districts.[77] These figures, in absolute terms, would make it seem like the district is not as attractive to the knowledge economy and conform to Evans' argument that a cluster alone is not sufficient to create a knowledge environment. However, one needs to consider the complexity of the aspect; that an innovation district does not necessarily confine its economic targets within its geographical location. In reality, according to Barcelona Activa business promotion department, 95% of the companies willing to locate in the district are tech companies. However, it is not always possible, either because of space availability (which many tech companies require for their expansion) or because the companies prefer to locate inside the city to attract workers who would love to work and reside inside the city of Barcelona with its soft attraction factors.[78] Nonetheless, according to Antoni Oliva, companies that are physically outside 22@ still get in contact with the business network, engage in community events and attend several meetings inside the district. Hence, the district represents more than a location for the companies. It represents the network of activities and connections that the new economy requires to produce real impact on society as a collective good.

From the beginning, the city of Barcelona has not built 22@ district with the intention of keeping it closely tied to what is happening inside this geographic location. While it has not been statistically proven through surveys, the district is a key for the regeneration process of the whole city, both through hard and soft factors. One example is the most important tool for the municipality to promote the business activities of the new economy and attract businesses from within Spain and internationally is Barcelona Activa (the previously mentioned organization where Santigosa heads the research team). Barcelona Activa is an organization that was born inside 22@ and part of it, yet it targets all of the city. Barcelona Activa does not at all work exclusively with businesses in the district. What proves this is that according the Monica Bajo: -whose job in Activa is to attract international companies of value added and the tech industries- companies, in several cases, prefer to stay outside the district; they definitely want to enjoy the ecosystem and the benefits of the networks in the district, but also want to stay connected to the heart of the city and therefore stay at city center in places like Placa Catalunya.

[77] Evans, "Cultural Planning"
[78] Things like cultural offering, busy city life, commute, shopping, weather, beaches, etc.

Another major impact of the district on the city is related to the symbolism of the district as the knowledge hub of the city and the whole region. 22@ Barcelona has played a major role when it comes to the city's identity as a knowledge city. Given that the major catalyst for the new economy is the gross value added, employment and share of contribution to the economy, 22@ can be seen as serving that purpose in some way or another to the city. This impact of 22@ can summarized through two aspects: 1) the connections and network between businesses in and outside the district, and 2) the brand image the district gives to the city. The first aspect can be demonstrated if we consider the companies location preferences which can be outside the district, yet with the district playing an important part in the interest in the city as a whole.

First, Evans argued that clusters do not matter anymore in and off themselves and that the network is more important, several interviewees from the city of Barcelona would agree with this statement yet make an addition that the cluster make the network more appealing. Indeed, there are several companies are located and still locating outside the 22@ district. However, they all acknowledged the growing attractiveness of the district when it comes to certain sectors. This goes in line with the abovementioned discussion on 22@ network and how companies are interested in the ecosystem that 22@ creates in the whole city. According to Angels Santigosa and Monica Bajo, who both work for Barcelona Activa, the major business promoting agency for the city of Barcelona,

> *"Barcelona is a target for all companies with added value, and high probability of job creation. While we do not have data specifically for the district (we usually have data for all of the city), but the pattern is that companies either locate in the district or are interested because the district built and image of our successful business eco-system"*

Regarding the second point, there has been some strong suggestions that Mobile World Congress (MWC), one of the largest and most reputable tech events in the world, has chosen Barcelona to be the host over other competitor cities which are more advanced when it comes to the mobile industry (Cities like Helsinki, Finland's capital of design, which was also competing to be the host of the congress), because of the brand image of being the innovation hub of Europe that 22@ district has created for the city. MWC created at least 6000 annual

part-time jobs and 12 billion euros of return.[79] The congress also has a Mobile World Hub permanent physical location in 22@ where ICT companies can meet regularly and also get in touch with other sectors. The mission of this hub is to build an industrial sector around mobility and make Barcelona the world's leading mobile city. Therefore, 22@ district is a major factor in building a brand for Barcelona that allows it to be competitive in other areas related to the knowledge economy.

Barcelona Model: 22@ and the Zona Franca Initiative

To understand why 22@ works the way it does, it is interesting to look at another project planned in the other side of the city, Zona Franca, or the free zone. It was a failed trial to create a replica of 22@ in the free zone. The brief understanding of this project, how it started and how it failed illustrates on the second research question about the uniqueness of every case, even within the same city. The Zona France Project was also aimed at creating a hub for knowledge activities. While the 22@ project was created based on a state direct intervention and political will, Zona Franca was an attempt based on a city initiative but less state direct intervention. This is not to mention that a less interventionist approach to innovation districts is not a successful one. However, the social and economic cohesion that innovation districts needed in order to create a successful and functioning network cannot exist without the power and politics from a coordinating state or city.

A brief history of the area will contextualize this project and its dynamics. Zona Franca was not a part of Barcelona, but by end of 19th century and mid 20th century, Barcelona businessmen wanted to create a free harbour to boost their economic activity. Zona Franca, since 1926, was run by a consortium that is directed by the Mayor of Barcelona. However, the Spanish state decided to employ an executive vice president that works directly under the supervision of the state government and not the city. The state and its representative, around 1950s, neglected the free harbour and expropriated the land area for an industrial mission. Until 2015, the relationship between the consortium and the mayor was very passive, as long as the consortium puts some of its revenues to create a public project for the city itself.

[79] Carvalho, Delivering Sustainable Competitiveness

Since 2008, when the crisis hit Barcelona, the city council started thinking to utilize the industrial area, creating Zona Franca Innovation Area (Barcelona Innovacion, BZ). The project's plan was initiated by Area Metropolitana de Barcelona, the metropolitan authority of the city, in 2011 and the area of action is the land formerly occupied by the former SEAT factory in the Industrial Zone of the Zona Franca de Barcelona. Both the size of the available space and the location, with access to the main communication channels, made it a unique space for the implementation of innovative companies' area (i.e. an innovation district). Three main sectoral axes were defined, in which business and urban concepts of high added value were sought to be implemented, based on innovation, knowledge generation and environmental sustainability: the food axis, the technological axis, and the cultural axis. None of the three axes took place in full; the only exception was a minor application of the technological axis. The reason that these axes were never realized was explained by Marc Lopez, the director of the Municipality of Barcelona's strategic office of the coastal area,

> "*No company understood or felt the benefit or the need to establish itself or relocate to the area […]. The owners of the project went to a publishing company asking them to locate there. The company's response was: 'if land was cheap, we can consider'. The land was indeed cheap, but the company never came. The question was what was there, there was nothing in this area, there is no environment. The government actively sought an environment creation in 22@, Telefonica, Media Pro etc. But in Zona Franca, there was no strong coordination to attract big players. We do not have attractor in the innovation, we only have in manufacturing. The land was also publicly owned, so the city had no enough money to develop its own facilities*"

This shows how in the same city, with similar short-term goals of creating a space for the existence of new economic activities, but with a change in the stakeholders and general goals and actions of the city, the project could not be realized. Other projects have been executed later in the district of Zona Franca that are more related to its previous activities and with different model and became successful in their own merit. While it is not the scope of discussing these projects at length, it is important to acknowledge that every location's specificity indicate what can and cannot work. Hence, the city needed to understand that simply introducing new activities in an abandoned industrial area will not replicate the 22@ experience. Again, there might have been other approaches to make this work, but these are beyond the scope of this thesis.

