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Urban Megaprojects-based Approach in Urban Planning: From Isolated Objects to Shaping the City

The Case of Dubai

PHD Thesis Dissertation

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Abstract

Urban megaprojects are at the core of cities' re-imaging and marketing. As large-scale development projects, they are considered as a globalization product, marked by a search for spectacle and visibility. In Dubai, UMPs have constituted in recent years the main tool in drawing a city image that aims to compete with the world global cities. Through UMPs, an economy based on spectacle and fascination is being deployed, within a complex system of governance that encompasses family ties, business logic and individualist visions. UMPS are not exceptions or isolated developments, they are in Dubai, a mean through which the city is expanding and being managed.

UMPs are here the backbone public planning instrument to what we can call a UMPs-based approach to planning and development. Paradoxically, it is these very large projects, usually associated to urban fragmentation that allow, through their form and processes, the emergence of forms of regulation that articulate actors, institutions, interests, resources, spaces and scales.

These adaptations and negotiations are orchestrated in a strategic pilotage manner, through informal, often unveiled *ad hoc* regulatory spaces. The ultimate goal is to ensure a certain synchronization between temporalities and project through a continuous logic of complementarity and competitiveness.

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Introduction

Cities are increasingly at the centre of economic growth strategies and are considered a platform for economic competition, mainly through large and particular urban interventions. Frequently, these interventions involve large urban developments, often called urban megaprojects. In the context of inter-city competition, urban megaprojects are seen as a vehicle for revitalization, restructuring and attraction; they have been described as 'one of the most visible and ubiquitous urban revitalization strategies pursued by city elites in search of economic growth and competitiveness' (Swyngedouw et al., 2002). They are at the core of economies of fascination (Schmid, 2009; Bryman, 1999), spectacle and city marketing (Ashworth, 2009; Avraham, 2002; Eshuis & Klijn, 2012).

Similar to the large monuments and engineering masterpieces of the nineteenth century and the skyscrapers of the early twentieth century, megaprojects are icons of managerial and technical prowess in the production of the contemporary city. Their large scale and functional complexity provide them a significant cognitive power that puts them at the center of current strategies of metropolization in many cities around the world. In this context where city politics have shifted from regulation and welfare issues to re-imaging and marketing the city, large urban development projects are seen as a product of a 'shift to urban entrepreneurialism' relying on public-private partnerships for promoting urban growth and development (Harvey, 1989).

Defining Urban Megaprojects (UMPs)

Megaprojects are not new (Lehrer & Laidley, 2008; Orueta & Fainstein, 2008); it is possible to identify undertakings on this scale in earlier periods that display a variety of forms and contents. Whether in the context of post- World War II reconstruction or of the mega structures movement of the 1960s, megaprojects were often symbolic of social amelioration and technological progress.

The beginning of the 1990s witnessed a new type of large project characterized by high complexity and cost and requiring complicated financial and partnership procedures. In their contemporary version, urban megaprojects are flexible and diverse rather than singular and monolithic (Lehrer & Laidley, 2008; Olds, 2002), and encompass tourism, sports, finance, leisure and residence functions. In most cases, these urban megaprojects include one or more famous architecture signature buildings.

Terms used to designate urban megaprojects have varied according to place, time and author; examples include 'urban mega-projects' (Olds, 2002), 'large-scale urban projects' (Lehrer & Laidly, 2008), 'entrepreneurial urban projects' (Ben-Joseph, 2009), 'global urban projects' (Marshall, 2003), 'large urban development plans' (Sager, 2011), 'urban complex projects' (Arab, 2004), 'complex real-estate projects' (Priemus et al., 2008), and in more overstated appellations, 'cities within a city' (Samarai & Qudah, 2007), and 'satellite cities'[1] (Percival & Waley, 2012; Abaza, 2011).

Clearly, exceptional size is a major criterion in the definition, followed by the mixed-use and the 'integrated' aspects of such projects. Some authors focus on the complexity side of the projects' contents and contexts (Orueta & Fainstein, 2008; Premius et al., 2008), others on their linkage to globalization where the projects transcend local conditions and adhere to universal codes (Marshall, 2003), while yet others highlight the technological aspect mobilized within these projects (Brown et al., 2009).

In analysing megaprojects, infrastructure projects such as large airports, metro and ports projects are often included. In many essays as well, the term 'megaproject' includes high towers, and single buildings. It is often used in the media as well as the scientific literature to designate different objects. Therefore, it is important to define what we mean by 'megaproject' in the context of this research.

First, the term as used in this research does not include large-scale urban projects that are strictly limited to the implementation of an infrastructure. In fact, one can find a large number of infrastructure projects that require huge budgets and high technical prowess and that generate consequently a high financial risk (Flyvbjerg et al., 2002).

[1] The comparison with satellite cities takes roots from the closed and introverted aspect of these projects.

However, they are very different in their development, design and implementation from multifunctional urban projects where the project's contents and uses and the political dimension have a much greater bearing on the development of operations. Second, we differentiate, following Arab (2004), these megaprojects from large architectural projects and "agglomeration" projects or "territory" projects. Although architectural projects can have an undeniable symbolic and iconic dimension and can mobilize significant funds, they do not have the complex implementation dimension that is intrinsic to urban projects, with all their implications in terms of complexity of actors and political consequences.

Similarly, "agglomeration" projects or "territory" projects, such as strategic metropolitan or regional development projects, are different from urban megaprojects. They lack direct connection with the site realities of a localized operation. Remaining on the side of strategic choices, they often do not have to deal with operational challenges. The most significant of these challenges is the moving complexity of an urban environment, its actors' whims and interests and its changing economic dynamics.

The most typical characteristics of megaprojects identified in the literature (Frick, 2005; Priemus et al., 2007, 2008) are termed the '6 Cs': *Colossal* in size and scope; *Captivating* because of the project's size, engineering achievements and possibly its aesthetic design; *Costly*, in that costs are typically underestimated and increase over the life of the project; *Controversial*, as project participants negotiate funding and mitigation packages, engineering and aesthetic design plans, and pursue construction; *Complex*, a factor which breeds risk and uncertainty in terms of design, funding and construction; and laden with *Control* issues related to who are to be the key decision-makers.

Olds (2002) considers, based on an analysis of megaprojects in Europe, North America, Asia and Australia, that these have many similarities: they are modelled on each other; developed and planned by architects, planners and other experts who have experience of working on previous or on-going megaprojects around the world; developed with both explicit and implicit internationalization strategies in mind; marketed to overseas firms and high income individuals for subsequent lease or purchase; and designed to symbolize a global urban 'utopia' for the twenty-first century (Olds, 2002).

The main characteristic of this type of project is its complexity, especially in terms of actors involved and the various difficulties encountered at the implementation level.

These are operations that bring together a large number of actors from different disciplines and cultures. The role and status of many of these actors, in the fragmented and complicated process of the project, are of necessity only temporary and partial. The arrangements and implementation often require complex and particular measures in order to successfully cope with regulatory frameworks.

Similarly, securing funding and allocating responsibilities among stakeholders is not a simple task. This is why many authors see financial and political risk as inherent in this type of project and among its main characteristics (Flyvbjerg et al., 2003; Premius et al., 2008; Bourdin, 2002; Salet et al., 2013).

The megaproject for us is a large urban[2] development project that is specific for its size, complexity and duration. While localized, it is inscribed in a specific dynamic of metropolitan - even global - development at a broader scale. Thus it is related, for some scholars, to the emergence of the neoliberal city (Swyngedouw et al., 2002; Sager, 2011) or, for others, in a less trenchant analytical tone - to metropolitan development and its needs and strategies (Salet and Gualini 2006; Bourdin and Prost, 2009).

Urban Megaprojects, an 'actually existing' neoliberalism tool

Despite criticism concerning their costs, risks and impacts, UMPs are becoming increasingly a common urban tool in various contexts. However, the studies on UMPs do not correspond to their expansion worldwide. There are many successful studies on megaprojects; however, this subject is still marked by imprecision and ambiguity.

[2] We recognise that the word 'urban' in connection with a project connotes a complexity of actors, ranging across both private and public actors, and acknowledge that it cannot carry the same meaning in the Dubai context. Barthel (2008) considers that the word 'urban' used in European contexts cannot be applied to the Arab world in this sense, where usually megaprojects are governed and piloted by developers and rulers. However, in this text, the adjective 'urban' is used to differentiate the megaprojects from infrastructural projects.

The approach adopted in individual researches is often one based on case studies analysed from the angle of actors' role, the new contexts of globalization (Altshuler & Luberoff, 2003; Barthel, 2008, 2010; Lehrer & Laidly, 2008; Salet, 2007; Shatkins, 2008; Swyngedouw et al., 2002), or the management of these projects (Browne et al., 2009). They are also analyzed through their evolution in history (Orueta & Fainstein, 2008; Lin, 2007), their morphology, impact, costs, and the social issues they imply (Carmona, 2006; Fainstein, 2008, Flyvbjerg et al., 2002; Salet et al., 2013; Flyvbjerg, 2005; Marshall, 2003; Jia et al., 2011; Olds, 2002; Priemus & Flyvbjerg, 2007; Kim et al., 2009; Priemus, 2008; Priemus et al., 2008; Shatkins, 2011; Van Marrewijk et al., 2008).

The analytical framework of the production of megaprojects in the scientific literature is mostly dominated by approaches that link, almost systematically, the emergence of these new urban objects to the dynamics of globalization and neoliberalism. These analyses are often based on theories of political economy. These theories emphasize the impact of changes in production modes, financialization[3] and the dominant role of private actors, factors that are put forward to explain the contemporary changes in cities' production processes, and therefore in the emergence of UMPs.

Considered as expressions of neoliberal urban planning policies, urban megaprojects are understood in the light of concepts such as 'glocal states' (Swyngedouw 1996) and 'glocal fixes' (Brenner & Theodore 2002). UMPs became specific tools seeking to attract international capital and investments through space-based interventions.

The majority of these projects, be it in Europe, in America, in Southern Asia or in the Arabic world, often portrayed as prototypes (Marshall, 2003), have many similarities. These similarities can be seen at the morphological level, in the financing modes or the public-private partnerships they involve, and more particularly in the objective of attracting multinational users and investments in a context of inter-city competition (Fainstein, 2008; Lehrer & Laidly, 2008; Diaz & Fainstein, 2008; Barthel, 2010).

[3] Financialization' is defined in 'Oxford Dictionaries' as the process by which financial institutions, markets, etc., increase in size and influence.

Despite these similarities, urban megaprojects are at the same time the product of specific factors such as sociopolitical and economical contexts and professional *milieus*. They are 'emerging urban forms powerfully shaped by place-specific geographies, cultural preference and social structure' (Shatkins, 2011).

Indeed, in the literature, urban megaprojects are examined through two different angles. From one side, they are considered as globalized city fragments, given the internationalization of capital and the circulation of images and models. These images and models are the results of the globalization of ideas, the standardization of norms, the important role of mobile professionals and the new 'global' practices of increasingly diverse populations.

From the other side, megaprojects are considered as specific products of particular contexts. They are at the same time products of specific local governances and the reflection of local norms and references. As manifestations of neoliberal urban policies, urban megaprojects transform, adapt or mutate in different contexts (Brenner & Theodore, 2002).

In fact, neoliberal urban policies are often analysed in relation to a geographical context, the particularities of which filter and transform the neoliberal logic (Hackworth & Moriah, 2002). It is in light of these observations that many scholars have defined an '*actually existing'* neoliberalism in order to designate the important variations the interpretation and application of this concept have to undergo in each city. Based on this literature on contingency in neoliberal urban policies, UMPs can be understood as globalization's fragment as well as the product of a local context.

Consequently, despite UMPs having become a worldwide phenomenon, the plethora of economic, cultural and political factors varies between one context and another. In the Arabic world, for example, UMPs have a particular dimension. They constitute a major component within the development and extension of cities. In Dubai, the focus of the present research, UMPs are at the core of economic policies adopted by urban actors.

‘Fascinating’ UMPs in Dubai: a lever for a new urban planning and development approach

UMPs, along with rapid urban growth, have transformed Dubai in the last two decades. Scholars describe this transformation as a shift from a fishing and trading village to a cosmopolitan, regionally significant twenty-first century city, that is a leading tourism, mass communication, transit and finance hub, and a city present on the world stage as global (Pacione, 2005; Lavergne, 2002, 2009; Malty & Dillon, 2007; Haines, 2011; Acuto, 2010, 2011; Chu, 2007). It is this rapid evolution, from pre-industrial to industrial and then post-industrial center (Acuto, 2010; Pacione, 2005), moving from basic economic activities to an oil-based economy and then to a diversified economy, that distinguishes Dubai as a ‘product of a super-fast urbanism’ (Bagaeen, 2007, p.174). A number of factors have contributed to this transformation. Some are related to Dubai’s strategic location and others to the ‘openness politics’ adopted by the city’s rulers.

Its spectacle and monumentality have prompted descriptions of the city as in a ‘frantic quest for hyperbole’ (Davis, 2007, p.54), and as a place where ‘superlatives had become a way of life’ (Walters et al., 2006, p.79). In only a decade, Dubai has built for itself a city map and skyline that are recognized worldwide. The spectacle in architecture can be seen through artificial islands, record-breaking towers, and the high number of large-scale developments. Dubai is often portrayed as a product of neoliberalism, since its policies are mainly oriented toward the market, with extreme measures such as elimination of taxes and deregulation in the context of urban and economic frameworks.

In this context, urban megaprojects are not only a constitutive part of the city’s branding policies aiming at creating a city label and image contributing to the city’s development and extension, they also contribute to the deep transformation of its urban morphology. In the last fifteen years, these megaprojects, built at a record speed, have profoundly modified the urban landscape in Dubai. They have been also the most tangible expression of the city’s metropolization, or what has been called the ‘Dubai miracle’ (Hardy, 2008; Walters et al., 2006; Lasnier & Chancel, 2010).

The city’s general urban morphology can be compared to an assemblage of megaprojects, implanted in the city either individually or through agglomerations. Located in different parts of the city, close to the urban fabric that existed before the construction boom and far from the old centre towards the inland desert, Dubai’s

megaprojects do not follow clear urban expansion logic. The result is a fragmented urban fabric that looks more like an uncompleted urban puzzle.

This urban fragmentation is not only a reflection of a specific real estate market or particular development agendas, it reflects a socio-cultural system that is also marked by a social fragmentation (Kanna, 2011). In fact, even if some authors interpret urban fragmentation strictly as a spatial and geographical phenomenon (see for example Burgess, 2005), some others consider that elements of urban fragmentation encompass spatial, socio-spatial, political and economic issues (Navez Bouchanine, 2002; Bénit et al., 2007).

This amplification of many aspects such as seeking metropolization, the plethora of neoliberal politics, the rapidity and particularity in urban transformation and extension, the impact of fascination, the abundance of capital, the power and monopoly of the urban actors all contribute to portray Dubai as a place that makes more visible dynamics that may be less visible in other contexts.

Even if Dubai shares many similarities with other GCC cities, a set of particularity characterizes its history, its socio-political system and its economy. Since the early beginning of the city, in the nineteenth century, Dubai rulers were known for their openness to other cultures, their ambitious plans for their city, and their ability to centralize and control all aspects of urban and political life.

Many authors have analysed a number of Dubai's most spectacular urban megaprojects, some considered to be the icons of Dubai's circulated image, like the Palm Islands and the World Islands (Picon-Lefèvre, 2013; Elsheshtawy, 2004; Jensen, 2013). There has also been a focus on its free zone megaprojects (Malty & Dillon, 2007), and Dubailand Megaproject (Walters et al., 2006).

While the Dubai experience has attracted many authors, there is no text that focuses exclusively on megaprojects. Dubai's UMPs have been examined in some studies without constituting the main object of analysis, being treated instead along with governance aspects or through an architectural perspective. There is no scholarly work that aims to analyse the characteristics of Dubai UMPs with reference to a sufficiently large database. Moreover, it is important to underline the lack of systematic analyses that examine the role of the megaprojects within the broader urban dynamics of the city.

We consider that the particularity of Dubai's UMPs cannot be examined in isolation from the urban and global dynamics of the city and its actors. Indeed, from one side, Dubai is extending through megaprojects, and from the other side, the city is governed as well by megaprojects. Dozens of megaprojects constitute the heart and the development engine of various parts of the city.

Moreover, the numerous real estate developers affiliated to the monarchical political system, a plethora of financial policies, land control and strategic plans all implicate and are orchestrated through megaprojects.

Therefore, the particularity of our study lies in analysing the UMPs within the totality of the system inside which they exist. UMPs, in their morphological and managerial dimensions, will be studied as a product of a particular socio-political system, and of a network of actors that connects political leaders, real estate companies, regional developers, and international consultancy firms.

We believe that megaprojects cannot be understood as isolated interventions linked to various culturally and economically globalized networks, but have to be examined as both a product and a catalyst of local urban dynamics. They also cannot be understood in isolation from interrelations between actors in terms of their specificities and roles, and the manifestation of these in terms of physical and morphological characteristics as well.

Based on all that, we argue that Dubai urban megaprojects, as reflections of globalizing and neoliberal policies, constitute not only territorial processes and forms, specifically rooted in the local context, but the primary instrument of the city's development, and a way to control, manage and orient its urban process. Similar to major highway projects, train stations, major squares, parks and public spaces, that have a structural role within the city, megaprojects in Dubai seem to be contributing to the implementation of a new approach in urban planning and new urban policies centred around the project's materiality. In this perspective, strategic planning and regulation, basic elements of modern urban planning, may be present but seem to be relegated to a secondary, even marginal, role.

Research questions

This leads to many questions:

1- What are the specific contextual factors that have contributed to the emergence and the adoption of urban megaprojects as a primary tool in the urban production of Dubai?

2- How have these urban megaprojects impacted the city's urban dynamics and its urban form? And how are they structured in terms of morphology?

3- How are megaprojects contributing to forging a particular planning approach in the city, at the strategic approach level, the implementation of main infrastructure networks level, as well as the regulatory framework level?

Research Methodology

We have adopted three types of methodology in order to provide answers to the research questions. These are observation, documentation and interviews.

To undertake observation, we visited Dubai twice, in 2012 and in 2013, in October, given the moderate climate in this month, for a period of three weeks on each visit. Apart from the interviews that will be detailed below, the major component of the observation comprised visits to a wide selection of locations in the city:

Visiting a large number of megaprojects. Megaprojects were selected based on accessibility, a consideration that generally excluded construction sites and gated communities. Some of the sites selected were easily accessible by metro and some others by taxi. Some projects, such as Business Bay, that was still a construction site, were not accessible. However, visiting the upper part of Burj Khalifa, the highest tower in the city (and at that time, the world) afforded us the opportunity to undertake a photographic survey of the surrounding projects. It was not possible to walk around all megaprojects, and hence many were visited only by car. The scale of sites and high temperature in the inland desert made walking relatively difficult. However, we were able to systematically photograph buildings, roads and open space, with a focus on public/private limits where possible.

During our stay, we had the occasion to stay in the Dubai Marina project, one of the case studies in this research. This stay was key in providing us sufficient time to do all the needed observations and surveys, such as the content, building heights, the road network, the tramline that was under construction during the visit, and other aspects related to users, accessibility and morphology.

We also visited twice, in 2012 and in 2013, the annual expo Dubai Cityscape, an important mega-event in the domain of construction and real estate, where entrepreneurs, developers and firms exhibit, through large models, panels and video presentations, their planned and built projects. This expo constituted another way to survey the on-going major projects.

Visiting the old centre of Dubai: walking in the souks allowed us to discover and observe the users, the functions, the architectural typology, and the city scale. Walking also facilitated the taking of notes and photos. Since the old souks in Dubai were not to be morphologically analysed in this research, locations to be visited were selected randomly and notes and photos were not taken systematically.

Observing the locations along the banks of the creek, through a ride in a water taxi. This excursion allowed us to observe and take photos of the modern projects that are taking place, in contrast to the existing old urban fabric. Photos focused on the buildings as well as open green spaces alongside the creek. It was also important to understand the various transport means that are managed by RTA, the roads and transport authority in Dubai, that serve the creek from one side, and connect the old part with 'new Dubai'.

In the documentation part, we have used several tools in order to collect related data, from the relevant scholarly literature, the grey literature (reports), photos and maps.

Literature review: it focuses on the scholarly articles and books that examine Dubai and the GCC in general, from various disciplines, with a focus on morphology, history, governance, geography and economy. We have also drawn from some books purchased from a book expo during our visit; these books were mainly written by the Sheikh, focusing on his dreams and visions of Dubai, and others providing a photographic survey of the city.

Websites and blogs have constituted for us an important source of data. These mainly focus on Dubai, and less frequently on worldwide real estate. Websites and blogs were

very informant about projects, such as details concerning developers, content, phasing and masterplans. They are also important sources of historical photos, aerial views and maps. While the interviewed firms, Dubai municipality and other authorities such as TECOM were reluctant to provide us with maps and photos, these were relatively freely accessible online.

Systematic review of periodicals such as MEED that specialise in real estate within the GCC and north Africa region, and ENR, a revue that is more international with a focus on the firms and projects in the domain of architecture and construction, were also important sources.

Concerning maps, we have found some online and some on OpenStreetMap, while others were bought from private offices in Dubai that specialise in commercial GIS and mapping. A number of maps used in this research were taken from the 'Dubai 2020 Urban Masterplan', an official report purchased from Dubai Municipality. Aerial views were mainly uploaded from Google Earth. The aerial views provided by Google Earth back to 2002 were very useful in analysing the city's expansion. However, Google Earth does not go in history beyond 2000 for some major city parts, or even beyond 2003 for others.

As for the interviews, we identified prior to the site visits the international consultancy firms that are involved in our first list of identified megaprojects. Referring to blogs and websites was key in completing this task, as the consultants are rarely mentioned on the official websites of megaprojects. Moreover it was common to find conflicting information due to the continuous changes of consultants over the duration of a project. This posed a major challenge to identifying the consultant who produced the master plan for each project. Given the complexity of megaprojects, and the involvement of a large number of consultants, identifying the consultant in the domain of urban planning seemed to prove confusing even for specialised blogs. In order to resolve this issue, we have cross-referenced many sources where possible, and part of the data was provided after the interviews.

In accessing the interviewees within the firms we have identified the professionals in urban planning department or in architecture department when there is not a planning one. We have done that through visiting the firms' websites, and then calling the offices that are either in Dubai or in Abu Dhabi, the larger emirate in the UAE. From another side, and knowing some aspects of the professional aspects, through friends, relatives and

colleagues who live or work there, access to some interviewees was made easier. In general, the majority of contacted persons were available for interviews. Only two firms claimed that they do not have time for interviews. We have also contacted Dubai Municipality and TECOM for interviews. Interviews were possible after an official demand and appointment. We tried to contact key developers, such as EMAAR, Nakheel and Dubai Properties. Only EMAAR has provided us an interview, and this only happened after a recommendation from a friend in Dubai Municipality. In total we have interviewed around 40 persons, in the selected firms, in Dubai Municipality, TECOM and EMAAR.

Other type of interviews was 10 to 15 minutes unplanned interviews with people in Dubai Cityscape. Those were selected upon their availability, and were project managers, public relations staff, sales managers and others. A total of ten quick interviews was possible.

The third type of interviews is an informal one, through unplanned meetings with friends, colleagues or relatives who work in Dubai, and in particularly in the domain of construction and real estate. Even if not structured, these meetings were important in providing us general data about Dubai, the key developers, the social and political contexts' characteristics and other related aspects.

In the different sections of this research, relevant methodologies were used. In each section, the used methodology will be further detailed when needed. In the final conclusion, a return to the adopted methodologies will take place, through an evaluation perspective.

Thesis's structure

This research will be structured into three main chapters:

Following the introduction, the first chapter analyses the context's elements that have contributed to the emergence of megaprojects in Dubai. In the first part of this chapter, the rapid urban extension and the spectacular growth of the city marked by speculation and the quest of spectacle is highlighted. The second part focuses on urban governance in Dubai. Aspects such as political centralization around the Sheikh - as governor, manager, controller of land, royal funds and major parastatals - are presented, as well as the

multitude of authorities and the overlapping prerogatives. Links between this urban governance and urban development are examined. In the third part of this chapter, we examine the particularities of urban planning practice that is marked by a lack of local expertise and the dominance of international consultancy firms. The presence of these firms in GCC is deeply linked to the specific development history of the region. The primary role of these firms in contributing to the emergence of megaprojects in Dubai is analysed. The solid presence of these firms as well as their integration and their adaptation to the various particularities of the local context is illustrated.

Chapter two examines the impact of megaprojects on the city of Dubai, and their contribution to the evolution of its driving urban dynamics. Therefore, megaprojects are studied at two different spatial scales. First, and based on a database of 36 megaprojects, the particularities of these projects are highlighted, and compared to an existing literature on GCC's megaprojects and more particularly on Dubai's megaprojects. At a smaller scale, and based on four megaprojects, main morphological characteristics will be analysed, as well as internal and external dynamics in relation to the surrounding context. It will be demonstrated that physical and morphological aspects of megaprojects are key elements in the creation of the project's image, its relation to the city and its managerial aspects.

In chapter three, the megaprojects-based urban planning is examined as a specific approach. As an urban instrument, UMPs are analysed as located somewhere between urban planning and urban design. A comparison between these two different approaches will be made in order to illustrate aspects of megaprojects that can be more relevant to urban planning and/or urban design. It will be argued that megaprojects are more a type of physical planning, and will be further examined through a comparison with similar physical approaches. Then, we go through the role of the UMPs as planning instruments, and we examine challenges, successes and failures of articulating them with other planning instruments, mainly urban networks planning and strategic planning, within the Dubai's UMPs-based approach. In the second part of this chapter, we focus on the UMP as a public policy instrument. The procedural aspect is hence examined through Dubai Marina project, a case study that we consider as representative of the city's megaprojects.

Conclusions are formulated in the last section.

Chapter 1
Specific urban history, particular governance and a customized expertise as main factors contributing to the emergence of Dubai's UMPs

The rapid development process in GCC and particularly in Dubai is not characterized by spectacular speed alone. It is about a 'qualitatively different' development pattern to those experienced by European countries, for example, where the economic foundation of societies went from agriculture to industrialization, to the 'information society' and finally to the present 'knowledge economy' (Hvidt, 2009).

Dubai is portrayed as trying to leapfrog intermediate stages and transition directly from a pearling/fishing/trading economy to a knowledge economy[4] (Ewers & Malecki, 2010; Hvidt, 2009). In GCC in general, this quick transformation can be related to the record oil revenues that have generated a great need to find destinations for the surplus of capital.

The study of Haussman's Paris by Harvey (2003) linked its urban transformation to accumulation of capital. That analysis can be compared to Dubai, given the similarity in the transformation of the urban space and its relationship to the transformation of the real estate markets and the circulation of financial surplus from oil rents to the circuit of the built environment, or the 'second circuit' (Buckeley & Hanieh, 2014).

'Much like Haussman's Paris, Dubai's property markets have been fundamentally transformed through the financialization, commodification and internationalization of the fixed components of the urban landscape' (Buckeley & Hanieh, 2014; p.156).

The reliance on urban megaprojects as a main engine in the financialization and commodification of the city space and the real estate market can only be examined in the context of the city's urban history and recent trends in its economic policy. It is also the case that the specific governance and the ruling logic of Al Maktoum family are deeply intertwined with the urban history and management of the city through its extension and development phases.

The governing elite, headed today by one of the descendants of the ruling family, Sheik Mohammed bin Rashid Al Maktoum (Dubai's ruler and the UAE Prime Minister) has

[4] The concept 'knowledge economy' remains vaguely defined. It can be understood as the latest stage in the evolution of the global capitalist economy. This stage is marked by technological innovations and the globally competitive need for innovation based on the research community such as labs, universities, etc.

held solid control over the expansion, development and strategic choices adopted by the emirate. Indeed, many writings on Dubai's governance highlight the intrinsic role played by this family in shaping Dubai's status and image. Hence examining this specific governance system is fundamental to understanding how urban megaprojects have become the privileged urban tool highly encouraged by this politico-economical system. From another angle, it is also important to examine who are the professional actors who facilitate the undertaking of these UMPs, which require a level of technical expertise and prowess that is in severely short supply in Dubai and the GCC context in general.5

This chapter will examine these three axes, introducing first the particular urban history and development of Dubai, with its speedy transformation driven by a quest for spectacle and records. Secondly it examines the various facets of the governance system, highlighting the main powerful actors, the Sheikh and the parastatals, and the relative weakness of public authorities. Thirdly it examines the stock of expertise and knowledge in Dubai, focusing on the major role played by the international consultancy firms in architecture and urban planning.

1 History and particular urban extension

In Dubai[6], the first forms of urbanization can be traced back to the nineteenth century, making it a relatively recent city. Dubai has witnessed a very fast urban transformation that placed it on the map of world metropolises within a few short decades (Elsheshtawy, 2013; Pacione, 2005; Schmid, 2009). Dubai developed around a natural creek that for a long time constituted, for geographical and economic reasons, the location's raison d'être. The first harbor and commercial activities developed gradually

5 Dubai's urban and infrastructure projects have always relied on external expertise, notably regional (Lebanese consultancy firms, for example) and British (such as Halcrow), but also some from farther afield. This aspect will be developed in the third part of this chapter.

[6] Some historical references consider that the name 'Dubai' is constituted from two words: 'Du' and 'bayt'. Du could signify two, in Indian or Persian language, while 'bayt' means house in Arabic. This interpretation considers that it is about the existence of two houses on each side of the creak. Another explanation considers that Du-bay means two bays, or two seas, in reference to the creek and its two sides.

on the creek's banks and the centre of the city formed from the urban extensions and densification that took place (Wirth, 2002).

Fig 1.1: GCC countries, Yemen not being part of the council

Since 1950, Dubai's population has grown about a hundredfold, from 20,000 to 1.9 million inhabitants (as estimated in 2010), and its urban fabric has expanded to approximately 400 times the original area (Dubai Municipality, 2012). Before 1960, Dubai comprised collections of mud houses and shelters made from palm fronds. The oldest building, Al Fahidi Fort, now preserved as the Dubai Museum, was built in 1799 (see fig. 1.2 and fig. 1.3). From the eastern and western sides of the creek, Deira and Bur Dubai began to grow and extend. Dubai also extended starting from the nineteenth century towards the Al Shindaga area located at the creek's mouth (see fig. 1.4).

Fig 1.2: Al-Fahidi Fort, one of the remaining old buildings in Dubai. Built in 1799. The photo dates back to 1936. (Source www.medubai.com, accessed on 29 December 2015)

Fig 1.3:Al Fahidi Fort transformed into Dubai Museum. Photo taken in 2013. (Source: www.dubaidhow. Accessed on 29 December 2015).

The city centre of Dubai, around the historical creek, came to be very densely built, developing in a longitudinal direction along the main axis, Sheikh Zayed Road, that links Dubai to Abu Dhabi to the southwest. Major developments and mega towers emerged gradually along this axis and a linear city has been created linking the old part around the creek to Jebel Ali Free Zone in the southwest (fig. 1.5). Once this axis reached saturation, two directions remained for future development in Dubai: towards inland desert areas and out to sea. In an effort to maximize waterfronts with tourist appeal, the city witnessed the creation of artificial islands.

Fig 1.4: Aerial view of Dubai, taken in 1951, showing the three separate parts of the city: Deira, Bur Dubai and Shindaga. (Source: www.rmmeera.wordpress.com. Accessed on 29 December 2015)

Contrary to the views circulated by several critics who portray urban development in Dubai as random and merely the product of the imagination of its successive governors, the urban extension of Dubai must be examined in the light of the shifting contexts that have marked its history since the end of the nineteenth century.

This transformation has been shaped by several factors, notably Dubai's geographic location on an ancient commercial road, the discovery of oil, and the open policies adopted since the first phases of urban development. These ambitious policies promoted

openness to globalization, the first impact of which was to bring about a spectacular urban growth.

Fig 1.5: Sheikh Zayed Road, the main axis along which the city of Dubai extended. (Source: Ziaian, 2012)

At the same time, against a background of regional instability (Arab-Israeli conflicts, Persian Gulf conflicts), Dubai had always played the role of peaceful haven where it is safe to do business (Acuto, 2010; Wirth, 2002; Davis, 2007; Cusset, 2007). The city has therefore built on its ability to diversify and opportunely define its role according to regional and international needs. Moreover, through a myriad of incentives, such as free zones and low taxation, Dubai has become a 'commercial entrepot' (Pacione, 2005; Elsheshtawy, 2004), and a top immigrant hub, where a philosophy of economic liberalism prevails.

The commercial and financial activities have generated an important urban expansion, marked by awe-inspiring megaprojects and architectural firsts. These urban transformations have deeply changed the city's dynamics and image.

Dubai is exemplary of a city that, in spite of modest assets, shows an astute capacity in the optimization of its geographical position, its human capital, and a set of natural

resources that are relatively limited in comparison to those of its neighbors. Dubai is often portrayed as having the judicious ability to adapt to the changing political and economic situation of its context. Several researchers consider that its rise has largely depended on its capacity to benefit from the international conflicts that have marked the oil-rich Persian Gulf in the last thirty years, as well as a dominant philosophy of economic liberalism that encourages entrepreneurial activity (Sampler & Eigner, 2013; Pacione, 2005; Lavergne, 2009).

1.1 Geographic location and open policies

Dubai is today considered as the "Eastern gate" to the Middle East (Elsheshtawy, 2012): the principal hub where the majority of regional and international investments are being made. Relatively far from playing host to a set of strategic activities for the globalized economy as the global cities of New York, London, Tokyo, Hong Kong and Singapore do, it is nevertheless the platform for meeting and exchange between three worlds: Iran, the Indian sub-continent and the Arab world (Elsheshtawy, 2012).

Geography is of course one factor that contributes to this. But it is also, and especially, a policy of very long standing of the Maktoums, the royal family of Dubai, to implement modern infrastructure projects and socio-economic networks that have contributed to the emergence of the city as an international platform of exchange.

As far back as the nineteenth century, this family chose to base the economy of Dubai on trade and focus on attracting foreign investment, mainly from Iran and India. Generations of Indian and Iranian merchants settled in Dubai, attracted by the open policy. Even today, the majority of local citizens have Iranian roots (Schmid, 2009; Kanna, 2011). Therefore, be it through familial or commercial networks, Dubai is in a privileged position to become the principal partner of these important worlds of emerging economic potential.

A map of Dubai that dates back to the year 1822 shows that the city at this time is a small village located on the banks of a creek's sides (see fig. 1.6). Constituting part of the sites that extend along the southern coast of the Persian gulf, between Qatar and Oman, localities like Abu Dhabi, Dubai, Um Al Qaiwan and Ras Al Khaymah (see fig. 1.7) were then places of fishing and seafaring, a strip of land protected from the winds

and thus conducive to the establishment of small communities (Wirth, 2002; Cadène & Dumortier, 2011).

Fig 1.6: A sketch map of Dubai, dated 1822. The population at this date was only 1200 inhabitants. (Source: Dubai Municipality, 2011)

Although pearling was the principal activity of those communities, even at the outset the economy of Dubai was not based on it. It was rather oriented towards trade, transport and services, already outlining the bases of a tertiary economy reflecting a liberal policy.

In 1902, the traffic linking India with Gulf destinations was almost completely moved from ports in Persia to Dubai following the former's decision to impose higher tariffs. The government of Dubai concurrently reduced its own taxes and Dubai was declared a free zone (Wirth, 2002).

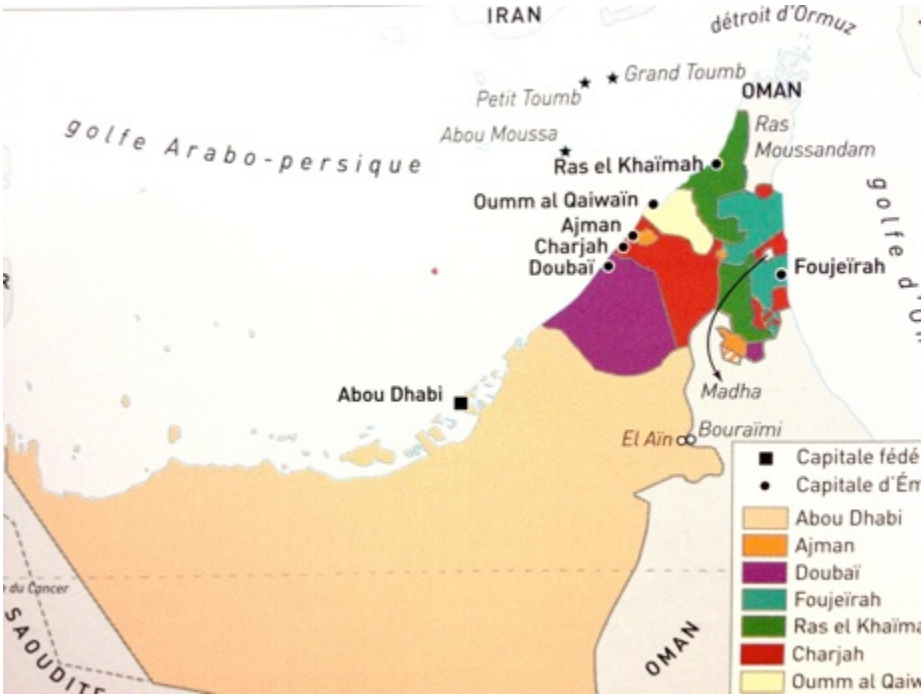

Fig 1.7: The seven emirates constituting the United Arab Emirates. (Source: Cadène & Dumortier, 2011)

Following similar policy tightening by Iran after World War II, many Iranian merchants and other businessmen felt compelled to move permanently to Dubai in order to benefit from the low taxes and liberal policies of the city (Ibid). Several more migratory waves took place thereafter, especially from India and Africa, and a number of merchant districts were built around the creek. Merchants of various nationalities then accepted Dubai's offer to permanently establish on lands located at the edges of the creek, in order to build houses for their families.

There had also been migratory waves at the beginning of the twentieth century, comprising not only Persians but Iraqis, Bahrainis and Pakistanis; these have turned Dubai into a city with multiple social classes and ethnic groups (Elsheshtawy, 2013). Over two centuries these merchants have established networks of transnational links, mobilizing their financial resources and their experience, and thereby transforming Dubai into a hub of commercial routes prefiguring the role that the city has today.

1.2 The Oil discovery

As has happened in all GCC countries, the discovery and exploitation of oil in Dubai have secured revenues capable of financing a rapid process of urban development. The trade-based economy that replaced the pearl-based commerce was boosted by the oil discovery and the related industries that emerged from 1966. Nevertheless, oil revenues in Dubai are far less than those of Abu Dhabi. In 2008, the oil production in Abu Dhabi was 2,524,626 barrel/day, while in Dubai it was only 240,000 barrel/day (Cadène & Dumortier, 2011).

However, oil revenues were sufficient to fund necessary infrastructure projects. Towards the end of the 1960s, following the oil discovery, several large projects were developed aiming at the construction of a modern infrastructure (and a modern identity[7]). These years were marked by oil exploitation activity that generated a significant increase in population and therefore also of important human and financial resources for the city. Thus, the oil income made it possible for the government of Dubai to enroll in big infrastructure and industrial projects that were crucial for economic and urban development, such as the construction of Rashid Port, the aluminum industries, the port of Jebel Ali and its industrial zone (see fig. 1.8 and 1.9). In 1985 the free zone of Jebel Ali was established, hosting regional and international companies benefiting from low taxes and procedures' simplification.

New spaces are urbanized and the city expands, benefitting from the outputs of the oil resources. At the beginning of the 1980s, new residential zones were built outside the limits of the old districts constituting the old city, along the coast in the direction of Jebel Ali.

[7] Kanna (2011) considers that the post-oil era was marked by a shift towards constructing a new 'Arabic' identity. 'Older Dubayyans often speak Arabic, Persian, and South Asian languages; local cuisine is largely Indian-derived; and local dress, at least in the pre-oil era, was a mix of Indian Ocean and Persian influences rather than Arabian, as it is today. Arab identity in the post-oil period has been constructed largely in opposition to other identities increasingly categorized, officially, as non-Arab…' (2011: 11).

Fig 1.8: Rashid Port at the creek's mouth. Above: Rashid Port in 1950 (Source: https://mykaleidoscopecolours.wordpress.com/category/downtown-dubai/ accessed on 9 March 2016). Below: Rashid Port in 2010 (Source: www.2daydubai.com, accessed on 20 February 2015)

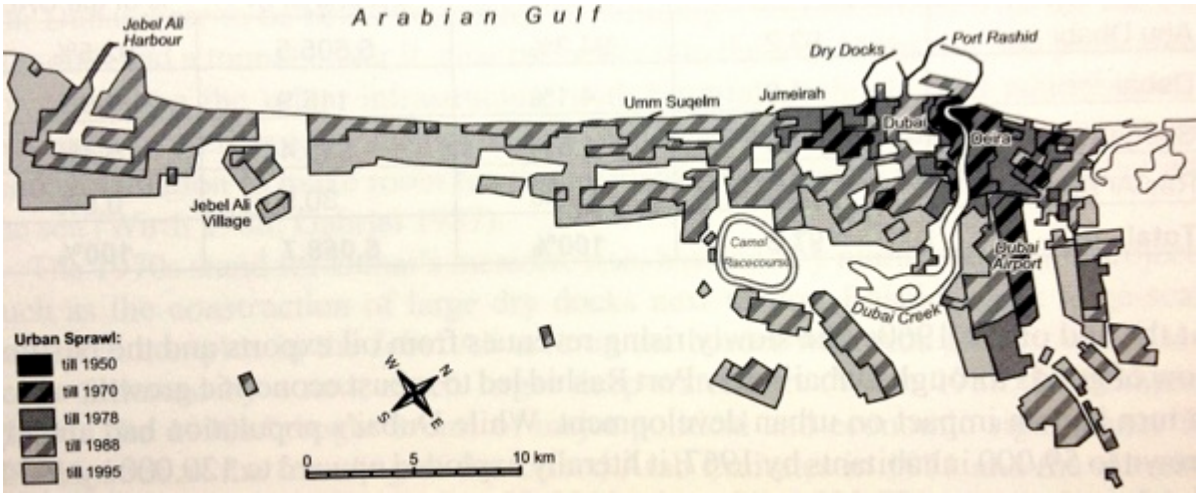

Fig 1.9: The urban expansion of Dubai. The map shows Jebel Ali Harbor and industrial zone to the west, and Port Rashid in the north. (Source: Schmid, 2009).

Fig 1.10: Dubai skyline featuring some of the main buildings along Sheikh Zayed Road in 2013; on the left Burj al Arab. (Source: Oula Aoun).

Moreover, a new skyline appeared, with the emergence of the urban corridor along Sheikh Zayed Road, the principal axis that connects Dubai to Abu Dhabi, constituting the New Dubai, and accommodating a great number of skyscrapers, hotels and governmental buildings (see fig.1.10). The city invested in aviation, highways, and maritime projects.

1.3 Towards a metropolis city

'Until recently, Dubai rapid urbanization was not dictated by population growth, but it was economically driven by attracting foreign investment and activities aiming at developing a long term sustainable economic base…' (Dubai Municipality, 2012).

Large projects in Dubai have always been, since the era of Rashid Al Maktoum, a form of anticipation of a future modern development rather than a simple response to population needs.

Even after the discovery of oil, the emirate did not stop at black gold. Since the 1990s, the Emirate has sought to diversify its economic activities in order to reduce its dependence on declining oil reserves. In 2005 for example, oil and gas revenues accounted for less than 6% of Dubai's revenues, while 25% were from aviation related services, 22,6% from real estate and construction and over 40% from trade and finance services (Dubai Municipality, 2012)

With the turning of the 21st century, Dubai embarked on further change at an impressive pace. The city engaged in an ambitious policy of competition with the world metropolises. Architectural and spectacular urban forms are among the tools that it deploys for this purpose. The 'Vision Statement' in 'Dubai Urban Development Framework for 2020 and beyond' confirms these orientations: Dubai as competitive city, a seamlessly connected city, sustainable across generations, a city of growth and change with beautiful and inspiring places, a home to an intercultural society and a city of ideas, creativity and culture.

Focusing on a strategy that aims for an economy of fascination, it has initiated dozens of spectacular megaprojects that have vied for the status of world-firsts. In this way, Dubai affirms an identity as business and tourism destination with regional and international outreach. Downplaying its limited oil reserves, it engages in an economic development based on the diversification of its services sector, and an economy that has profoundly transformed the real-estate sector through its financialization and internationalization.

This strategy of economy diversification is initially based on urbanization and the transformation of the capitals towards the sector of the built environment (Buckley & Hanieh, 2014).

1.4 Metropolization and neoliberal urban policies

In general, the quest of metropolization is not specific to Dubai. Many cities around the world consider metropolization as a desired goal and ideal horizon (Roncayolo, 1993). They develop urban and economic policies that help put them on the map of cities that "matter" at the regional – and even international – level in the new globalized economy.

This optimism underlying metropolization is associated with "a will to change, innovation and mobility" (Ibid.) that would mark contemporary cities more clearly than any concentration of infrastructures or activities. However, in spite of its ubiquity, the word 'metropolization' remains an ambiguous term (Leroy, 2000). It indicates at the same time the processes of economic, spatial and cultural transformation connected with globalization, and the strategies implemented by urban actors in order to support and direct these processes.

In the case of Dubai, in addition to the economic dimension, the strategic choice of openness carries a socio-political dimension that itself constitutes a main factor in the rapid metropolization of the city. It has made Dubai a cosmopolitan city in the Arabian Peninsula and attracted hundreds of thousands of foreigners.

This political choice was assumed historically by Maktoums vis-a-vis Arab nationalism. Kanna (2011) even invokes a "post-Arabic" identity for Dubai, where an economy marked by entrepreneurialism and liberal policies has often been in contrast with most of the neighboring countries.

This amalgam between the geographical and the political are not insignificant. Urban and economic policies that constitute the basis of certain strategies of metropolization are often presented as if they were unavoidable. The choice open to cities is either to adapt to the new global economic constraints, through structural changes of their economies and strategies to attract capital and the "creative class" (Florida, 2003), or be relegated to the bench of "losers", marginalized and deprived of resources. This is at the core of the ideology behind what certain authors (Hackworth, 2007; Peck et al., 2009; Peck & Brenner, 2011; He & Wu, 2009; Christophers, 2008; Sager, 2011) designate as neoliberal urban planning.

The urban authorities are invited to vacate their responsibilities for planning and piloting economic and territorial development, and to prioritize support for private economic

initiative instead, in particular through deregulation and minimization of taxes, and to confine themselves to assuming responsibility for the development and ensuring funds for the investments, which support the operations of the private actors.

From this point of view, the case of Dubai may seem emblematic. This small port on the coast of the Persian Gulf was propelled in less than two decades, through an unrelenting strategy of metropolization, to the status of one of the main economic nodes in the region. 'Dubai must be understood as an international city that forms part of broader urban and natural systems' (Dubai Municipality, 2012).

However, although it borrows massively from the arsenal of neoliberal urban policies, the Dubai model of urban development has its specificities at the governance level, and its own tools, and at the core of these tools are the megaprojects. Combining fascination, urban marketing, technical prowess, phenomenal urban growth and specific governance, the case of Dubai appears like a laboratory for a new and particular mode of metropolization.

1.5 Dubai's development and urban tools: the urban megaproject as main engine of Dubai Model

Through the history of the city, successive governments have deployed various urban tools in order to manage urban growth. Starting from the middle of the twentieth century, development has been managed through the provision of public services and infrastructure, the construction of public buildings, the creation of various strategic plans[8] (Elshestawy, 2013; Pacione, 2005; Wirth, 2002; Dubai Municipality, 2012), defining the axes of growth, 'zoning', and regulations aimed at managing the housing sector for nationals and their access to land (Pacione, 2005).

[8] As the main planning authority since 1950, Dubai Municipality has prepared and/or commissioned the following plans: Dubai's first masterplan by John Harris in 1959, the second masterplan by John Harris in 1971, the Comprehensive Development Plan for Dubai Emirate by Doxiadis in 1980, the Dubai Urban Structure Plan for 2012 horizon by Parsons-Harland Bartholomew & Associates in 1990, the Amended Structure Plan for 2012 horizon by Dubai Municipality in 2003, the Dubai Urban Development framework (DUDF) for 2020 and beyond by UURBIS and WSP in 2009, and Dubai 2020 Urban Masterplan by AECOM in 2012.

However, in the last decades, following a phenomenal growth that has exceeded all the guiding strategies, the plans and other urban tools have rapidly become obsolete. 'Since the adoption of its previous urban structure plans in 1995 and 2003, Dubai's development commitments have extended beyond the boundary of such plans' (Dubai Municipality, 2012).

1.5.1 Provision of infrastructure

Since the 1990s, Dubai has further improved its infrastructure networks through the extension of the road network, metro and tram projects, and new airports.

The network of modern infrastructure with which the city has been endowed is an important asset not enjoyed by other Gulf countries (Ramos, 2010). In addition to the road network, there is an electricity grid, telephone and medical infrastructure, a potable water supply network and an airport connecting the city directly to several Western destinations. These elements of infrastructure constituted an advantage for various American and European companies in their establishment plans in Dubai (Elshestawy, 2013).

1.5.2 Schematic and Master Plans

In 1960, Dubai adopted its first Master Plan, made by the English architect John Harris, which had as a main objective the modernization of the city. At that time the city had no modern infrastructure, lacking even elementary items such as a road network. This plan was made a few years before the discovery of oil (see fig.11). It aimed to initiate a rational and not very ambitious scale of development, based on defining zones for residential, industrial and public buildings.

'*The situation of Dubai in the 1960 was quite primitive. The city had no paved roads, no utility networks and no modern port facilities. Water was only available from cans brought into town by donkeys. Travelling to Dubai from London took several days in unreliable piston-engine planes with overnight stops. Communication was also difficult. There were few telephones and cables were sent by radio. The Masterplan developed by*

Harris aimed at rectifying this by addressing some fundamentals: a map, a road system and direction for growth' (Elsheshtawy, 2013).

Fig 1.11: Dubai's first master plan prepared by John Harris in 1959, focusing mainly on modernizing the city through infrastructure (Source: Elsheshtawy, 2013).

In this stage – from 1959 to 1970 – development followed the Harris master plan and was limited to the city core and its close surrounds.

A second master plan was developed by Harris in 1971, after the oil discovery and the accelerated extension of the city had begun; it had more ambitious objectives, such as the construction of Port Rashid at the mouth of the creek, the construction of a tunnel beneath the creek at its lower reaches, and two bridges across the creek connecting the two city parts. Harris' second master plan considers for the first time a residential zone extending towards the Jebel Ali zone, now known as Jumeirah.

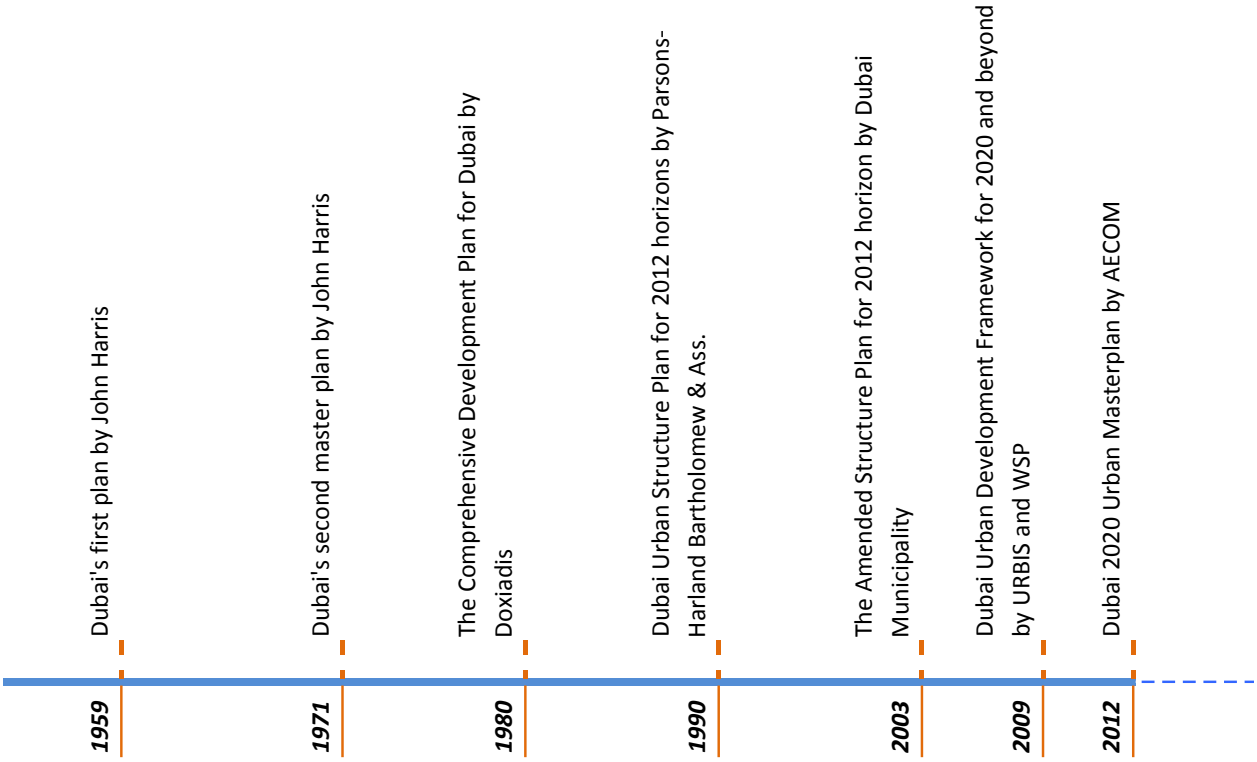

Fig 1.12: Chronology of the various master plans and strategic plans for Dubai city (Source: Oula Aoun)

Several plans were done in order to orient and control the city's rapid development (See fig. 1.12). Dubai Urban Master Plan for 2012 and above is another key master plan (See fig. 1.13) that included Jebel Ali Area and larger parts from the inland.

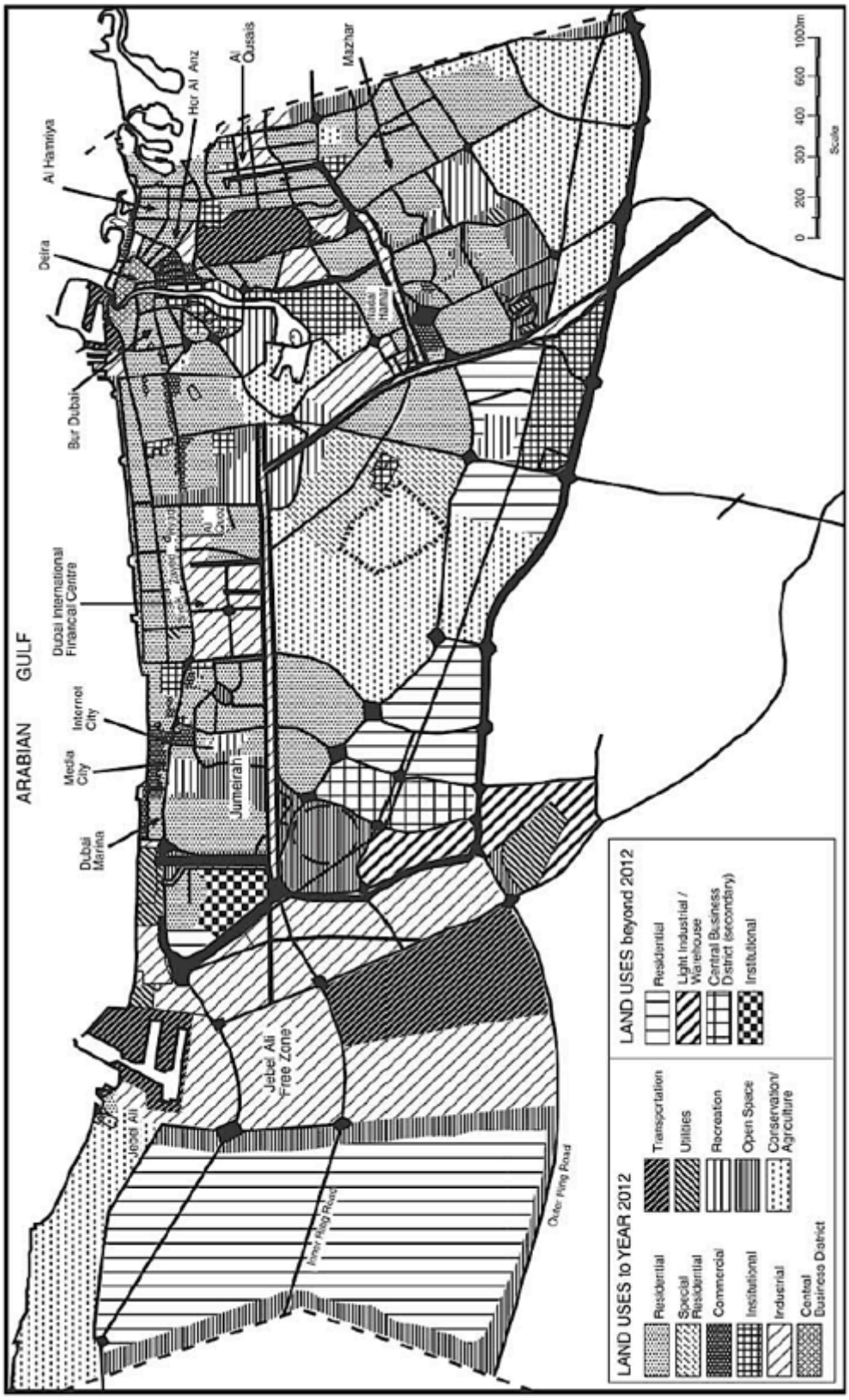

Fig 1.13: Dubai Urban Structure Plan for 2012 and beyond

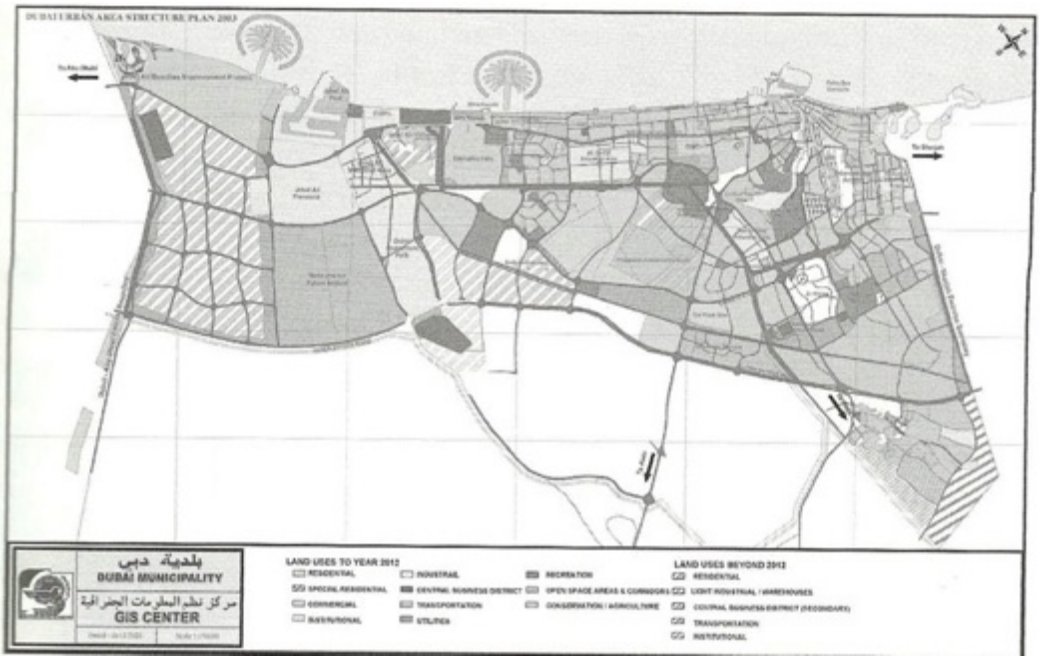

Fig 1.14: Amended Master Plan for 2012 horizon

However, the majority of these areas were for industrial functions around the Jebel Ali zone, agricultural in the middle, while large zones were designated for future development beyond 2012. The 2003 Dubai Structural Plan (see fig. 1.14) shows for the first time artificial palm islands in the sea. Palm Deira, currently the biggest of these, was not yet planned.

The structure plan of 1990 and the amended structure plan of 2003 were flexible enough to accommodate any changes, as they were based mainly on a series of nodes and axes guiding growth.

However, it soon became clear, with the beginning of the 21st century and the rapid urban transformation experienced by the city, that these plans were not sufficient, even if, to some extent, the present road network and main axes of growth follow these plans' recommendations.

The Dubai Urban Development Framework was designed to tackle various issues that resulted from the influx of foreigners and the growing social, economic and environmental problems. It was also supposed to create a flexible and fully integrated development planning and management framework for Dubai to the year 2020 and

beyond. This plan was marked by an unexplained level of secrecy, and no detailed reports about it were issued. After only a few years it was superseded by the Dubai 2020 Urban Master Plan.

The Dubai 2020 Urban Master Plan seeks in addition to provide an integrated strategy in order to address increasing number of issues in all sectors, from infrastructure to urban sprawl and growing social and environmental problems. It mainly focuses on limiting the city's expansion into the desert and advocates an infill approach, as well as prioritizing the completion of on-going megaprojects rather than commencing new ones.

1.5.3 Urban Megaprojects as urban tool

In spite of the presence of strategic plans that are supposed to guide and control the urban development, megaprojects seem to be taking place in the urban grid of Dubai without taking into account the orientations and the general tendencies of the city.

Megaprojects spread at a speed which the strategic city plans struggle to keep up with; the Dubai 2020 Urban Master Plan reads like an attempt to integrate many of the already built or planned megaprojects under a unified vision.

Despite the image that circulates of uncontrolled and chaotic development, the numerous plans that seek to guide Dubai's development show a determination to control urban expansion. However, they all seem to be insufficient and easily brushed aside in the face of the incomparable urban expansion and hectic pace of projects already underway.

This urban expansion, driven by a large number of megaprojects, has entailed a process of growth by fragments. The logic of this approach results in the construction of artificial islands and the locating of megaprojects as implants along and at the intersections of major road axes, covering the surface of Dubai.

The establishment of megaprojects seems to follow criteria such as the accessibility to principal road axes or the proximity of water: along the Sheikh Zayed Road, on the axes that goes towards the desert inland zone, along the banks of the creek, or on the littoral. The proximity and connectivity with the existing urban fabric is not necessarily a criterion.

The city has a new morphological layout as a result, with several isolated megaprojects each introverted and claiming a certain centrality at a metropolitan scale.

The government, as ever, favours a flexible approach towards them, according the various developments and urban private projects *a posteriori* recognition and integration into the latest strategic plan. Allowing this considerable latitude to the private[9] sector, the government's own intervention is reduced to the development of infrastructure (see fig.1.15) and the management of urban services. The main current urban tool that shapes the city's image, the megaproject, thus remains largely out of the control of governmental public institutions.

Fig 1.15: Dubai modern infrastructure: Metro line alongside Sheikh Zayed Road (Source: Oula Aoun)

[9] In the coming section, it will be explained how 'public' and 'private' have ambiguous definitions, and the grey area between the public and private spheres will be examined.

1.5.4 The fascination

Urban megaprojects are the ultimate tool of the policy adopted in Dubai of city marketing, or 'city branding' (as per Eshuis & Edwards, 2012). This policy is implemented through a confluence of mega events, flagship projects and signature urban design (Sager, 2011). In his commentary on these practices, Kanna (2013, p.6) argues that it amounts to an 'overreliance on an artistic mode of urban production'.

Heiko Schmid (2009) considers that Dubai authorities have reproduced the model of Las Vegas, based on fuelling the economy through large and spectacular projects. The property developers in Dubai believe that, in a very competitive market, they need to develop unique projects; projects that are icons, visionary, daring, exceptional – projects that fascinate.

This search for fascination, or the 'technological sublime'[10] (Frick, 2005) – that is translated in terms of a new record in surface, height, size or cost – is a principal element of the Dubai model. In ten years, Dubai had built Burj Al Arab, highest and most luxurious hotel in the world, following on completion of the largest artificial island, in the shape of a palm tree. Then two other larger palm-tree islands had followed. Then the 300 islands of 'The World' megaproject emerged.

To the largest shopping centres of the world, largest artificial islands, the largest artificial canal, the largest amusement park, and many other records, Dubai has, since 2010, added the Burj Khalifa, the highest structure in the world, reaching 830 meters. However, the search for superlatives is not a goal in itself, but a means of retaining the attention of the media, to show that 'all is happening in Dubai' (Schmid, 2009).

[10] As per (2005), 'The notion of technological sublime can be found in the work of historians Leo Marx and David Nye. Marx labels America's fascination with technological advances of the nineteenth century as the 'rhetoric of the technological sublime' in which language was used, particularly in literature and public speeches, to convey a sense of the USA's unlimited potential in the area of progress. According to Marx, democracy fuelled American pursuits of new technology and inventions because it 'invites every man to enhance his own comfort and status. To the citizen of democracy inventions are vehicles for the pursuit of happiness' (Marx, 1964: 205). With respect to transportation technology, Marx comments, 'To look at a steamboat . . . is to see the sublime progress of the race. Variations on the theme are endless; only the slightest suggestion is needed to elevate a machine into a "type" of progress' (Marx, 1964: 203)'

Thus, many artificial islands, skyscrapers, large urban megaprojects and big shopping centres are spreading across the city, aiming to create an image of a world city that is 'connected' to all the latest architectural and technical trends.

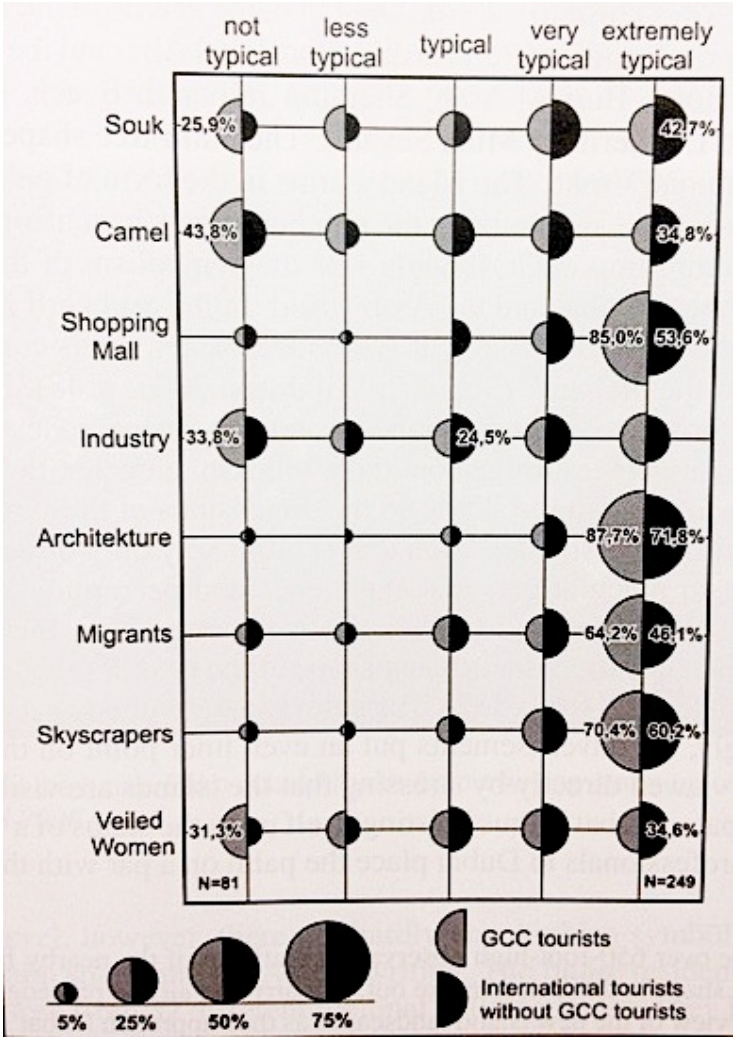

Fig 1.16: Typical representations of Dubai as rated by international tourists (Source: Schmid, 2009)

In his book *Economy of Fascination*, which compares Dubai with Las Vegas, Heiko Schmid examines the power of semiotics. He shows that, for internationals, Dubai's perception is related to images of a number of its many large and iconic projects (see fig. 1.16). Fig 1.17 shows, in 2009, the power of the image of the Burj al Arab luxury 7-star hotel, and its intertwining with Dubai's image. A particular image of Burj al Arab that became very popular is the tennis players playing 'in the sky', with Dubai city in the background. After the construction of Burj Khalifa, finished in 2010, it seems that at 830

meters it has largely replaced the image of Burj al Arab as representative of Dubai (Fig. 1.18).

Through these projects that offer mixed functions, combining leisure, commercial, sports, educational and residential uses, the city is oriented to the middle and upper classes, made up to a large extent of technicians and experts coming in from the surrounding countries and from Europe. This international population constitutes the majority of the population of the city, locals constituting a minority of at most 10% of the population (Dubai Municipality, 2011).

Fig 1.17: Above: Burj al Arab (Source: Oula Aoun). Below: Tennis court in the upper part of Burj al Arab (Source:Inhabitat.com)

Another element of fascination is theming, where locales within megaprojects become festival spaces (Dubai Festival City), leisure spaces (Dubailand), sports activity spaces (Motor World, Dubai Sport City), and spaces that evoke cultural and historical aspects (Palms, Dubai Pearls, City of Arabia, Culture Village). It is about 'landscapes of simulation' (Sassen & Roost, 1999) that are placed one beside the other, thereby transforming the city into a huge 'themed park' (Sorkin, 1992; Bryman, 2004).

Sorkin (1992) considers that 'theme park' is the best term to explain the paradigm through which a new kind of urbanism – manipulative, dispersed, and hostile to traditional public space – is emerging through a homogeneous design in American cities. The theme park, he says, is an apparently benign environment where everything is structured so as to achieve maximum control and manipulation and where authentic interaction among people has been thoroughly removed.

Fig 1.18: At the left: Burj Khalifa 830 meters tall. On the right: Burj Khalifa's Model in Cityscape (Source: Oula Aoun)

1.5.5 Metropolization and Space Commodification

In a globalized world where cities compete to provide a range of destinations that will attract different categories of users, it is becoming more and more challenging to give meaning to these various and scattered places. This is why economic and social actors mobilize semiotics, theming and fascination. Schmid (2009) considers that we can observe a theming of everyday life in Dubai that manifests strongly in the ways urban spaces are conceived and presented.

Urban places are becoming marketed objects for sale in an increasingly competitive global market. For Mangin (2004), this commodification logic is what holds the fragmented city together, beyond its seemingly chaotic image. He considers that this logic is based on increased sectorization of functions and space, increased commodification and increased automobile travel. For him, this spatial organization aims first and foremost to augment the commodification potential of urban spaces.

Dubai free zones constitute another prime example. They offer a whole spectrum of manufacturing, trade and services related to media, luxury, gold, finance, cars, leisure and various other themes. Examples of free zones will be detailed in chapter two.

Another element that contributes towards commodification of places is the deployment of technological prowess. Indeed, fascination requires a high level of technology. In order to reach the highest, the fastest, the largest and the most luxurious, the technological means must be developed, and the knowledge of qualified experts must be brought on board.

All is feasible in Dubai: to build artificial islands in the sea in the shape of palm trees, to dig channels and waterfronts, nothing constitutes a true barrier that could limit the audacity of a ‘starchitect’ or the vision of a Sheikh. With large financial resources and ‘good’ experts, nothing seems to prevent Dubai from achieving what might be regarded as impossible in other contexts. A ski slope in the desert or calligraphy made with islands (Palm Deira) – through technology Dubai is transforming the desert and the sea into a themed, mythical and artificial environment (Elsheshtawy, 2012; Schmid, 2009).

We have shown in this section that the development process in Dubai is a peculiar one, marked by a quick transformation driven by its geographic location, the availability of capital, and open policies. These are related to a specific governance that dates back to the early phases of the city's development. Megaprojects in this context constitute the main engine that contributes to the financialization and the commodification of the city. Dubai tries through urban megaprojects to draw the image of a metropolis city, through engaging in an ambitious policy of competition with the world's best-recognized metropolises.

In the next section, the various facets of governance in this specific context will be examined. The role of major actors in contributing to this quick urban transformation will be unveiled, through its three scales: the authorities, the governor and the major key developers.

2 Actors and governance system as major contributors to the emergence of megaprojects

'The notion of "diversification by urbanization" entails, as a consequence of the strategy of connecting the real estate markets to the financial sector, the shaping of a capitalist class tightly linked to accumulation and real estate circuits, as well as the state apparatus' (Buckley & Hanieh, 2014).

The economic, political and cultural contexts in the GCC in general, and in Dubai in particular, are highly influenced by the monarchical system. The countries' and cities' leaders, operating with the assistance of a traditional consultative arrangement characteristic of tribal cultures, are the ones who decide the future, draw the strategic vision and select the key projects for their cities.

As described by Davidson (2008), Dubai has a 'hybrid' form of government that is indissolubly intertwined with the ruling family's patrimonial network, and essentially 'little more than an extended system of patronage' (2008: 158) where public and private intermingle without clear-cut boundaries.

Beyond the needs of end users or a democratic process, the main decisions are restricted to the sole governors. In Dubai, the main actors, including major real-estate developers, investors and free zone authorities, are part of the restricted circle of power that surrounds the governor and are often either members of the royal family or their allies and friends.

The megaprojects are thus interrelated with a complex network of companies and holdings with considerable resources that are close to or controlled by the governor. The common goal of all these investments is to promote the city and to attract investments and visitors, a translation of the governor's vision.

2.1 Dubai portrayed as a neoliberal city

Neoliberalism in Dubai is characterized on the one hand by a search for modernity and by an attachment to a cultural authenticity and a legitimate citizenship on the other.

Dubai seems to largely borrow from the palette of urban neoliberal policies (at least those listed by Sager, 2011); spectacular projects, flexible commercial and themed areas, loose financial and regulatory framework and introverted privatized neighbourhoods. In a consumerist society and a framework of free-trade ideology, neoliberal values are present and shared by the various actors, particularly in the economic sector and public institutions, who are called 'flexible citizens' by Kanna (2011)[11]. Managers or employees in large holding companies and private or semi-public enterprises, this class has a strong belief in market values that are equivalent for them to modernity and progress, reflecting what the governor of Dubai considers: 'what is good to the merchant is good for Dubai'.

Kanna (2011) contends that these flexible citizens orient themselves towards a perceived international modernity while not rejecting Emirati and Muslim identities. They engage in a 'creative alignment of Emirati and neoliberal values' (Kanna, 2011, p.135). Kanna considers them capable of believing simultaneously in the virtues of free-market globalization, a neoliberal kind of cosmopolitanism, and a family-state power. Accordingly they constitute the society's main backers of the legitimacy of the Al-Maktoum regime, who stand for embracing futuristic global identities while remaining 'authentically Emirati'. Kanna considers as well that flexible citizens in Dubai see in their ruler a CEO of the city, a visionary and a paternalistic chief executive.

However, limiting the understanding of the particular development of Dubai to the logics of neoliberal urbanism obscures various specificities of the local context, especially those related to the governance of the city.

[11] 'Fluent in Arabic, English, and sometimes other languages, well educated (in a western-style business curriculum), and often well-travelled. Flexible citizens do not, however, reject Emirati and Muslim identities. They appropriate and enact them in ways consciously different from what they see as those of their more conservative compatriots.'

2.2 The three scales in Dubai's governance

In the literature and the press, Dubai is often portrayed as a success story attributable to the ruling dynasty and more particularly the present governor Mohammad bin Rashid. More rarely one finds a critical analysis of Dubai's case and its emergence as a politico-economical model. Ahmad Kanna, in an essay that examines, from an anthropological point of view, the interrelation between cultural and socio-political aspects and the urban processes of the city, argues that considering only Dubai's 'achievements' doesn't advance the analysis of social and cultural processes very far. His study considers that Dubai, its State and its ruling class, are products of history and social contestation (Kanna, 2010).