Challenges and Critique:

The first main critique to the Barcelona innovation district falls within Lefebvre's conceived space analysis. While in the beginning of the planning process the district's creation highly resembled Lefebvre's perception of the homogenization of space, the city of Barcelona tried to change that in its later attempts to expand the district. This is not because the city was aware of the Lefebvre theory, but rather because they figured, in real life, that homogenization will indeed create social and economic alienation. The early creation process of the city did not include any stakeholders or representatives of the society, neighbourhood, businesses or workers. Although the political decision and effort done by the mayor was a critical factor to determine the early success in the first stage of the project, it was an apparent demonstration of the state's role in Lefebvre's theory as a determinant for the shape, format and function of the space. In 2001, right after the creation of the 22@ plan, local citizens went out on demonstrations against the urban plan and the gentrification of the district. In the expansion plans for the 22@ that is currently taking place in 2019, the neighbours and neighbourhood associations were included in the negotiations. In the official documents stating the agreements, plans and decisions for the extension plan, the neighbourhood association was one of the signees and they were invited to the conference and ceremony to celebrate the agreements. According to David Martinez,

> *"We brought everyone in one room and made sure they discuss together. We made different groups for every aspect of the plan; social, economic, urban, etc. For every group there was a representative of all possible stakeholder. Sometimes they fought, and sometimes they wanted to leave the room with no agreement. But we tried to be good listeners and mediators here in BIT-Habitat in order to create a plan that mitigates the problems and gentrification effect of the original plan. […] For example, the extension area will keep a whole factory where freelance artists are currently squatting, we will increase its capacity, renovate it, but we will make sure the same artists remain there"*

Nonetheless, there still needs work to be done. Neighbours were never content about their status in the district. According to Oriol Estela, Director of the Strategic Planning of Metropolitan Barcelona and a resident of Poble Nou,

"I live there for almost 20 years now, and for people who already lived there, we were the gentrifies when we came. They used to live in homes bigger in what they live in now. Looking around at the area's schools and other social spaces, only 5% of the people are from the neighbourhood, so the development of the area was not entirely in favour of the locals. On a personal as much as on a professional level, I cannot see integration of the locals into the neighbourhood […] when we had the signees ceremony for the extension plan, which included the neighbourhood association, I met the representatives of the associations. They both felt that they were betraying the participatory process because they were not happy with anything in the plan, but still had to show support and not give up on the project all together. So, reality is one thing, papers and plans are another"

One other critique to innovation district was related to the coordination of the knowledge spill-over and how important this process is to make the innovation district effective economically and socially for the city. The challenge here to the Barcelona approach of innovation district is indeed one of its core aspects to its approach. The idea is that, given that the district is not built with a confined geographical focus and it should be an integral part of the whole city. However, the extremely decentralized nature of the political power makes the application of plans scattered and not properly communicated. In the interviews with several planners, they confirmed that there is a communication issues between different parts of the city which makes the learning process harder for other areas that would want to follow suit from 22@.

"We lack the metropolitan vision. In other parts of the region, they put three streets together and think this can replicate 22@. This might not show a huge effect now, but in 5 or 6 years from now when we reach full capacity of the district, we will need to make other parts of the metro area attractive. We lack the communication strategy between different municipalities in order to create an effective cohesive and consistent plan that would make the whole metro area attractive for the new economy and not only 22@"

There are surely other critiques of the district in 22@, some authors would go as far as questioning the whole rationale of the city in building the district and that its goals were neoliberal gentrification. However, the goal is to understand the dynamics and not criticize it.

Therefore, the critique in this section is more related to the elements that Lefebvre and Evans introduced as part of their analysis of space creation.

Chapter III – Dubai:

The Dubai Model; Urban and economic history of the city – how the new economy and the innovation district came about:

What makes Dubai in particular and the gulf area in general a predominantly subject of interest to this research is how most of the creative and innovation city and creative and innovation districts theory and authorship mainly focus on developed or re-emergent European and western economies. Looking at another region that has very similar conception of the productivity gains of the new economy, very similar policy, yet very different history and economic background, as well as different approach for the policy application, or what is discussed above as urban policy mobility, can be illuminating in order to study and plan other regions. Cities or districts that try to import and follow the model of creative and innovation districts should be able to identify how innovation districts aimed at promoting the knowledge economy can take different path from another city that aims at the exact same thing.

Those gulf cities, and Dubai, do not have a long tradition of innovation, industrialization or urbanism like London, Barcelona or Paris. On the contrary, Dubai specifically, and some other gulf cities are popularly called and recognized amongst scholars and journalists as the instant cities. The main reason for them to be labelled with this brand is their economic history and their current policy plans, specifically urban policies; the city of Dubai started its urban development by the 1980s with the oil boom and since then has become a global trade hub.[80] While this research focuses on the city of Dubai, as an exemplar and a leader when it comes to the new economy and innovation, the same analysis would apply to other gulf cities like Doha, Abu Dhabi, Kuwait City and others.

[80] ElSheshtawy, "Redrawing Boundaries"

Middle Eastern countries and cities in the gulf area became fully aware of the risks of depending on oil revenues for long term economic plans. Dubai, in particular, embraced this risk given its low oil reserves compared to, for example, its neighbouring emirate of Abu Dhabi. Dubai's oil share of the GDP has dropped from 19% in 1995, to 6.4% in 2005.[81] The city governors, sheikh Rashid and his son Mohammed, initiated a diverse economy plan starting late 1990s and early 2000s to help the city survive the inevitable dry up of its oil resources. The first plan was to initiate a rapid expansion in the commercial activities, and a remarkable financial centre on the road towards the new port of Jebel Ali. In the 1980s and 1990s, the plan extended from targeting trade and commercial activities to creating a world-class tourism hub. The investment in tourism indeed paid off; according to some statistics, in the years of 2003-4, the number of tourists were 3 million, 3 times more than the number of the city residents.[82]

It is substantial at this point to look deeper into Dubai's planning and policy-making focus on the tourism and trade rather than the knowledge economy as the alternative strategy for the post-oil time. In the literature analysing Dubai's emerging state in the world economy, one can clearly notice that the mainstream analysis and cited policy documents support the hypothesis that the city's main goal to diversify its economy in a post-oil world is tourism and trade.[83] Sheikh Rashid of Dubai and his son Mohammed have both repeatedly made it public that their intention is to use the oil money in order to create an internationally competitive economy based on trade, financial services, real-estate, but most importantly tourism.[84] For example, the city's official plan was to attract around 15 million tourists by 2010 (3 times the number New York attracted in 2013 and 5 times the number Dubai attracted in 2004). All these strategies, however, depended on the one ground of Dubai's image, or Dubai's brand to be the futuristic city.

Here comes the role of the knowledge economy in the city. Some authors have made a blunt claim that the new economy has been the major factor in Dubai's economic transformation plan. In theory, indeed the new economy is perceived by both leaders and intellectuals as a valid vehicle for bridging into the new economic activities and it is very apparent that Dubai

[81] Aubert, "Knowledge Economy in the Middle East"
[82] Hirst
[83] Bagaeen, "Brand Dubai"; Elshshtawy, "Redrawing Boundaries"; James, "The $2 trillion dollar question", Reed, "
[84] Murphy, "Dubai Imaginary"

is working seriously in this direction as they fully acknowledge the negative impacts of oil depletion and devaluation. This is reflected in the enormous investments which were used in the last few decades to finance iconic real estate developments were shifted towards planning and financing knowledge based economic centres. However, looking at the GDP contribution of all sectors in the city, real-estate and tourism related activities have had the lion's share in contributing to the city's GDP during the past decade. One explanation for this trend can be seen through the survey Ewers has conducted on the knowledge workers in the construction and finance sectors in the city (figure 8).[85] This survey shows that knowledge workers do not necessarily have to be employed in an ICT company, but rather in different sectors. As will be seen later, companies like Siemens, MasterCard and Schlumberger are not ICT companies, yet they are all located in Dubai Internet City, the major innovation district of Dubai.

	Firm type		Location		Sector				Total
	MNC/joint venture (n = 76)	Locally owned (n = 82)	Dubai (n = 103)	Abu Dhabi (n = 55)	Trade and logistics (n = 37)	Construction and engineer. (n = 32)	Finance and real estate (n = 35)	Manufacturing (n = 30)	UAE (n = 158)
Percentage reporting international branches*	89%	54%	76%	56%	84%	81%	49%	71%	73%
Percentage reporting foreign business*	86%	63%	81%	56%	84%	72%	66%	82%	76%
Percentage foreign revenue/ total**	38%	17%	31%	21%	26%	33%	26%	29%	28%
Year estimate locally (median)	1997	1997	1997	1997	1997	2002	2002	1986	1997
Percentage established 2000–2009	43%	48%	45%	46%	41%	53%	57%	12%	42%
Mean total workforce**	665	1271	785	1366	963	1541	914	849	956
Median total workforce	176	375	176	376	176	375	376	376	376
Percentage university graduates	62%	54%	60%	55%	53%	48%	68%	52%	59%
Percentage expat of total workers**	90%	85%	88%	87%	94%	93%	79%	90%	88%
Percentage expat of knowledge workers	92%	90%	92%	91%	94%	95%	84%	95%	91%

Source: author's survey.
*Chi-squared statistic significant at 0.05 level comparing firm type subtotals and firm location subtotals.
**Two-sided t-test significant at 0.05 level comparing firm type subtotals and firm location subtotals.

Figure 8: knowledge worker in different economic sectors
Source: Ewers, "international knowledge mobility"

Hence, one can infer how this whole economic transformation plan goes in line with the Dubai model. Dubai model is a model built on one single vision that is heavily centralized in the hand of the government and sponsored by the government. It is a model of imagery; or the instant city. Stemming from this model and based on the target of creating an international image for better trade, finance and tourism activities, the decision came to invest further into the knowledge economy.

[85] Ewers, "International Knowledge Mobility"

Perceived Space:

Just like Barcelona, Dubai Internet City and Dubai Media City have followed the city's tradition of urban planning. Since mid-1900s, the city of Dubai's economy was booming with oil revenue and the re-export activities. With this in mind, the Sheikh of Dubai decided to build the largest man-made harbour in the world (Jebel Ali, 1970) and made it a tax-free zone. The idea behind Dubai Internet City in the early 2000s and later same year Dubai Media City is following a very similar pattern. With the new economy booming in the city, building grand projects, promoting trade within them and making them tax-free zones has also been the go-to urban plan. In his analysis of the urban development in the Middle East that contributes to building this grand image, Elsheshtawy has noted that:

> *"Mapmakers in Dubai must be constantly frustrated. No sooner have they finished their latest in-depth representation of the city when another major project is announced to send them scuttling back to the drawing board. These projects are based on a recognition that oil resources will eventually dry up. Therefore, the city has embarked on a multi-billion dollar drive to establish itself as the Gulf's hub for leisure, services and commerce. This involved increasingly 'bold' architectural projects: Palm Islands, Burj Al-Arab […]. Other projects are geared to the global economic infrastructure of the media and internet: Dubai Media City and Dubai Internet City (DIC) and Dubai Inter-national Financial Center (DIFC)."*[86]

The number of projects the city initiated, and particularly DIC and DMC, officially were aimed at creating a knowledge-based urban development, and community for knowledge not just a technology park. However, the Dubai model is very centralized and often disconnected from the outer community, which some authors would qualify as a knowledge park rather than a knowledge and innovation district.

By 2004, four years after its creation, the district of DIC had become the home for major multinational companies' regional offices, like Oracle, Microsoft and Canon. This can be suitable for the purpose of creating a booming trade in services economic activity and also more stimulation for construction of infrastructure in the district. Yet, all scholars studying the district have agreed that this is not sufficient for the creation of a knowledge synergy

[86] Elsheshtawy, "Redrawing Boundaries", p. 180

environment.[87] On the contrary, most authors studying the economic activities in the districts have affirmed that by investing in knowledge and communication infrastructure, the goal was to attract trade and investment, supplementing this infrastructure with free zones, subsidies, financial incentives, profit repatriation, free land use and other benefits. This later created the spiral of a building frenzy of urban development which explains the boom in the construction activities and revenues in the city and in the district.[88]

Therefore, the argument about the Dubai model is the following: it is not built based on the theory of clustering, agglomeration, or knowledge as a collective good that the innovation districts are usually perceived to be based on. Therefore, the synergy and spill-over effect were not the main target of the city. Instead, it is built on the mere objective of creating value-added services that are tradeable and creating real-estate that is valuable and attractive to multinational companies. This will also be confirmed in the discussion about the conceived and social spaces.

Currently, the districts of DIC and DMC attracted companies that were expanding their activities to Africa and the Middle East, a potential market of 1.8 billion customers.[89] This is resembled in the exquisite design of the district being full of lakes, gardens and lavish company buildings. The district currently is a home for approximately 1200 companies and about 10k knowledge workers. In addition, there are very few (around 220) residential luxury villas for top executives located inside the district.

Conceived Space:

Figure 8 indicates the original plan for DIC when it started in 2000. The city of Dubai dealt with the projects of DIC and DMC as a business project with clear ROI and annual targets. Unlike the case of Barcelona were the goal was more generic for the whole city rather than exact revenue of the district. The city in Dubai owned the land, built the offices and facilities, sold it or rented it to tech companies. Other services were included too, things like legalization services, workers permit services, and even schools for workers' children (figure 9).

[87] Alraouf, "Emerging Middle Eastern Cities"
[88] Ewers, "International Knowledge Mobility"
[89] Horovitz, "Dubai Internet City"

The role of the state as a homogenizer in this situation is very clear when looking at the distinctiveness of the two projects of Dubai Internet City and Dubai Media City. Each of the districts is built for a very specific group of people with their own communities, housing, and networks; It works like an enclave. The official mission for Dubai Internet City in 1999 was "to create an infrastructure, environment and attitude that will enable Information and Communications Technology (ICT) enterprises to operate locally, regionally and globally, from Dubai, with significant competitive advantage."[90] This statement conforms to the above mentioned Dubai's target of stimulating trade, with no mention of creating knowledge spill-over or strong local knowledge economy.

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Revenue									
Stage 1	–	31,501	64,963	64,963	64,963	64,963	64,963	64,963	64,963
Stage 2	–	9,841	20,470	20,470	20,470	20,470	34,634	34,634	34,634
Stage 3	–	–	72,285	122,035	184,644	228,418	254,183	254,183	254,183
Stage 4	–	–	–	–	–	–	–	24,961	57,723
Stage 5	–	–	–	–	–	–	–	–	–
Total Development Revenue	–	41,342	157,718	207,468	270,077	313,851	353,780	378,741	411,503
Development & Operations Cost									
Off-site Costs	–	–	–	–	–	–	–	–	–
Major Engineering Works	–	(58,680)	(53,407)	–	–	–	(8,145)	(6,595)	–
On-site Costs	(21,563)	(101,449)	(73,328)	–	–	–	(67,916)	(45,237)	–
Amenity Costs	(35,384)	(21,960)	(21,960)	–	–	–	(19,709)	(19,709)	–
Building Construction Costs	(250,000)	–	–	–	–	–	–	–	–
General Development Costs	(16,515)	(44,004)	(35,110)	–	–	–	(26,552)	(19,758)	–
Other Costs	(4,000)	(4,000)	(11,214)	(15,026)	(15,026)	(15,026)	(15,026)	(18,531)	(21,129)
Total Development & Operations Cost	(327,462)	(230,093)	(195,019)	(15,026)	(15,026)	(15,026)	(137,348)	(109,830)	(21,129)
Free Cash Flow	(327,462)	(188,751)	(37,301)	192,442	255,051	298,825	216,432	268,911	390,374
Weighted Average Cost of Capital (WACC)	10%								
NPV	2,371,893								
IRR	33%								

Source: Company information.
*Assumes Residual Value based on a hypothetical sale at year 20 of AED 4.8 billion.
* DIO was the Dubai Idea Oasis, an incubator start-up business which was not pursued following the dot-com crash of 2000.