2.2.1 The Sheikh (governor) as a unique reference, and the corporate governance style

The literature already provides ample description of the governor's role in Dubai and his surrounding circle of power.

Planning and development is carried out in accordance with the vision of Sheikh Mohammed Bin Rashid Al Maktoum, the ruler of Dubai Emirate (Dubai Municipality, 2012). Dubai is directly ruled by a dominant elite of individuals who are close to the Sheikh (Sampler & Eigner, 2003; Kanna, 2011; Lavergne, 2007; Acuto, 2010; Crot, 2013; Malty & Dillon, 2007).

The concomitant lack of democratic institutions is particularly encapsulated in the corporate governance style adopted by the Sheikh, who runs the country with the assistance of a close group of experts as if Dubai was his own company (Kanna, 2011). The Sheikh has '*transformed his city to a corporate state with himself as CEO-for-life*' (Brook, 2013, p. 372), while '*running the country not from a palace, but from a class A office building, like a corporate titan*' (Brook, 2013, p. 372). '*The State is almost indistinguishable from a private enterprise*' (Davis, 2006, p. 61). '*The ruling family appoint senior government officials and, together, they start and manage most of the big initiatives in Dubai*' (Sampler & Eigner, 2003, p. 1).

There is no doubt that Sheikh Mohammed is the leading actor behind the rise of Dubai. He has been the ruling Emir since 2006, but his influence dates back to 1968 when his father (then ruler) Sheikh Rashid appointed him as head of Dubai Police and Public Security. At the age of 23 he served in the UAE government as defence minister.

After the death of his father, his brother Sheikh Maktoum became the ruler of Dubai. However Sheikh Mohammed undertook growing responsibilities at the economic level. He was already drawing up a new strategy for the economy of Dubai when the ruler declared him crown prince in 1995 rather than his older brother Sheikh Hamdan, seeing in him large abilities and entrepreneurial visions (Schmid, 2009). In 1985, Sheikh Mohammed with members of Al Maktoum family had already built a commercial airline, Emirates. In 1995 he launched Dubai Shopping Festival and in the late 1990s he founded the two giant real estate companies Emaar and Nakheel, in order to start building large megaprojects as engines of a new flourishing tourism and real estate industry.

Today, he is the main actor and the most decisive along with his small team. Key persons within this circle are Mohamed al Abbar[12], chairman of Emaar, Ahmad Bin Byat[13], chief executive of Dubai Holding, and Sultan Ahmad Bin Sulayem[14], Chairman

[12] Mohamed Al Abbar was born in Dubai. His father was captain of a traditional trading vessel. In 1970 he received a government scholarship and studied finance and business administration at Seattle University. Al Abbar was a member of the Dubai Executive Council and the Dubai Economic Council. He was a vice chairman of Aluminium Company (DUBAL) and a vice chairman of Dubai World Trade Center and of Dubai Cable Company. Founder and chairman of Emaar Properties, he is also the founder and chairman of Africa Middle East Resources (AMER), a private company that works to unlock the value of natural resource opportunities in Africa and link them with large consumer markets in Asia. He is the chairman of Tradewinds Corporation, a premier leisure and hospitality owner-operator in Malaysia and a board member of Eagle Hills, a UAE-based real estate development company focused on large-scale projects in high-growth international markets, and also serves on the board of Manara Developments in Bahrain. He is the founder and major shareholder of RSH, the leading Singapore-based pan-Asian marketer, distributor and retailer of international fashion and lifestyle brands. Al Abbar also sits on the board of Noor Investment Group, an affiliate of Dubai Group, the leading diversified financial company of Dubai Holding.

13 Ahmad Bin Bayat is Chairman of Emirates Integrated Telecommunications Company, Chief Executive Officer of Dubai Holding, Director General of Dubai technology and Media Free Zone Authority and a member of the Board of Trustees for Dubai School of Government. He previously was the Secretary-General of the Dubai Executive Council, president of the Dubai Government Excellence Programme, Executive Chairman of TECOM Investments, Chairman of the Dubai Education Council, Chairman of Dubai Real Estate Corporation and Chairman of the Dubai Urban Planning Committee.

of Dubai World. It is Sheikh Mohammed who carries the vision, defines strategic priorities and provides means, including the essential resource of land. Indeed, the Maktoums have claimed the right to total territorial control since 1960. They considered land settled before that time as belonging to its inhabitants, while the remaining territory (constituting most of Dubai) was claimed by the ruling family, with accompanying complete control over properties and planning (Hazbun, 2008).

Furthermore, he often authorizes exceptions to procedures and involves himself at any time in the process, to change the course of events. He approves procedures and projects, interferes with the design and impact assessments and provides procedural shortcuts. (Shmid, 2009). At the head of the Executive Council, a body that plays a role similar to a government, the Sheikh and the members of the council are a powerful actor in Dubai. The Executive Council is a relatively new body in the governance of Dubai, being founded by Sheikh Maktoum Bin Rashid in 2003. As per the official website of Dubai government, the role of the Executive Council is 'to assist the Ruler in discharging his tasks and exercising his powers'.

The council has a broad remit of responsibilities and prerogatives, which at the very least have significant potential for overlap with the responsibilities of other departments and authorities.

'*The Council aims at making and updating a comprehensive strategic plan for Dubai, working out the annual budget of the Government of Dubai, maintaining the city's security and order, providing public utilities and achieving economic and social progress in the city. It also drafts and oversees the implementation of the general policy of Dubai, takes the necessary measures for the enforcement of local and federal laws, approves draft laws and decrees before submission to the Ruler and establish government entities in the emirate and monitor the progress of work in them. The*

[14] Sultan Ahmad Bin Sulayem was born in Dubai from a family that has a long business and political history. His father was a key advisor to the ruling Al Maktoum family. He studied economics in the United States and in 2007 became Chairman of DP World (Dubai Ports World). He was also Chairman of Dubai World until 2010. From beginnings as an inspector in Dubai port in 1970, to his position as Chairman of Dubai's government tax-free Jebel Ali Free Zone (founded in 1985), Bin Sulayem has had key roles in introducing and managing the free zones in Dubai. He is currently involved in 'Seven Tides International', a diversified real estate investment and development company in Dubai.

Council also studies the legislation proposed by the departments and committees and implements what is deemed convenient. It also tracks the performance of government entities through Key Performance Indicators and monitors the progress made by the committees in implementing the strategies related to growth sectors in Dubai.' (tec.go.ae. Accessed in December 2015)

Chairman and Members of the Executive Council:
• His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Executive Council
• His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, Deputy Ruler of Dubai, First Deputy Chairman of the Executive Council
• His Highness Sheikh Ahmed bin Saeed Al Maktoum, Second Deputy Chairman of the Executive Council
• HH Sheikh Hasher bin Maktoum Al Maktoum, Director General of Dubai Media Department
• His Excellency Lieutenant General Dhahi Khalfan Tamim, Deputy Chief of Police and Public Security
• His Excellency Mohammed Ibrahim Al Shaibani, Director General of HH the Ruler's Court
• His Excellency Humaid Mohammed Obaid Al Qatami Chairman of the Board of Dubai Health Authority
• His Excellency Major General Khamis Mattar Khamis Al Muzainah, Commander in Chief of Dubai Police
• His Excellency Issam Issa Al Humaidan, Attorney General
• His Excellency Sultan Ahmed Bin Sulayem, Chairman of Ports, Customs and Free Zone Corporation
• His Excellency Hussain Nasser Lootah, Director General of Dubai Municipality
• His Excellency Mattar Mohammed Al Tayer, Chairman and Executive Director of the Roads and Transport Authority
• His Excellency Sami Ahmad Dhaen Al Qamzi, Director General of the Department of Economic Development
• His Excellency Saeed Mohammed Al Tayer, Managing Director and CEO of Dubai Electricity and Water Authority
• His Excellency Helal Saeed Almarri, Director General of Dubai's Department of Tourism and Commerce Marketing
• His Excellency Dr. Hamad Bin Al Sheikh Ahmed Al Shaibani, Director General of the Department of Islamic Affairs and Charitable Activities
• His Excellency Sultan Butti Bin Mejren, Director General of Dubai Land Department
• His Excellency Abdulrahman Saleh Al Saleh, Director General of the Department of Finance
• His Excellency Dr. Lowai Mohamed Belhoul, Director General of Dubai Legal Affairs Department
• His Excellency Major General Mohammed Ahmed Al Marri, Chairman of the Commission for Social Development
• His Excellency Tarish Eid Al Mansouri, Director General of Dubai Courts
• His Excellency Abdulla Abdul Rahman Al Shaibani, Secretary General

Fig 1.19: The members of the Executive Council in 2015, headed by Sheikh Mohammad and constituted from key decision makers, who hold key positions in various authorities and departments. (Source: http://tec.gov.ae/en/executive-council/members. Accessed in December 2015)

Since 2006, crown prince Sheikh Hamdan bin Mohammed has been chairman of the Executive Council after his father Sheikh Mohammed was declared ruler of Dubai. The executive council had played a decisive role in the rise of Dubai. Sheikh Mohammed surrounded himself with his main confidantes Al Abbar, bin Bayyat, bin Sulaym and Al Gergawi, who respectively chair the Maktoum parastatal firms Emaar, Tecom (the

media and technology free zone), Dubai Holding and Dubai World. These four key leaders continue to play, important leading roles in a variety of Dubai companies and holdings.

The internal structure of Dubai Executive Council is similar to a government, with heads of institutions and departments playing ministerial roles. Some of them have a dual role as chairman of major holdings.

Today, some of the council's members still hold dual roles, Sheikh Ahmed bin Sulayem Al Maktoum and Sheikh Sultan Ahmed bin Saeid Al Maktoum being two examples (see fig. 1.19). The first is chairman of Dubai Ports World, owner of 65 marine terminals worldwide, and the second is chairman of Emirates Airlines, Dubai World, Flydubai (a low cost airline), and Noor Islamic Bank. These double roles highlight a total integration of the agendas of those major businessmen within the city's official strategic visions and policies. In fact, differentiation between those companies and the official city authorities is very difficult. The Sheikh and the other members of the ruling family are owners or major partners in the great majority of these holding and companies.

2.2.2 The Municipality, Free Zones and the multitude of authorities

Dubai municipality is officially the main authority that is supposed to govern all urban development related aspects of the city. However, many authorities, such as JAFZA (Jebel Ali Free Zone Authority), DTMFZA (Dubai Technology and Media Free Zone Authority), TECOM (Dubai Technology, Electronic Commerce and Media) and others, that are mainly the regulatory authorities of free zones, are also major references within the regulatory framework.

Free Zones in Dubai are special economic zones that have special legal and regulatory frameworks. They often offer tax-free conditions and other benefits for expatriate investors. Each zone is operated and managed by a free zone authority that has a set of prerogatives, such as for example offering business licenses, and setting the regulations at different scales. In Dubai each Free Zone specializes in one or more business industry, related to industry, business, media, etc.

It is clear that Dubai municipality was – at least in the boom years that started in 2000 and continued up to the international financial crisis in 2008 – far from being the major actor in the planning and the organization of the urban spaces of the city.

In the Dubai system, the municipality plays a reactive adjustment role: adjust the strategic plans so as not to fall behind the evolution of urbanization, and integrate the dozens of megaprojects that are developing outside its sphere of control. It plays as well a technical assistant role – especially in administrative matters – for some major developers (Schmid 2009).

The regulatory authorities of the large free zones are powerful actors when it comes to the urban management of the city. Moreover, in the dozen or so years of speculation prior to 2008 crisis, these authorities exercised a regulatory role even over lands outside of their free zones and that are supposed to be under municipality control, thus encroaching on the prerogatives of the latter.

Even if, after the crisis, the municipality is in a phase of preparing to retake control, it is clear that it is still far from being the major actor in the planning and the governing of the city and its urban development.

In the 2000–2008 boom period, many developers, mainly parastatals and privates particularly close to the Sheikh, did not deal with the municipality as a regulatory body, considering municipality procedures to be too time-consuming when the Sheikh could, with his signature, give an absolute approval and validation in a very short time. This weakness at the public bodies' level broadly reflects the loose regulatory framework. An aspect that is peculiar to Dubai's governance system is the privileging of leadership and trust, which often replace rules and regulations: 'Regulations are introduced only when they are felt necessary to reinforce trust and confidence; Sheikh Mohammad runs a lean government machine and is loath to slow it and Dubai down by adding layers of what he considers to be unnecessary bureaucracy' (Sampler & Eigner, 2003, p. 2).

Facing the traditional public authorities, free zones are places where special laws are applied (Davis, 2007; Turan, 2013). They have their own regulations, authorities and administrative bodies that escape administrative control. Projects inside free zones follow the economic and planning regulations specific to that zone, and do not have to seek approval from the municipality or other institutional authorities.

Described as '*curved lucrative niches with their own special rules*' (Davis, 2006, p. 62), Dubai's free zones each apply a special set of regulations and laws tailored to its own particular purpose. '*In a legal sense, the [Dubai] free zones made traveling from neighbourhood to neighbourhood like moving from country to country*' (Brook, 2013, p. 359).

Indeed, with an aim of attracting investments, and in continuation of the policy of openness and flexibility maintained by the Emirate over decades, Dubai proliferates specialized free zones. Jebel Ali free zone is an example, with its harbour activities, industrial and logistic zones around the Jebel Ali Port, one of the largest ports of the Middle East and largest free zones in the world. Jebel Ali free zone had a modest start in 1985 with only 15 companies. Now it has more than 7100 companies including 100 in the Fortune 500 (the largest U.S. corporations by gross revenue, as listed by *Fortune* magazine). It includes showrooms, warehouses, business parks, offices and on-site accommodations. It also offers empty lots of various sizes for short or long-term lease, with infrastructure (road, electricity, telecommunications) and 24-hour security already provided.

Several free zones dedicated to particular activities, such as Internet city, Media city, Studio city, etc., form other examples. In these zones, the regulatory frameworks are completely different from those adopted in the emirate; they are created to cater to investors' needs, by offering various procedures aiming at attracting capital, such as extensive flexibility in taxation and a range of laws tailored to managing investments and properties.

Fig 1.20: Official classification of departments, councils and authorities in Dubai: Dubai Municipalities is considered as a governmental department, while the Executive Council, much powerful, is included in the category of independent councils. (Source: www.dubai.ae)

2.2.3 The parastatals, government-controlled developers, and the lack of limits between public and private

Several holdings such as Emaar, Nakheel and Dubai Holding constitute another type of actors in the urban system in Dubai.

Development can be organized through different mechanisms in Dubai, either under the direct authority of the State, trusted to so-called "parastatal organizations", or entirely private. The use of the word 'parastatal', proposed by Schmid (2009), or 'state-backed' as proposed by Davis (2006), reflects the unclear limits between the private and the public in a situation where the majority of large holdings are '*controlled by the government*' (Elsheshtawy, 2013, p. 118). It has led many critics to highlight Dubai's 'non transparent government financials' (Malty & Dillon, 2007; Brook, 2013; Davis, 2006). The city's vision is shaped by the Sheikh (Al Maktoum, 2012), and many megaprojects are proudly described by their developers as reflecting the Sheikh's vision for Dubai (Walters & al. 2006; Lasnier & Chancel, 2010).

In Dubai, other rich families play an important role in the city's development. For instance the Al Ghurair, Al Futaim and Galadari families are major investors and all have initiated, since the early nineties, large megaprojects. They constitute – as Kanna (2011) asserts – the most telling representation of the category of 'flexible citizens', who believe at the same time in market values and a paternalist regime, and have been leading contributors to the image of a neo-liberal and futuristic Dubai, through impressive investments ranging from large commercial centres to introverted urban megaprojects.

Even if the majority of developments are led by government owned or parastatal real-estate companies (such as Nakheel and Emaar), these private investors, mentioned in the previous paragraph, still have a significant share in city's total investments. For example, Al Futtaim group is a large trading business house, that was established in 1930 and that includes more than 65 companies in various sectors such as commerce, industry services and real estate. It is based in Dubai and operates at a regional level.

One of the largest megaprojects led by Al Futtaim group is Dubai Festival City, a five million sqm mixed-use megaproject along Dubai Creek. Al-Futtaim Group Real Estate (AFGRE) is the real estate development and operations arm of Al-Futtaim Group. AFGRE is responsible for the 'origination, conception, development, procurement and construction of megaprojects and the leasing and operation of these projects after completion' (www.dubaifestivalcity.com).

2.3 Between UMPs and the financial sector

Buckley and Hanieh (2014) argue that real estate investment and rapid urbanization in Dubai have served as more than a spatial fix for over-accumulated capital across the Gulf region. They consider that recent urbanization as a set of state-led strategies aimed at leveraging the urbanization process to internalize and diversify the financial circuit, in which the regulatory liberalization of the real estate market is a strategy of the financial sector to direct the flow of capital from oil surplus through the real estate circuit, and back into the finance circuit.

Malty & Dillon (2007) consider that there is a significant relationship between the real estate in Dubai and the financial sector. The large holdings that invest in real estate manage other types of economic activities in various sectors, including finance, communication, ports and aviation.

Roy (2011) talks about a circulatory capacity of Dubai that exceeds the city's boundaries; Dubai's capital circulates and travels. It reshapes urban landscapes across a wide swath of territory, from Cairo to Delhi. Moreover 'Dubai capital enters into strategic partnerships with a variety of nation-states' (Ibid). In fact, many authors have examined cases of UMPs developed by Dubai-based holdings in different cities, like Cairo (Singerman & Amar, 2006), Tunisia (Barthel, 2008), and India (Roy, 2011). In this sense, many authors examine the 'Dubaization' or the 'Dubai effect', through the weight of the large investments by big Dubai developers in many countries all over the world.

Real estate companies that build these megaprojects depend on a complex network of companies and holding companies with considerable resources, investing in a variety of areas: free zones, airlines, media, transport, tourism, public works, real estate and finance.

Moreover, these holdings companies project their image in terms of luxury, confidence and credibility. They lay out a strategy that focuses on a heavy promotion of their projects, stressing the quality of life they guarantee and mutual trust with their clients. Logos, slogans and advertising panels along these lines, as well as their flags, can be seen all over the city (see fig.1.21).

Dubai World is one of the large holding companies; it is an investment company that manages and controls a number of sectors, the main ones being Dubai Ports, Nakheel and Emirates. It has investments in more than a hundred countries including USA and European countries. In a highly globalized economic context, these holdings aim at quick returns from investments in various sectors, particularly in real estate.

Fig. 1.21: Major parastatals in their self-promotion. (Source: Oula Aoun)

Hence, megaprojects do not necessarily meet a real economic and social need of the city. They constitute a product that primarily needs to be attractive, fascinating and easy to sell. It is in this context that researchers link the financialization of the building sector in Dubai to the international crisis of 2008, an event that in turn severely affected the city (Bertrand, 2012; Brook, 2013).

2.4 Unveiling the roles of various actors in the real-estate sector

Various actors are involved in the implementation and construction of megaprojects. Most often, their roles overlap. In general one can broadly distinguish the roles of land developer, property developer, contractor and owner in an urban project. Understanding who these actors are in Dubai helps in understanding the particularity of the system.

Land developers: these are the major real estate companies, examined in the previous three sections. Emaar, Nakheel, Dubai Properties, Dubai Holding are examples of parastatals in this field; Union Properties, Al Futaim are examples of private land developers. They are all Dubai or UAE based corporations.

However, while Emaar and Nakheel focus exclusively on real estate, Dubai Holding and Al Futaim are examples of land developers that have investments in many other sectors. They differ also in the fact that some of them operate only in Dubai, such as Nakheel, and some others, such as Emaar, operate at the regional and even the international level. As land developers, these actors provide the master plan and the various forms of infrastructure, and they prepare the plots so they are ready to be sold and built. Depending on the situation, they provide either broad building regulations or detailed ones. In several cases, such as Dubai Marina for example, the land developer (Emaar) retains responsibility for the management of the common and open spaces in the projects through specialized companies.

Real estate developers: these are the companies that buy plots and construct the buildings. Damac Properties, Akar Properties, and Select Group are examples of property developers. They are usually private developers. Their objective is normally to resell the buildings. In many cases, land developers undertake the construction as property developers. This has been the case with some towers developed by Emaar and Nakheel. While it is frequently the case that the land developer develops some key plots in its own project, as when Emaar built several towers in Dubai Marina, occasionally a land developer such as Nakheel builds a tower in Business Bay, a project developed by Dubai Properties. Property developers are mainly in UAE or Dubai based. Other GCC based property developers operate as well in Dubai, such as the Saudi-based Cayan Group that has developed the Cayan Tower (the "Twisted Tower") in Dubai Marina (Fig. 1.22).

Contractors: These are the actors responsible for the execution of the buildings. They may be UAE-based or international. It is important to note that local expertise does exist in the construction sector; the Twisted Tower, for example, was built by the UAE-based contractor Arabtec. For some major towers such as Burj Khalifa, a consortium of multinational contractors may operate together: Arabtec, Besix (a Belgian contractor), and Samsung Engineering and Construction in this case.

Owners: Owners, (or investors) can be individuals in the case of residential buildings; ownership of these is spread among locals, Iranians, citizens of other Arab countries, Indians and Western Europeans. For commercial and offices buildings too, the owners are of various nationalities. In some cases, key buildings are owned by investment corporations and managed by a specialized actor, such as the case of buildings owned by

Emirates Airlines and managed by Marriott Hotels. In the free zones and the free hold projects[15], the majority of owners are international companies (Brook, 2013).

Fig 1.22: Dubai twisted tower (Cayan Tower) in Dubai Marina. Developed by Cayan Group (KSA) and built by the contractor Arabtec. Photos taken from different angles. (Source: Oula Aoun)

2.5 Public-private syncretism and 'zero politics'

Two central elements mark the governance system in Dubai: a public and private syncretism and a total flattening of political space.

In Dubai, we pass from public managerialism to public-private entrepreneurialism. The question is not even about the poor performance of the former and the need for better management culture, as is often suggested by those who criticize the public sector; it is one that goes to the very relevance of the concept of public-private separation.

[15] Projects where foreigners are allowed to buy properties.

Indeed, if the ultimate goal is a performance that would ensure growth and wealth, the same strategy and action plan should be adopted in both public action and private action. This logic is the core of the Dubai system, although it is in many ways the opposite of the neoliberalism that seeks to free the market from state intervention.

This public-private entrepreneurialism finds its most perfect expression in Dubai. The vast majority of public services are privatized. In giant holding companies, including nearly 200 different companies that together account for the majority of service providers, the state is a partner and the Maktoum family and its local allies hold the majority of these companies.

These holdings are managed as private companies. The state does not subsidize them. However, they can count on important interpersonal networks that link them and their leaders with leading government officials. This represents huge social capital that supports their development of activities at local and international levels (Schmid, 2009).

Even if practices of good managerial governance are highlighted to emphasize that these holdings operate in accordance with international standards and practices, the system of holding companies as it functions in Dubai cannot be dissociated from the Maktoums and the personal vision of the Sheikh for his city. In fact, the Maktoums personally hold all companies that are strategic for the development of Dubai, including Emirates Airlines, the port of Jebel Ali, Burj Al Arab, etc. – and most importantly, the land.

On the other hand it is in the office of the Sheikh that the strategic orientation of development in all sectors is defined, to be later formalized and expanded by the staff and the consultants of the relevant companies and holdings. In this decision-making system, every strategic decision is the responsibility of the Sheikh and his restricted circle of allies and consultants.

The Dubai system is indeed a zero politics system. In 1930, a protonationalist movement of merchants, mainly Arab, who were affected by the pearl trade collapse, called for a modernization of society in which citizens would have greater role and the ruler would not have a monopoly over state resources and political decisions (Al-Sayegh, 1998).

In 1950, again, a reformist movement inspired by the wider anticolonialism in the Arab world tried to challenge the ruler, and proposed a more participatory citizenship. With

the oil wealth of the 1970s, the ruler was able to co-opt the reformists of the day and rebuild a new definition for nationalism.

Moreover, the British, at that time the 'protectors' of the city, preferred a stability ensured by the Maktoums' absolutism (Davidson, 2005). Since then, the flattening of the political space has been maintained by other means. As shown by Kanna (2011), those who wield power and their allies, upholding the 'wisdom of the market' and the entrepreneurial culture, have succeeded in implementing a practice that consolidates a specific citizenship culture.

The negotiation and exchange space would become the economic one and not the political one. This has been done through a subtle forging of the identity of the citizens in Dubai and of the status of all who reside in this city. It is about a balance between an aspiration to enrichment for all and a paternalistic governance by the Maktoums (Kanna, 2011), within a context of fear for the fragility of a system that only the Maktoums are represented as capable of protecting (Smith, 2010).

UMPs a reflection of specific governance

Despite the seeming proliferation of actors, the key and decisive ones are all close to or even controlled by the government, or in other words, by the Sheikh. These government-controlled developers have the role of defining the character and main uses of the city parts, and the relatively fewer private developers seem to follow the trend with their relatively less ambitious megaprojects.

The weak role of the municipality, as a regulatory and control body, doesn't necessary indicate an absence of governmental involvement, since the other less classical authorities (TECOM, JAFZA, and others) that control a major part of the city development are themselves directly controlled by the government that is as well managed and directed by the Sheikh.

Analysing the political dimension surrounding Dubai's UMPs, and more particularly the way the power and the land are distributed among the main developers closely related to

the government and to the Sheikh, helps to clarify the status of UMPs within this political structure. Distributing the land to the main developers in order to implement UMPs allows the Sheikh to confer power on the main urban actors while continuing to exercise control over the city's various parts.

The multitude of free zones, and more particularly of UMPs developed as free zones characterized by their own legal regulatory framework, is also expressive of the existence of fragmented areas of power. However, through these differentiated urban logics, UMPs can be seen as the means by which the city is managed, and by which the Sheikh allocates territory among the different players while fostering a situation where the overlapping of prerogatives and authorities may frequently occur.

3 Lacking local expertise – International Firms as main actors.

These new urban landscapes that were examined in the previous parts, marked by the massive transformation, underlining the effect of spectacle and fascination and requiring a highly developed technical prowess and a sophisticated expertise, are sometimes described as a result of the globalization of urban policies, and sometimes they are considered as a specific product of the particular Dubai's context and more generally the GCC context.

These questions are hence frequently confronted in the GCC literature; are the spectacular and iconic projects and urban extension the reflection of a globalized world of urban models and references, and a pure logic of urban neo-liberalism, or the result of a set of cultural, social and politico-economical contexts that are highly influenced by the monarchical systems.

Beyond a binary answer for these questions, this situation may be understood through the literature of 'mobile urbanism'. 'Policymaking must be understood as both relational and territorial, as both in motion and simultaneously fixed, or embedded in place' (McCann & Ward, 2011).

Even if urban policies are often local, grounded and tied to specific places (Friedman, 2005; Peck and Tickell, 2002), the second half of the picture shows that contemporary policymaking is fundamentally shaped by a context of 'fast policy transfer' (Peck and Theodore, 2001), where 'transfer agents' (Stone, 2004), including, among others, politicians, practitioners, activists and consultants are transferring knowledge about urban policies around the world.

The broader category of these transfer agents, called in the literature 'the transnational capitalist class' (TCC), is defined as people and organizations from many countries operating at a transnational level, with relationships to transnational social spaces (Sklair, 2005; Olds, 2001; Robinson & Harris, 2000; Carroll, 2009). The international firms in the domain of engineering and consultancy are considered as part of this class.

Designated also as Global Intelligence Corps (GIC) (King, 1990, Olds, 2001, Rimmer, 1991), the role of these international consultancy firms is more and more crucial

worldwide. The emergence of transnational clients, coupled with the development of communication technologies, have enabled these firms to become a global powerful actor, spreading office networks worldwide, following the grid of powerful cities (Knox & Tailor, 2005; Faulconbridge, 2010).

International consultancy firms in the domain or urban planning (ICFUP) – that include architectural and engineering oriented firms- constitute a main agent in widening channels of cross-border policy transfer (Peck, 2003), contributing at transferring policies, practices, models and references that would be translated into urban forms.

However, these transferred elements are the subject of an adaptation process, relative to each local context. Even in the literature on mobile policies and policymaking, the word 'transfer' is defined as a 'socio-spatial, power-laden process in which policies are subject to change and struggle as they are moved' (McCann & Ward, 2011).

Studies on knowledge mobility and policy transfer underline different levels of transfer. They differentiate between transfer, diffusion and learning (Stone, 2004). While 'transfer' involves – as it was defined previously- processes of struggle and change, 'Diffusion' describes a trend of successive or sequential adoption of a practice, policy or programme. It is contagious rather than chosen and it connotes spreading, dispersion and dissemination of ideas or practices from a common source or point of origin (Ibid). Stone (2004) considers as well that the diffusion has its limitations since it does not say a lot about how policies or practices are altered during processes of adoption. 'Learning' is defined by Stone (2004) as occurring when 'policy-makers adjust their cognitive understanding of policy development and modify policy in the light of knowledge gained from past policy experience'. In his essay on Knowledge transfer in the Arab Emirates and the other Gulf states, Ewers (2013) discusses to what extents the imported expertise can be a lever to local capacity development. Levels of learning – according to Ewers vary between sectors, the financial sector being the sector with high level of local learning via interaction with foreign experts. In this same line, this article aims at discussing as well the level of learning within local context that can be identified via the presence of ICFUP and the 'transferred knowledge'.

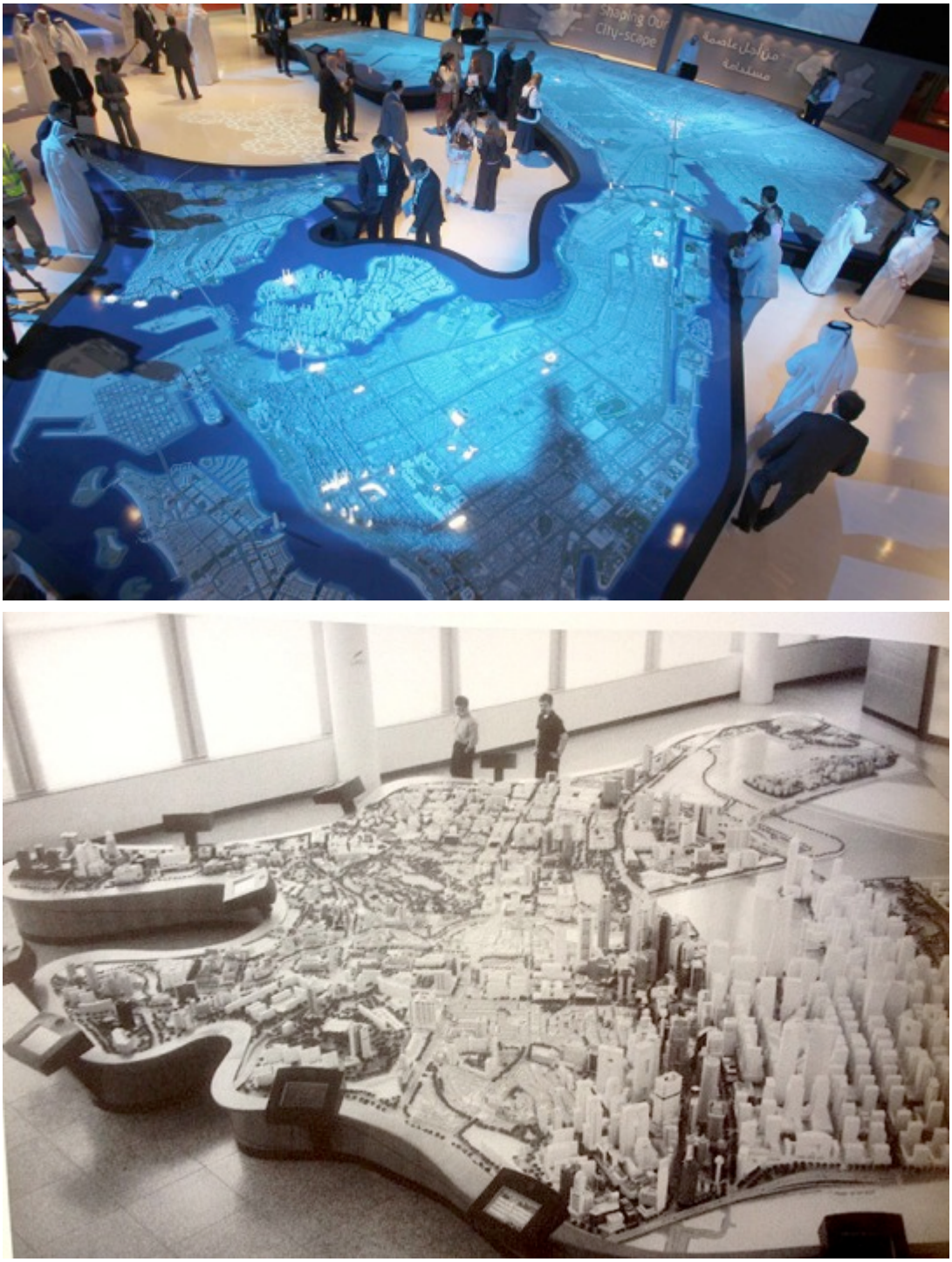

Fig 1.23: The images shows an example of circulated tools, practices and knowledge. Up: Abu Dhabi 2030 vision-model. Down: Singapore New Downtown- model. The comparison shows a striking similarity in the scale and the way the plans are promoted and displayed.

In Dubai (and more generally in the GCC) the ICFUP play a fundamental role. The city, enrolled in a development process and strategies that are creating iconic spaces and

megaprojects that would contribute in creating a world city image, has relied significantly on foreign knowledge (Ewers, 2013). In Ren (2011) many of the GCC cities (such as Dubai, Abu Dhabi and Doha) are listed among the top cities where international consultancy firms in the construction domain have branch offices. These rankings reflect the significant role of the international firms who are implementing these iconic landscapes and megaprojects.

Despite the significant reduction of construction activities during the 2008 global financial crisis, most of international firms have adapted in order to cater to the new post-crisis optimistic mood. Their role seems to have been crucial in the rebounding of the GCC cities from the effects of the crisis.

These ICFUP, object of this essay, will be examined in the beginning as an actor that is very evocative of a mode of urban production relying heavily on a new mode of urban planning that is shaped by knowledge mobility, and characterized by megaprojects as a key output. By relying on literature on urban planning history in the wider Arab and Middle Eastern contexts, the introductory part will stress the particularity of the situation of Dubai, marked by a relatively recent and brief urban planning history, and of the ICFUP, as main urban planning knowledge mobility channel and main urban planning producer.

Next, these firms will serve as an analytical framework in helping to understand the market and the politico-economic context. Interactions between the context and the firms will be underlined. More particularly the market conditions and challenges that contribute to the adaptation process undertook by ICFUP will be unveiled.

Finally we examine the diversity of ICFUP and divide them into two main categories, based on their operational modalities, strategies and structures: the architectural firms and the engineering-architectural firms. Despite their similar role in contributing to the building of urban space, the study will demonstrate interesting divergence and convergence in the way they adapt their knowledge and operational mode to the context of urban planning in Dubai, and in the way they contribute to knowledge transfer in the urban domain.

Starting from the identification of 100 masterplans in the GCC countries, based on online resources such as blogs, website, journals, and based as well on the two site visits to the UAE, the consultants who were involved in two or more master plans were

selected for study. The results have identified a total of 13 international firms. Three of these did not reply to our request for interview, leaving a total of ten firms constituting the focus of this research. The 13 firms were responsible for 61 out of the 100 master plans (see table 1.1), while the remaining 39 master plans were done by 39 smaller international and regional firms. Two persons were interviewed in each firm: the targeted profiles were those of urban planners, mainly seniors or heads of departments, depending on their availability. The interviews were semi-direct, questioning the firm's presence, strategy in accessing and maintaining position in the GCC, the types of cooperation undertaken with other firms, the theoretical frameworks they use, and finally the communication and self-evaluation tools mobilized in the context of urban megaprojects in the GCC. The firms are Aecom, HOK, Halcrow, Perkins and Will (P&W), Arup, KEO, Benoy Architects, Fosters and Partners, Dar al Handassa and Khatib & Alami. In the paper, all the stated information is taken from these listed sources – unless designated otherwise. Referring the information to an interview will be done through mentioning between brackets the name of the firm, as for example (HOK).

Architecture Firms	**EA Firms**
HOK (7)	Aecom (12)
Benoy Architects (3)	Arup (2)
Foster & Partners (2)	Halcrow (8)
Perkins & Will (2)	KEO (7)
	Dar al Handasa (5)
	Khatib & Alami (2)

Table 1.1: Surveyed firms, divided into Architecture and Engineering-architecture firms. The numbers represent the surveyed projects done by each.

3.1 ICFUP, actors of a new model of urban production

As mentioned previously, Dubai and GCC cities have heavily relied on an external professional expertise in the urban domain, in their mission of building the image of

modern states. The case of John Harris[16] in implementing the first Dubai's master plans, and later on the presence of western firms, mainly in the domain of engineering, in order to build large infrastructures are examples showing the extents to which Dubai governments, same as many of GCC governments, have relied on external expertise.

In the last two decades, and in a context marked by economy diversification's policies, a search for a global city's image, megaprojects that demonstrate fascination and records as well as the emergence of for-profit parastatal real-estate developers with mobile capitals and worldwide various investments, ICFUPS constitute a main actor who is contributing, through transferring 'globalized' knowledge to the implementation of new urban landscapes.

3.2 Interactions between contextual elements and operational mode; the international consultancy firms as analytical framework

In this section we are going to examine how the ICFUP are adapting to Dubai context through several modalities of access to the market and how they are contributing to produce the city image that typifies the expectations of the city governor. It will be shown as well how these firms manage to cope with the difficulties and challenges that emerge from this context, be it related to the specificities of the command, to the lean regulatory framework or to the complexity of the urban megaprojects to which they are contributing to.

16 'In 1960, British architect John Harris drew the first Masterplan for Dubai; He was introduced to Dubai's ruler, Sheikh Rashid bin Saeed Al Maktoum, in 1959 by the British Political Agent, Sir Donald Hawley. Harris rapidly won the rulers's trust and became the state's expert adviser on the new masterplan. According to The Times, 'he developed a means of working that wedded Sheikh Rashid with an architecture both respected and respectful'. The choice of Harris is an interesting one given that he was relatively unknown and had no large practice'. (Elsheshtawy, 2013).