Figure 8: Investment and ROI plan of DIC in 2000

Source: Horovitz

[90] El Sheshtawy, "Redrawing Boundaries"

Figure 9: services offered by DIC
Source: Horovitz

To understand the enclave system as well as the role of state as a homogenizer there are some factors to consider. First, the services provided; they are in no way include business meetings, conferences or networking activities. Authors discussing these services while studying the knowledge economy in Dubai have conflicted statements on the original plan's goal and whether it was creating an innovation and knowledge-based space or merely build a business park that supports trade in services. The original planning documents available do not specify one goal or the other, and the current government of Dubai claims that their goal transcends an isolated business park. In reality, both visions are complementary if one considers the argument in the first section about the knowledge economy being a base on which financial services and real-estate can have a strong presence in Dubai. The conflict between both visions becomes problematic when the definition of knowledge space is limited to the European definition of it as a space where knowledge is a collective good. The revenues from DIC, by 2003, 60% came from real-estate, 25% from telecom and other infrastructural services, and 15% from other business services. On the other hand, DIC businesses attracted

about $2 billion on their own for investment.[91] Therefore, knowledge is supporting the city and the city is building a solid infrastructure for knowledge support. That fulfils the goal of attracting investment, stimulating financial services as well as real-estate. It does not, however, suffice for creating an innovation synergy between the companies, the community or the city.

Resolving this conflict empirically is tempting yet proved to be hard to fully answer through the available data. Still, it is worth exploring whether the cluster idea with its collective good nature applies in Dubai. According to the available literature and official websites, there are very few (nearly non) networking initiatives between the companies in every district and between the districts. Additionally, the facilitating agencies usually offer features on their websites like easy visa access for employees, quality of space, easy launch procedure for businesses. The literature also discusses how the infrastructure of the DIC, and DMC is spectacular with extremely secure IPs which is the main factor of attraction along with the markets, as previously mentioned. The evidence from official web services also indicate very little proof on the application of a cluster theory in the district. There is a reference to a CEOs quarterly meeting organized by the DIC company where all the district's CEOs get together in a hotel conference room. However, collective knowledge does not happen in four days per year and is not achieved at the level of CEOs.[92] Furthermore, the district also does not support the micro or small businesses. There is only one incubation centre, in5, in the two districts of DIC and DMC. Recently, a new program started by the companies located in the district called First Steps Business Centre. However, the program's goals and procedure are not very clear since its only available communication tool is via email and there is no online platform for it where aspiring entrepreneurs can get information on the project. Therefore, the idea of clustering with the goal of creating an innovation network and spill-over was never the plan for Dubai. Innovation district here has a different connotation for the city government; an image for the city, an investment attraction and a real-estate stimulation.

It made sense within this definition and application of innovation that the city government in Dubai supervises the planning as well as the management processes of the district in order to keep the goals and execution in line. The management of the DIC, since it was launched up to

[91] Arab Businesses, "Dubai Internet City"
[92] Alraouf, "Emerging Middle Eastern"

this moment of history, has always been centralized within Dubai's governors, sheikhs, and their families. Recently, DIC joined the Dubai Creative Cluster Authority, with Sheikh Mohammed himself as chairman of the authority.[93] Going in the same direction as having a unique and target driven business plans, the district had its own managing company, with marketing, finance, relationship management and other departments. The company is owned by the city government and the manager is appointed directly by Sheikh Mohammed. Therefore, everything that happens in the district is strictly supervised by the government to make sure there are no deviation from the grand objective of the innovation city image the district creates for the city.

Housing plan and policy is another factor that has been studied in Barcelona and also indicates how far the city government goes in Dubai to secure the homogenous image of the innovation district. Dubai's enclave structure is seen in figure 10, where each part of DIC is organized for a certain sector of ICT, and right on the border Dubai Pearl is built. Dubai Pearl is a luxury resident apartment designed to accommodate the needs for the knowledge workers in both DIC and DMC. Along with Dubai Pearl, right next to the DIC, exists on of the largest luxury residential project EMAAR -the largest water front development of its kind in the world-, owned and constructed by a government real-estate company. It was aimed at locating right next to Dubai's knowledge districts where 35000 would be able to live in high-end residential apartments towers and villas with a dazzling view to the waterfront. Therefore, housing not only shows the effort to homogenize the district, but also is an example to Lefebvre's criticism of space creation in the sense that it creates an intellectual division of labour. This can and will be criticized on many grounds in the last section of this chapter. However, as far as the innovation image that the district builds for the city, this system is convenient and achieves its purpose.

[93] Sofia, "Dubai Creative Cluster Authority"

Figure 10 – DIC and Dubai Pearl
Source: DIC Official Website

With all the discussed planning factors above, it is obvious that, unlike Barcelona, flexibility is not something the city can or willing to or can afford. The construction activities in the Gulf area were amounted for $400 billion in 2004 and rose to $2 trillion in 2008. During the economic crisis in 2008, the city witnessed a huge slowdown in its construction processes. The companies that flocked to Dubai to build the grand projects were stuck with their ships full of concrete and steel.[94] This happened again with yet another contraction in the Dubai's current GDP with the new real-estate market slow-down; a contraction that was not witnessed in the city since the 2009 crisis. This shows how the model is not flexible and not adapted to the changes in the global markets.[95] While these numbers are representing the whole city and not only the innovation district, it shows that the city is heavily dependent on real-estate, and without it, the GDP will witness slow-down (Theoretically, this also can be explained

[94] James "The $2 trillion dollar question"
[95] Azhar, "Dubai Economic Growth"

through the fact that the companies located in the district are multinationals and thus will not keep or attract investments in the city during a global crisis).[96]

Another planning question that will also be tapped on more later in the social space is one of the official city's original goals of the district. This was to enable its citizens to become educated and take over the important roles in the high value-added jobs.[97] According to the official strategic plans, the goal was to bring in the knowledge and talent to build the mage-projects, transfer this knowledge and then hand over the strategic positions to the locals. However, as will be seen later in the analysis, it is clear that the government lost-track of this objective.[98] This, in part, is because of the lack of communication opportunities and incentives for locals to engage with the innovation environment in the district. What all authors are still speculating is whether this will be a sustainable model on the long term with no strong local workforce; given that no internationals are allowed to acquire the UAE visa, expatriate turnover is very high and only big investors can acquire a permanent residence. This will be further discussed in the following social space as well as the challenges sections.

Social Space:

Looking at the conceived space and how it affects the social space, it is again shows how all Lefebvre's three dimensions for space creation are interconnected and at play in reality. The city of Dubai, in general, is a hybrid city, with more than 80% of its residents being international expatriates working there. However, this model of hybridity is not built on integration or harmonization. Instead, it is built on a strict homogenization.[99] This homogenization is going to be discussed in this section through the interaction of labour, companies, locals, and the state with the district.