3.2.1 Dubai market's challenges

3.2.1.1 Access to market

Several aspects of globalization, such as the opening of international markets and the development of communication technology, have facilitated these firms' access to international markets. However, competition among firms and the need to sustain their international position and global image constitute major challenges (Korkmaz and Messner 2008). 'Going global' is part of a strategy, a brand and a vision, and to a large extent the office networks of international firms mirror the network of global cities (Knox and Taylor 2005).

In order to access Dubai market, international (and all non-local) firms have to be issued a permit from the administration of the country concerned, and these impose several conditions. One of these conditions is having a local partner; another is a specified number of local employees. The interviewees agreed that these conditions are not always easy to fulfill. However, they recognized that having a local partner is useful since the latter knows the local cultural context better, and also to a certain extent the local network of professionals in the construction market.

We have identified several methods by which the surveyed firms have accessed the GCC market:

- By invitations, sent by client to a restricted number of firms

- Through competitions, following the classical competition procedure

- Through partnerships with local or foreign consultants who are locally established: partnerships are temporary in this case, lasting only the project duration

- Through processes of merger, a process through which large firms acquire smaller firms. Sometimes the latters substitute as sub-entities and most often they merge completely

AECOM is the most telling example of the last case, since it is in a continuous state of 'acquisition'. Smaller offices and companies are merged within the larger structure of AECOM, like IDAW, Cansult & Maunsell and others. Mergers allow new markets to be

accessed through already established structures that can contribute both expertise and clients.

It is to be noted that the law that requires from foreign firms to employ locals according to a certain quota – that is called emiratization - contributes at creating a milieu of interaction between local and foreign experts. However, most of our interviewees have noticed the relative un-efficiency and lack of competencies of local employees, making truncated the learning process.

3.2.1.2 Enrolment of Dubai in world cities' competition through records and spectacle, in the absence of local expertise

Main GCC cities are enrolled in a policy that searches for records and fascination, needing hence international expertise.

Recent to Dubai and the GCC region, urban megaprojects mobilize a technical prowess that needs special expertise. Even if few local engineering offices do exist, the tasks entrusted to them are only secondary ones.

In this context, ICFUP are aware of the role that they are expected to fulfill as transfer professionals of the most innovative ideas and models. In their discourse there is a focus on their fundamental role in bringing knowledge and technologies to a context that they consider as 'immature' and lacking expertise in the urban domain. These arguments are consolidated by a specific reality in GCC, related to the professionals in the domain of architecture and urban planning. In Dubai, for instance, there is a clear absence of professionals, training and experience.

Moreover, architecture and design related specialties are not privileged in Dubai's universities. Most of the urban related fields do not constitute a major domain within the academic milieu. Very few local universities include such specialties in their programs, and it seems to be a major lack in terms of professionals, training and experience.

In an interview with architecture department heads in an Abu Dhabi university, they expressed determination to found an urban planning department, but admitted feeling discouraged by the difficulties their future graduates are likely to face when seeking

opportunities in the market; '*the market, including public and private sector, prefers to have international experts'*. Elsheshtawy (2008) considers that GCC officials are turning towards Western architects and planners to plan, design, form and shape their cities. He also suggests that academics and scholars are absent from any discussion pertaining to urban theory.

Although it can be concluded that, given the absence of local experts and expertise, the situation could be described as a one-way transfer of knowledge, however, it should be noticed that experts in ICFUP are as well from other Arab and Mediterranean countries, such as Lebanese, Palestinians, Egyptians and others. These 'local agents' are the ones who contribute to a local-international interaction, mainly because they constitute the part of ICFUP that knows the local language and the local culture and manners. We underline that many ICFUPs have emphasised the role of these 'local' experts in bringing more context knowledge to the rest of the teams.

3.2.1.3 Market instability

GCC is considered by the majority of the interviewees as an unstable market. It is frequently compared to the building market in the Far East cities where the ICFUP have larger offices' networks and more solid presence. In Dubai, projects may undergo an 'on hold' phase, or alternatively an accelerated production phase. This has a direct impact on the structure of firms that shrink and expand according to the market. The selection of disciplines and professionals, as well as the functioning mode, is adapted to the current market situation.

In Dubai, the majority of international firms have shrunk their office size, some to half and some to a quarter of what it was before the 2008 crisis.

At the end of 2012, the time when the interviews were conducted, the market was previewing a 'stressful optimism', and many firms were slowly restructuring and recruiting again. Facing this instability, ICFUP try to insure a continuous presence even with small teams. This flexibility leads as well to a certain logic of mobility in which key experts travel a lot and are only present on site when needed.

Since not all the expertise can be present in the same regional office, several types of communication are mobilized: some experts may work at a distance while communicating with regional offices through phone meetings, emails, or other technological tools.

'*Mobility is important but given the facts of what electronics can do now, the necessity of mobility is becoming less and less; I can sit here and have a teleconference with a colleague in Washington or in London. We invested heavily in terms of our IT... It has paid off, because previously we had to go to the airport, wait and fly from country to another, while usually your biggest enemy while doing a project is time. Nothing is like face to face meetings, but you still can do a lot of coordination, and this has been very important for our company, and how it develops at a global level'* (HOK 1). '*We share a lot of resources online; we have the skill network online within the company, so we always share things. We have a lot of experts who go to conferences and work on interesting projects. So when they come back, they share everything with the rest of the company'*. (Arup1)

Key experts may be relatively more mobile than the other professionals. They may travel to establish new units, to train junior professionals, to meet with site working teams, or even to meet with the clients. They are often based in principal offices or the firm's headquarters.

3.2.2 Coping with a particular regulatory context

3.2.2.1 Absence of solid regulatory bodies and framework

In Dubai, the municipality and other public authorities (Such as Dubai electricity and water authority, Dubai land department, Dubai civil aviation authority, etc. (See fig 1.20), have only recently undertaken an upgrading process. The authorities were facing a rapid urban growth in which they were the weakest actors. The municipality was marginalized as a controlling authority due to the personal relationships between the private developers and the governing sheikh, the first actor driving the development.

The ICFUP play an important role in the regulation of the planning system in Dubai. They have a fundamental role in supporting the governmental agencies through their

consultancy services. This 'support' is provided at two complementary levels: the planning regulations formulation and/or updating, and making of cities' strategic and structure plans.

Planning regulations are updated, evaluated or even completely set by international firms. In many cases, due to ineffective regulations or the absence of them, consultants in the international firms are asked to propose new standards and norms, especially in the case of megaprojects considered to be special developments requiring specific regulations that go beyond the competencies of the existing local regulatory bodies. Dubai Marina for example, a 300 ha megaproject with more than 200 built and planned towers, went ahead against a glaring absence of existing regulation. The regulatory framework was put in place in parallel with the project's construction.

'In Dubai Marina, when we did the first six buildings, the adequate legislation didn't exist. The legal framework had to change and we support them in that'. (HOK 1)

Even where an existing regulatory framework does exist, the megaprojects, considered as special developments, do not necessarily adhere to it. Therefore, new regulations are often proposed by the international firms in parallel with the conception of the master plan.

A telling example is the Dubai 2020 strategic plan, prepared by AECOM. After the booming market generated various fragmented developments in Dubai that reflected the different agendas of developers, the sheikh and his circle of decision-makers have realized the importance of establishing a unified vision of the city, with a main objective of a harmonizing the agendas of the actors and the different administrative and semi-governmental authorities. AECOM was selected to prepare this strategic plan, playing as well, beyond the expert role, a role of coordination between the different players.

In all cases, the factor that has been reinforcing the role of international expertise is the need among GCC cities for new standards to address the pressing constraints arising from environmental, social and urban issues and the need of having a global city image in a context of competition between cities worldwide.

In the case of knowledge transfer in setting regulations, we have noticed, based on our interviews, that a clear interaction could be perceived between ICFUP experts and the Municipalities' professionals who are in majority locals. This interaction seems to be

efficient and potentially leading to mutual learning. This can be noticed in the way these local employees are capable of evaluating, assessing and orienting the ICFUP contribution in terms of setting new plans and regulations. This can be explained as well by the fact that local municipalities' employees knows better the various aspects of their context comparing to foreign experts.

3.2.2.2 Limited circle of actors

As explained earlier, the economical, political and cultural contexts in Dubai are highly influenced by the monarchical system. The city's leader, along with major real-estate developers, investors or free zones authorities, are part of the restricted circle of power that surrounds the governors and are often members of the royal families.

The megaprojects are interrelated hence to a complex network of companies and holdings with considerable resources that are close to or controlled by the governors. The common goal of all these investments is to promote the city and to attract investment and visitors, a translation of the governors' vision of their cities.

Despite the number of megaprojects that are taking place, the Dubai construction market is a relatively small market. '*It is a very small community here, and they all know each other. Relationships are very important, and if one consultant does good work for a developer, another developer will know about it, and so on*' (Keo 2). It was clear through our interviews that the professionals know a lot about other companies, how they work, what their strengths are, how to compete with them; and the most important aspect is that the same professionals may have worked in many companies.

Even with the limited size of the market and competition between firms, partnerships and coordination between them is a recurring feature. As per the interviewees, in some projects two firms may bid as competitors and in others they may work in close coordination. '*Sometimes you compete, sometimes you coordinate, you know it is not emotional… So among the firms that work here, people may move around, so you work with KEO, then with AECOM, then you spend two years with Cansult, here and there. So the community of professionals is pretty well known. People just change the dance partners, no*?' (KEO 1).

For ICFUP to access GCC market, they have to be present within or close to major networks of power and decision. In their search for new projects, ICFUP need to have local partners who are 'well connected' in order to sustain their presence in this market.

Moreover, during the evaluation and review processes, the client or a client representative have often a key opinion through the master plans implementation. ICFUP consider themselves as in need to be flexible in dealing with this kind of governance that is specific to GCC. They also consider that during different stages of the urban projects, ranging from the concept definition, to the projects' contents and the review of the master plans, the client has a prevailing role that they have to cope with.

3.2.3 Operating in the context of a specific urban product: the megaprojects

As per the results of our survey, the ratio of 61 megaprojects done by large international firms out of 100 megaprojects shows their profound involvement in the GCC urban production and the weight of the decision-makers' reliance over them. Moreover, being involved in a number of megaprojects reflects a more consolidated status within the market. As one interviewee considers: '*It is not the first project that is important to have, but the next and the third, etc.*' However, being enrolled in this kind of development encounter a plethora of challenges and difficulties for the ICFUP to adapt to.

3.2.3.1 Limited production time and absence of feasibility studies

The lack of feasibility studies constitutes a major challenge for the ICFUP: the interviewees consider that developers do not understand the need of them; they believe that a 'beautiful project' will not fail, so they place the responsibility for a projects' success on design. Furthermore, they consider that developers usually want to start building quickly, especially in a boom context, where profit is the main goal of an investment project; thus their attitude towards preliminary studies is that they are simply time consuming.

As a result, the consultants we interviewed agreed that the client's brief usually needs to be reassessed and analyzed. Most of the time, feasibility studies will be replaced by

production of a series of concepts, through which the client and the consultant will 'test' the design. For instance, the Yas Island master plan went through 22 versions, through which the client and the consultant were 'testing' the market (Benoy 1). Another example is Dubailand which went through a series of versions, transforming the megaproject from a huge theme park three times the size of Disneyland to a series of themed residential areas (Halcrow 1).

Regardless of the firms' various reactions to this situation, they all agreed that they need the feasibility studies in order to be able to produce good quality plans. *'If you want to receive a good result from a consultant, you have to give him information; without that, you will not have a good project'* (HOK 1). '*We absolutely want this level of study; that's protection for us. The more we understand a project, the more we can address it at all levels'*. (Keo 1)

Another characteristic challenge in the GCC is speculation and limited production time: In a boom period when development is driven by speculation, and not related to a real need of a future population, time seems to be the most precious factor. As a result, the developers impose a short time limit on conceiving the plans. Many interviewees have said that the available time is an average of 25% of what it is normally supposed to take.

AECOM (2) told us that sometimes they have only one week to design a master plan for a UMP. Some interviewees expressed confidence in their ability to cope –with some challenging difficulties- with similar conditions, while others didn't hide their concern that this time limitation may compromise the design quality.

3.2.4 Between global and local: searching for references

Another challenge that faces IFCUP is the particular cultural and geographical context of the GCC. In the literature, scholars agree that local contexts have an influence on architectural and design practice, and consequently contextualizing the design within local environments is not an easy task (Imrie 2007; Faulconbridge 2009).

In the GCC context, we have noticed that the interviewees invoke general references, such as international norms and best practices. Frequently mentioning context constraints, the proposed solutions and ideas are limited to broad and general matters,

such as ‘respecting the local culture’, ‘being aware of climate specifics’, etc. Healey and Upton (2011: 15–18) consider that international mobile experts have insufficient time to examine local conditions and related constraints.

In the GCC, it was clear that the firms’ main challenge is to deliver what the client wants, and deliver it on time, leaving no space for preliminary studies related to socio-cultural or even feasibility aspects. This was evident from the response of one interviewee who considered that, in a boom period, there is no time to evaluate:

‘In my position, it is difficult to take a step back, to see the overall picture. For an academic, or a researcher sitting on his desk, it is easier to criticize, to see that things may not work, to say that it is not sustainable, there are problems in those master plans, they are not well connected, etc. Because you are too busy thinking about your next project. You don’t have time to sit on your computer reading about new urbanism. In the good time, when you do have lots of work to do, you can’t do this step back. But I think that I would prefer to have this distance again, that enable me to see the bigger picture’. (KEO 2)

Lacking norms, references and experience, the GCC is considered by scholars as a laboratory for urban planning (Barthel, 2010). Using the words of Ren (2011, p.38), ‘Star architects[17] rush there to build the dream projects that probably would not be built anywhere else, and young architects rush here as well to be in the action’. It can be concluded that, the particularity of Dubai resides in the fact that it is acting like a magnet for ICFUPs and international experts in general. Being a part of the world, where things –that would not happen elsewhere – happen, ICFUP come to Dubai as part of their strategic growth and international image. One interviewee in KEO told us that it is very important for him, as an international expert- to show on his CV that he has worked on large megaprojects in Dubai and other GCC countries.

In the next section, we will focus on the diversity of the ICFUP in the GCC. Regional and international, architecture oriented or engineering oriented, they have differences

17 As for example the UMP Dubai Waterfront by Rem Koolhaas, considered by New York Times as a ‘Grand urban experiment’ that would not have been built elswhere (Ouroussoff, 2008)

and similarities in adapting their knowledge, operational modes and structure into the GCC context and Dubai in particular.

3.3 Between Architectural and Engineering-architecture firms: Toward a typology

In the domain of buildings and construction, firms may have different typologies. *Engineering News-Record* (ENR)[1] distinguishes numerous firm categories, such as architecture and design firms, architecture and engineering firms, architecture, engineering and construction firms, etc.

However, overlapping is not uncommon, leading to the same firm being listed as architecture and design as well as architecture and engineering, for example. This can especially be noticed in the cases of firms that are primarily focused on architecture and have acquired through time engineering competencies (HOK being one example), while architecture and design have still the main base practices.

In the literature many references suggest typologies for architectural firms (Gutman 1988; Winch and Schneider 1993; Olds 2001; Ren 2011) based on the level of experience, the ability to deliver, and design excellence.

More generally in the case of international architectural firms, and based on the firms' size, it is possible to distinguish two main types: large corporate firms, also called the supermarket-style by Ren (2011: 34), given the broad range of design-related service that they offer; and small offices, or the 'starchitects'. Overlapping may be found even in this size-based typology, as in the case of Foster & Partners, which is considered a 'starchitect' firm while at the same time having a corporate size (Ren 2011; McNeill 2005).

As for the majority of international engineering firms, they have added architecture departments to their structure, followed by planning departments. However, these newly added practices cannot be considered part of the core of these firms' activities. In promoting themselves, the engineering firms focus in the first place on their engineering expertise, while architectural services constitute a secondary practice. The term engineering and architectural firms (EA) refers to this type of firm.

Proposing a typology is not an easy task. Given the variety of related factors that may result in overlapping in classification, we suggest, in our context, a simplified classification, contrasting architectural firms considered as focusing mainly on architecture, and EA firms with engineering practices as their main focus (see Table 1.1).

Architecture firms and EA firms have numerous differences that can be related to their strategies, assets and targeted market. Morris & Empson (1998) consider that an architecture firm's main asset is its creativity, while engineering firms have distinctive competence in technology.

In our survey the architecture firms can be all considered as 'strong idea' firms, following Gutman's classification. One may argue that based on this classification, Foster & Partners should be consider as strong idea firm while the rest are more 'strong experience' firms.

In our context, since the targeted comparison is not between architectural firms, it is the interface architecture / engineering that is targeted. This is why we prefer to adopt the simplified classification by Olds (2001) who divides architecture firms through two categories: the one that seek design excellence and the ones that have more experience in what she calls mundane services. In our context, the selected architecture firms promote themselves as in the first categories, equivalent thus to the 'strong idea' appellation.

From other part, our survey has covered three international firms that are relatively regional: Dar al Handasa, Khatib & Alami and KEO. Despite many representative offices that these 'international/regional firms' have through the world, it remains obvious that their major market is the Middle East. However, their structure and strategy are, to a large extent, similar to the EA international firms. Some nuances differentiating international from regional EA firms are mainly related to the interrelations with the local context.

3.3.1 On communication and mobility

Within the structure of both architectural and EA firms, mobility and complementarity are the main characteristics. However these aspects are more significant and crucial in

the matrix structure of EA firms, due to the numerous specialties and sub-specialties. Within these structures, not all specialties are present at a country level or even at a sub-region level (for example, for most of the studied firms, the GCC is considered as a sub-region in the Middle East, and the UAE as a country in the GCC sub-region).

The presence of a certain specialty in an office depends on many factors, including market demand, the size of the office and the availability of specialized professionals. As a result, resources mobility seems to be a crucial aspect in the way the matrix operates. *'There are so many disciplines and it doesn't make sense to have every discipline in every office, so we share a lot of resources across the offices'* (Arup 1). 'Sharing resources' may mean sharing knowledge, sharing projects or even sharing professionals. Projects may 'travel' from one country to another, depending on the team and office selected to work on them, and people may also travel depending on various factors, especially the project's location.

Many other factors can also limit professional mobility, such as financial aspects, climatic constraints and cultural aspects of a country. We have noticed for example that occasional instability in the case of Bahrain and the particular cultural context in Saudi Arabia seem not to encourage foreign professionals to live there.

3.3.2 On the differences in structure

As Morris & Empson (1998, p.621) argue, the nature of the knowledge base influences the organizational structure of the firm. Consequently, architectural and EA firms have different structures, reflecting their strategies and types of targeted market. In the literature, it is considered that a main distinction of architectural firms is the ability to design at a distance (Faulconbridge, 2009), and even to design projects worldwide from a single design-studio, in the case of starchitects (McNeill, 2005).

Interestingly, EA firms appear to have a more solid and confident presence in GCC than architectural firms, in terms of access to local networks and projects. Three main aspects may help to explain this:

Firstly, engineering related tasks and projects require on-site presence, leading EA firms to have offices next to their projects.

Secondly, as EA firms offer a variety of services, ranging from transportation to infrastructure, environment and management, it is more likely they will have projects on a continuous basis, while it is unlikely that an architecture firm will have more than one project in the same city.

Thirdly, with a majority of engineering firms present since the middle of the XX century when the oil-based economy required western expertise for major modernization infrastructure projects, engineering firms seem to have a longer experience and presence in the GCC.

Thus, we have noticed through our interviews that architectural firms have a non-continuous presence in the region. Following the end of each project, they go through a major restructuring of their offices, while EA firms, with their multidisciplinary departments, are able to preserve a more continuous presence.

The EA firms' departments are organized following a matrix structure built upon 'business lines' and 'geographies'. Designated as well by divisions, practices or business groups, the 'business lines' include a number of departments and each department houses a number of specialties.

From the other side, the business lines are distributed through a series of 'geographies' or regions. Regions are divided as well into sub-regions and sub-regions are divided into countries. For example Halcrow's offices are distributed through four regions: UK and Europe, Middle East and Africa, Asia, and the Americas.

The regional EA firms adopt a similar matrix structure, but with a timid presence in Europe and the Americas, having the majority of their offices in the Middle East. In this matrix structure, the EA firms seem to have a certain level of autonomy vis-à-vis their headquarters.

Unlike the EA firms, the architectural firms have a pyramidal structure. This is based on the architecture practice, and the other practices (engineering, management, etc.), if present, act as support to architecture, and to design in general. While the total number of employees of an EA firm in the GCC ranges from a few hundred to thousands, (in the case of Aecom for example), architecture offices there are small ones, with a staff of 20 or less.

With a majority of architects, and despite being totally design focused, these offices are considered as secondary or branch offices, and do not provide the full design of projects.

There are often senior designers or team design at the headquarters level (UK for Benoy and Foster, and USA for HOK and P&W), who may initiate ideas or concepts, leaving the task of developing schemes and plans, and coordinating with the clients, to the country level offices.

Differences exist between architectural and EA firms not only at the general structure level, but at the team level structure as well. The profiles of the professionals working on urban planning tasks vary considerably between firms, and an urban planning department may or may not exist within a firm composition. In some cases it is an independent department, while in other cases it is a sub-division in a department, typically the architectural one.

Sometimes, and particularly in the architectural firms, there is no clear separation between planning and architecture, both falling under the 'design' practice. In Foster & Partners for example, the designer profile seems to be the dominant one:

'We may have urban planners in our teams but not so many; everybody is an architect, and we have a way to design things: an architect may work this month on a table design and the next month on a master plan. [This is] because we believe that if an architect keeps working on the same things, we will lose his creativity, and the same architect who designs a chair can design an airport, helped by a support staff' (Foster & Partners 1).

While in the architectural firms, the main profiles are architect, landscape architect and urban designer, the planning-related profiles in the EA firms are more various and specialized. We note for example, beside the classical practices present in the architectural firms noted above, specialists in land development, economic planners, strategic planners, transport planners, environmental planners and GIS experts.

In both cases, the presence of a larger palette of profiles in the EA firms does not seem to constitute a competition factor with the architecture firms, nor an element that may limit their important contribution to the GCC developments, since the latter would search for external complementary skills when needed for megaprojects.

3.3.3 Different methods of self-evaluation and review

Firms have different ways of evaluating their work before delivering it to the client. Design board, internal and external peer reviews and 'Project delivery manual' are all tools for self-evaluation that have been identified through our surveys.

In the case of centralized firms, like Foster and Partners, the quality control takes place via a central board that reviews and controls the design quality, while in the firms that lack a centralized structure many tools are used to ensure that the final products have the same quality and labels. This can be done implicitly through manuals and documents, or can be done explicitly through communication and experience sharing between the different offices of the firm.

Internal self-evaluation requires usually the presence of key experts within the firm. It can be considered that EA firms have more decentralized common review tools that can be applied through offices worldwide, while Architecture firms have (different level of) centralized design control, around key persons as per senior architects and designers (or Norman Foster, in the case of Foster & Partners).

Transfer and adaptation through ICFUPs

This section's objectives were to examine the knowledge transfer process, undertook by International Consultancy Firms in the context of UMPs in Dubai. In this context, we suggest that ICFUPs constitute a major powerful actor in shaping the city. Dubai, witnessing a massive urban transformation that is different from previous types of urban development, has relatively short urban history and therefore there is evidence of lack of expertise, professionals and norms in the real-estate market.

The adaptation of these firms, facing the market instability and the clients' demands were examined. Through the complexity of urban megaprojects and within the particular politico-economical context of Dubai, ICFUP had to undergo a plethora of adaptation procedures, related to their internal organization, their modalities in accessing the market, their role in offering the expected expertise for a demanding client and to perform in an unstable construction market, where existing knowledge and urban laws

would not cope with the on-going spectacular developments. In terms of adapting their theoretical framework, we have examined how powerful clients can impact the design and the final urban form of megaprojects. The reasons of this input are two fold: firstly, key actors are searching for a global city's image, through looking into international models and urban references. From the other side they are looking for an urban form that consolidates their cities' identity, regardless the ICFUP expertise and contribution.

We have also differentiated architectural and engineering firms. Several aspects that characterize each were highlighted such as structure, access to market, and methods of self-evaluation. In each case, transfer process of the procedural framework and adaptation to local context are different. It could be argued that – since the engineering firms are related to technologies while architecture firms to creativity- engineering firms are actors of a complete transfer, since technologies are needed per se, and no modification from clients is likely to take place. In some cases, this technology-related knowledge is challenged in the context of spectacular megaprojects such as artificial island, and artificial canals, etc. In the case of architectural firms', the 'creative' contribution is frequently subject to modification and discussion, since it could be easily linked to aspects related to market trends, the desired image by the client or aspects related to the context such as cultural, environmental or identity-related aspects.

Moreover, in terms of structure, the centralized review system in the architectural firms contribute to a direct transfer, while in the case of EA firms, the capacity of local offices to make their own review process is likely to lead to an adaptation process, influenced by local factors.

Going back to Ewers' question about the extents to which the imported expertise can be a lever to local capacity development, and therefore contribute to learning, we have differentiated several aspects. Learning occurs in the case of ICFUP setting new plans and regulations for municipalities. In that case, interaction with local professionals is leading to a learning-resulted transfer. As a result of local laws that require from foreign firms to employ locals, the presence of the latters within the ICFUP do not seem to be totally efficient, as they are often considered as lacking experience and not benefiting from the interaction with foreign experts, therefore truncating the learning process.

UMPs in this context are highly influenced by this transferred knowledge, through ICFUPs. However this knowledge is adapted to the local context given the particularity

of political and regulatory system. This adaptation takes the form of procedural aspects such as the firms' structure, the teams' composition, the methods and the duration in designing megaprojects, and the form of substantial aspects where the mobilised references are influenced by international currents and images of global cities. It can be argued also that UMPs designed by engineering firms portrays aspects of high technology and prowess, while those designed by architectural firms focus more on the design quality.

4 Conclusion

Dubai is seen as a particular manifestation of the Arab world, where the ruling dynasty mobilizes historical and cultural authenticity, desert tribal democracy and a specific neoliberalism as the base of their legitimacy. Seen through a socio-political dimension, Dubai is – especially from a Western point of view – a modern successful enclave of 'good Muslims' (Friedman, 2006) within the world of backwardness and extremism of the remaining Arab countries (Ibid). For urban experts, Dubai is a city of experimentation, adventures and new possibilities. Koolhaas, in an interview in 1996, considered that cities like Dubai felt much newer than the west, that they are representative of the future and that 'building there is a daily pleasure' (Kanna, 2011).

These three discourses are expressive of the social, political and economic system in Dubai: from a political perspective, the ruling dynasty bases its legitimacy over a co-opted new Arab identity. This identity is disconnected from the multiculturalism and nationalism that characterized the pre-oil Dubai. The new identity fashioned by the Al Maktoums is based on an ethnic citizenship that embraces a mixing of international values and local culture. In this identity, the values of the market and of openness to globalization and consumerism are prevailing.

The 'contract' between rulers and citizens in Dubai specifies that the former are the protectors of a paternalist system of governance and the latter are passive objects. The Al Maktoums have fashioned a 'ruling bargain' (Kanna, 2009), where largesse distributed by the state is exchanged for political quiescence and where ideology was replaced by market and consumerism values. In this system, the ruling family presents itself as protectors of the citizenry from the multitude of nationalities of foreigners in

their midst. This ruling family makes Dubai into an ethnocracy where worrying about authenticity in the face of the imbalance between citizens and foreigners is the basis of the ruling legitimacy.

This identity building is also based on a logic of modernization. This logic can be seen, since the 1970s, through large infrastructure projects such bridges, ports and highways and since the end of the 1990s through spectacular urban megaprojects, high tech metro and tram projects and ultra modern airports, that are taking place only with the role of a large number of Western experts and the mobilization of a professional non-local expertise.

These large developments and investments, fashioned to project a globalized and modern image of the city, are dependent on the input of a large number of Western firms and consultants. The presence of this Western expertise is further encouraged by the open policies adopted by the emirate, and the overall facilitating of foreign business and companies. Moreover, the generally tolerant atmosphere in Dubai, dominated by the presence of foreigners and characterized by openness (compared to other Arab countries) towards other identities and customs, is also a factor that encouraged the settlement of foreign companies.

In addition to the Western experts, and more particularly the ICFUPs, there is a group of powerful actors who plan, command and manage these spectacular developments. Sheikh Mohammad Al Maktoum, following the ambitious policies of his father, is the main actor in Dubai. Surrounded by his circle of allies and consultants, he fashions and draws the vision that he wants for Dubai and implements the necessary strategies and tools to translate it into reality.

With the starting of the Mohammad era, the understanding of real estate development gained a new definition and logic. Long-term investment has been seen as inconsistent with Dubai's vision, and megaprojects have become a quick means to translate the investors' plans. The role of urban planners and other experts in this context is no longer to design and conceive projects from scratch. It has become restricted to implementing visions and ideas already fashioned by key investors and parastatal real estate companies.

In fact, ICFUPs in Dubai, even with broad backgrounds and seemingly solid theories, are in practice adapting their knowledge to the vision drafted by the city through a

particular politico-economic system. They are adapting their knowledge to serve existing various cultural representation of Dubai. These representations however, even if they include aspects of 'local identity', are dominated by references that are more internationalised, and by architectural currents that can be described as part of mobile international knowledge, in the context of mobile planning.

Therefore, UMPs in recent years have constituted the main tool in drawing a city image that aims to compete with the world global cities. They are the mean through which an economy based on spectacle and fascination is being deployed. They also constitute a lever that fuels several sectors, such as tourism, aviation, finance and others. Finally, they are at the core of a complex system of governance that encompass family ties, business logic and individualist visions, and that seeks legitimacy through deploying a development approach based in a first place on UMPs.

Chapter 2
Dubai's Megaprojects from isolated objects to shaping the city: A morphological analysis

This chapter focuses on Megaprojects in order to understand, based on a corpus of cases, their characteristics in terms of governance, morphology and contents. On another level, it aims at examining their role as development engines contributing to Dubai's extension, and at understanding their role within the wider dynamics of the city. At a closer scale, the chapter presents an urban morphological analysis, where four selected megaprojects are analysed in terms of their morphological characteristics and their interrelation with their closer surroundings.

In the first part of this chapter, we start by drawing a representation of Dubai's UMPs based on literature. We suggest dividing the elements of this representation into two sets.

The first is related to governance aspects and the second is related to morphological aspects. For this exercise we have used several types of sources. First we have reviewed a large number of articles and books that examine UMPs in general. These sources either describe features of UMPs through case studies or through generalized aspects that are related to morphology, content, governance, risks and others. Another type of source is the one that focus on GCC or on Dubai in particular. These latter do not address UMPs directly but do touch on aspects that relate to them in terms of the emirate's economy, governance, architecture and the particular urban growth.

These references range from scholarly articles, books and book chapters to websites and blogs that are focused on either real estate in the GCC or one or more of Dubai's various sectors, such as urban planning or real estate. This literature-based representation valuably highlights the myriad of factors that generate, impact and shape Dubai's UMPs, but the analysis of it remains at the descriptive level at this stage. This will afford us further insights in understanding the status and role of Dubai's UMPs within the city's extension logic and dynamics, through an analytical grid that will be mobilized in the second part of this chapter.

In the second part of this chapter, we base the comparative analysis on our empirical corpus of UMPs. In order to draw an analytical grid for this comparison, we focus on three axes of reflection: the UMPs as governance tools, the UMPs as tools for the city's expansion, and the UMPs as elements of a 'patchwork urban planning'.

For each of these axes, several aspects are examined, based on data extracted from the empirical corpus of 36 megaprojects. These aspects will be further explained and analysed below. A discussion questioning aspects of fragmentation and of 'assemblage' will conclude this part.

In the third part of the chapter, we focus on four case studies of Urban Megaprojects in Dubai, in order to analyse morphological aspects in detail. These aspects include the urban design of the master plan as well as the relation modalities of the project to both its near surrounds and the city-scale.

1 Key components of Dubai UMPs as presented in the literature: drawing a representation

Megaprojects' design, location and general morphology are directly related to a corporate-driven governance that reduces the role of the traditional public authorities and is deeply dependent on international expertise.

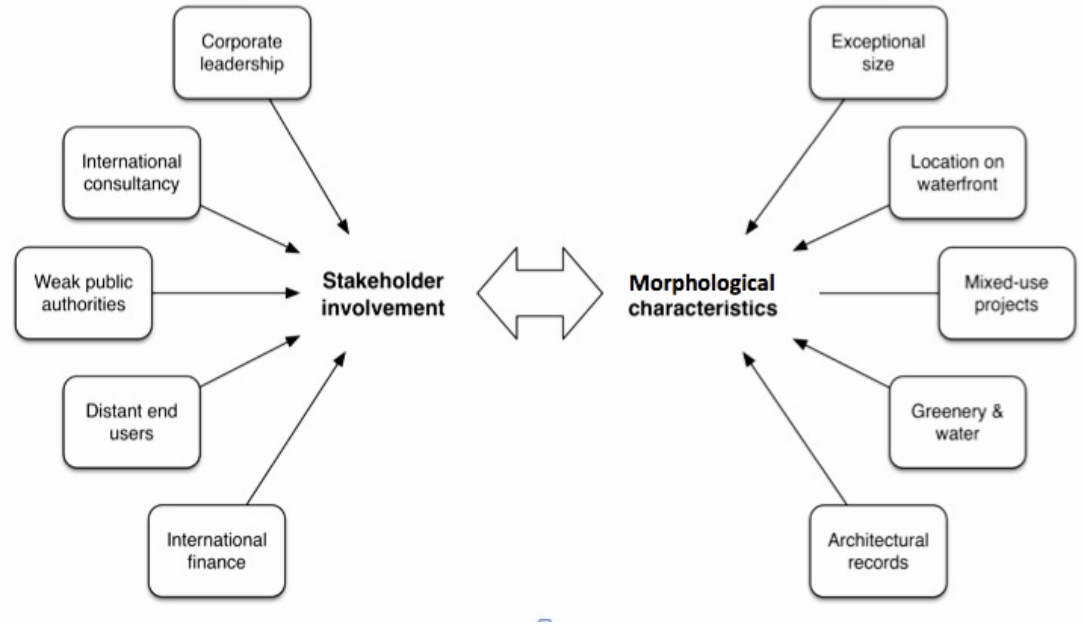

Fig. 2.1 *Representation of Dubai UMPs in the litterature*

Based on the literature on Dubai, and with the aim of reconstructing a representation for Dubai UMPs, we propose two sets of factors that appear closely intertwined (see fig. 2.1): governance through the main stakeholders in urban development; and the morphological characteristics of megaprojects. The aspects included under the governance set are: the corporate leaderships, international consultancy, weak public authorities, distant end users, and international finance. Items properly considered under the morphological set include, we suggest: exceptional size, location (particularly on waterfronts), mixed-use content, greenery and water, and the architectural records. As we have explained in the introduction, these aspects are accorded varying degrees of importance in the literature. For example the role of international consultants is less examined than that of the governor and the major holdings. On the morphological side, records and size are frequently addressed, whereas more detailed aspects such as the presence of greenery and water, or the location within the city, are discussed less often. For the purpose of the suggested literature-based model, we have accorded all these aspects an equal importance. However, in the empirical based second part, some aspects receive more focus than others, according to the level of their contribution to the suggested analytical grid.

1.1 Characterizing megaprojects by their government-related characteristics

Understanding who the actors in an urban megaproject are normally requires *a minima* an identification of the clients (and their representatives) who are initiating and financing it, the main consultants who are designing the project, and the end users who will nominally live and/or work in the project. Most of the elements of the governance-related aspects that are identified in the diagram in figure 2.1 based on the literature have been examined in the previous chapter. Below is a brief presentation detailing each of them.

Corporate leadership: Identifying the main actors goes in parallel with understanding the governance mode in the system. As highlighted in the previous chapter, Dubai is directly ruled by a dominant elite close to the Sheikh (Sampler & Eigner, 2003; Kanna, 2011; Lavergne, 2007; Acuto, 2010; Crot, 2013; Malty & Dillon, 2007). The lack of

democratic institutions is particularly expressed through a "corporate governance" style adopted by the Sheikh. Accordingly, development is most often organized under the direct authority of the State, trusted to so-called "parastatal organizations".

International Consultancy: In the literature on Dubai, some references have mentioned the particular expertise-related aspect of Dubai's UMPs where there is a great need for international consultants (such as Elsheshtawy, 2013). Some researchers highlight the preeminent role of international consultants in the city's development (Davis, 2007). 'In Dubai, the emirs think and the occidental enterprises implement' (Lavergne, 2007). This role goes even beyond the traditional advisory role of a parliament, since in Dubai, '*when advice is solicited, it generally comes, not from the powerless parliament but from western consulting firms*' (Brook, 2013, p. 372).

Weak public authorities: The weakness of public bodies involved in the regulation of these megaprojects is another key dimension of Dubai. '*While Dubai Municipality is nominally in charge of coordination, developments are many times given the go-ahead, and approval is obtained after the fact, and then incorporated into the structural plan'* (Elsheshtawy, 2013, p. 122). In fact this weakness at the level of public authorities broadly reflects a loose regulatory framework, especially with regard to the widespread presence of free zones that constitute places with their own special laws and regulations outside administrative control (Dumortier, 2007).

Distant end-users: Concerning the end users, researchers usually consider that neither the autochthonous population of the city nor its international immigrants play a role in the development process (Lavergne, 2007). The projects are indeed designed for a virtual potential population whose notional needs and way of life are defined by the developer (Bagaeen, 2007). Dubai's megaprojects tend to promote and sell new ways of living: '*Dubai relies, for its growth, on its ability, not so much to respond to real needs, but to arouse constantly new demands and new needs in an emerging market that comes from regional economies*' (Lavergne, 2007).