Before getting directly into who lives in Dubai's creative and innovation districts and how they interact, it is interesting to know about Dubai's population and a general understanding of how labour is organized in the city. This understanding would help making sense of the specific social dynamics within the district as a city norm. Here, one cannot speak of Dubai

[96] Ewers, "International Knowledge Mobility"
[97] Dubai Strategy 2010
[98] Ewers, "post oil knowledge"
[99] Elsheshtawy, "Drawing Boundaries"

lived space and social dynamics without speaking of migration and migrant communities. Dubai is the top city in the world where most residents are not natives of the city. Dubai's native residents, that hold an Emeriti passport are almost 11% of the population. This stratum of the population is the most secure economically and socially, thanks to city policy for obligatory employment, marriage subsidy, housing subsidy, etc.[100] In Dubai, immigration and travel laws are so strict. Nobody can travel to Dubai unless they secure a 3 years contract with their companies, and at least a one-year housing contract. International freelancers must be registered with a company and this company holds their responsibility financially and not the state.[101]

As discussed in the conceived space, the DIC company has its own business facilitation services and there are also other international business services that help companies to locate in Dubai and organize the labour visa and housing procedure. There are two types of labour in the districts; the knowledge workers and the service workers. As discussed in the planning section, knowledge workers have their own communities around the district, their housing and well enough pay to afford it. They move to Dubai because of diversity and non-religious environment unlike several other Gulf states. However, they are usually mercenary who are attracted to the very high salaries provided by the international companies there, with a very high turnover.[102]

The service workers, on the other hand, have a different version of the district. These workers who take cleaning or waitering jobs get paid less than 1.5% of an average knowledge worker in the district; they live in workers camps with no facilities or proper commuting system.[103] Philanthropy initiatives are going on in a city like Dubai which built an image perception of being the future city. There are initiatives to provide food for labourers who do not have access to clean food, there are other organizations that help mothers from the workers to get access to food for their children, mother care and health services. Most of these initiatives are based on personal efforts and none of them receives assistance from the Dubai government.

[100] Dubai World Population
[101] Malit, "Labour Migration in UAE"
[102] Ewers, "International Knowledge Mobility"
[103] Kanataria, "Wealthy expats in Dubai"

The explanation for this gap can be found in the dynamics of how the district came to be in Dubai. There was no political or economic incentive for city planners to create an integral society of people living there. That, as a result, is what makes Dubai more attractive for investors and also is one main deriver for the social interactions in the districts. The city's main economic zones, including the DIC and DMC, have abundant availability of low-waged and non-unionized workers. Additionally, there is no restrictions of any kind on the number of expatriate workers or their wage parameters. This means that each company is allowed to determine how many under-paid workers it wants to have and how much to pay them, with no fair guarantees for those workers from the state. Therefore, left completely to the market, Dubai's system created a socially polarized environment in the district, where only the knowledge workers are visible and non-knowledge workers are left unnoticed. Indeed, this can be criticized on several grounds, and it entirely conforms to Lefebvre's theory of capitalism reproduction through space, which will be discussed further in the challenges section later in this chapter. However,

Moving from the division of labour, another major aspect to the social space analysis that also involves the general capacity for knowledge economy to create a conclusive development is the local knowledge spill-over. As mentioned earlier, there is limitation to the sources available about the initiatives, programs or projects involving locals in the development of the DIC or its businesses. However, examples of Dubai based local companies can be instrumental here.

Early 2019, the Mohammed bin Rashid Al-Maktoum posted on his official social media accounts the following:

> *"In 1999, many people questioned our idea to establish Dubai Internet City in the desert. Two years ago, Amazon acquired the multi-billion-dirham Souq.com and today, Uber acquired Careem for Dh11 billion. These giant companies flourished from the "desert" of Dubai."* [104]

Here he was claiming that the district is creating a local knowledge spill-over. However, looking at these two companies can reveal what kind of interactions do the local Emeriti have

[104] Sheikh Mohammed ben Rashid Al-Maktoum, Twitter

with the district. First, what is incredibly remarkable about these two Dubai originated and based companies is the fact that none of the 4 co-founders of the two companies is Emeriti; they are a Syrian, a Pakistani, a Jordanian and a Swedish. All of them had some of the best education in the world through their family support and working their way through scholarships and fellowships. Additionally, they all had a long career journey in their respective fields before launching their projects. Second, when Careem and Souq.com started, they did not need local incubation or mentorship, it was an already millions of dirhams investment. Therefore, those two companies were created by non-nationals who had their capital and know-how already. This does not undermine the importance of such projects to the district and to the economy of Dubai. It, however, explains how the locals are not part of the innovation economy dynamics within the district. Later, when souq.com was purchased by Amazon, its portal was shut and redirected to Amazon website. Hence, the know-how will still remain in the hands of multinationals who will keep it under tight control.

However, not only companies are not willing to transfer their know-how, locals also are not willing to participate in the new economic activities in the district. Dubai laws that incentivize locals to work in government instead of going to the labour market which makes the local spill-over for the knowledge economy even harder. Local Emeriti in private sector can mainly be seen working in the financial sector where all investments brought by multinationals are handled.[105] Some authors would claim that this strategy is for a political purpose to gain support from the locals who do not have political freedoms. [106]

Quantifying this low synergy created between the local community and the new economic activities happening in the innovation districts can be done through analysing the employment of locals in the private sector. While the data available represent the city or the country in general, these are an indication of the extremely low contact and synergy between the different parties in the city and the district. Figure 11 below shows the very low contribution of the local citizens of the UAE in all private sector activities. Figure 12 shows that the concentration of local employment goes to the government and social jobs. All the knowledge is confined within the wall of the corporations. The question here becomes about

[105] Dubai Statistics Centre
[106] Forstenlechner & Rutledge, "Unemployment in the Gulf"

the sustainability of this mobile labour dependent model. The arguments authors have made about this new model of isolation and no-synergy between the locals and businesses is that the city will move from an oil-rent based governance to its citizens to social-rent from the other activities taking place.[107] This also might be in line with the overall economic and social goal of the city government which is to find other alternatives for the post-oil era and not to create a local pool of knowledge and development. While questioning its sustainability is surely valid, Dubai's model is very consistent and successful in achieving its own goals.

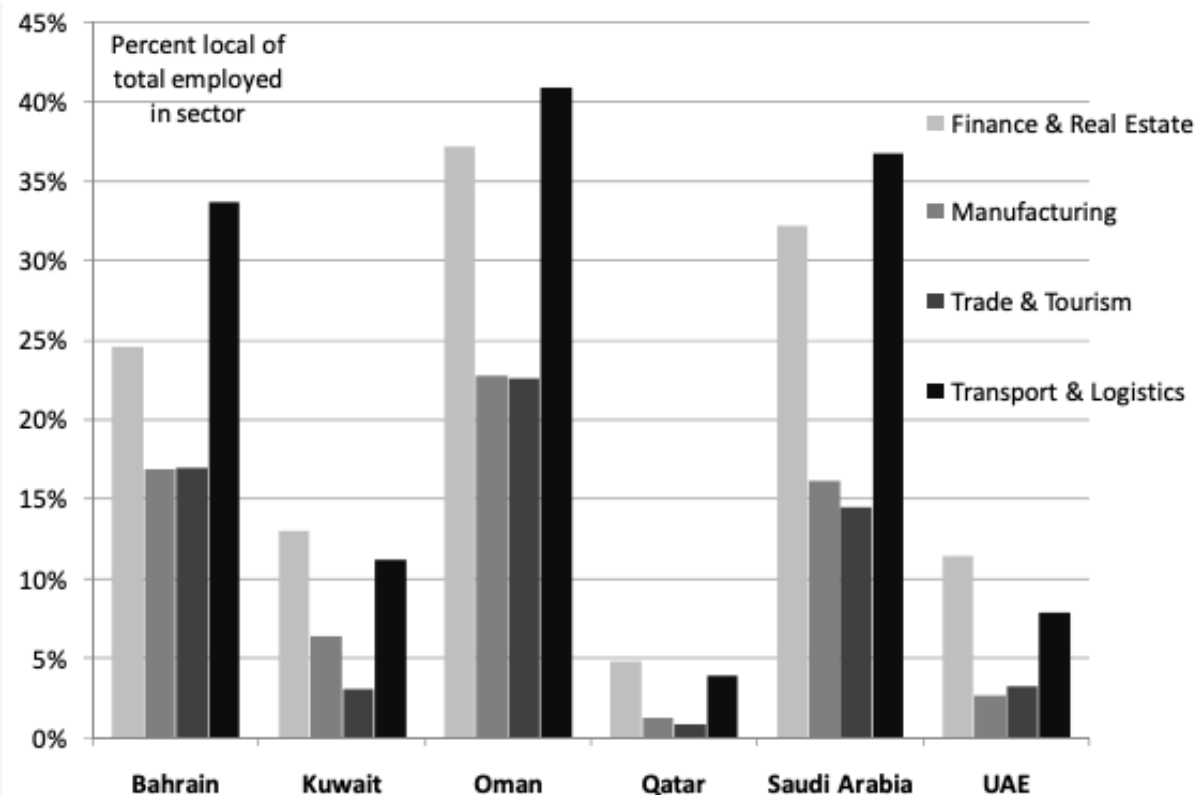

Figure 11: local employment in private sector

Source: Ewers

[107] Ewers, "Post Oil Knowledge"