International finance: As shown in the previous chapter, the literature highlights the significant relationship between real estate in Dubai and the financial sector (Malty & Dillon, 2007; Hertog, 2007; Ramos, 2010). The capital that is mobilized in real estate is also invested in other economic activities in various sectors, including finance, communication, ports and aviation. Moreover, these various large investments, that

encompass UMPs and other sectors, exceed Dubai's boundaries leading to what Roy (2011) calls an important 'circulatory capacity' of Dubai that exists beyond the city's landscape, reaching several countries in the surrounding region, also involving partnerships with neighbouring governments.

1.2 Characterizing megaprojects by their morphological aspects

Beyond the governance dimensions, charting these representations of Dubai's UMPs leads to an examination of the main characteristics of projects in terms of size, content, elements of urban design and location, as these are described in the literature.

Exceptional size: Even if complexity – in terms of the number of actors or the level of technology – is a distinguishing feature of most megaprojects, their overall size obviously remains a criterion that is commonly referred to in order to characterize them (Altshuler & Luberoff, 2003). However, the scientific literature offers no threshold definition to distinguish "usual" urban projects from megaprojects. Cusset (2007) describes Dubai's UMPs as 'pharaonic', while other authors reach for comparison with other worldwide cities and projects, describing Dubailand as twice the size of Disneyland (Davis, 2007), or Dubai World Center as exceeding the area of Atlanta by 50% (Samarai & Qudah, 2007).

Furthermore, there are a number of ways to formalize the size of a project: it may be expressed in terms of gross land area, floor square area, number of inhabitants/jobs or, more basically, in terms of project cost. In Dubai, the size of some spectacular megaprojects has been defined by the number of workers (40,000 in the case of Jumeirah Island), or the volume of moved sand (one billion cubic feet for the island The World). In the case of Jumeirah Palm, the size of the megaproject has even been advertised through the fact that the island would be 'visible from outer space' (Elsheshtawy, 2004, p.170).

Mixed-use content: As regard to their program, most contemporary UMPs are defined as 'mixed-use' developments (Lehrer & Laidley, 2008). In Dubai, the UMPs include hotels, malls, tourism and leisure functions (Acuto, 2010), a response to 'demand-oriented planning' (Bagaeen, 2007, p.175) that seeks to provide comfort zones for all (Acuto, 2010). A further characteristic of Dubai projects is their quest for theming, or 'narrative' as per Andraos & Wood (2013), who consider that theming is the 'substitute

for public space and programming', the element that generates an immediate, global, mass-consumable meaning. Elshewtawy (2013) proposes a classification of Dubai megaprojects according to four themes: Information Technology and media, Mixed-use real estate communities, Financial centers and Office/Hotel Complex.

Apart from their mixed-use, Dubai UMPs are considered as disconnected from their context since all necessary amenities are provided within each project. This has led, as per some authors (Ramos & Raw, 2013; Andraos & Wood, 2013; Cusset, 2011), to a mosaic where the desert is divided into pieces of land connected by infrastructure.

Architectural Records: Besides these aspects, the architecture of records is considered as one of the main characteristics of Dubai megaprojects. "*The different projects in Dubai compete for superlatives, and thus for attention – the unifying principle seems to be 'Bigger! Faster! Higher!'*" (Schmid, 2009). This directly concerns architecture and especially the presence of high-rise buildings like the Burj Kalifa Tower (the tallest building in the world with its 827 meters), but also the size of artificial islands or water bodies included in some megaprojects. This architecture of records denotes the determination of local authorities and developers to shine in a worldwide race to gigantism (Davis, 2007; Roy, 2011). From another perspective, Acuto (2010) considers that these 'firsts' are not a caprice; they denote dynamism and a commitment to progress, where symbolism is crucial. Many authors consider that records are not ends in themselves, but a sign of power, a tool in creating a symbolic image of the city in order to reach its uniqueness (Davis, 2007; Elsheshtawy, 2004).

Location on waterfront: Location is a significant aspect in understanding Dubai's megaprojects. Sager (2011) considers that waterfront developments are one of the typical elements of the products of neo-liberal urban planning politics. Elsheshtawy (2013) points out that Dubai has a short coastline, a significant limitation to attracting tourists. Dubai's natural coastline is mainly occupied by industrial ports and residential areas, and this is what has led a push to create coastlines and waterfronts through artificial islands.

Greenery and water: The nature of open spaces constitutes another key characteristic of Dubai's UMPs. In a desert context, green and water elements are a form of ostentation, denoting a combination of political endeavor and economic power. These elements basically reflect the quest for that which is lacking in an arid climate. Green and water

are also symbolic elements of a luxurious way of life. The water theme is equivalent to '*becoming modern and advanced*' (Elshewtawy, 2013, p.166). Jensen (2013) has noted the "green enclave" quality of some golf course themed UMPs in Dubai. Picon-Lefevre (2013) has examined the presence of water in Dubai. She considers that the passion/obsession to relate water to architecture may be seen in most port and seaside cities, but Dubai is taking that to the extreme, where water becomes a synonym for pleasure, beauty and endless summer. Moreover, she proposes a typology of four categories of 'water presence' in Dubai, two of which apply to UMPs: the picturesque, as per the fantasy islands and canals, and the urban port type of relation.

As concluding remarks that can be drawn regarding the Dubai literature-based model, we can note that most of the references on Dubai focus on governance as a main characteristic, and on the political and economic angles. Rare are the authors who offer an architect- or urban planning-related profile. Aspects related to international finance are mainly examined from a financial angle.

Morphological aspects are examined by authors from different disciplines, though among them architecture-related profiles are dominant. It can be noted that addressing Dubai's UMP-related aspects remains at a descriptive level (excluding the comparative analysis between Dubai and Las Vegas based on the theoretical framework of 'Fascination Economy', or Elsheshtawy's socio-political approach). This is why we argue that understanding Dubai's UMPs requires an integrated approach that compares and relates the various aspects that contribute to the implementation of UMPs.

This leads us, in the coming section, to adopt an empirical approach, based on examining the 36 cases of megaprojects in Dubai. The analytical grid will rotate around three interrelated axes that help in understanding the overall image of UMPs: the city's expansion through UMPs, the city's governance through UMPs, and the UMPs' connection to the city through 'patchwork' urban planning.

2 Analysing Dubai Urban Megaprojects based on an empirical approach

As mentioned earlier in the introduction, we consider that the existing literature on Dubai megaprojects does not sufficiently account for this phenomenon, since it mobilizes only isolated approaches that are not adequate or sufficient to uncover the complexity that lies behind. In this part – and after we have drawn a model of Dubai's UMPs that is based on the literature, and that has shown the limitation of a descriptive approach, and the absence of a holistic understanding of the latter – we propose an empirical approach that is based on a set of investigated and analysed UMPs in Dubai, and an analytical grid. This analytical grid aims at including and structuring the interrelations between the most representative aspects of UMPs in Dubai and their status within the city from a structural (in relation to the city), morphological and political point of view, while offering a base to analyse the relevant characteristics of the Dubai UMPs that were assembled in our corpus.

Figure 2.2 shows the footprints and names of the 36 megaprojects. This map is produced through a combination of project masterplans and aerial views. The selection of these 36 UMPs is a reflection of several factors:

Availability of complete data concerning the master developer and his status (private or public), the contents, start and completion dates, the consultant's name, cost and built area. As mentioned before, this data was extracted from several sources including specialised journals, websites and blogs, interviews with urban professionals and site visits.

The status of the project: several of the UMPs in Dubai that have attracted media attention are still at the planning stage. A large number have been found to be non-feasible, while others were cancelled after the 2008 economic crisis. The selection of 36 megaprojects took this aspect into consideration, and we opted for completely built projects or on-going ones.

An important aspect in the selection of the 36 megaprojects is the size: indeed, even the size in defining megaprojects is a major aspect, we could not refer to it as a criteria. The UMPs' sizes vary enormously. For example Dubai Lifestyle City, one of the smallest of the megaprojects selected, covers a surface area of 60 ha, and includes

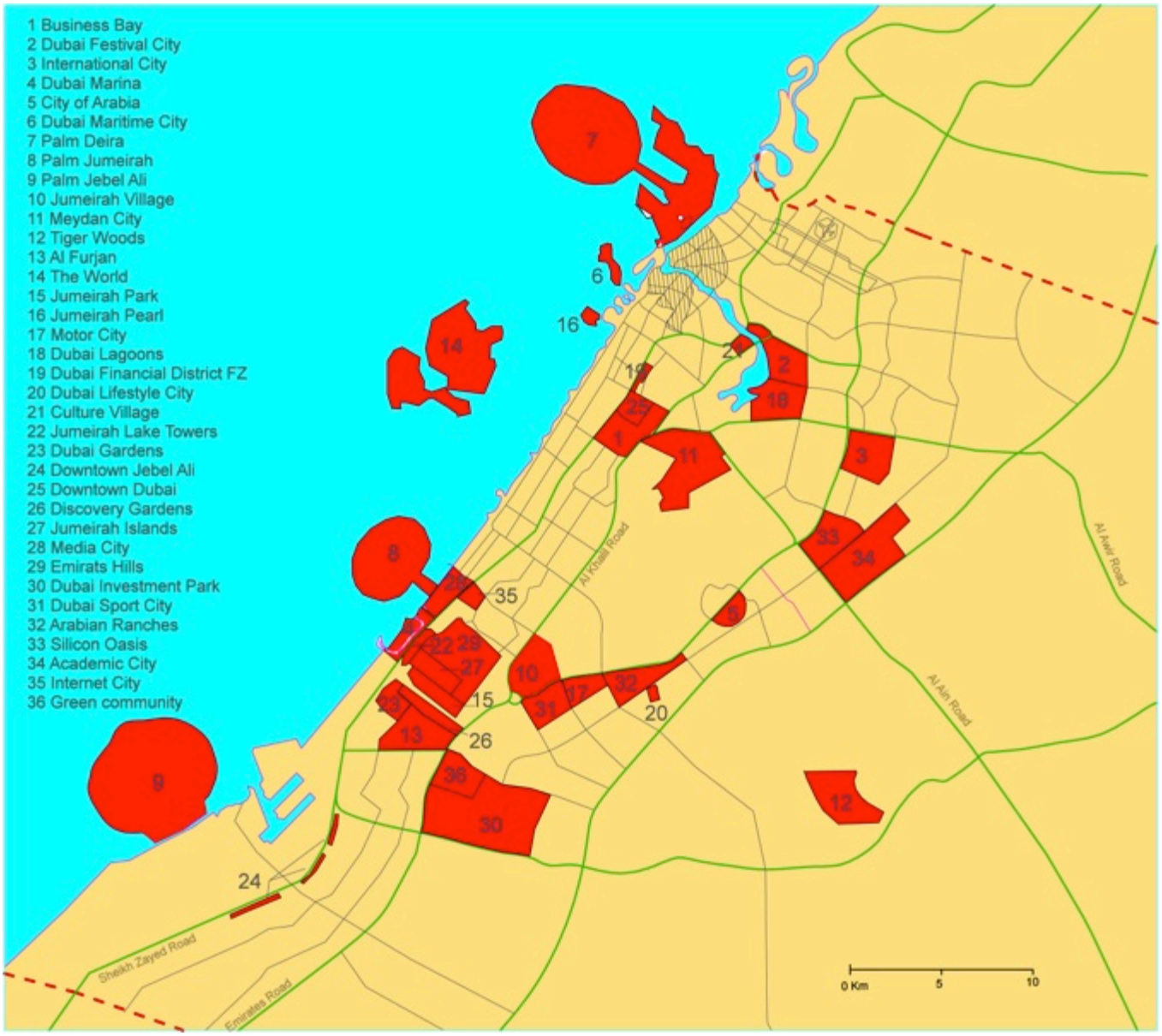

Fig 2.2: The locations and names of the 36 surveyed megaprojects in Dubai

hotels, residences, a golf course, sports facilities, restaurants and various recreational facilities (see fig. 2.3). However, compared to the largest UMP selected, Deira Palm, with its 1500 ha (25 times the size of Lifestyle City), the status of Dubai Lifestyle City as a megaproject could be questioned. Therefore, we do not consider a certain threshold or a minimum in selecting our database.

It is to be noted that we could not obtain plans or maps from either the consultants or Dubai Municipality. The consultants were reluctant to provide plans, considering this to be problematic because of the status of plans and other project documents as the

master developer's property. In Dubai Municipality, a complicated administrative procedure needs to be followed in order to obtain any kind of document or plan. But in

Fig 2.3: Dubai Lifestyle City's Masterplan (60 ha), showing residences, hotels, a golf course, sports equipment and various entertainment functions (Source: www.2daydubai.com)

any event, few documents are published by Dubai Municipality, such as the complete document of Dubai Vision 2020.

Drawing the boundaries of the selected 36 megaprojects was easily done through examining the aerial view on Google Earth, since each project presents a clear and isolated pattern. Master plans each constitute an independent composition that is different from its surroundings, thus facilitating the identification of projects (see fig. 2.4). Identifying the masterplans was basically done through following the projects' websites, since all these projects have their websites that provide maps, figures and other information.

During the site visits that took place in October 2012 and October 2013, for a duration of one month each, we were able to visit the majority of these megaprojects. Some could not be visited as they are not easily accessible, such as The World Islands (accessible by boat, but not to the public), Jebel Ali Palm and Deira Palm (under construction), Emirates Hills and Jumeirah Islands (private communities). For the remaining projects, visits to some were undertaken by car, mainly those located in the inland. The scale of the project and the high temperature made walking in these projects a difficult task. As for the megaprojects that are located along the main axis of Sheikh Zayed Road, and served by the metro line, these were easily accessible. The ones that offer commercial and public spaces, such as Dubai Marina, Jumeirah Lake Towers and Jumeirah Beach Residence, and at the same time connected directly to a metro line through metro stations, provided easy access for us to walk, take photos and examine and explore the various parts at leisure. Another opportunity came with the visit to an upper floor of Burj Khalifa, providing a view over large parts of Dubai, and in particular of the Business Bay projects located under that tower.

Fig 2.4: The megaprojects in Dubai, each with its specific urban composition, making the identification of projects' boundaries an easy task (Source: Google Earth)

The first axis that we address is the role of UMPs within the political structure of the city (see fig. 2.5). We consider that UMPs play an important role in the centralised governance around the Sheikh.

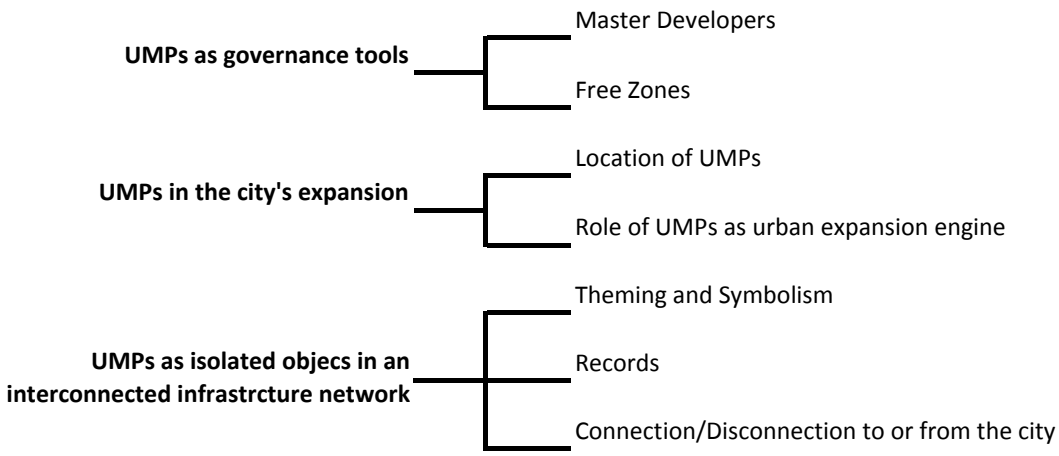

Fig 2.5: The three axes addressed in section 2 and their respective relevant analysed aspects

Indeed, UMPs in Dubai constitute a tool through which the city is governed and the shares among major stakeholders are allocated. Since the political dimension is a main dimension in understanding Urban Megaprojects, the two proposed elements within this axis are the Master developers of the UMPs and the identification of the free zones where a number of UMPs are built. We aim through these aspects to examine the respective roles of the governmental institutions, the parastatal developers and the private sector. Analysing the status of free zones aims at highlighting and understanding the co-presence on the same territory of different stakeholders and differentiated regulatory frameworks.

The second axis that addresses the status of UMPs within the city's urban expansion will be examined and analysed through two aspects: the location of UMPs within the city structure, and the role of UMPs as engines for urban expansion. Through analysing these two characteristics, we aim to examine to what extent the role of these UMPs are primordial in the city development, expansion and dynamics.

The third axis examines UMPs as isolated objects within an integrated network of infrastructure. Through analysing the theming of the UMPs, the records set by them, and

the isolation/connection aspects that disconnect or connect the projects from or to the city, we highlight fragmentation-related characteristics relative to other aspects that show attempts to connect to the city through various networks. The elements of theming and records are proposed for use in examining the commodification logic that predominates in this type of development that is based on UMPs. Through this part of the analysis, the potential of urban spaces through sectorization[18] of functions and themes (Mangin, 2004) will be examined.

2.1 The master developers

Our survey highlights the crucial role of parastatal holdings in Dubai UMPs, as a total of 27 out of 36 projects are developed by holdings like Emaar, Nakheel and Dubai Properties (See table 2.1).

Developers		Nb of projects
Parastatal	Nakheel	12
	Emaar	5
	Dubai Properties	3
	Tecom	2
	Union Properties	1
	Meeras	1
	Dubai Holding	1
	Dubai Investment Group	2
Institutional	Dubai Government	4
Private	Al Futaim Group	1
	Galadari Group	1
	Meydan Group	1
	Tigger Woods	1
	Eta Star	1
Total		36

Table 2.1. The developers of Dubai UMPs

[18] This is a concept that considers that, in a fragmented context, various urban spaces search for status and meaning through differentiation and competition in function, themes and records. It will be detailed in the third part of this chapter.

Fig 2.6: Nakheel islands projects: The three Palms (built or on-going), the Universe and the Waterfront (Still at the plan level). (Source: www.2daydubai.com)

Quite significantly, 12 projects are developed by Nakheel alone (see fig. 2.6). This company specializes in megaprojects like the Palms artificial islands and the 'World Islands'. Founded in 2000 as a subsidiary of Dubai World, Nakheel is known for its spectacular land reclamation projects: the three Palms, the World Islands, the Universe Islands and the waterfront (the last two projects are in the planning phase and were not included in our corpus). Nakheel in Arabic means 'palms', and the name was chosen because it was founded at the first place where the palm tree islands were built. Nakheel is also known through other residential projects such as the International City, the Gardens and Jumeirah Islands. After the 2008 crisis, Nakheel went through a debt crisis, and after significant restructuring it changed from parastatal to government owned in 2011. In 2014, Nakheel was still repaying its debts to banks. There have been many controversies about the negative impact of these reclaimed land islands. The costs of these islands are also a subject of controversy. Several blogs and online forums claim that Nakheel, in order to rebalance its under-estimated costs of the islands' construction, has increased the buildings' density.

Also under Dubai World, DMC (Dubai Maritime City) is another artificial island dedicated to maritime activities and ports. Limitless is a real estate company that is developing Down Town Jebel Ali megaproject, also a member of Dubai World. The total number of UMPs under the umbrella of Dubai World is 14 of the 36.

Dubai World is a giant holding that was created in 2006 by decree of Sheikh Ahmad Al Maktoum, ruler of Dubai, who is reputed to hold the majority stake (based on

interviews). Headed by Sheikh Ahmad bin Saeed Al Maktoum, the uncle of Sheikh Mohamad, Dubai World invests in different sectors, including areas of transport and logistics, dry docks and maritime, urban development, investment and financial services (www.dubaiworld.ae). It has investments in the United States, the United Kingdom and in South Africa. In addition to Nakheel and the other above-mentioned companies that invest in real estate, Dubai World contains a number of international companies such as DP World (Dubai Ports World) and Drydocks World. DP World has more than 65 marine terminals in the six continents (in 2015) (www.dpworld.com).

The other giant holding, Dubai Holding, that is responsible (through Dubailand, Dubai Investment, TECOM and Dubai Properties) for 6 megaprojects of the 36, is also a global investment company. It has investments in financial services, real estate, specialised business parks, telecommunications and hospitality. Sheikh Mohamad holds the majority of Dubai Holding (based on interviews).

Emaar is also a major developer in Dubai (see table 2.1). While Nakheel only operates in Dubai, Emaar has developed projects worldwide, focusing exclusively on real estate. A public joint-stock company, Emaar has developed mainly downtown Dubai projects – with Burj Khalia as landmark, Emirates Hills, and Dubai Marina, one of the largest megaprojects in Dubai containing more than 200 towers.

Private developers are developing 5 out of the 36 megaprojects. This is an indication that "pure" private developers are active in Dubai development, even though it is far from being the dominant model.

Fig 2.7: Dubai parastatal developers

These numbers unveil that in Dubai, it's not about a neo-liberal market where the government encourages the private sector, or plays a role of a main partner. In Dubai, the governor who is the major investor and partner is incontestably the first player in shaping the city. He implements his policy and vision indirectly through a large number of key developers. Being able to trace back the real owners of the companies, we have identified a limited number of large holdings that invest in several sectors including real estate. It can be argued, that these holdings are not only shaping the urban form of the city but more than that they are shaping its economy as well.

2.2 The Free zones

Based on the survey, seven megaprojects are located in free zones. Two of these projects are considered as government-owned. Dubai International Financial Center is a financial zone, with a specific regulation, conceived as a platform for business and financial institutions at a regional level. Silicon Oasis is a free trade zone with residential and commercial activities.

Even when government owned, specific authorities usually regulate most developments in Dubai, which thereby fall outside the scope of administrative agencies. Free zone authorities play an important role that goes beyond their institutional limits. Developers that are subsidiaries of a main holding can refer to an authority of a free zone within the same holding. Business Bay constitutes a good example of this situation. The project is developed by Dubai Properties, a subsidiary of Dubai Holding; and it is controlled by TECOM, another subsidiary of the same holding. Dubai Municipality appears to be the weakest actor in this system. It can, at best, try to put in place a holistic vision for the city through a seemingly 'after the fact' master plan, which does nothing more than compile the various agendas of developers.

The 2008 crisis had an important impact on this system by forcing the cancellation, downscaling and modifying of many projects. Some developers no longer exist (Tatweer, Sama Dubai); major holdings were restructured, while a majority of international consultancy firms have downsized their Dubai offices. This helped to boost the role of the municipality in the regulation of urban projects. Dubai Municipality upgraded its procedures for more efficiency and simplicity. 'Our aim is to encourage

developers, not block their projects' said an urban planner in Dubai Municipality. Since 2008 all developments are again controlled and reviewed by the municipality, even though free zones still have their own planning rules.

Figure 2.8: Business Bay is a megaproject under construction in Dubai. Above: model (Source: www.2daydubai.ae, accessed on 10 February 2015). Below: View of Business bay from Burj Khalifa (2013). (Source: Oula Aoun)

Figure 2.9: Silicon Oasis is a megaproject of a free zone that is still under construction. (Source: www.globalgate.ae)

Figure 2.10: Dubai Financial District is a federal free zone. (www.2daydubai.ae)

As concluding observations for this part, we consider that analysing the political dimension that runs through Dubai's UMPs, and more particularly the way the power and the land are distributed between main developers closely related to the government and to the Sheikh, helps in understanding the status of UMPs within this political structure.

Distribution of land to main developers by the Sheikh in order to implement UMPs is a way by which the Sheikh confers power on the master urban actors and exercises control over various city parts. We can notice for example the symbolic power accorded to Nakheel through the multitude of impressive artificial islands. Emaar, while not associated with development of artificial islands, has its name related to the Burj Khalifa, the world's highest tower, and to Dubai Marina, considered as one of the landmarks of Dubai.

The conclusion here is not that master developers each have their own place in the city to invest in. On the contrary, we can notice another logic in the way the megaprojects are distributed through developers, one that consists of distributing shares of lands within the same area, particularly in sites with high potential. In the case of Jumeirah sector, we notice that all the above-mentioned developers have developed megaprojects there, within one agglomeration of projects. The same situation is apparent around the creek, where at least three developers are developing megaprojects next to each other.

The multitude of free zones, and more particularly of UMPs developed as free zones, characterized by their own legal regulatory framework, is also expressive of the existence of fragmented areas of power. However, through these differentiated urban logics, UMPs seem to play the role of tool by which the city is managed, the means by which the Sheikh is establishing the territory of the different players in a context where the overlapping of prerogatives and authorities may frequently occur.

2.3 The location of Megaprojects

Location is a significant aspect in understanding Dubai's megaprojects. Sager (2011) considers that waterfront developments, for example, are one of the typical products of neo-liberal urban planning politics. Dubai has a limited coastline, a significant challenge

in attracting tourists. In fact, Dubai's natural coastline is mainly occupied by industrial ports and residential areas. This is what drove the creation of new coastlines and waterfronts through artificial islands.

Indeed, Dubai now has urbanized areas on both land and sea. Of the 397800 ha constituting the total area of the emirate, existing urban fabric and projects under construction constitute only 20%. Another 20% comprises land committed for urbanization by 2008. The sea territory located within 12 nautical miles covers 145000 ha. From this area, 23% was reclaimed and dredged for offshore artificial islands (Dubai Municipality, 2012). As of 2014, these islands were partially developed.

Dubai is divided into three territorial areas; the offshore islands, the urban area and the desert area (see fig. 2.11). As for the existing land use structure, the desert area includes a few 'non-urban settlements' and a conservation zone, while the majority of the area is not built. The urban area includes residential, mixed, commercial and various uses. The industries and the surfaces allocated to airports and seaports constitute a significant part of this area. Free zones are also located here[19]. The offshore built area comprises (as of 2015) the artificial islands.

In terms of locality, the artificial palm islands and the world islands are undoubtedly the most visible and mediatized megaprojects. Palm Jebel Ali and Palm Jumeirah are already built. The third and biggest Palm, Palm Deira, has been put on hold with only minor parts as yet reclaimed, even after being largely downscaled after 2008. Two other megaprojects, Dubai Maritime City and Jumeirah Pearl, are also artificial islands, though on a less spectacular scale than the Palms; together with the three Palms and the World Islands they constitute a total of six artificial islands out of the 36 megaprojects. This still leaves 30 megaprojects in relatively less spectacular locations.

[19] There are more than 20 Free Zones operating in Dubai (Dubai Municipality, 2012). The main free zones are: Dubai Airport Free Zone, Dubai Cars and Automotive Zone (DUCAMZ) also known as Dubai Auto Zone, Dubai Healthcare City, Dubai International Academic City, Dubai Internet City, Dubai International Financial Centre, Dubai Knowledge Village, Dubai Media City, Dubai Gold and Diamond Park, Dubai Multi Commodities Centre (DMCC), Dubai Silicon Oasis (DSO), International Media Production Zone, Jebel Ali Free Zone, JLT Free Zone and Dubai World Central (DWC) Business Park.

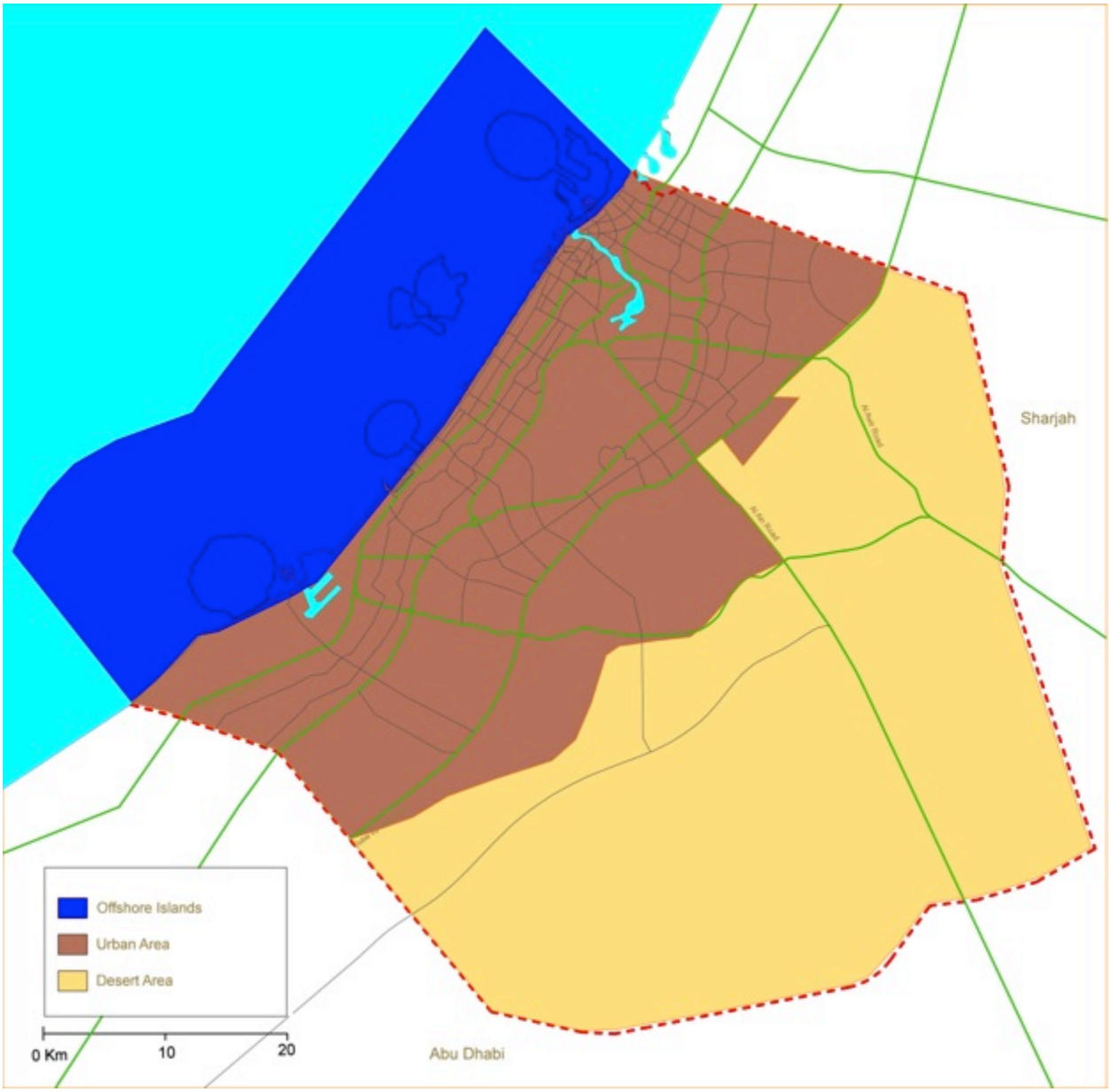

Fig 2.11: Dubai emirate as divided in Dubai Municipality report Dubai 2020: the desert area, the urban area and the offshore area (Dubai 2020 Master plan)

Location of Megaprojects	Nb
Inland	15
Along Sheikh Zayed Road	11
Artificial Islands	6
Natural waterfronts nearby the creek	4
Total	**36**

Table 2.2: Location of megaprojects' in Dubai

Some 15 megaprojects from our survey are located nearby the creek and along Sheikh Zayed Road. This location benefits from access to major services, axis and metro line, and it is related to a symbolic dimension. Being closer to the coast and/or the creek, these megaprojects often have important areas of greenery and water bodies, an aspect that is lacking in the remaining inland megaprojects, located along secondary road axes inside the desert.

2.4 The role of UMPs as expansion engine

'Dubai Emirate has committed vast areas for developing mega urban projects (or cities within a city). Some megaprojects are planned to house over one million inhabitants. The carrying capacity of these megaprojects (as committed before the global economic downturn in 2008) if completed and fully occupied may reach over 9 million inhabitants.

The anticipated implementation and completion periods of such projects are not definable at present. Some projects were achieved, but after 2008 the development of several megaprojects was already placed on hold, or deferred (Dubai Municipality, 2012).

It is unlikely that many of these projects will proceed in the form in which they were designed, given that they have been prepared within a different market context to the one prevailing post-2010 (ibid). In 2012, the on-going megaprojects that were not modified or put on hold have a population capacity of 1.4 million residents.

The artificial islands, more than simply contributing to the Emirate's urban extension, are at the core of building the new identity of the city. Megaprojects around the creek have a symbolic dimension, and from a morphological point of view they fulfill a densification role within the existing concentric old urban fabric around Dubai's creek. The megaprojects along Sheikh Zayed Road contribute to the 'modern' and high tech image of the city, linking in a linear way, from a morphological point of view, the old Dubai to the Jebel Ali zone along the route to Abu Dhabi. The megaprojects that are built inland are less integrated within the existing fabric, and contribute to the scattered and uncontrolled aspect that the city has.

Comparing the UMP location map with the map of city extension phases reveals much about the primordial role of the UMPs in the logic of city extension. Indeed, figure 2.12 shows an overlapping between Dubai's different extension phases and the location of UMPs. It shows that the UMPs are at the core of these extensions. They are to develop through agglomerations of megaprojects each constituting a significant area in the context of the total city area.

The aspects related to the location and status of the UMPs within the city, and their role within the broader extension logic have shown, especially through the map overlapping the locations and the extension phases, that UMPs are not particular and unique extravagant projects. They constitute the catalyst and the engine around which the city is growing and extending. Indeed, the strategic governmental plans have always planned and established future development and extension zones in which UMPs are systematically the first catalyst.

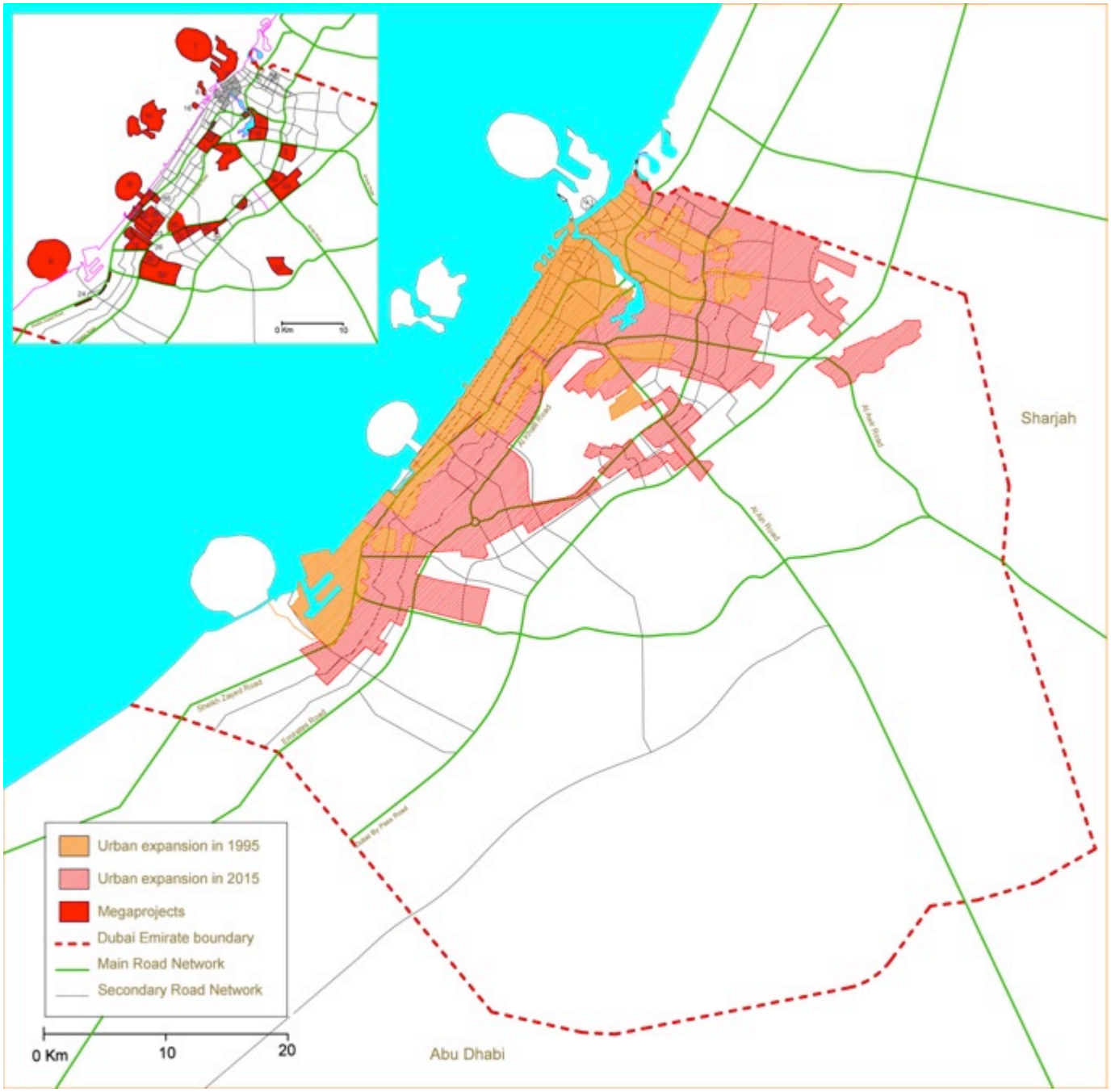

Fig 2.12: Dubai expansion phases, compared to megaprojects location: the overlapping shows the status of UMPs as levers in the city's expansion. (Source: Oula Aoun. Expansion in 1995 is based on Schmid, 2009; expansion in 2015 is based on Google Earth)

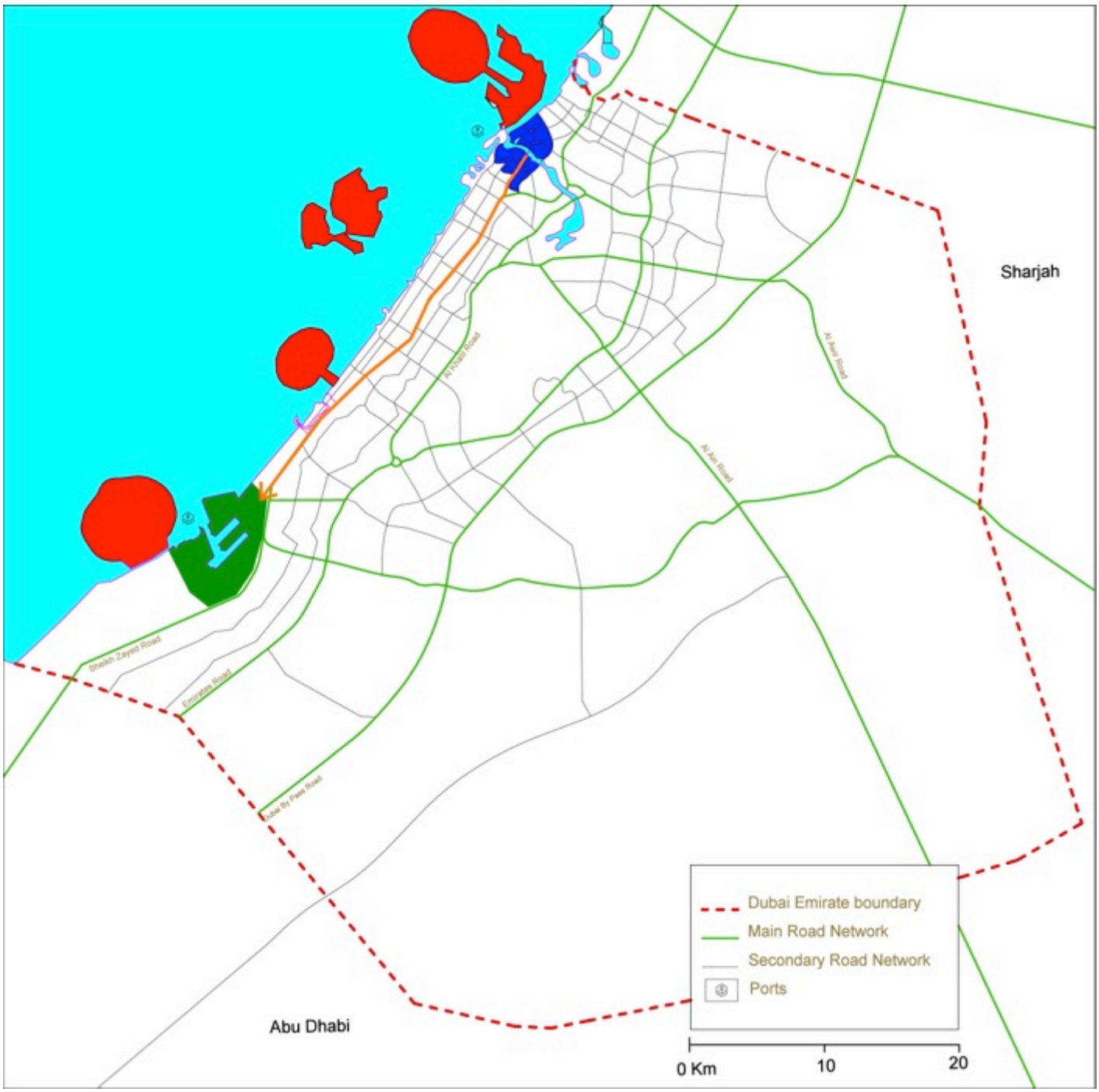

Fig 2.13: In red: The reclaimed land islands, The world Islands, Palm Jebel Ali, Palm Jumeirah and the under construction Palm Deira. In Green: the Jebel Ali port and free zone. In blue: the old center. The orange line shows the main axis of the city's expansion, linking the old center to Jebel Ali free zone.

2.5 Theming and Symbolism

Dubai megaprojects can be classified into six main categories (Table 2.3). Obviously there are important overlaps between these categories. While sports equipment and/ or golf courses are classified in the sport themed category, residential functions are equally present in these projects.

Through detailing the components of each UMP, table 2.3 reveals two main findings:

The mixed-use category – where projects include a variety of functions ranging from residential to offices, leisure and commercial – covers 13 of the 36 megaprojects. It constitutes the largest category of the six. However, while the literature proposes a generalized definition of Dubai's UMPs as integrated cities–within-a-city where all amenities are provided, our detailed examination of components shows that this definition cannot be generalized.

The literature often describes Dubai's projects as gated communities; while our survey confirms this aspect only for the purely residential category and, to a lesser degree, the sports themed category, together constituting a total of 16 out of the 36 megaprojects.

This leaves a majority of megaprojects, that include the commercial, offices and leisure activities, which cannot be considered as gated communities.

As for the symbolism, we focus on analysing the emphasis on water and greenery presence within the majority of megaprojects, as a symbol of modernity and luxury context, especially in a desert climate where these elements are scarce. The analysis of the treatment of open spaces has shown that 29 of the 36 megaprojects have water elements, while all the projects have green elements. These elements vary in terms of role and area within each project. Water bodies are classified as waterfront, canals or ponds, while green elements range from golf courses to linear plantations (see table 2.4).

Table 2.3: The distribution of uses in surveyed megaprojects

Category	Sub-Categories	Examples of megaprojects	Residential	Commercial	Golf Course	Offices	Hotels	Entertainment	Sport	Media/Info technology	Campus	Industrial	Culture
Residential (11)	Residential	The World - Dubai Gardens - Jumeirah Islands - Discovery Gardens	●										
	Residential / Commercial	International City- Jumeirah Village- Al Furjan- Jumeirah Park- Green Community	●	●									
	Residential / Golfe Course	Arabian Ranches - Emirates Hills	●		●								
Mixed-use (13)	Mixed - use	Business Bay- The Palms- Downtown Jebel Ali- Downtown Dubai- Jumeirah Beach Residences- The Lagoons- Jumeirah Pearl- JLT	●	●		●	●						
	Mixed-use/ Residential	Dubai Marina	●	●			●	●					
	Mixed-use / Entertainment	Dubai Festival City	●	●	●	●	●	●					
Sport (5)	Sport / Residential	Lifestyle City	●						●				
	Sport / Mixed-use	Motor City	●			●			●				
	Golf Course / Residential	Tiger Woods	●		●								
	Sport / Golf Course / Residential	Dubai Sports City - Meydan City	●		●				●				
Media / Technology (4)	Media / Mixed	Media City				●				●			
	Industrial / Mixed	Dubai Investment Park	●			●						●	
	Industrial / Campus	Dubai Maritime City				●					●	●	
	Information technology	Silicon Oasis	●							●			
Education/ Culture (2)	Campus	Dubai International Academic City									●		
	Culture / Mixed-use	Culture Village	●	●		●							●
Finance (1)	Finance	Dubai International Financial District		●		●	●						

	Water bodies				Green surfaces			
Project	Natural Waterfront	Artificial Islands	Artificial Canals	Lakes and Ponds	Golf Course	Residential Gardens	Smal-scale landscaped areas	Linear plantations
Green community village				X		X		
Dubai Financial District FZ				X			x	
Dubai lifestyle city				X		X		
Culture Village	X			X			X	X
Jumeirah Pearl		X		X		X		X
Jumeirah lake towers FZ				X		X		X
Dubai Gardens						X		
Downtown Jebel Ali								X
Downtown Dubai				X			X	X
Discovery Gardens						X		
Jumeirah Beach Residence							X	
Dubai Media City FZ				X			X	
City of Arabia			X				X	
Dubai Maritime City (DMC)							X	X
Jumeirah Islands		X				X		
Motor city				X		X		
Dubai Festival City	X			X	X		X	X
Tiger woods Dubai Dev.				X	X	X		
Meydan City				X	X	X		
Jumeirah Park						X		X
Dubai marina			X				X	X
Dubai Sports City				X	X			
Jumairah Village				X		X		
Al Furjan Dev.						X		
Palm Jumeirah		X				X	X	
Arabian Ranches				X	X	X		
Business Bay			X				X	
Dubai Lagoons	X		X				X	
Silicon Oasis FZ						X	X	
International City				X		X	X	
Palm Jebel Ali		X				X	X	
The World		X				X		
Emirats Hills				X	X			
Dubai Int. Academic City FZ								X
Palm Deira		X				X	X	
Dubai Investment Park							X	X

Table 2.4 Water and green bodies in Dubai's UMPs

Our findings confirm an aspect, only vaguely mentioned in the literature, that is present in the integration of water and green in a systematic way within almost all Dubai's UMPs. Water and greenery are also present symbolically in the projects' name. Symbolism related to water is reflected in project names like 'Bay', 'Marina', 'Lagoons' and 'Islands', while the greenery symbolism is reflected in titles like 'Palms', 'Gardens' and 'The Green'. Such symbolic features can even determine the overall shape of projects, as in the case of Palm Islands.

Fourteen of the 36 megaprojects have water elements as major component: lakes, bays, lagoons, marinas etc. This may reflect a desire for luxury in a desert context, but the relative easy digging process, due to soil nature and a water table close to the surface, can also explain this tendency. Many of the consultants we interviewed during our site work consider that people are naturally attracted by water. It would hence constitute an 'added-value' to these projects, even though it can be argued that designing with water is not suitable in a hot and desert context for a series of reasons (costs, humidity, thermal comfort etc.). Most projects include greenery in their open spaces. These can consist of gardens and golf courses. While more adapted to the climate than water bodies, greenery is considered as less luxurious and only related to residential and sports projects.

We consider that in the context of competition among megaprojects with relatively similar content, theming is a major element that provides megaprojects with specialised aspects, in line with the commodification logic which forces each project to strive for visibility.

Therefore, through the commodification logic that was examined through symbolism and theming, the analysis of the corpus has shown that Dubai's UMPs represent what Mangin (2004) described as the sectorization of urban spaces that aims at maximizing the potential of land commodification through a multitude of functions and theming. We consider, as per Mangin, that this sectorization in Dubai, beyond the chaotic image, is what helps the city in holding its different parts together.

2.6 Records

Dubai megaprojects are known for international records. This 'race to gigantism' can clearly be observed in the Palm artificial islands, the biggest artificial islands in the world. Dubai Marina claims to host the largest man-made marina in the world and the tallest residential tower (the Princess tower). The Downtown Dubai project is associated with Burj Khalifa, the tallest building worldwide (827 meters high). Dubai is also known for its 'biggest commercial mall' worldwide, the 'biggest indoor ski track' etc.

Almost all UMPs are characterized by ambitious features like artificial lagoons, canals and oases or by being 'first of its kind', as Media City and Maritime City were.

2.7 Connection/Disconnection to or from the city

What we have analysed in sections 2.5 and 2.6 shows that Dubai UMPs are meant to act as self-sufficient entities, each with its symbolic power and its image, competing with – without complementing – other neighboring projects. Dubai 2020 vision considers that UMP-based urban expansion is contributing to a fragmentation of the city.

While recognizing that '[a] large metropolis may generate vibrant and diverse life and activities, but also could generate complex environments and put greater adverse pressure on infrastructure, social order, pollution, heat islands, etc…', the Dubai 2020 Urban Masterplan considers that its major urgent prioritie is to facilitate flexible, compatible, sustainable and smart urban planning. The main challenges that it highlights are related to fragmented development arising from the proliferation of UMPs.

'*A fragmented development, with numerous stalled and ongoing megaprojects being poorly integrated with the city urban structure*'. The plan considers that the fragmented development pattern of urban megaprojects is a key threat to Dubai's economic competitiveness, since the existing lack of integration between individual projects and Dubai's larger urban structure entails unnecessary infrastructure costs and requires an inefficient allocation of resources.

Other challenges related to this fragmented development, as mentioned in Dubai Vision 2020 are as follow:

Conflicting land uses, including incompatible uses and locations within these planned or ongoing development projects

Delayed project completions, resulting in gaps in service and inefficient outlay of infrastructure

Oversupply and duplication of land uses, created by inadequate coordination between competing development projects and insufficient regard for regional supply–and-demand dynamics

The housing capacity of committed projects is greater than the projected residential and workforce populations for 2020, requiring a review of current project phasing. Moreover, their housing provision targets the middle and upper classes, and thus it needs

to meet an increasingly diverse range of housing and social demands in order for the residential sector to be sustainable. The plan suggests a demand-led provision rather than supply-led one.

In the Dubai 2020 Master Plan, it is considered that several of the stalled megaprojects are located too far outside Dubai's existing urban limits. To respond to this challenge, it is proposed to support priority development areas by transferring ownership and development rights to more appropriate and convenient locations.

The Dubai 2020 Master Plan (Figure 2.14) considers that in order to deal with urbanization-related problems, and particularly those that have arisen due to megaprojects, it is important to find means to activate the 'on hold' urban projects that have a potential to contribute to city growth. It underlines the necessity to provide a 'strongly defined' program to phase and monitor these developments. Moreover, given the sporadic implantation of these developments, the plan suggests concentrating on compact growth centred on existing uses and infrastructure and promotes the use of available government-owned land such as open spaces as a catalyst for urban growth.

A fragmented city is not able to function as a one entity. Yet the spectacular growth and the increasing investments that have marked Dubai in the last twenty years strongly suggest it is not perceived as a fragmented city. How is this dilemma to be resolved? We argue that three factors contribute to the understanding of Dubai as a unified entity. First, despite the seemingly disparate master developers each with its own agenda, our analysis shows that all these actors are grouped under the umbrella of a few giant holdings that are controlled by the Sheikh. The city thus grows in response to one vision and one centralised authority that provides a flexible system of governance.

Second, even with a multiplicity of commodified spaces, each presenting its own realm, image and symbol, we argue, following Mangin (2004), that Dubai holds its parts together because of this multiplicity of spaces that contribute to producing an image of a modern, capable and experimental city. It can be also analysed through the notion of urban assemblage, where 'there is no city as whole, but a multiplicity of processes assembling the city in different ways' (Farias, 2011, p. 369).

The third factor is the physical one that connects these different entities: the network of infrastructure. Indeed, in Dubai there is a political will that recognizes the role of infrastructure in connecting the city and providing an asset for development. The road network, metro and tramlines, as well as water routes served by ferries and water taxis, all contribute to connect the different parts of the city. By connecting to these networks, UMPs become parts of an overall 'assemblage' system where the city can be understood through 'both the individual elements and the agency of the interactive whole' (Mc Farlan, 2011, p. 208).

Fig 2.14: Dubai 2020 land uses

3 Understanding megaprojects through their morphology

The morphology is a main characteristic of urban megaprojects. Despite the fact that scholars focus on form when examining the role of these projects in influencing their context, performance and objective, very few studies analyse the morphology and urban design of UMPs in detail (but see, for example, Carmona's (2002) analysis of the urban design of a megaproject in Tokyo Bay).

Descriptions typically remain at the general level, and sometimes the urban form of UMPs is very broadly described, highlighting for example their size or their iconicity. Sklair considers that iconicity in architecture has two defining characteristics:

First, it clearly means famous, at least for some constituencies; and second, a judgment of iconicity is also a symbolic/ aesthetic judgment. By this I mean that an architectural icon is imbued with a special meaning that is symbolic for a culture and/or a time, and that this special meaning has an aesthetic component. It is this unique combination of fame with symbolism and aesthetic quality that creates the icon. Iconicity persists, but not necessarily forever. (Sklair, 2006, p. 25)

UMPs are analysed against different backgrounds – economic, political, social and managerial – and yet design and architecture focused studies on UMPs are rare. For example, Fanstein (2008) asserts that 'there is a striking physical similarity among the schemes in European and American urban megaprojects', without explaining the nature of those similarities. Priemus et al. (2008) consider that megaprojects are colossal, captivating because of their size and aesthetic design, having an innovative and experimental character.

Scholars also focus on the quality and the iconicity of design as the means by which UMPs fulfill their role as tools to attract media and business attention. 'This form of intervention (urban megaprojects) goes hand in hand with an eclectic planning style where attention to design, detail, morphology, and aesthetics is paramount' (Swyngedouw et al., 2002). 'Well-designed landmark developments bring lasting value to cities' (Worpole, 2000).

Architectural symbolism and iconicity strongly contribute to the role of spectacular design as a tool for marketing cities in the era of capitalist globalization. 'They act as a permanent advertisement for the city, attracting media, cultural activities, tourists and business alike (Carmona, 2002).

3.1 Urban Analysis Approach and Methodology

In this research, we aim to closely analyse the morphology of UMPs in Dubai. We suggest doing this through a number of case studies. The objective of analysing a selection of Dubai UMPs is to understand the characteristics of the components of the master plans, the elements that govern the relation with the immediate context and the city in general, and the aspects of iconicity that are specific to this kind of development.

A morphology analysis can have different aspects and mobilize different approaches. Merlin (1988) considers that there is an absence of consensus on the terminology of urban analysis, and an epistemological weakness as well as a lack of scientific rigor in the approaches taken by researchers in this domain. Attempting to devise a typology of approaches in morphological analysis, Lévy (2005) considers that there are five types of analysis in approaching the urban form:

- Urban form as a form of the urban landscape (in the sense of urban '*paysage*' in French), in the meaning of the urban space understood in its three dimensions and its plastic materiality (texture, color, materials, styles, volumes, *gabarits*, etc.), as analyzed by G. Cullen (1961), E. Bacon(1965), C. Sitte (1889), K. Lynch (1960), etc.

- The urban form as 'social morphology', in which urban space is studied as a space occupied by social, demographic and ethnic groups and family types, as well as the functions' distribution in the city (such studies to be found in the work of Durkheim (1960), Halbwachs (1828), Roncayolo (1996), etc.).

- The urban form as a bioclimatic form, which is thus studied through its environmental dimension, as an urban microclimate in relation to which many aspects can be mobilized: site location, urban fabric shape, orientation, pollution agents, etc. (see e.g. Escourrou (1980) and Hall (1971)).

- The urban form as the form of urban fabrics (Panerai, Langé, 2001), that consists in studying the interrelations between the constitutive elements of an urban fabric: the lots, the road network, the open space, the built space on the one hand and their relation with the site on the other.

- The urban form as the form of urban layouts (*tracés urbains* in French), which means the analysis of the geometric form of the city (organic plan/ geometric plan; orthogonal plan, radio-concentric plan). Lavedan (1926, 1941, 1952) has proposed a categorization of these layouts, while Pinon (1994) and Lévy (1996b) have analysed the notion of 'urban composition'.

In our context, the approach that has been adopted is for the most part close to the fifth type above, the urban form considered as a form of urban layouts, since our interest concerns the general layout of the projects' plans in their relation with the city, and as an urban composition through which iconicity features, symbolism, and aspects related to the partition or the divisibility of a plan are analysed. Sometimes, the built areas are analysed in their relation to the parcels and the road system, mobilizing hence the approach of urban form as a form of urban fabrics (the fourth type).

Analysis grid and indicators' definition

Based on our analysis, we consider that analysing the urban morphology of Dubai UMPs is equivalent to understanding three aspects (See fig. 2.15):

- The physical image of UMPs in contributing to the city's promotion and the adopted economy of fascination (Iconicity)

- The role of each project within the city's dynamics and the type of relation with its context (Accessibility)

- The project management and implementation through the plan's form (Divisibility).

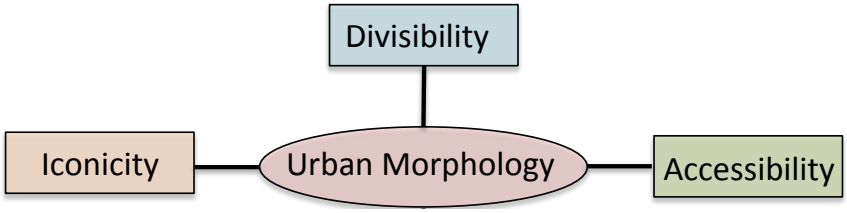

Fig 2.15: A diagram of the three aspects that are addressed in the urban morphology analysis

The first aspect that the analysis aims at understanding through morphology is the **iconicity** of the project and the fascination dimension, or the 'technological sublime'. While the literature highlights this as a characteristic aspect of Dubai UMPs, we aim for a detailed understanding of the elements and types of composition that contribute to this image. We propose the following characteristics:

- Type of composition: concentric, organic, others.

- Presence of central bodies of water or greenery.

- Presence of artificial islands.

- Presence of iconic buildings or other records.

The second aspect is **accessibility** in terms of relation to the city and the connectivity of the project with its immediate and broader contexts. The proposed characteristics to be analysed are:

- Location of the project: along main roads, at the intersection of roads, etc.

- Servicing by various forms of transport: metro, water taxis, tramway, etc.

- Relation to the context at the plan level: introverted, connected

- Catchment area: local, metropolitan

+ The third aspect is the project's implementation and management through urban design and in particular what is called in the literature plan **divisibility**. Divisibility consists of different functional elements or subprojects that may work independently of one another. Bruijin & Leijten (2007) consider that divisibility ensures more certainty and manageability during the implementation of the project. Divisible projects usually have more simultaneous processes (activities that can be carried out at the same time), which can reduce the consequences of time and cost overruns in the course of the project. In divisible projects, any problems in one part of the project can more easily be isolated, or a part of the project can even be cancelled, without consequences for the rest of the project.

On the other hand, a divisible project is vulnerable to downsizing. If circumstances make it attractive, the owner of a project can opt to scrap part of the project, thereby enhancing the manageability of the rest (De Bruijn & Leijten, 2007). For these reasons divisibility ensures more certainty and manageability during the implementation of the project.

The proposed characteristics to be analysed are:

Aspects of divisibility and elements contributing to: Plan partition, roads, etc.

Sectorization through land use

Unifying units of the layout: road network, water or green body, project envelope, etc.

3.2 Selection of case studies

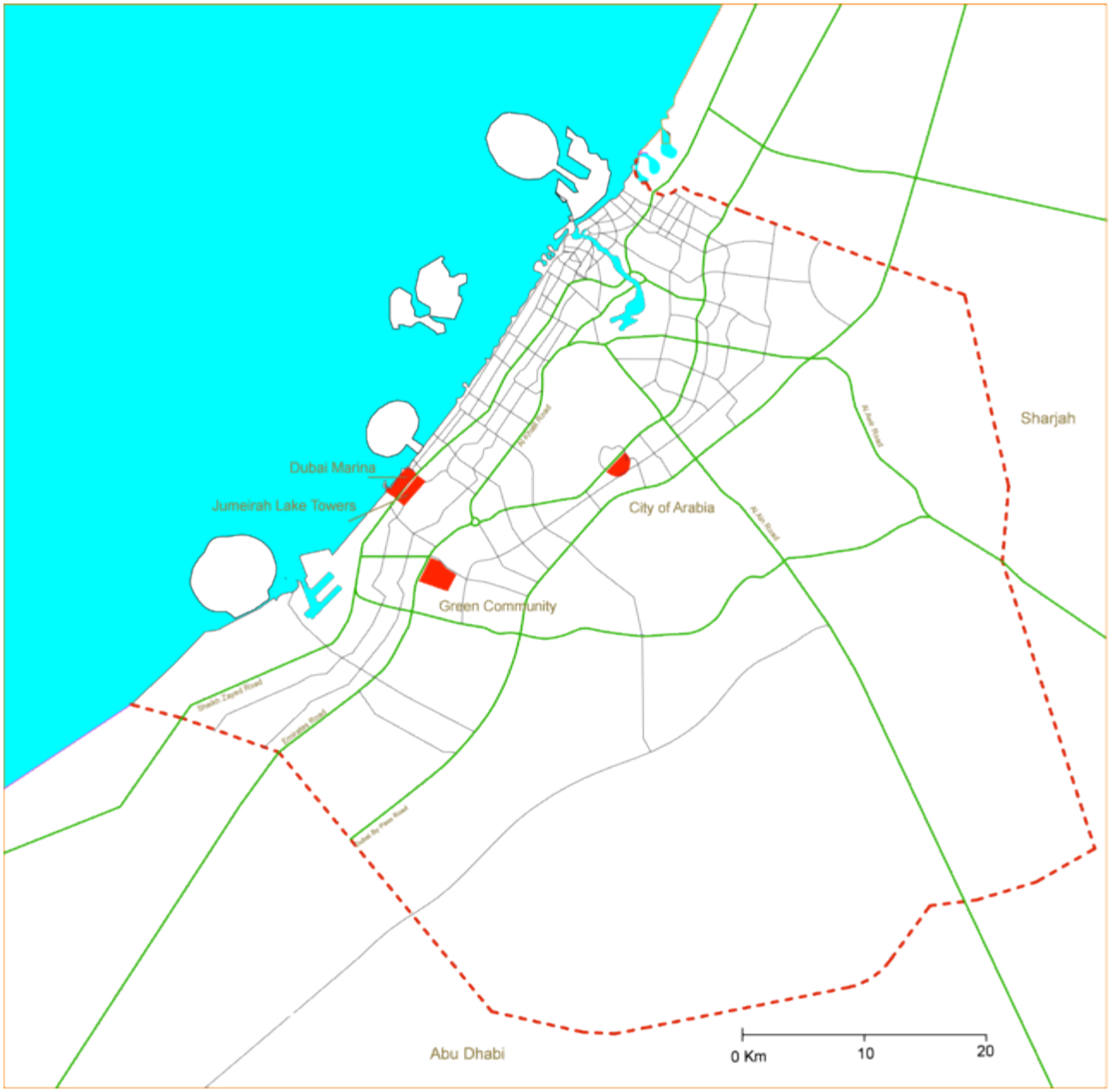

Fig 2.16: Location map showing the location of the four selected case studies within Dubai's urban structure

The four case studies, Dubai Marina project, Jumeirah Lake Towers project, Green Community project and City of Arabia project, were selected based on the following criteria:

Availability of data, in terms of plans, photos and information. As with most of the other projects of the corpus, the sources are online websites and blogs, interviews and site visits. However it can be considered that for these four case studies we were able to collect sufficient information to allow us to proceed with the morphological analysis.

The selection is restricted given the limitation of a thesis exercise in terms of time and budget. Therefore we consider that four detailed case studies in this research are sufficient to support the overall morphological analysis that combines different scale of analysis.

The four projects are selected to be representative of the total corpus, in terms of aspects that are relevant to urban morphological analysis:

In terms of location in the city (See fig. 2.16), we have selected different locations for each project: The first location is in the inland desert side, and represented by the project City of Arabia. The second location is between the main axis of Sheikh Zayed Road and the desert inland, and is represented by Green Community. The third and fourth locations are along Sheikh Zayed Road, which offers two possibilities: on its north-western side, along the littoral, benefiting from a direct relation with the sea; and on its south-eastern side, where there is no relation with water. The first is represented by Dubai Marina, while the second is represented by JLT (Jumeirah Lake Towers)

In terms of connection to the city, the four projects enjoy different levels of connectivity. Dubai Marina is the most connected, with a metro line, a tramway line, a bus station, and maritime transport such as yachts, boats and water taxis. JLT is connected through a metro line. City of Arabia is also planned to be connected to a metro line, albeit a secondary one. Green Community does not benefit from any public transport.

In terms of major elements of the plan, such as water and green, Dubai Marina does not have green spaces but has a large artificial canal directly connected to the sea, a feature that constitutes the core of the project. JLT does not have green and is designed around four separate artificial lakes. City of Arabia has green bodies, and small canals around which the buildings are located. Finally, Green Community project basically has large green spaces.

In terms of building height and density, Dubai Marina is a towers project, which has earned some records such as the highest residential tower in the world. JLT also has a large number of towers, although less than Dubai Marina. City of Arabia has a mix between villas, low buildings and towers, while Green Community has only low residential villas.

3.2.1 Descriptive analysis

3.2.1.1 Dubai Marina

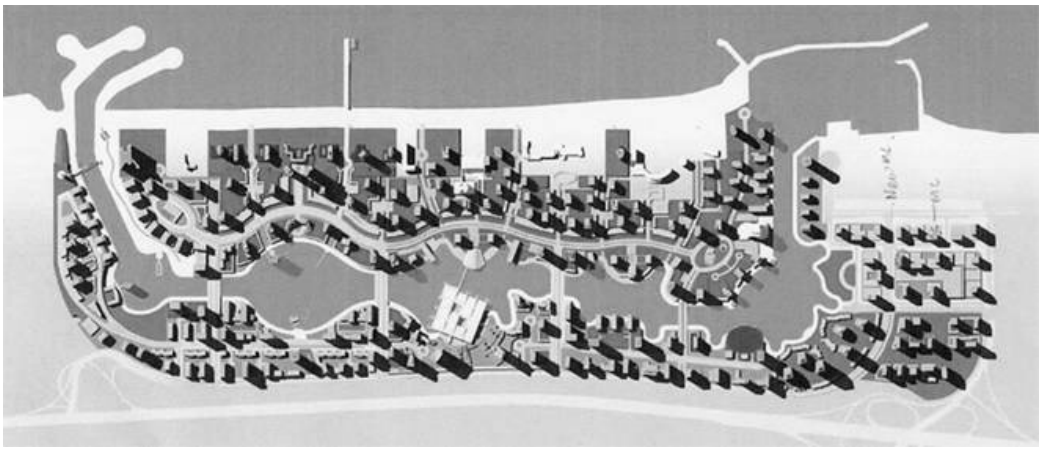

Fig 2.17: A master plan for Dubai Marina (Source: www.Skyscrapercity.com)

Size, location and function

Dubai Marina is one of the first urban megaprojects in Dubai. It covers 300 ha and includes more than 300 towers. It is designed to accommodate more than 120,000 people. The artificial 3.5 km canal with a 7 km pedestrian promenade is at the core of the plan design. The project includes residential towers, the Marina Mall, a Yacht Club, and 'Jumeirah Beach Residence', a sub-project built in only one phase. 'The Walk' – a cornice promenade within the project – is deemed to be one of the best public spaces in Dubai. The project boasts several world records and spectacle elements such as the highest residential tower, the largest man-made marina, and the 'Tallest Block', consisting of a block of high towers reaching 350 meters.

Development argument:

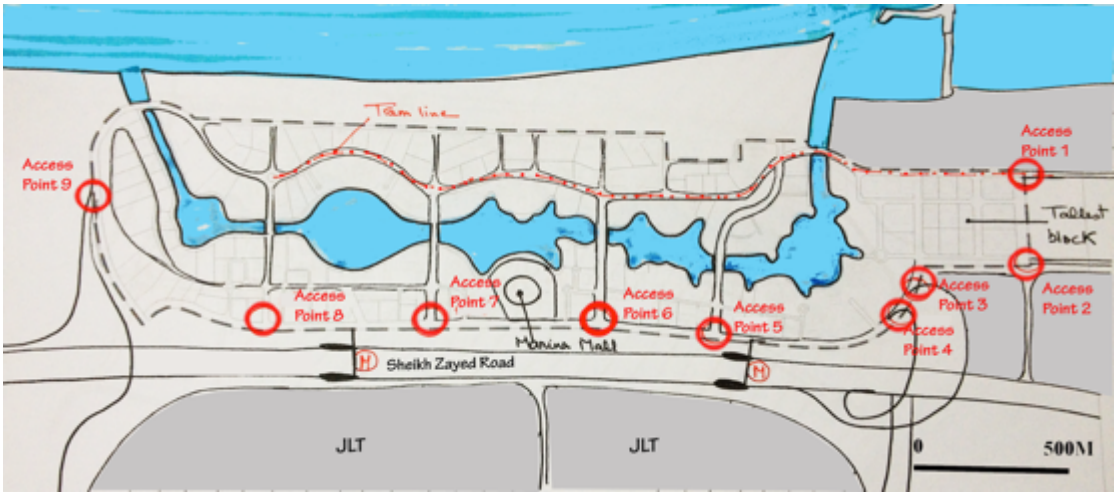

Fig 2.18: Plan showing the connection points linking the project to the city

Dubai Marina is considered to be 'one of the first and largest waterfront developments in the region'. It was planned to be the core and the catalyst for the development of the Jumeirah region at the end of the 20th century, when the major development of the city was occurring around the old center and along Sheikh Zayed Road. With its towers, luxurious residences and retail facilities, mixed use spaces and 'public' promenade, Dubai Marina is now considered the new center of Dubai.

Fig 2.19: An aerial view of Dubai Marina. (Source: www.finatep.ae.com)

3.2.1.2 City of Arabia

Fig 2.20: A master plan for City of Arabia project. (Source: www.2daydubai.com)

Size, location and functions:

City of Arabia consists of luxury residential, retail, office and entertainment functions. It is located on the gateway to Dubailand, an impressive planned agglomeration of megaprojects in the inland at the periphery of the urbanized zones of Dubai. Covering an area of 185 ha, it is planned to accommodate 33,000 people and is to serve a catchment area of 1.8 million people. The project includes three zones: the towers zone with up to 50 floors, the Mall of Arabia, 'one of the largest malls of the world', with more than 1000 diverse retail outlets, and an entertainment destination designed to draw more than 20,000 visitors per day. The third part is the Wadi Walk, a waterfront community with luxurious apartments, outdoor cafes and retail spaces.

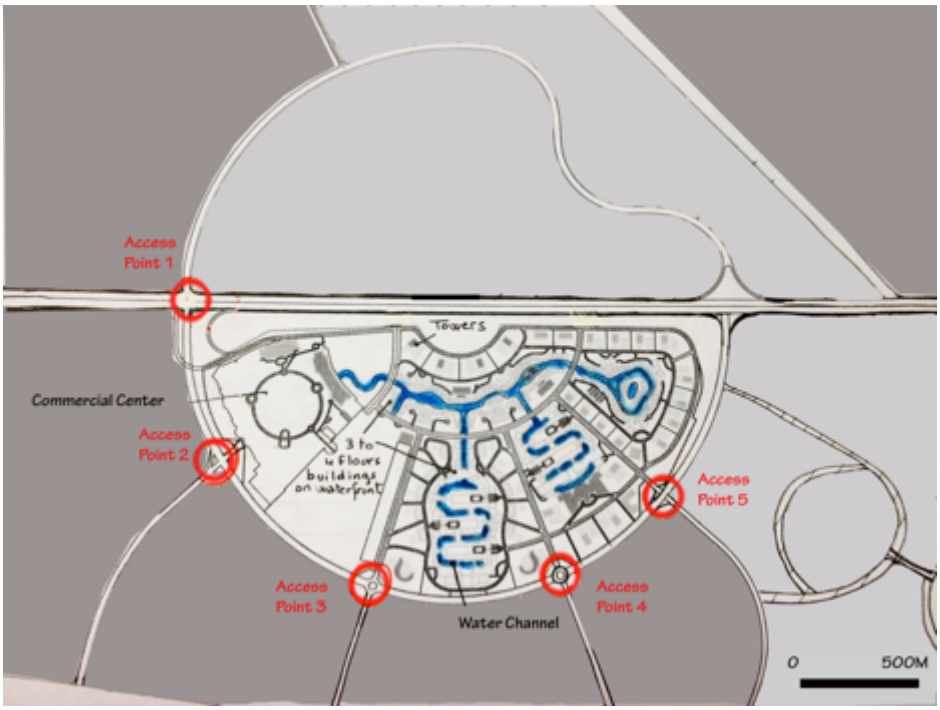

Fig 2.21: A plan showing the connection points that link City of Arabia to its surrounds

Development argument:

The project's website describes the atmosphere as similar to London's Covent Garden or a Parisian street scene. An 8 km canal is the main feature of this zone, with water taxis electronically powered. A monorail serves the project and will connect its parts to a future metro station. These elements contribute to the creation of a luxurious image of a self-sufficient and introverted project, in the inland desert, far from the densely urbanised cores.

Fig 2.22: Aerial view showing the different parts of City of Arabia

3.2.1.3 Jumeirah Lake Towers

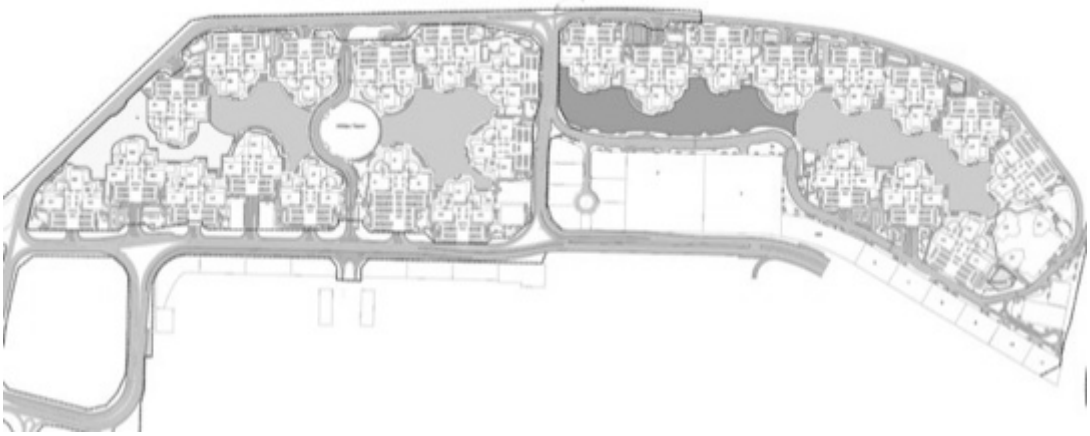

Fig 2.23: A master plan for JLT. (Source: www.Skyscrapercity.com)

Size, location and functions:

JLT is located along Sheikh Zayed Road, opposite Dubai Marina. It covers 200 ha and consists of a mixed-use development with high towers containing residential, office, retail and other functions. It is designed for a population of 60,000. Situated in the heart of new Dubai, JLT, as a free zone, hosts more than 5500 registered companies. JLT has more than 80 towers with height up to 150m and one 250m high centerpiece, 'Almas Tower'. The project features a pedestrian promenade along the shores of the lakes.