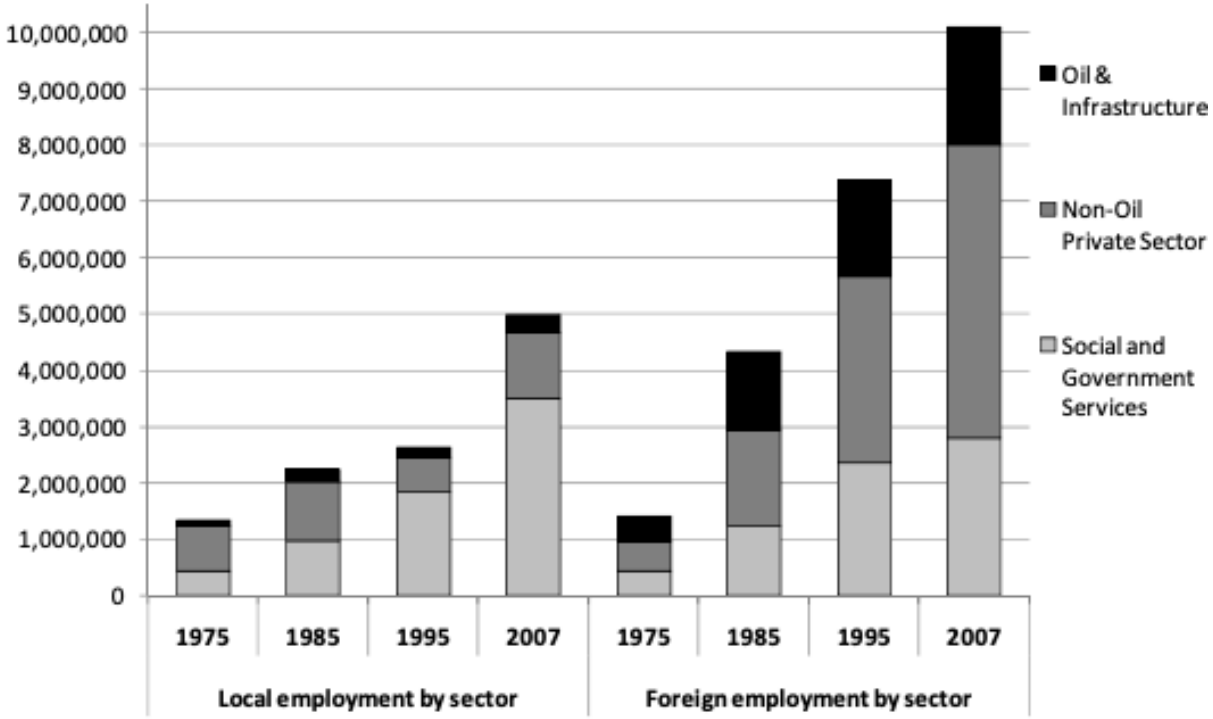

Figure 12: local versus foreign employment in Dubai
Source: Ewers

Innovation district beyond its geographical boundaries:

How the district is connected to the whole city's new economy endeavour is already discussed throughout the previous four sections. Hence, this will be a concise collection of all the different ideas together.

Looking at how the conceived space created an enclave system, and how the social space shows very limited social interaction between different parties, in Dubai, the innovation district is more subtly yet strongly connected to the whole city. In Barcelona, the connection is direct in the way that the innovation district helps create the network and image of the city as a global tech city and makes it more appealing to international companies to settle in the city and more convenient for start-ups to launch there. In Dubai, it also is related to the image, but in a different way. While the technology, knowledge, innovation, and being the tech hub of the Middle East have been stressed on throughout many speeches and policy documents, the innovation districts have three main economic goals: 1) creating a market for high value real estate which in turn increases the overall revenue of the city, and 2) attract

foreign investment to the city through the companies locating in the district, which increases the financial activities in the city's economy – a main target for Dubai's original economic diversification plan, and 3) build an innovation image to the city to attract different types of tourism and events to the city.

Regarding the first point, while other cities in the Middle East could catch up on the global city competitiveness based on their history and cultural attraction, Dubai has focused on modernization, soaring glass towers, world-class shopping malls and urban spectacles. This was the centralized choice of the policy makers in the city, which is also reflected in the innovation district. Second is investment attraction, which has already been discussed in detail earlier. Third is tourism that relies on the image of the city; this does not only mean or is exclusive to sight-seeing tourism, which are still significant. Here tourism also includes consumer and events tourism. A significant example to the impact innovation districts had on the city image that fits within the grand scheme of tourism improvement is Expo 2020. In a statement David Cameron, the former UK Prime Minister, before the vote for Expo 2020 host, he mentioned that he will be proud to give his vote to Dubai as a showcase for the city's recognizable transformation from the fishing village to the outstanding sign of the potential that the Middle East has. He specifically mentioned in his speech two main factors that contributed to such a belief: first, the city being multi-cultural; and second, the city being the innovation star of the middle east.[108] While the first aspect happened involuntary since the city needed the expatriate workers to be built, the second happened intentional and according to an image setting plan.

Challenges and Critique:

There are two main lines of criticism towards the Dubai model for innovation districts; economic sustainability and social inclusion. Starting with the analysis of the sustainability problematic. Here Evans argued – criticizing the forced creation of cluster in geographical space – that clustering does not necessarily guarantee spill-over, which proved to be true in the case of Dubai. Companies locate there because of the facilities and benefits provided by the government through free zone areas and other regulations. The challenge here is that knowledge is not transferred to the locals; the city is dependent on the expatriates. This

[108] Cameron, "Why Dubai should host Expo 2020"

means that the city's model will remain all dependant on the foreign companies and expat workers whose turnover is extremely high; the knowledge produced in DIC and DMC does not belong to the city and there is no knowledge dissemination or utilization. This brings into question how sustainable that can be and if the city can survive a crisis after another with financial services crashing and multinationals going down on investments. This does not only require a formulation of a strong conceptual framework of the district, but rather of the approach of the city choosing finance, real-estate and tourism as an alternative to the oil economy; the approach that intrigues several authors to question Dubai as a knowledge and innovation city to begin with.[109] But again, not to throw the baby with the bath water, it is important to acknowledge that what Dubai currently has is a strong foundation for a possible knowledge dissemination, it only needs stronger integration of this knowledge into the local community.

Another main challenge to Dubai, that is even severer and more critical and inherent to Dubai model is the social inclusion into the urban projects. While mixed used is not officially the policy purpose, they still create social bubbles within the districts with high end luxury villas for rich knowledge workers. This can be translated in Lefebvre's arguments about the state's imaginary about the space and its homogenization that leads to exclusion for other classes. However, the purpose here is not to indicate that Dubai must adopt the European version of social inclusion and force all workers to live in the same space. This would need another research and analysis to measure whether this would be of a valid value to both the district and the workers. Instead, the city can work to improve the low-waged labour conditions, housing, medical and commuting access. In that sense, workers can choose where to stay and not be forced to move to labour camps with harsh living conditions.