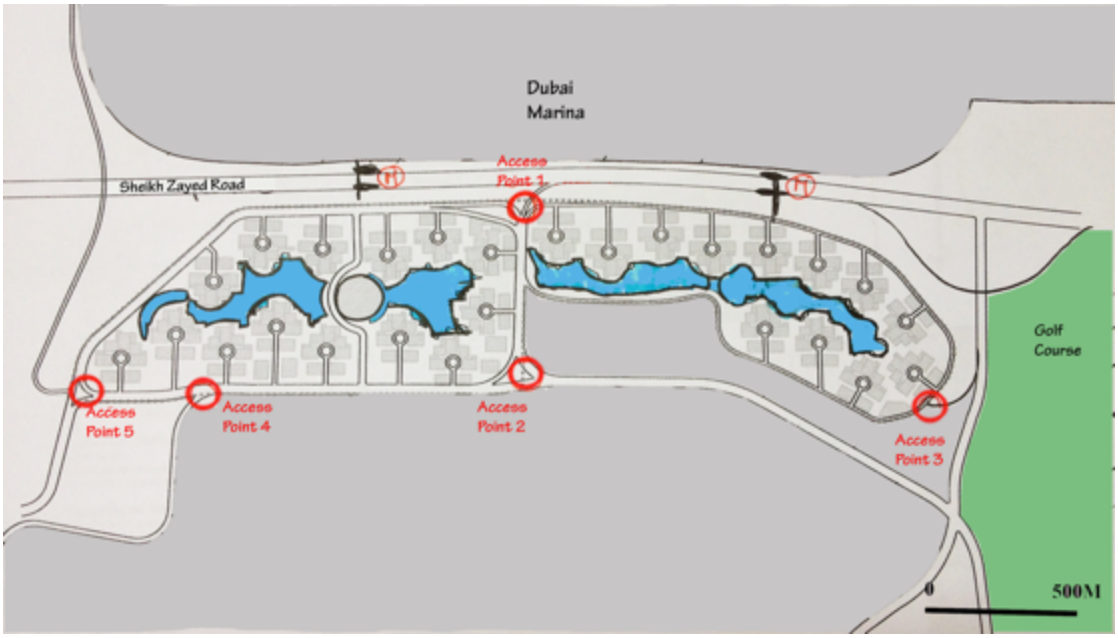

Fig 2.24: A plan showing the connection points that links JLT to its surrounds.

Development argument:

JLT is promoted as the 'ideal place to live, work, and play' and a place that is designed 'for a dynamic lakefront community' living in a luxurious atmosphere. It is a megaproject that is planned to complement – or compete with – Dubai Marina as a core for a metropolitan area, albeit with more flexible laws, being a free zone.

Fig 2.25: Aerial view of JLT. (Source: www:skyscrapercity.com)

3.2.1.4 Green Community

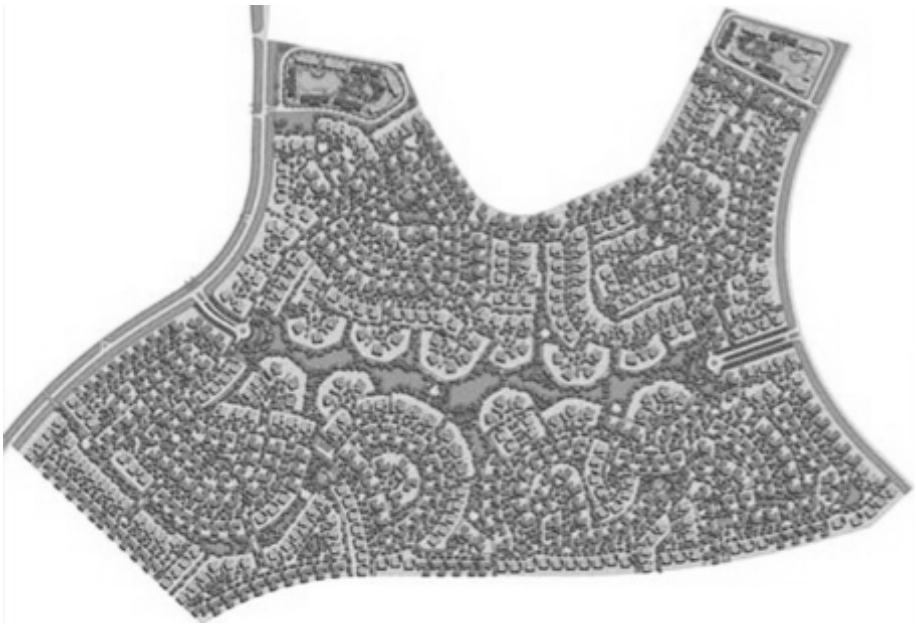

Fig 2.26: A Master Plan for the project Green Community (West). (Source: www.skyscrapercity.com)

Size, location and functions:

Green Community (West)[20] is located near Jebel Ali free zone, to the south west of Dubai. It comprises 67 ha of residential properties and functions such as leisure, retail and commercial. It is constituted from low-rise buildings and private villas. It encompasses landscaped gardens for the residents, and internal stone streets. The project is for a population of 5000 people.

[20] This is to differentiate it from Green Community East, another phase of the same project

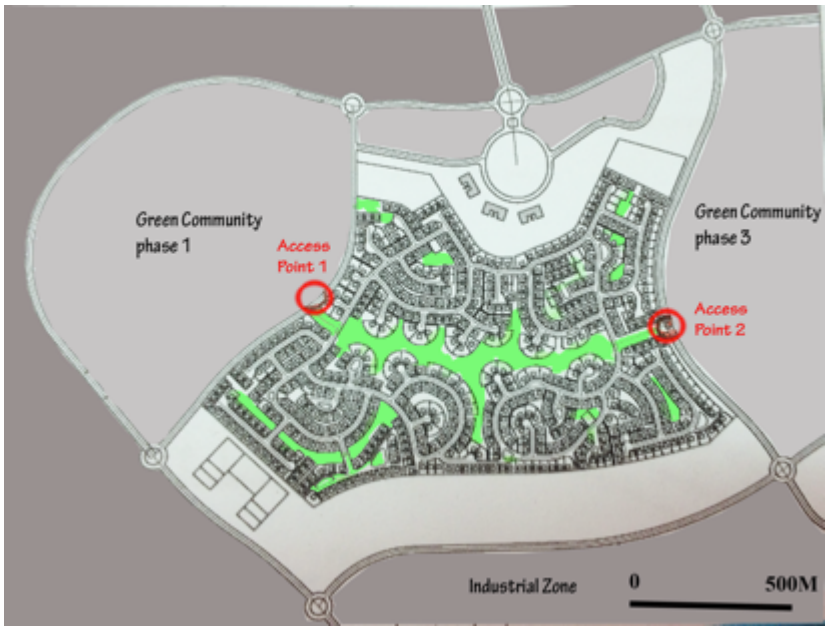

Fig 2.27: A plan showing the connection points that links Green Community west to its surrounds.

Development argument:

The development prides itself on its modern and landscaped surroundings with natural greenery being the 'key to peace and tranquility' and a unique way of living outside the city, within a working and living secure community. Constituting a relatively traffic free environment, Green Community West aims at providing a secure green and pleasant atmosphere.

Fig 2.28: View inside Green Community west. (Source: www.Skyscrapercity.com)

As it was explained in the introductive paragraph, the case studies were selected to cover a variety of aspects related to location, connectivity and contents. Table 2.4 shows main information about these projects. We note mainly the difference in scale and population. However, the content for all projects is constituted of mixed-use functions. Dubai Marina and City of Arabia may have similar elements that contribute to the creation of a mixed-use luxurious content. From the other side, Jumeirah Lake Towers's image is a Free Zone one that is mainly centered on business activities. Green Community is a residential project with a gated community aspect, offering the image of a car free and green private environment.

	Dubai Marina	City of Arabia	JLT	Green Community
Project area	300 ha	185 ha	200 ha	67 ha
Population	120000	33000	60000	5000
Content	Residential, leisure, commercial, restaurants and cafes, marina	Residential, commercial, leisure, offices	Residential, offices, retail	Residential, leisure, comercial
Salient features	More than 300 towers, 3,5km canal	More than 20 towers, Mall of Arabia, 8km canal, monorail	More than 80 towers, Free Zone, artficial lakes, Almas tower (250m)	Private gardens, low rise villas, traffic free environmeny

Table 2.5: Projects' information brief

3.3 Interpretive analysis

Based on the three aspects of the morphological analysis explained and argued in the section 3.1, the results are interpreted as follows:

3.3.1 Iconicity, through elements of urban design

3.3.1.1 Boundaries' shape and geometric features as iconicity aspect?

In the four plans, the plan boundaries do not seem to follow a common logic. For Dubai Marina and JLT, the plan boundaries are the result of many factors such as properties' limit

and intervention by powerful actors to modify the land limits (this aspect is developed further in the last section of chapter three).

	City of Arabia	Dubai Marina	Green Community West	Jumeirah Lake Towers
Iconicity and Urban Design	- Semi-circular shape - Superposition of two grids: one radio-concentric at the general level and one organic at the parcels level - Connected linear water bodies irrigating the different part of the plan and creating various types of waterfronts High mixed-use towers, up to 50 flo+C5ors and 4-5 floors residential buildings , both on double height podiums - Monorail serving the project	- Rectangular plan designed around a canal - Organic layout shaped by the artificial canal's curved borders - Two grids: one organic following the canal and one orthogonal following main roads Irregular geometrical shape for parcels, with curviligne borders on the canal - Towers on podiums as continuity element Jumeirah Beach Residence a project within a project, with high similar towers - Plan layout independant from its context	- Organic Layout around a longitudinal central green space -Semi-circular and curvilnear strips of parcels creating 7 to 8 clusters - Roundabouts and 'cul-de-sacs' constitute the center of clusters - Central green space as more a residual/negative space than a consistant element - Implantation of individual villas in the center of parcels - Introverted environment with barriers surrounding the properties	- Semi-rectangular plan, designed around four artificial lakes - Plan layout with organic form resulted from lakes' curvilinear borders - Plan based on the replication of one unit that is constituted from 3 towers on a common podium - More than 80 towers with height up to 150m and one 250m height centerpiece - Pedestrian promenade along lakes borders - Buildings with view over central lakes and access from the back

Table 2.6: Table briefing the iconicity aspects in the four case studies

In the earliest version of the Dubai Marina master plan, JLT formed one part of it, with Sheikh Zayed Road separating the two parts. City of Arabia's semi-circular boundaries are most likely part of the concept, while the curvilinear boundaries of Green Community West are the result of the larger project's phasing and divisibility strategy. It is clear that the design and shaping of boundaries constitute an iconicity aspect only in the case of the artificial islands, where the projects' envelopes shaped to resemble palms, a map of the world map shape, or other, are at the core of the concept. However, within each configuration, organic or geometric features are designed as iconicity elements, such as the curvilinear borders of the canal that impact the whole project grid in Dubai Marina, the concentric grid of City or Arabia that denotes centrality and power, the wavy borders of JLT's four lakes, and the organic lines that shapes Green Community clusters around a longitudinal central green space.

3.3.1.2 Water and Green elements as iconicity aspects

For the four analysed megaprojects, the main spectacular element is either an artificial canal (in the case of Dubai Marina), a series of artificial lakes (in the case of JLT), a network of water channels that irrigate the project's parts (in the case of City of Arabia), or a central green park (in the case of Green Community). As it was mentioned in chapter two, water elements and green elements, and particularly in a hot desert climate, denote an economic power and symbolic dimension of beauty, modernity and lux. Integrating water bodies in a project is more expansive than greenery. We note for example, that Green Community is

promoted as private environment, however it is not a luxurious project, and its location nearby Jebel Ali industrial zone contribute to that. For the remaining three projects, City of Arabia is the most challenging, given the cost of a water canal in the middle of the desert. Dubai Marina is a relatively an easy case of a project that has a large water body since it is located on a waterfront. In all cases, be it through water or green bodies, this symbolism and search for luxury are at the core of iconicity.

3.3.1.3 Iconicity in Buildings

Beside these central green or blue elements designed to be spectacular components of the plans, the search for iconicity is mainly seen with the quest to set records in buildings especially in the case of Dubai Marina, JLT and City of Arabia, where a large number of impressive skyscrapers, reaching more than 500 meters in the case of Dubai Marina, are designed. Other than the exclusively residential low to medium-density projects, all mixed-use megaprojects in Dubai have towers. Dubai marina has more than 300 towers, JLT has more than 80 towers and City of Arabia has more than 20 towers.

Iconicity can be also interpreted at the architectural style level, where it is not only associated with a search for records. The rotating tower and the Twisted Tower in Dubai Marina are examples of the search for a spectacular architecture.

3.3.2 Accessibility, analysed through connectivity aspects

The four megaprojects do not connect with their immediate context. They are introverted projects that are designed to operate as autonomous entities. The majority of them are conceived as cities within the city.

	City of Arabia	Dubai Marina	Green Community West	Jumeirah Lake Towers
Accessibility and Connectivity to the city	- Located in an non urbanized area along a main road - Linked to road network through 6 access points - Surrounded by an agglomeration of introverted megaprojects - No morphological continuity or direct relations with surrounding projects - Mororail system to connect with a future Metro line - Leisure and commercial activities planned for a catchment area containing 1,8 million people	-Located along Sheikh Zayed Road, in the zone between Jebel Ali free zone and a zone of themed free zones such as media city, internet city... - Surrounded by main interchanges and highways - Connected with 2 metro stations , a tram, a bus station and water taxi stations Introverted project with no direct relations with the surrounding context - Considered as a metropolitan center with a large catchment area.	- Part of a larger project: Dubai investment Park, adjacent to Jebel Ali free zone - Located at the intersection of two main roads - The project is articulated to its nearest context through roudabouts - More connected, through proximity and road network to Jebel Ali zone than to the rest of Dubai - Considered as an auto-sufficient project within 'Dubai Logistic Corridor'	- Located along Sheikh Zayed Road facing Dubai Marina project - Connected to the city through two metro stations - Main accesses through two big interchanges - Surrounded by highways with no direct relation to the closer context - The project is a free zone with a metropolitan aspect

Table 2.7: Table briefing the accessibility aspects in the four case studies

In terms of accessibility, the four projects are connected to major road network, each through a number of access points (See fig. 2.24, 27, 30, 33). However traffic problem rise with the project's density, such as the case of Dubai Marina that suffers from critical traffic congestion. None of the projects seeks a direct connectivity with its neighboring projects; however it is the connectivity to further city parts and to the wider network that they seek for, mainly through highways, metro line or tramway line. Dubai Marina, JLT and City of Arabia are connected to the metro line through a metro station located at the project's edge.

The complex road network, while connecting the projects to the city, prevents any interrelation between the projects and their direct surroundings. Indeed, the megaprojects are most of the time located on main roads and highways. Dubai Marina and JLT are located on the Sheikh Zayed Road. City of Arabia, even if in the inland zone, is located along the major Sheikh Mohammad Bin Zayed Road. Along this road are located a number of other themed and introverted megaprojects, parts of the downsized Dubailand.

At the morphological level, there is no continuity, neither with the neighboring urban fabric nor with the secondary road networks. For each project, a surrounding road that is part of the project's boundary acts as main access, from which entrances allow ingress to the different parts of the projects. At the same time these roads contribute to isolating the projects from their surroundings. For instance, Dubai Marina and JLT are surrounded by highways and two main interchanges.

Green Community West, part of a larger megaproject (Dubai Investment Park), divided into Park 1 and Park 2, is located on the intersection of two main roads, adjacent to Jebel Ali industrial zone.

Infrastructure plays a crucial role in connecting these megaprojects to the city: first, they are located on major roads. Second, some of them such as Dubai Marina and JLT are served with metro stations. City of Arabia is designed to be connected to a future metro station as well. Third, tram lines and monorails play a similar role in connecting the projects to the city, such as the built tram line in Dubai Marina, connecting the project to the surrounding context, and the planned monorail project in City of Arabia connecting the project to the future metro station. Fourth, bus lines and water taxis are present in some projects, as in the case of Dubai Marina. It is to be noted that the connectivity of a megaproject increases with

its importance, such as the case of Dubai Marina, planned to be a new metropolitan center of Dubai, and hence mobilizing a multimodal transportation network.

Large catchment areas are characteristic of Dubai megaprojects. The projects are not designed to serve a defined context or zone. In the case of Dubai Marina, JLT and City of Arabia, the majority of the targeted population is middle and upper-class foreign and international employees and experts, working in various zones of the city. Green Community West may have a more restricted catchment area with targeted population being mainly employees and workers in Dubai Investment Park and the larger Jebel Ali zone.

3.3.3 Divisibility, analysed through phasing and management aspects

Divisibility and phasing are common aspects of the four megaprojects analysed. Dubai Marina, for instance, was implemented in several phases. Moreover, Jumeirah Beach Residence, or JBR, is part of Dubai Marina project while constituting an independent phase and project in its own right. In JLT, the project, even if built through one phase, is in general divided into four main parts, and the infrastructure and diverse networks operate separately in each part. The plan of City of Arabia is divided into five parts. Only two, hosting the commercial mall, are currently under construction, while the rest of the residential waterfronts are still on hold. It is to be noted, that commercial buildings are built in a first place, before the residential component, as a strategy that ensures providing a first image of a project that is 'working', with a low level of risks compared to residential and offices buildings.

	City of Arabia	Dubai Marina	Green Community West	Jumeirah Lake Towers
Divisibility	- The superimposed grids and the central water body as main fixed elements of the various plans - The podium as unifying and a flexibility element - Plan's partition into 5 semi equal parts reflecting the construction phasing of the project - Variety of uses as a flexibility element	- The central canal as main element of the plan - The podium as a unifying entity along with a pedestrian promenade on the canal borders - Main landmarks and buildings, the canal and the promenade built at the early stages to define the first image of the project - Plan divided into clusters as a flexibility element -Various themes as a flexibility element: the Walk, the Beach, Dubai Marina, Jumeirah Beach Residence.	- Project as one of three residential zones Curviline roads seperating the three zones, acting as well as phasing barriers - Organic repetitive grid as flexibility/continuity element - Central green space and organic layout as main elements of the plan - Project to be analyzed within the larger phasing of Dubai Investment Park	- The four lakes and the repetetive unit as fixed elemenst of the master plan - Towers on podiums as unifying architectural element - Plan's division into 26 clusters as tool to manage the project through construction and occupation phases - The four project's parts are accessed and served almost separatly

Table 2.8: Table briefing the divisibility aspects in the four case studies

Green Community West is itself a phase of a larger residential project, the latter being in turn a part of a larger investment park. As said previously, the divisibility of plans is a strategy in managing the complexity and uncertainty of projects. Proceeding by phases is clearly a feature of building in all four projects analysed. Moreover, the availability of various uses constitutes a strategy to minimize possible risks.

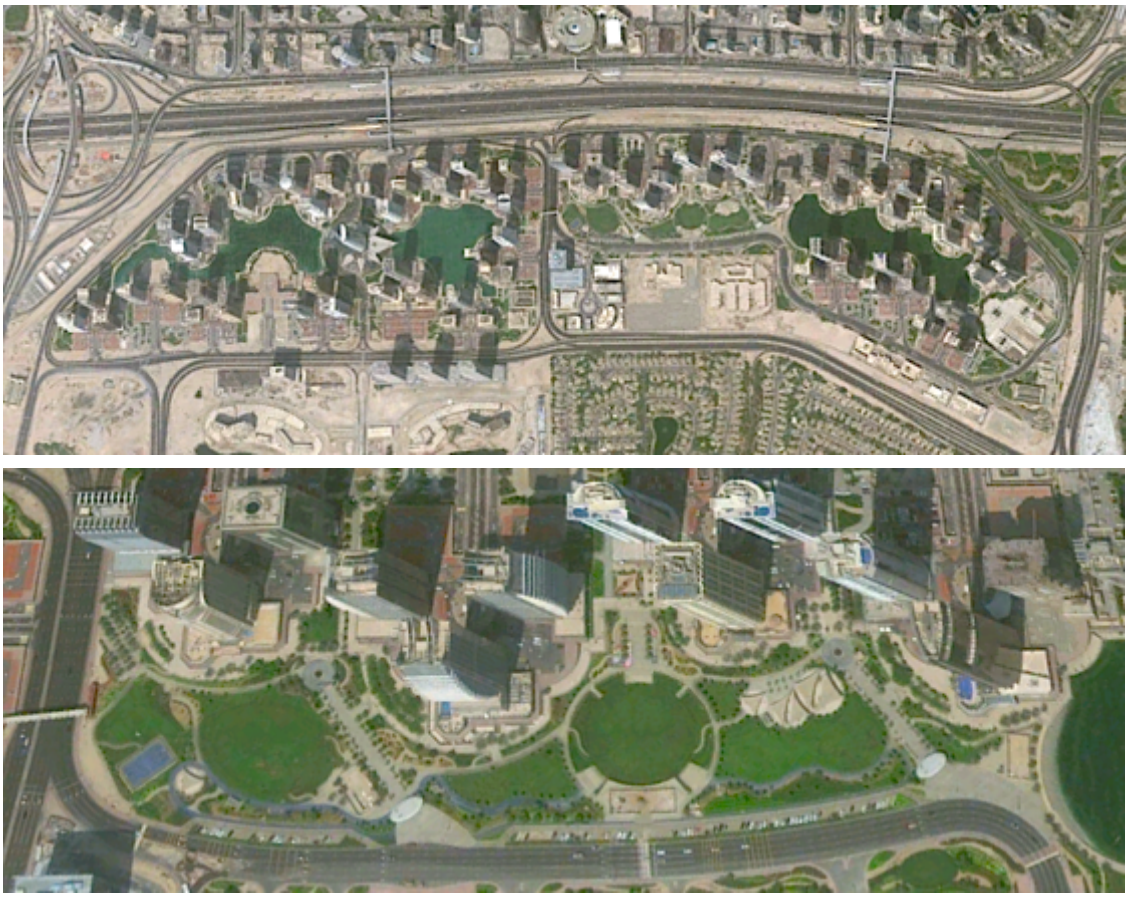

Fig 2.29: Above: The four lakes in JLT project in 2012. Middle: One lake backfilled and transformed to children playground in 2014. Below: Landscaped playground (2015). (Source: Google Earth)

For instance, it is clear that in Dubai Marina there are parts that are more 'successful' than others, as for example the eastern part of the project that hosts the tallest block and the majority of cafes, restaurants and activities. Compared to the rest of the project where the residential functions dominate, the viability of the different parts of the project varies significantly.

Another telling example of flexible plan design is the case of JLT, divided into four parts surrounding four artificial lakes. One of the lakes has been a topic for debate, because the residents have claimed more practical common spaces. The lake was backfilled and transformed into a green park serving as promenade and playground space for children (Fig. 2.29).

Through these constant modifications of the plans, we can notice elements that provide unity and stability for the project, such as the podiums that ensure continuity at the ground floor level, even with a variety of forms at the tower level.

The backfilled lake is an example of both flexibility of design and stability, where the lake borders have remained the same with no impact on the surrounding lots, however it is the filling of this shape that has modified its function. Thus, even if for each master plan there are various versions, we can note that the main elements remain common and stable from the early versions. This is the case for the main green or water bodies, and the major grid lines.

4 Conclusion

We have focused in this chapter on the morphological characteristics of Urban Megaprojects in Dubai. We aimed, through analysing the morphology-related aspects, to understand UMPs, first as objects, and second as constitutive parts of the city.

At a general level, we have drawn a comparison between Dubai UMPs as perceived in literature and our corpus's analysis. We have, for the literature representation, set two categories of characteristics; the ones that are related to the governance and the ones that are related to the morphology. From the other side, our analysis of 36 surveyed UMPs aimed at adding an advanced layer to the literature representation that can be described as general and sometimes superficial.

The second part of the chapter has focused on a close urban morphology analysis, where four case studies have been analysed. Megaprojects are becoming a worldwide phenomena, however, there are no studies that focus exclusively on the urban morphology of these developments, even if morphology-related aspects are at the core of their iconicity and search for spectacle. We have gone through a quick overview of the different types of approaches in urban morphology, and we have explained that the objectives of our analysis will be met through an approach that analyses the urban form as the form of urban layouts.

Aspects such as iconicity, relation to the city and managing complexity can be best understood through this approach. It was shown that UMPs in Dubai are clearly designed to offer images of iconicity, through the specific detail of plans and their forms, water and green elements and records.

Analysing the connectivity to the city has shown that UMPs are closed to their immediate context but well connected to the city through sophisticated and diversified infrastructure, consolidating the idea that these UMPs are addressed to a globalized population and not to local specific needs.

It was shown also that urban form is a tool by which these complex UMPs are managed. The divisibility of a project is a prime strategy used to control the evolution of its development phase. It is a means through which projects can be evaluated, assessed and modified as they are being implemented.

From another side, it can be argued that morphological aspects of megaprojects constitute elements of specific governance in Dubai, in the context of UMPs implementation. First, through aspects of iconicity, actors –who are most often within the Sheikh's limited circle of partners and family members - seek legitimacy, by presenting themselves as protectors of a modern and competitive image of the city.

Second, through divisibility and flexibility, both developers and regulatory authorities find means to manage and control the complexity of megaprojects and to integrate recurrent modifications, divisions and adjustments to buildings, roads and open spaces, without compromising the image of a project. These aspects related to governance and management will be further developed in chapter three.

Chapter 3
Urban Megaprojects in Dubai as a Specific Urban Instrument

In this chapter we analyse the UMP-based approach in urban planning. We try to understand this approach through defining its aspects and characteristics. We also identify the place and role UMPs play in this approach.

UMPs have been commonly seen, worldwide, as exceptional and spectacular urban developments epitomizing globalization dynamics. As opportunistic large-scale developments, UMPs disrupt established urban planning and governance regimes. They bring in a large number of actors, require particular – often ad hoc – complex operational arrangements and hold their own temporality. With UMPs increasingly becoming a feature of contemporary large globalizing metropolises, bringing them to articulate with existing urban planning and development instruments and governance arenas is a growing concern for urban policymakers and managers. The latter, eager to integrate and profit from global markets and fluxes, cannot but accept – even encourage – these urban developments but at the same time worry of and try to mitigate their disruptive effects. In some cases, as this thesis argues for Dubai, UMPs are more than just an opportunity and challenge to urban planning and development. They represent the backbone of what is called here "UMPs-based approach" to urban planning and development.

In this approach, UMPs' development is intentionally sought and orchestrated. Through a constellation of UMPs, policymakers aim to bring out the physical landscape and urban dynamics that will firmly link the city's economy to globalization and benefit from it. UMPs play the role of fixes attracting and articulating local and global fluxes and dynamics. This track of urban development brings its own challenges. It calls for adaptive institutional and operational structures, arrangements and devices that would be capable of dealing with the rising complex and fluctuating opportunities, markets and actors.

As a physical structure and an operational process, the UMP is the central instrument on which this UMPs-based approach stands. Instrument should be understood here in two ways. First, UMPs are considered as a particular type of urban planning instrument, as would masterplans, land subdivision or streetscape regulations for example. They contribute to operationalizing a defined approach of urban planning and development and framing the future urban form and dynamics in the city.

Second, UMPs could be understood as an instrument in the way scholars working on public policy instruments, in the steps of Lascoumes & Legalès (2004) and Halpern, Lascoumes &

Legalès (2014), give to this word. For these authors *"a public policy instrument constitutes a device that is both technical and social, that organizes specific social relations between the state and those it is addressed to, according to the representations and the meanings it carries. It is a particular type of institution, a technical device with the generic purpose of carrying a concrete concept of politics/society relationship and sustained by a concept of regulation"* (Lascoumes and Legalès, 2007). This public policy instruments literature distances itself from dominant urban governance literature that focuses mainly on actors/interests/institutions' relations and draws a fuzzy, fragmented and constantly moving political landscape of contemporary cities. It stresses the considerable weight of instruments as institutions by themselves, capable of bringing inertia around their cognitive and technical components. This "inertia effect" enables resistance to outside pressures such as global political changes and actors' interests. At the same time, it consolidates the ascendant position of actors and institutions that are behind its development and steering its implementation. Instruments are not value-neutral and hold embedded in them the values of their creators. It is in this regard that UMPs in Dubai could be seen as an instrument bearing the values of the Sheikh's vision for the city and providing through its technical (material and operational) components the needed stability for holding together a whole UMPs-based approach for urban planning and development.

This chapter is divided into two parts. In the first part, we locate the UMPs-based approach in the wider landscape of dominant and mainstream urban planning approaches, we identify the role the UMPs as urban planning instruments play in this approach and we look into the challenges that face the articulation of UMPs to other planning instruments. In order to do so, first we base our discussion on a literature review that studies the boundaries between urban planning and urban design, and helps us place the UMPs-based approach in regard to this large disciplinary divide. We illustrate this discussion with elements from our empirical data detailed in the previous chapters. Then, we suggest a comparison between UMPs and other approaches that are basically categorised as physical planning – given the importance emphasized in the UMPs-based approach on the physical dimension. Similarities and divergence are underlined. Finally, we go through the role of the UMPs as planning instruments and challenges, successes and failures of articulating them with other planning instruments, mainly urban networks planning and strategic planning, within the Dubai's UMPs-based approach.

In the second part of this chapter, we focus on the UMP as a public policy instrument. The procedural aspect is hence examined. As it is not feasible to study the whole spectrum of

UMPs in Dubai, given the large number of projects and the intrinsic complexity that lies within, we suggest examining in detail one case study that is representative of the general situation in the city.

The case study of Dubai Marina project is selected for several reasons: first, it is a telling example of divisibility, the processes of grouping and ungrouping of sub-projects, and of the allocation of land shares that is a recurrent feature in Dubai. These features represent a central technical attribute of the UMP instrument in Dubai. Second, it provides a rich display of the complexity of actors' relations. In a limited space, we find a wide palette of actors competing/working together, with a strong and direct involvement of the city's ruler in according power to key developers and in withdrawing it. Third, the case study displays aspects of complementarity, competition and synchronization of actions that are characteristic through particular modes of project management articulating what is known in literature as 'pilotage' and 'project engineering' traditions. Fourth, this project is basically marked by the speed of implementation and the displaying of spectacle and records, aspects that are at the core of urban development in Dubai.

We argue that understanding the various procedural aspects in Dubai Marina help us decipher the complexity of the UMP as a public policy instrument. We underline also the limits of this generalisation, and we highlight what differentiates and articulate city-scale procedural characteristics from project-scale ones.

1 UMPs between urban planning and urban design

1.1 UMPs-based approach a hybrid of urban planning and urban design

The two fields of urban planning and urban design are considered as essentially the same, or more correctly, urban design is seen as a subfield of urban planning, particularly concerned with urban form and aesthetics (Gunder, 2011; Gleye, 2014). They constitute two parts of a bifurcated heritage in which urban design was more oriented towards physical planning and urban planning more oriented towards socio-economic policy (Gleye, 2014). The concept of place is absent in the theory of urban planning. Friedman, in his book *Planning in the Public Domain* (1987), traced what he considered as the four major traditions of urban thought, without any link to a visual and physical environment: the realms of social reforms, policy analysis, social learning and social mobilization.

It is argued in the literature (Gunder, 2011; Cuthbert, 2001; Madanipour, 2006) that there is, particularly in recent years, a dominance of urban design over urban planning, given the former's greater visibility. Urban design is considered as a facet of a globalised and neoliberal market, that mirrors 'the commodification of the built environment for the achievement of capital accumulation under competitive globalization' (Gunder, 2011, p. 185). Urban design initiatives go together with the enhancement of city image, and the 'increased public sector focus on the promotion of local distinctiveness' (Punter, 2007, p. 169). Moreover, the rise of urban design is linked to the deployment of large mega-projects, increasingly adopted to create an image for competitive cities, and led by the private sector (Madanipour, 2006; Carmona, 2009).

It is often assumed that urban planners have failed in bringing about more just, sustainable, efficient and beautiful cities (Campanella, 2011). Gleye (2014) considers that urban planners – at least in the USA – are often judged by the resulting physical character of a city that people can experience and see.

A general dissatisfaction with urban planning, compared to urban design, can be noticed, mainly because of the restrictive regulatory land use planning codes, and the failure of urban planners in addressing the pressing challenges of cities under neoliberalism. Planners are considered constrained by a rigid system of codes, while urban design displays a flexibility that generates design options at every step of the process (Van Assche et al., 2012). Gleye (2014) contends that planners have sidestepped a vision of the city as a place,

without replacing it with convincing arguments for the essential role of socio-economic concern for the urban future. Madanipour (2006) considers that architects and planners lost interest in imagining the future shape of the urban environment, and that urban design has filled this gap by imagining the future of the city in new ways at a more concrete level than that of urban planning.

Under neoliberalism and the prevalence of urban design, good government has come to be perceived as assisting the market by weakening traditional regulation (Hackworth, 2007; Gunder, 2011). Increasingly, it is argued that market forces are more efficient in managing the built environment than the classical prescriptions of urban planning and the related regulatory process.

However, it is assumed that urban planning – through governments – still has a crucial role in providing environmental regulatory frameworks, ensuring acceptable thresholds of environmental impact and also an 'engagement with spatial political economy and its adverse societal effects as they pertain to social equity, environmental justice, multiculturalism, and the like' (Gunder, 2011, p. 190). Gunder argues as well that, if urban design is often perceived as a mirror of capitalism, urban planning is traditionally perceived as mirroring a 'caring' state, through fairness and a respect for diversity, difference and ecological sustainability.

Besides the economic, social and environmental concerns, planning is considered – in contrast to urban design – as committed to a long-term vision. Moreover, planning has the ability to draw on its close ties with social sciences in evaluation methods, as for example for evaluating programs, which is a well-established discipline (Gleye, 2014).

Cuthbert (2007) argues that urban design has failed as an independent discipline because there has been no concerted attempt to link the material creation of urban space to fundamental societal processes beyond that of the market, and because it lacks critical reflection. '*Under neoliberalism, the question remains: does the private sector and the entrepreneurial state want reflective planners concerned with the public good, who also happen to have good urban design skills?*' (Gunder, 2011, p. 190).

The literature contends that these two domains of planning need to be combined, that urban design should not only be considered as 'final frosting on the cake' (Gleye, 2014, p.5), and that the city must be considered from the physical as well as the economic and social point of view. McMahon (2012) concludes that planners spend most of their time focusing on

numbers and that in the future they will need to spend more time instead thinking about the values, customs and characteristics that make a place worth caring about.

Based on the above discussion, we locate here the UMP-based approach within the urban planning-urban design debate. The approach adopted in Dubai can be considered as including aspects from both urban planning and urban design. In that sense it can be considered as a hybrid standing on the fence between the two disciplinary approaches. Table 3.1 outlines the characteristics under urban planning and urban design as discussed in the previous section. The coloured cells in the table can be related to and illustrated by the UMP-based approach. Hence, Table 3.1 reflects this hybrid nature of the UMP-based approach, though the urban design dimension is relatively more present.

Urban planning	Urban design
Caring State	Neoliberalism, capitalism, cities competition
Notion of place absent or secondary	Focus on "place" and physical form
Holistic approach	Focus on urban/territorial fragments
Long term, vision	Short term, speed in implementation
Mainly government-led, etc.	Mainly flexible authorities, private sector, etc.
Focus on stabilized strategies and regulations	Variety of design options at every stage
Systemic assessment, evaluation tools	Practice, trial and error, adaptation, etc.
Essentially political	Increasingly a-political and lacking critical reflection

Table 3.1: Limits between urban planning and urban design: the coloured cells can be related to the UMPs-based approach

As for the dominant political and economic systems, we consider that the governance system in Dubai can be analysed under two coexistent logics: the logic of a caring state, and the logic of a neoliberal approach aiming at competing with world cities. The first can be illustrated by the land and housing policy by which the government allocates real-estate to nationals. It can be also illustrated by the provision of infrastructure such as roads, public transport, etc., as well as hospitals and museums. However, the neoliberal approach is clearly more dominant in many areas. In Dubai, deliberate deregulation can be seen everywhere, as for example in free zones where laws are adapted and simplified, and at the

megaprojects level, where regulations are tailored to each project. It is also seen in the absence or reduction of taxes and the generally lean regulatory framework that facilitates the establishment of foreign companies.

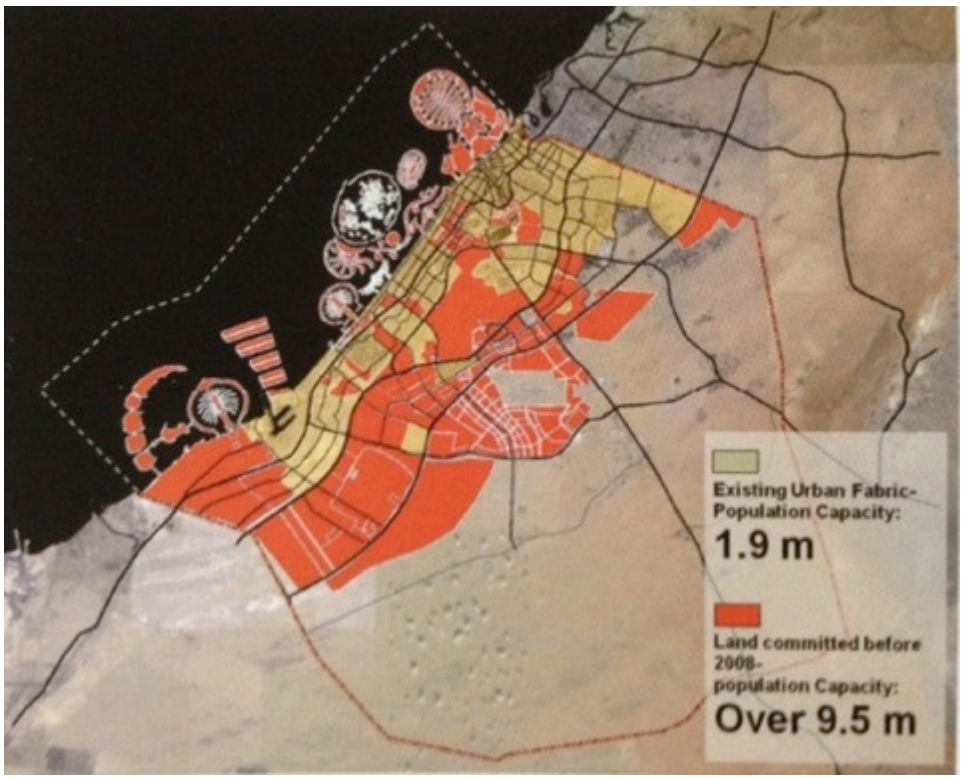

Fig 3.1: The land committed to UMPs before 2008, in red (Dubai Municipality 2012)

As for the aim of UMPs, we have shown in the previous chapters that they are implemented in a search for high visibility. Megaprojects do not constitute an answer for local needs, nor do they contribute to the implementation of a long-term strategic plan. They are built for an international virtual population. In many cases the projects are not populated, and the capacity of planned megaprojects exceeds population forecasts by a wide margin (see fig. 3.1). The quest for spectacle, records and images is at the core of urban megaprojects in Dubai. The power of imagery is used to project an image of a daring, smart and successful city. Moreover, if we examine published images of projects and aerial views of Dubai, it becomes apparent that a large number of the projects depicted are not built and are only potential ideas. A widely circulated map of Dubai that is frequently seen on real estate blogs and websites shows a series of artificial islands that take the shape of the universe, a broad waterfront in a crescent shape, a huge 'U' shaped artificial canal that penetrates the

desert, and many others (see fig. 3.2). These spectacular images contribute increasingly to a perception of Dubai as the city where any extravagant project can be built.