Looking at Dubai's model, we can see how different it is from a European counterpart. It does not stick to what an innovation district would mean in Europe, but also does not qualify to be a completely isolated business park. It is a different conception of what innovation district can be and how to make it economically viable. For example, Dubai never intended to create a mixed-use or walkable space. Additionally, Dubai might have not even wanted to create a social interaction within the space; social in the sense of integrating different classes, workers, or labour types. While the criticism on the model can be elaborate and alternative

[109] Alraouf, "

pathways could have been taken in order to achieve fairer results and a more integrated community, the point here is to comprehend and acknowledge that different state economic and political contexts might create different dynamics for space creation to promote the innovation economy; a dynamic that go beyond the western model.

Chapter IV Analysis and Conclusion:

The last two chapters were dedicated to analysing the two innovation districts separately through the framework that Lefebvre and Evans provided on space, innovation economy and city governments. This analysis was aimed at answering the first two research questions of: ***Why was it important for Barcelona and Dubai to initiate creative and innovation districts? And what makes every innovation district unique economically and socially?***
To further analyse the second question, this chapter and its first section will be using urban policy mobility dualisms as well as path dependence to shed the light on the uniqueness of every innovation district.

Analysis - Urban Policy Mobility:

Given that cities spend billions of dollars in order to create an innovation district, it makes sense that success and failure dualism of urban policy mobility would be of a substantial importance. Judged by their own terms of success, both Dubai and Barcelona have managed to create an image brand for the cities as the place for technology, innovation, creativity and good quality of life. While there are several ways to looks at success with the given claimed benefits for the new economy including social inclusion and local development, there are very hard to establish in the case studies for lack of data and time. However, one can see large increase in the knowledge-based employment and share of companies in the knowledge sector by time in Barcelona and how the district built the innovation and creativity image for the city (The city biotech cluster features 27% of the biotech industry of all of Spain, .[110] One can also see that Dubai became a large trade hub, especially with services trade (which includes the knowledge services).

However, what is intriguing about success in both cities and what makes the dualism more stimulating is how it is perceived and measured. While getting empirical data on how successful has proven to be a hard task,[111] two quotes from major planner in both districts can give a representative idea:

[110] Barcelona Activa, "2018 Data Sheet"
[111] Casellas

In Dubai, the DIC manager said in 2004:

> *"Between 2002 and 2003 DIC more than doubled in size once more, growing 184 per cent, and reaching its forecasted size for 2007 in early 2004. It housed more than 10,000 knowledge workers from over 600 companies. […] By 2004, the company had reached the objectives it had set itself for 2007, and began looking at different options: internationalizing by either building, operating or advising on similar parks abroad, or capturing other parts of the value chain (manufacturing, outsourcing, etc.)"*[112]

In Barcelona, Oriol Estella said:

> *"Our success does not stem from the fact that we built a project with as big of a scale as 10% of the whole city. Our success comes from the fact that we were able to initiate such a project, which changed the tools and norms about how to change the city into a better place in terms of energy, sustainability and community management"*

From this, one can see that Dubai's success is fixed on the very specific goal of being a major trade hub in the world, while Barcelona is more focused on building a collaborative long-term project that would transfer its economy as a whole into a different phase; goals that were both discussed earlier in the beginning of each chapter. Again, the purpose here is not to quantitatively assess the success rate of both districts because that would need data and analyses that go beyond the scope of the present interest. However, looking at how success is perceived is another factor to contextualize the overall goals and purposes of the innovation district. Each city's success is relatively different from the other. Dubai's success would not help the local community in Barcelona and Barcelona's success does not account for a lot from Dubai's trade perspective. Therefore, it is very important while assessing the capacity and the outcomes of an innovation district not to look at success or failure in absolute terms, but rather in terms of goals and needs against outcomes. Additionally, given the analysis of how the district cannot be seen in isolation of the economic activity of the whole city, it makes even the trial to quantitatively measure the performance of the district alone less appealing and less revealing. Therefore, a following study can be an empirical method quantifying the relationship between the district and the city can be done in order to understand how to measure the economic and social success of the innovation district.

[112] Horovitz, "Dubai Internet City", p. 170

Aside from the success and failure dualism, the initiation of a grand project of an innovation district is indeed a mobile type of policy. Both Barcelona and Dubai adopted it. However, in relationship to the city as a whole, they became different, depending on what are the economic and social goals of the city. Here it shows how a policy, being mobile or immobile, alone cannot account for how the policy will be implemented. For instance, Barcelona has its innovation district as a part of a trial to alleviate the city's economy, through technology. An even broader goal for the district is to create an innovation norm for the city to be the knowledge hub of the region. The city sought bringing and starting companies that need its local talents as well as attracting international ones. Dubai has technology itself as part of the city plan to represent modernization and the future. Therefore, the fact that the policy itself is mobile, does not mean that it shall or should achieve same outcomes. Instead, it means it will serve a certain purpose and this purpose will be clearly present in every factor of the plans and detailed policy.

One more point of comparison here relates to how a mobile/immobile urban policy is not a definite area and there is a lot of alteration in the process of mobility is the urban model; mixed-use, walkable districts versus the high-end districts with car-navigable space. This shows that the choice of urban project can be mobile, yet changeable based on the urban history of the location itself. In Barcelona, the mixed-use plans are in the urban DNA of the city, the district had its factories from the industrial era, the city did not own the land, and local residents in place already. It made sense in that context that the goal is to create an inclusive mixed community to transform and develop the economy of the city. In Dubai, the city was a desert until the 1970s and it owned the land, it could start from scratch with the most profitable urban plan that would help increase its trade, real-estate and services profitability. Therefore, not only the economic goals would influence the plans, but also the present situation would impact the economic goal (i.e. path dependence), and therefore indicate the extent to which the policy can be mobile or immobile.

Then comes the planning, governance and execution of the project's processes, or the conceived space. The policy in this regard is a mobile one. This is seen in affirming the state role to maintain social cohesion can be seen in both cities. However, the state is not either absent or present. The state (city government) in both cities takes the role that matches the general political scheme of the city. In Barcelona, the city decided to play the role of the creator of a common ground for all stakeholders. Even though that role might be imperfect or

missing some understanding of real needs to those stakeholders, it still is the way the city has decided to go about it. In Dubai, the city has decided to take the fast and easy way out of incoherence with stronger presence and more concrete vision to what the space needs to be like. Cohesion in this version leans more towards homogeneity; the state policy automatically rules out any worker or resident who does not fit into the imaginary of the city. Again, this affirms that there is no such thing as a presence or absence of the state, it is involved in some degree that goes in line with the overall goal. In the execution process in Barcelona, the state is partly present and involves other partner and in Dubai the state governs the whole process through a state-owned company.

A further discussion about homogeneity is through social interaction or the social engagement in the planning process. This can be seen through the presence and absence dualism. While it is not a policy strictly speaking, Barcelona city made sure there is a present social interaction and engagement, while Dubai never showed an interest for the matter. In Barcelona, one can see how the population and the inhabitants of the district try to be part of the process, they object to decisions that does not involve them and they try to make the area a liveable place. Moreover, there are politician, opposition and independent entities to keep the planning process in check. On the other hand, in Dubai, the nature of the population is different. The city has got its oil money and its centralized government politics and planning. Additionally, the economy of the city is based on expats. The city's economy is based on the highly paid expat workers and the locals who are financially supported by the government. For both groups, the need for the integration of local identity, creating a social integration and creating a walkable urban space is not a priority. Thus, there is no local pressure to create an interactive dynamic that was used in Barcelona.

Another presence and absence dualism analysis falls within city actions, or lack of it, when it comes to handling local and labour issues. While there are trial to create a social cohesion, and while there is very little to avoid homogenization in real life, policy makers in Barcelona are aware of the issues created by the market dynamics and its alienation process for both locals and workers. It might be not enough on its own to change the status quo of a homogenous social space, but, at any rate, it shows that it is not the responsibility of the state but rather the global capitalist and real-estate systems that forces this social cohesion. This also shows that presence and absence are not definite. Social exclusion and alienation are issues present for both cities' planners. However, it is accounted for differently in each case,

and also handled different. The awareness of the issue in Barcelona does not mean it becomes a present policy to solve it, . It only puts the city activities in the middle between a present and absent policy dualism.

Then there is the presence and absence of policies addressing housing in both cities can be another element of importance if one to understand the planning of innovation district. In the Barcelona case, the city had people already living there, increasing population with political rights and demands for affordable housing. In Dubai, the city did not need a similar policy. The underpaid population do not have political rights to demand better quality housing or to live where they work. It is important here not to take either the presence or the absence for granted. Looking at the urban history of the city and its political system can help make the choice of what type of policies need to exist or are not needed, putting aside the criticism argument of whether that should be the case or not. Additionally, the presence or absence of housing programs should not be equated to the social success of the district. For instance, in Dubai there are several other ways to change the position of the low-waged workers than to put a cap on rent price or to make a district's housing available to them; they can raise their wages or make sure there are sufficient utilities and commuting systems available to them.

Understanding both cases in terms of urban policy mobility as well as a path dependence approach, a lesson can be learned for cities willing to catch up on the creative and knowledge economy. Cities in global south currently are being advised to follow suit from global north in order to reap the benefits of the new economy. Hence, looking at two cases from already developed economies that have same projects with different paths and approaches, and trajectories can be a guiding start to illuminate the process and its dynamics for those cities if they decide to take the path of innovation districts.

To sum up, both cities have followed the innovation district approach to promote the new economic activities and knowledge economy. Barcelona and Dubai understood the benefits of creating physical proximity as well as suitable infrastructure for the companies. Both cities tried to foster innovation, research and economic development through their creative districts. Nonetheless, each cities' history, economy and political system led to a different type of creative district. Figure 13 below summarizes the analysis of both districts and their respective urban policies. From the very beginning of this research, it is well understood that both cities followed different approach to a creative district. The choice of both cities as case

studies was then purposeful to demonstrate that in a global world where the new economy is seen as a mean to achieve economic development, local specificities need to be taken into consideration to make the best out of a policy approach.

Figure 13

Source: Author's illustration

		Lefebvere and Evans		Urban Policy Mobility and Path Dependence	
		Barcelona	Dubai	Possible Expplanation (Path Dependence)	Urban Policy Mobili Dualism
City	Economic goal of the district	Econ. Transformation into new econ.	Econ. Transformation into finance, trade, toursim and real-estate	Path Dependence (planning according to the econ. history of the city)	N/A
	Political system	Participatory	Centralized	Historical political system	N/A
	Role of the state in the district	Moderator - decentralized	Planner - centralized	Historical Political system	N/A
	Economic Logic	Knowledge as a collective good	Real-estate and business services	City's economic goal	N/A
District	Success/Failure definition	Building a knowledge enviornment and brand	Bringing investment and real-estate value	City's economic goal	Success/Failure
	Urban Model	Mixed-use	Enclave	The urban history of the city	Mobility/Imobility
	Governance model	Independent Partners	City government	City model (participatory vs. centralized)	Mobility/Imobility Presence/Absence
	Locals interactions and social inclusion	Conflicting yet continues	Bare to non-existing	Economic goals of the city - political system in place	Presence/Absence
	Cohesion and homogeneity	Relatively diverse	Very homogenous	The starting point of urban plan	Presence/Absence
	Housing Policy	Social housing - rented housing policy	free housing market	Suitable for the exisiting urban fabric and attracting companies corresponding to the economic goal	Presence/Absence
	Main USP of attraction for companies	* Network and Connections * Labour	Infrastructure, capital circulation, access to African, Asian and ME markets	City's economic goal	Mobility/Imobility
	Flexibility of economic activity	Flexible	Strict	City model (participatory vs. centralized)	Mobility/Imobility

Conclusion and Future Research:

The first concluding note to be made about the study of the two case studies and their innovation district is that there are several factors that might have been not given clear and adequate attention in this research; things like education, universities, energy, sustainability (environmental sustainability and not economic sustainability), and the role of culture and heritage in the innovation district planning. However important these factors are, these are all factors can be studied underneath one of the points of analysis or another. For example, the study of educational institution locating in the district can come under the conceived space, and their two-way possible knowledge exchange with the district can be discussed underneath the social space. For time and data access considerations these factors could not be included in the analysis. Nonetheless, this analysis is meant to be a framework upon which an understanding of how to assess an innovation district with its different layers and stakeholders and dynamics.

Due to factors analysed through Lefebvre and Evans, like political systems, economic history, or existing urban fabric (i.e. path dependence), every innovation district proved to be unique in its trial to promote the knowledge economy. Hence, while international reports highly encourage the creative economy for global south as a method to overcome the premature deindustrialization or even a leapfrogging for those places who have not experienced industrialization to begin with, this research sought to prove that there is no such thing as a one-size-fits-all in city policy. It is important to note here that taking path dependence and urban policy mobility into consideration, not all cities can or should follow the innovation districts path, let alone the whole creative city or innovation city approach. Some cities in the global south do not have the suitable urban history to create grassroot inclusive and mixed-use district (like Barcelona), neither the financial and economic capacity to create a fast, large and multi-national technology hubs and/or districts (like Dubai). Some cities do not even have the capacity, infrastructure or soft factors to be able to attract the international educated, knowledge and creative workers and has a very thin educational system and thus other models for economic development should be suitable. Therefore, these cities need to find another alternative approach to transforming their economies through understanding their current capacities and working on the transformation aspects that fits within them.

It is worth mentioning also that not all creative and innovation districts have to be initiated as a top-down approach. On the contrary, many cities now have creative economy and creative workers rising from the bottom, like Beirut or Buenos Aires. Whether these models also can fit the goals of their respective cities is another study area, but what matters the most is that, as seen in Barcelona and Dubai, every city needs to understand what makes it unique and how every stakeholder is involved. Additionally and in all cases – whether the city government decides to be the initiator of the project or it is a bottom-up approach – it is important to judge the process of this city according to its own needs and goals and not according to the generic western definition of what is an innovation district and how it can be successful. This helps in making the process of creating an innovation district consistent with the city policy as well as socioeconomic goals.

As a final note, this research can be followed with more in-depth analysis with quantitative data for both cities for their innovation districts. While there was limitations in terms of data access and time, a follow up research can be done through original surveys and field research and observational methods that would allow to collect district-level data in a precise and accurate manner which would indicate the corresponding figures to each of the studied concepts and notions; things like types and number for companies and their business activities, housing and real-estate situation, labour market and the foreign versus local labour. All these factors can be quantified and can be of great value to the understanding of the economic and social viability of innovation districts and can help making the process of assessing possibility for other innovation district in other cities an effective one.

Barcelona Interviews List:

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Antoni Oliva: Chief Executive of 22@ Network BCN (22@ private business association)

Angels Santigosa: Research Director, Corporate Management of Persons and Organizational Development, Barcelona Activa, Ajuntament de Barcelona

Miquel Barcelo: Innovation consultant. He is considered "the father" of 22@

Marc Garcia Lopez: Director of the Llobregat Delta Plan Strategic Office (Zona Franca area)

David Martinez: Director of Fundació BIT-Habitat and coordinator of 22@ Comission

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