Fig 3.2: A circulated map that includes both existing and non-existing megaprojects. (Source: purchased from a private office for mapping in Dubai)

The limitation of a unified vision for the city can be seen in the circulated discourse within each project, promoting a self-sufficient project without any concern for complementarity with surrounding projects. A quick overview of UMP self-promotion discourses reveals that these large investments aim at creating independent 'cities' within the city, isolating themselves from the city's real needs or constraints.

'Business Bay is an incredible project in the heart of Dubai, an entire city with an infrastructure well equipped to promote businesses, trade and luxury living. This cornerstone of the new economic impetus is to be a capital hub for Dubai and the Middle East, it has established a new modern Central Business District (CBD) on the scale of Manhattan and is not only a very desirable place to live but also a major business and trading hub for local as well as international corporations'.

'Situated in the heart of New Dubai on Sheikh Zayed Road and between two metro stations, Jumeirah Lakes Towers, or JLT, is the ideal address to live, work and play.

JLT's dynamic lakefront community spread over 200 hectares encompasses 64 attractive residential and commercial towers alongside hotels, leisure and 160 retail outlets with over 50,000 people living and working here'.

'Dubai Festival City is a 1300 acre, premier waterfront urban community that has been designed to capture the ground breaking 21st Century spirit of Dubai. It offers a rich and vibrant living experience that interconnects the finest, easily accessible shopping, dining, entertainment and leisure, residential community, schools, Hospitality, commercial and 24/7 management. An established creekside mixed-use destination, Dubai Festival City offers an unrivalled community lifestyle with modern luxury, comfort and convenience'.

However, as discussed in previous chapters, the will for a unified vision is strong. The construction of a large number of UMPs, especially between 2000 and 2008, could not take place without a will and a vision imagined by the Sheikh and the elite circle of power steering this UMPs-based approach. The Dubai 2020 and other plans and strategies reflect clearly this will. Though clearly this suggests the presence of clear values and political choices behind urban development and planning in Dubai, public political debate around strategic planning choices or UMP design is inexistent.

All this and many other aspects discussed in previous chapters bring out the hybrid and bipolar nature of Dubai's UMPs-based approach: government-led strategic planning addressing the whole of Dubai's territory and building on systemic assessments and projections on one hand, and multiple sites of localized placemaking, led by private sector and parastatals seeking attractiveness, impact and fast profit on the other. One might be led to believe that this is a two-scales orchestrated enterprise where urban planning at large scale orients and encompasses the multiple urban design initiatives at UMP level. However, in Dubai's UMPs-based approach, as in other urban planning approaches that give importance to the physical form, the relation is far more complex.

1.2 Comparing UMPs-based approach to similar physical approaches

In this section, we examine UMPs as a physical approach through a comparison with other similar approaches. In selecting these approaches, our aim is to de-emphasise ideological or operative differences in favour of the social, political and economic contexts that produce the physical form. This is generally consistent with typologies that give a deal of importance to urban form from a historical perspective, as exemplified in Benevolo (2004) and Riboulet (1998) where the focus is on understanding urban planning through the interrelations between urban physical form and the socio-political and economical contexts.

This perspective is interesting since it allows urban forms to be seen as the product of a governance, an epoch, in their interaction with technologies in producing cities – something the "UMP-based planning" approach seems to do.

As we have shown in the previous chapters, urban megaprojects can be understood as a product of a particular system of governance and a specific urban evolution that had led to adoption of a series of economic policies aiming at orienting the city's development. They are also a spatial matrix linking various scales of actors, temporalities and spaces.

We consider that there are similar approaches in urban planning that have privileged – or that were reflected through – urban form as lever to planning and that developed in a specific political and socio-economic context. Riboulet (1998) distinguishes four types of physical urban planning[21]. They are: traditional planning, royal planning (*l'urbanisme princier*), the liberal mode of planning, and the regulatory mode of planning. (The first of these is a spontaneous type of planning that does not reflect a will or a vision.) In the next section we will draw a comparison between the urban megaproject-based approach and the urban planning approaches suggested by Riboulet.

[21] In French, Riboulet exhibits four types of 'mode de composition', a term we consider the rough equivalent of the English 'urban design'. However the expression 'urban design' as often used in the Anglo-Saxon literature does not include the set of elements that impact the final physical procedure. This dimension is included somehow in the word 'mode' in French that encompasses, beyond the 'composition', all the context's aspects that have led to this final design. This is why in the context of this chapter we did not suggest an equivalent to 'mode de composition' in order to avoid inadequate translations and designations. However the expression 'urban planning' as we are using it refers, in our sense, to the physical form as intrinsically related to various contexts that lead to it being political, social, cultural or economic.

We do so in order to identify convergences and divergences between these approaches and the UMP-based approach. In fact, those approaches developed in particular socio-political and economic contexts, but tend to have a claim of universality – or at least to generalization. We do not claim this selection of approaches as exhaustive; nevertheless, we consider they are fairly representative.

In this section we outline the urban planning approaches presented by Riboulet. As noted above, these are royal urban planning, liberal urban planning and regulatory urban planning. The main similarities between these and the UMP-based approach are the physical material aspect and the presence of a will or a vision. This is what led us not to include in this comparison the 'traditional mode' of Riboulet's typology, since it does not encompass this dimension of intentionality and is more spontaneous.

Royal urban planning: This is an urban planning that depends upon the existence of an absolute authority. The process of this urban planning is particular and can easily be distinguished from ordinary processes since it is marked by the rule of exception – be it in the urban form it produces or in the elaboration process. Most often it bypasses existing laws and rules. It aims at showing the absolute power of a prince vis-à-vis his people to concretize, in physical form, the dependence of the latter. Similarly, the UMP-based approach in Dubai reflects the presence of a centralized authority, as has been seen in previous sections. However, those who are addressed in Dubai are global actors and international investors rather than local subjects. Nevertheless, following Kanna, citizens are addressed in the meaning that the Al-Maktoums try, through mobilizing the modernity and the excellence discourse on UMPs and the city as a whole, to create and maintain a base for their legitimacy.

At the form level, the difference is normally clear between the 'royal project' and its 'ordinary' surroundings. The former shows a particular order and a different scale compared to the existing surrounding urban fabric. Its main objective is to reflect an absolute power through spectacular physical forms. Beyond the project's physical space, the influence of this royal intervention exceeds the initial project's boundaries and defines, somehow, the surroundings areas. The case of Versailles and of other royal squares in Paris illustrates the ability of the Palace to influence the planning of the city. This is what Riboulet calls the 'Capacity of subordination'. The UMPs in Dubai do not pretend to change their surroundings. Their impact on the city is different from that of royal planning. This impact, at the morphological level, can be seen most of all at the overall network of infrastructure in the city. From a general view of the city plan, the road and metro networks

for example are clearly designed and articulated to serve urban megaprojects, while there is no direct impact exerted by a megaproject on its nearest urban fabric.

Also, it is important to note that royal planning is representative of a particular monarchical society where laws, power, knowledge and urban relations are shaped by the Prince (Riboulet, 1998). That means that this type of planning can be reproduced in different areas of a kingdom or a nation so long as certain representatives of authority or the aristocracy, linked to the Prince, are present. This aspect can be considered also to apply in Dubai, given that many powerful actors close to the Sheikh produce a certain form of royal urban planning, through iconicity and through bypassing the law. However, a main nuance exists in the fact that all lands in the emirate are in one way or the other property of the Sheikh or subordinated to his direct or indirect control, and hence all these powerful actors are in the end translating the Sheikh's will by developing these lands.

Another characteristic of royal planning is the exceptional financing capacity that comes from taxes or rent rather than ordinary commercial exchanges. This is the case also in Dubai where the financing of UMPs cannot be provided from "normal" economic activities.

Liberal urban planning: Liberal urban planning is historically a product of a series of transformations, mainly in Western societies. It is a reflection of the beginning of a capitalist mode of production, of a cultural revolution and technical innovations. It is the result of the transition from a traditional artisanal society towards an industrial one. Liberalism in this sense is about a certain individualism that is more beneficial to powerful persons. For Riboulet, the city of liberalism is a fragmented city, where each powerful actor is free to develop his land in a logic of competition.

The result is the appearance of dispersed and autonomous parts in the city, marked by functional and physical disorganization. It is fully capable of producing particular and spectacular architectural projects; however, these different parts cannot create a 'unified' composition for a city, which must remain a set of individual parts. This aspect of fragmented parts is a main characteristic of Dubai's development through UMPs. It was shown in chapter two that the UMPs are creating isolated parts in the city, marked by mutual competition and overlapping of functions, without being able to create a cohesive urban fabric. The point of difference, however, with the liberal mode is that this competition is not real in Dubai, given that all the funds and capital of major development companies are centralized around the Sheikh's circle.

Regulatory urban planning: while differentiating between liberal and regulatory urban planning, Riboulet considers that neither exists in a purely separate form, and that normally they coexist. He highlights that this distinction is for representation-related purposes, aiming at more clarity in explaining each.

The main objective of regulatory urban planning is to impose order in the city's urban form. This is done through regulation that encompasses laws for the lands, regulating plot size and shape, and laws governing buildings, regulating the location within the plot, the footprint, the volume and contents. The intended results of this planning are order, alignment and regularity.

However, Riboulet admits that the limits of this planning can be seen in the dissimilarity between what is planned and what exists in reality – even in developed societies. He considers the reason behind this to be the absence of absolute power capable of enforcing such regulations. The ultimate authority for him is not the State but the economy and, more particularly, private capital. This aspect is exacerbated by the fact that contemporary governments need the private sector more than ever to develop the city.

In the context of Dubai, there are two aspects to highlight in this regard. The first is that the city, in response to the very rapid urbanization, has developed a series of strategic plans in order to orient and regulate urban development – as was shown in chapter 2. However, building and land regulations that are under the responsibility of the municipality concern only the center of Dubai and do not extend to the urban megaprojects. Urban megaprojects in Dubai are considered as specific development within the city's strategic plans. These plans impose a broad regulation for the content, such as industries, residential functions, airports, etc. The second is that regulatory planning can be seen inside each urban megaproject. Being developed by a parastatal or a private developer, buildings within a UMP follow a set of regulations that are elaborated in parallel to the master plan's implementation. The degree of respect accorded to the municipal city regulations varies between one project and the next. In the context of the great complexity generated by UMPs, it frequently happens that the preset regulations are modified, sometimes repeatedly, in order to meet with reality or the market demand.

Many similarities and divergences have emerged from this comparison: the UMP-based approach is similar to royal urban planning in the sense that both have a central powerful authority, a physical form marked by iconicity that can impact the immediate surroundings (in the first case) or the broader context of the city (in the second case). They also have the

similarity of mobilizing particular sources of funding, and of extending this mode to a wider circle surrounding the central holder of power. The UMP-based approach is similar to liberal urban planning at the level of results that is translated in a fragmented city reflecting individualism (in the case of the absolute liberal mode) and the absence of a unified vision for the city (in the case of Dubai). UMPs are not reflective of a regulatory planning, however; within each project, detailed regulations exist in order to provide a physical unity at the master plan level.

1.3 UMPs as planning instruments: role and challenges

In Dubai, and within the UMPs-based planning approach, UMPs could be considered as one particular form of planning instruments among the large arsenal of instruments deployed by its planning regime in order to produce the adequate urban form, dynamics and facilities that allow the city to embrace globalization while maintaining a strict control of its development and (re)distribution of its resources. As we have seen in previous chapters, this arsenal includes, among others, strategic planning, regulatory, fiscal, facility and infrastructure creation, networking and communication instruments. However, the UMPs as planning instruments seem to hold a central role in this approach.

This role is quite complex and ensures many of the assets behind this approach. Mainly, it can be said that:

- UMPs are considered as the ultimate tool for significantly and rapidly extending the city's boundaries. UMPs constitute a way to develop, through a single project, hundreds of hectares.

- UMPs are the essential instrument that marks the 'globalized' image of the city, through spectacle and fascination architecture and urban design.

- UMPs provide the main facilities and necessary functions for the implementation of international and regional headquarters of large firms in Dubai.

- UMPs are also a form of development that could serve as vehicles for diverse investments in different sectors, representing a considerable vector of economic development.

The assets of this instrument are however undermined by challenges to its capacity to articulate with other planning instruments. UMPs are in fact to a large extent self-standing autonomous: socio-spatial fragments with their own stakeholders, financial processes, spatial forms and temporalities. They are also first and foremost financial investments for large parastatal and private actors implicated/integrated in global financial markets. Hence, UMPs might relate/be exposed more to global processes and fluxes than to local ones. But at the same time, UMPs depend for their success – at least as financial investments – on local conditions: e.g. good city infrastructure, the sustainability of Dubai as an attractive destination for work and leisure, a minimum stability of real-estate markets, etc. By using UMPs as an instrument in Dubai's planning and development, policymakers are constantly challenged to strike the right balance between regulation and laissez-faire and articulate this instrument to other instruments. In the following we look into these challenges by focusing on the cases of two instruments: infrastructure development and strategic planning.

The tension between UMPs and infrastructure development could be illustrated through the case of the RTA, the authority for roads and transport, and the way it develops new roads and highways to service potential developments. Two opposite situations could be identified. One arises when a highway becomes unused or its construction is stalled because developers were not capable of bringing their projects to completion, a situation that was especially common following the 2008 crisis. The other is when projects develop with a need for road infrastructure that RTA fails to provide.

Indeed, in an interview with professionals in RTA, they explained how they adopt a 'wait and see' stance regarding the development of UMPs. Building infrastructure in Dubai is very costly. During and after the 2008 financial crisis many projects were stalled, downsized or re-phased. This had a significant impact on road construction. In Dubai's system, the RTA is responsible for building national and secondary roads, while local roads within developments are part of the developer's responsibility. With many of the stalled megaprojects, the RTA had already completed the construction of roads intended to serve the future development.

Fig 3.3:Roads put on hold around cancelled or stalled UMPs

Such outcomes are deemed abortive investments for RTA. This is what had led it to proceed by stages as the RTA waits to be sure that the developer is capable of delivering his projects, and the road network expands only following the completion of individual construction phases. Many of the stalled or not-yet-commenced megaprojects are located well outside Dubai's existing urban limits, and it is this that explains why there are so many roads that have still not got beyond the drawing board (see fig 3.3).

Tension between strategic planning in Dubai and UMPs' development is also significant. The general dissatisfaction among those who favour a strategic planning based approach to developing the city relates, among other things, to the minor roles that these strategic and city master plans are having in reality. For years now, strategic plans have been continuously and rapidly changing with each plan replaced by a new one. In that UMPs play a major role (see fig 3.4).

The planning tools existing before the real estate boom in Dubai have proven inadequate to keep up with the quick urban transformation of the city, and the complexity of procedures adopted by UMPs. Two contradictory logics mark the attitude of Dubai Municipality facing the uncontrolled UMP-based development.

Fig 3.4:Palm Jebel Ali, Palm Jumeirah and The World Islands, built starting in 2005. However they were not planned in Dubai Structure plan 2003. They were included in Dubai 2020, prepared in 2012 (Source:Google Earth)

At the strategic plan level, the Municipality's position has changed and evolved over time. It has adopted two different positions. First, it tried to include the already built UMPs in the city's adopted strategic plans *ex post facto*. Then it adopted a 'go with the flow' attitude, committing certain lands for special development, or in other words, for UMPs. Even this second approach is more reactive than proactive. In fact dozens of planned UMPs are promoted before their construction, in locations across almost the entire area of the emirate. The developers of these planned UMPs are usually well known and are most often the same parastatals that are developing other UMPs. This aspect forces the Municipality not only to include built UMPs in its plans but also many planned ones. This reveals flexibility towards developers and a will to facilitate and encourage new developments.

The second logic, opposite to the first one, is rejection by the Municipality of the idea of UMPs as a development tool. This came after the 2008 crisis and can be noticed mainly in the Dubai 2020 document that suggests that the uncontrolled trend toward the spread of UMPs across the Emirate has generated fragmented development, unexpected infrastructure costs and trivial competition and duplication of uses between various megaprojects. Its main recommendation, however, is to proceed by in-fill development on the un-built lands scattered between megaprojects. In other words, UMP-based expansion has not been prohibited, but a serious review of the way they are done is recommended. Even with such a recommendation, now considered the main basis of urban planning principles, a new artificial island emerged facing Dubai Marina just after the document was issued. This new UMP was not included in the 2020 Dubai Urban Masterplan (see fig 3.5). It is clear that the

balance between official municipal planning and an urban development through UMPs driven by the agenda of developers is still tilted toward the latter.

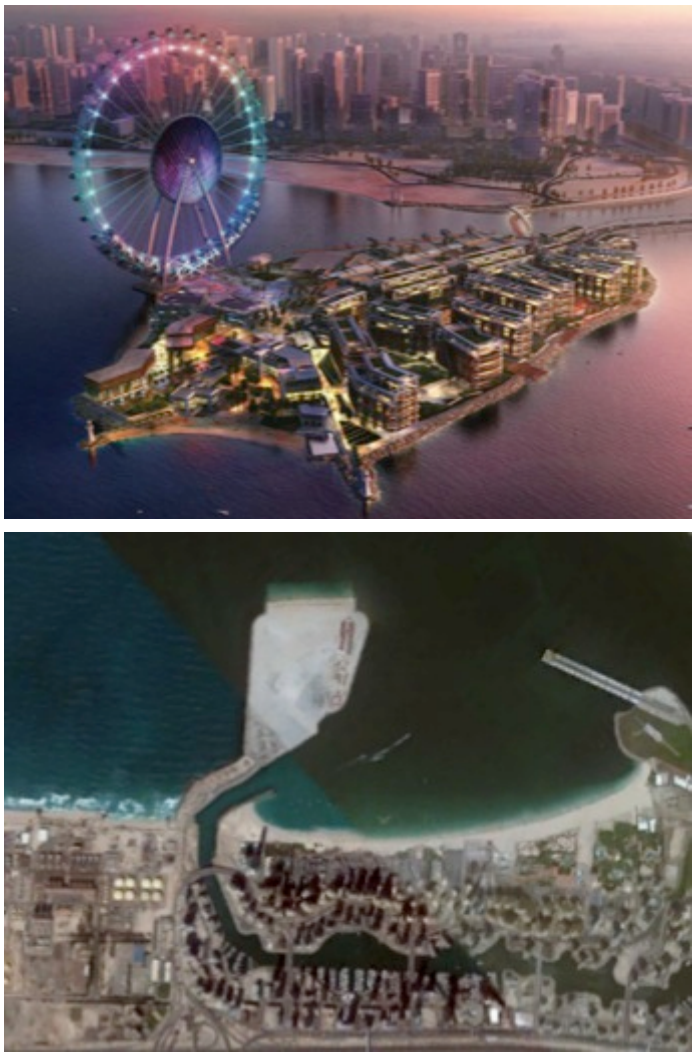

Fig 3.5:A new artificial islands (Bluewaters Island) hosting 'Dubai Eye' opposite Dubai Marina. It was not planned in Dubai 2020 Masterplan. (Source: respectively, www.meeras.com and Google Earth)

In both cases – infrastructure planning and strategic planning – tension with UMPs as planning instruments comes from the fact that they stem from a different rationality regarding what urban planning and development are and how they should operate. Infrastructure planning and strategic planning are long term processes closely tied to

government's political choices and budget. They rely on thorough data, regarding existing physical, social and economic conditions, coming from a large variety of institutions and compiled by the bureaucracy. They interact closely with other existing planning instruments (fiscal, real-estate market organization, etc.) and are usually conceived in articulation with them. To the opposite, UMPs are short or mid-term investments, linked to financial markets and opportunities and led by parastatals and private actors. It is these discrepancies in temporality, nature of actors and operational modes that bring this tension. In order to deal with these tensions and discrepancies, UMPs as instruments have developed what could be called mitigation capacities. The latter are of substantive and procedural nature and are explored closely in the next part through the case of Dubai Marina UMP.

2 UMPs as an instrument to mitigate complexity

This section examines the management and implementation aspects of UMPs in Dubai. It aims to unveil aspects of competition, complementarity, centrality of decision, diversity of actors, and synchronisation of actions, at the UMP and city levels.

Urban megaprojects often require significant funding and are based most frequently on particular forms of public-private cooperation. Far from being inscribed in controllable schemes, UMPs often go through a series of unpredictable and brutal on-hold or acceleration phases. As discussed above, this constitutes a challenge to classical institutional assemblages previewed for the project implementation. However, in many aspects, UMPs hold the characteristics of policy instruments (see chapter introduction) that allow them to become the backbone of a different type of assemblage through what we have called in this thesis the UMPs-based approach to urban planning and development in Dubai. These characteristics are mainly the capacity to provide frames for the stabilization of actors, institutional and spatial relations through the provision of accepted and shared values (stemming from the Sheikh's vision for the city), flexible technical procedures and ad hoc negotiation spaces. The articulation of these procedures and negotiation spaces is orchestrated through particular forms of project management.

2.1 Facing the complexity: pilotage or project engineering

In this part, we focus on literature statements in the domain of 'urban engineering' and 'strategic pilotage[22]', in order to bring a better understanding of challenges present in managing this type of project, aiming at minimizing risks.

There is a growing literature on the management and production modes of megaprojects, where they are analysed as objects and processes as well. This literature tries to suggest management tools and normative grids. It reflects the political and economic issues that are implied in these processes, and the necessity for planning as a discipline to understand one of its main emerging operational levers (UMPs). This literature can be divided into two main categories: that of urban engineering (Dupont et al., 2012) and that of strategic 'pilotage'.

2.2 Urban Engineering

Engineering includes all functions ranging from conception and construction to the control of a technical or industrial installation. The project is at the very core of engineering since it represents one of the main rationalization tools.

Urban engineering aims to develop tools, methodologies and environment to better consider urban issues. In fact, the main objective is to ensure their effectiveness within complex systems (Dupont et al., 2012). It brings to the urban production process a rationality that helps deal with the complexity of projects and minimize risks by reducing uncertainty.

In fact, as Middler (1993) explains, the more we go forward in a production process, the more we acquire an important level of knowledge concerning elements of this process, but we lose the ability to act, since changes and adaptation possibilities decrease. In the context of urban engineering, different methodologies have emerged in the last decades[23] to

[22] *Pilotage* is a French term meaning 'steering' in English. Few Anglo-Saxon references use the equivalent term steering (see Idt et al., 2012). However, the francophone literature is far more developed than the Anglo-Saxon literature in dealing with the notion of pilotage. Therefore the French term *pilotage* will be used in this research.

[23] Modelling of actors and their interactions is thus proposed, in a perspective of systemic analysis that would allow simulation of solutions aiming to optimize these interactions (Priemus, 2008). Similarly, in line with risk

transcend this paradox and allow optimum process organization in terms of widening adaptation margins and minimizing uncertainties.

Urban engineering approaches are specifically designed to control this complexity; however, complexity is still difficult to stabilize. Urban projects, particularly megaprojects, depend in their implementation on a large number of factors and actors that the projects' promoters are not necessarily capable of controlling.

In fact, the implementation of these projects often heavily relies on the project developer outsourcing activities to other public organizations, private companies, consultants, facilitators and mediators. The frames of cooperation of these actors come under informal agreements and mutual trust since legal frameworks do not always follow the need for regulation at this level.

Furthermore, the management of these projects entails a need over time to adapt to changes of various kinds: economic, political, cultural and urban. Real estate market fluctuations, changing priorities of politicians, the emergence of new social and cultural trends and themes (such as concern for the environment, heritage, local social and landscape representations, or industrial renewal), the transformation of the urban structure due to urbanization, can all compel deep rethinking of the project or its abandonment.

In this perspective, and in order to understand and explain the ability of many urban projects to adapt and cope with this unpredictability, other researchers prefer a different frame of analysis, that of 'pilotage'.

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management methods, the so-called 'real options' analytical approach, that can identify the 'best' possible choices at any given stage of the process (Miller and Lessard 2008), has emerged. The distributed collaborative design approach is inspired by design theories and practices to underline the need, in the different stages of the process, for collaboration modes and decision-making that are segmented and hierarchical or common and collegial (Dupont et al., 2012). Other approaches highlight the need for performing systems of information management that can bring strategic information to involved actors at the various stages. It can play a crucial role in these approaches (Kim et al., 2009). The application of the so-called concurrent engineering approach, emphasizing the need to move forward simultaneously on the various aspects of the project, could also have benefits when applied in the urban project (Ben Mahmoud-Jouini, 2003).

2.3 Strategic 'Pilotage'

The notion of 'pilotage' is not new in the urban field. However, the expansion of its recent use reflects a growing need for decision-making bodies to provide guidance and coordination of action in an increasingly complex institutional and operational context. The pilotage, as a management flexible practice marked by ad hoc decision making, is often opposed to heavy bureaucratic practices (Lavergne, 2014; Zerah, 2011). Pilotage would bypass these practices and provide capacity to act and take decisions in an unstable operating environment, which requires a good reactivity from the actors.

Concerning the urban project, pilotage has been defined as the activity of organizing actions and directing their development, implementation and outcome (Arab, 2004; Arab & Lefeuvre, 2011). It is defined through the articulation practices of the various components of the project(s) and not from a prior methodology – as is the case in various urban engineering approaches. Pilotage varies deeply from one situation to another; this poses a significant challenge to scholarly analysis of this crucial activity for understanding the management and control of the urban project today.

However, we can identify analytical keys that emerge and allow the making of certain generalizations about this phenomenon: the arsenal of strategies and tools mobilized and the figure of the pilot(s).

In fact, the pilot(s) of a project play a central role by ensuring the unity of projects. This unity is built through the efforts to coordinate action in defining, maintaining and evolving global orientations, issues, (cognitive) meaning of action, strategies, means and timing, and all this over the entire duration of a project (Idt, 2009).

The interest of this definition lies mainly in the fact that it can help to overcome the separation of the phases of the project, specific to 'urban project management' (Frébault, 2006). This separation structures the reflections coming from the fields of urban engineering (Prost, 2003; Henrot, 2003; Ben-Mahmoud Jaoui, 2003), but is seen in the pilotage perspective as a fictional division that only rarely corresponds to reality and distorts the analysis. For promoters of an analysis in terms of pilotage, the urban project is far from being a linear process. On the contrary, different parts of a project evolve at very different rates, or even in total independence of each other. Moreover, often, the action may be initiated while the reflection on the overall project can long continue to evolve (Arab, 2004; 2007).

In this complex process, authors identify a number of advantages and strategic and practical tools for success in the ongoing adaptation of the project over the long term. At the strategic level, it is the ability to act on, and develop the program and the cognitive dimension of the project that allows the pilot to ensure the stability and unity of the project. By allowing these two dimensions to evolve, pilots manage to integrate or accommodate the interests of various stakeholders and to maintain the unity of the project while opening to new themes that are supported at political or popular level.

At the practical level, creating and articulating ad hoc and informal spaces at different scales (at project level, at the level of its subparts, and at the metropolitan level) is a common practice. It is in these spaces that exchanges allow the negotiation of interests, or the monitoring of the positions of the different actors, but also the building of trust between these actors. Developing new operations also goes in this direction. Entering events, and even creating them, is a common practice to enroll actors or redefine the image of the project.

The pilot[24] is described in the literature as a person who is well connected to political and technical milieus. It is a person who has good technical knowledge within the urban project, or who at least shares the technical culture with the project's main actors. He is also close to the center of the political decision-making system, while retaining a degree of personal autonomy that often derives from relationships built with actors in the context of the project. Finally, he has an important position within the institution in charge of the overall pilotage of the project.

In this sense, the following sections examine the context of the project's command, and the aspects that have required strategic and operational modifications. Then we identify, through the case study of Dubai Marina, the pilotage practices, and more particularly the program changes and the project's image. We designate these aspects as falling under the substantive level of the project. Another pilotage practice that will be analysed falls under

[24] The pilots come from politics as well as the technical world. They are often locally elected. It is frequently the case that there is a link between some mayors and major projects they develop in their city, for example. However, they can also be technical actors, including directors and managers within public institutions who are faced with the task of coordinating large urban projects. In some projects, we can encounter several pilots who must find ways to act together.

the procedural level and is related to the creation of informal negotiation and coordination spaces.

2.4 Analysing Dubai Marina as case study

Dubai's context is specific, and Dubai Marina is emblematic of this context. As was explained in the previous chapters, Dubai is urbanizing through a succession of urban megaprojects, under particular entrepreneurial governance. In a specific context that is characterized by strong partnerships between economic and public stakeholders, the central place of the Sheikh, and parastatals that are set in competition with each other in a logic of profitability, the Dubai Marina project is emblematic of this complex context that requires a continuous pilotage by the strategic actors and an articulation between their various pilotage actions.

2.4.1 Historical description of the project

The project was designed to create a new centrality west of Dubai, in a site that was still, until the end of the 1990s, not urbanized (as per an interview with HOK, the first urban consultants of this project). The project's general orientations have largely changed. From a medium-density residential project, Dubai Marina has turned into an area where hundreds of skyscrapers compete for world height records.

The idea of the Marina, or in other words the artificial canal in the center of the project, goes back to when the CEO of Emaar[25], the company developing the project, visited the city of Vancouver. He was impressed by the artificial channel Concord Pacific project and later asked architects involved in this project to develop a similar plan in Dubai (Hurley, 2012).

The first project's master plan dates back to 1999, and the early work with the canal digging started in 2000 (as per an interview with HOK). The project was supposed to develop according to different phases over a span of twenty years. In 2010, almost ten years after

[25] This story is well known and frequently told in Dubai. We were given the relevant details in our interviews with professionals in Dubai Municipality as well as with HOK.

the project's launching, and despite the dwindling number projects that were still under construction, the general appearance of the marina was that of a completed project. In the space of ten years, the total area of the project was already built.

Fig 3.6: Dubai Marina in 2012 (Source: Oula Aoun)

Interestingly, the project was characterized by a gradual shift from a traditional approach to development of a global project by a single actor to a series of divisions of the project into a number of independent projects that are supported by different stakeholders in competition (Based on our interview with Emaar, and TECOM)

The 500 ha that made up the original area of the project was divided into four different projects developed by various real estate companies, all semi-public: Jumeirah Lake Towers (JLT) developed by Nakheel (and separated from the rest of the project area by Sheikh Zayed highway), Jumeirah Beach Residence (JBR), developed by Dubai Properties on a large site amputated from Emaar following a decision of the Sheikh (as per interviews

with Dubai Municipality), and finally The Beach project, developed by Meraas, on a plot belonging to the land granted to JBR (see fig. 3.8)

What remains of Emaar's initial project consists of the majority of the land surrounding the marina, barely exceeding half the surface area of the original project – and which will be called in this text the Marina Project to differentiate it from the overall project called here Dubai Marina.

In addition to these four projects, a new project known as 'Bluewaters Island' emerged in the form of an artificial island in the sea. Construction works have already begun during our visit to Dubai in 2013 (see fig 3.13). This project adds further complexity to these urban megaprojects, thus modifying again the scope of the original project and complicating the actors' relations.

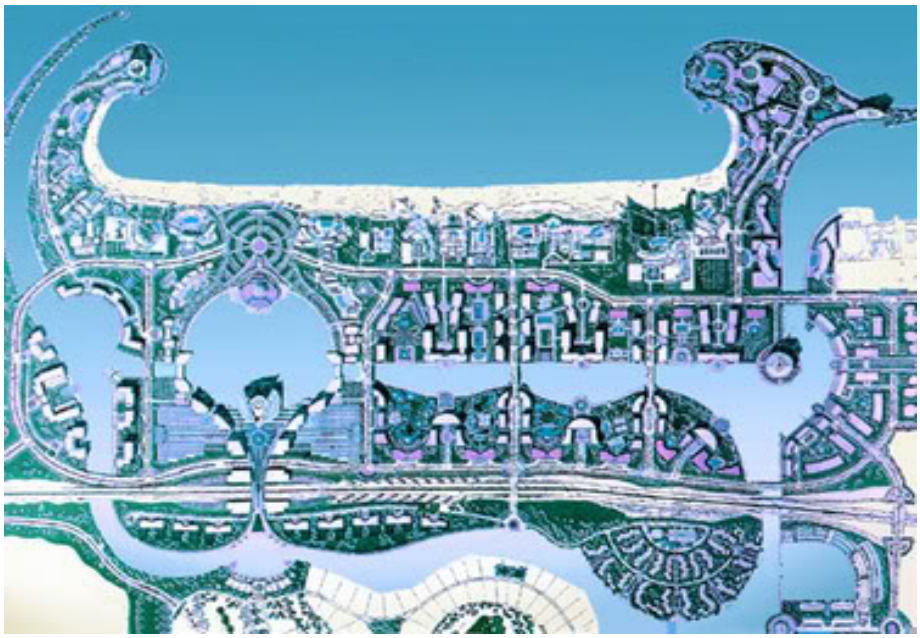

Fig 3.7: First plan of Dubai Marina dating back to 1999. (Source: http://mag218maps.blogspot.be/2005/07/westside-marina-aka-dubai-marina-1998.html)

Fig 3.8: Different sub-projects constituting Dubai Marina in 2014

2.4.2 Project's actors

The development of each of these subprojects is affected by the multiplicity of actors within each of them and by the presence of actors that are involved at the city level. Within each sub-project, there is first the project developer (parastatals) that also plays the role of contractor in certain respects. These companies have their own services that support the design of new streets, the construction of some facilities and the management of public spaces (Based on our interview with Emaar).

However, they regularly call for consultants on many technical issues, especially for the development and adaptation of Master Plans that are the main references in these projects. In a highly speculative context, buyers and re-purchasers of many plots, developing their own building projects, will seek to increase their profit margin through increasing land exploitation rights.

As for the many private companies and commercial actors, they push for investments and events that confer greater attractiveness on the overall project. Finally, we note the presence of various public and sectorial authorities in charge of services and infrastructure, the municipality and the powerful transport authority (RTA).

To all these actors must be added the central role of Dubai's governor who does not hesitate to intervene in project details, or to dismember a project and create a new one at the stroke of a pen.

The regulation of interrelations among the actors is directly guided by profit logic. In Dubai's context, there is no democratic participation and transparent governance framed by rules and charters specifying responsibilities and procedures. This makes the maintenance of project stability a difficult task in the face of sudden changes in economic and financial markets, especially when they are exposed to global forces (Sampler & Eigner, 2003).

In that sense, the efficiency of project engineering practices seems very limited. That's why we observe the development of pilotage practices at two levels: in each project and between different projects.

2.4.3 Pilotage practices in each project

In each of these projects, forms of pilotage take place aiming to adapt the project to economic, political and cultural factors and to maintain the coherence and unity of the project. This is expressed through interventions that have substantial implications affecting the form and functions as well as the image of the project. It is further expressed by procedural elements related to spaces of negotiations and interactional practices conducted by some actors.

The continuous programming practice[26] is both strategic and tactical. It facilitates adjustment and guidance of the project through new constraints that can have a decisive impact on its future development; at the same time it opens a space to accommodate the interests and requirements of new actors. This is especially the case of the various projects in Dubai Marina.

Continuous change of 'Affection Plans', at least in the case of Marina Project, is quite expressive of this mode of incremental regulation, which is also used strategically to reorient the program and shape the project.

[26] Meaning the continious redefinition of the project's content

These changes took place quite dramatically in the early phases of the project which witnessed a transition from a mainly residential luxurious low-density program to a more diversified and complex one combining business functions, tourism and leisure. The change is not only at the level of functions, but also in terms of site exploitation, leading to height increases. These changes reflected the unexpected rapid boom, urban extension and high speculation the city underwent in these years.

Dubai Marina, as a new centrality that developed to the west in a particular location on the axis linking Dubai and Abu Dhabi, in the proximity of the industrial and regional logistics centre of Jebel Ali, represented a high potential for the city development. The main actors therefore sought to meet the expectations of the many real estate investors who were involved in the project and wanted to benefit from this investment. They also wanted to confirm the new role expected of Dubai Marina, as a 'new city centre', following the vision of the city governor. It was to be a new centre around which a large number of investments and mega-projects would develop to the west of the city.

On a much smaller scale, but just as importantly, we saw the intended purpose of the JBR project (Jumeirah Beach Residence) deeply redefined. In a late phase of the project's construction, the 'Walk' emerged, in the midst of speculation aiming at developing a commercial offer mainly focused on hotels, restaurants and cafes. The project was primarily residential with local shops intended to serve its population. By annexing a strip of land that developed into a large boulevard overlooking the sea and dubbed the 'Walk', the project was profoundly redefined. This strip of restaurants and retail annexed to the project, allowed for the inclusion of new actors in the project that helped make it a success. The Walk became in fact the new 'public' space of the 'New Dubai'.

A third example of adaptation in depth of the spatial organization and functions of projects is linked to the resurgence of certain public actors from the mid-2000s, including the RTA. Densification was already present and started to constitute a challenge to the proper functioning of services and mobility within projects. But it was only with the RTA becoming in the 2000s the 'new transport police' that various projects made serious efforts to comply with its dictates. This led to the design and implementation of new road, interchanges, water taxi services and even a special tram on the site of Dubai Marina, in order to diversify the locally available transportation. A metro line linking the site to the rest of the city is already there, with two stations located at the project's boundaries. Through these transport projects both cooperation and complex arrangements between the parastatals and the RTA were established.

Another level for acting to adapt the project while maintaining its coherence and unity is its form, or rather its projected image based on the form. In these projects where developers seek to compete by producing iconic buildings, where 'Affection Plans' are the only official documents binding the form of buildings, it is easy for a project to lose its coherence and unity. However, the guidelines structuring the form of these projects have a major role in contributing to project unity.

An extreme example is the case of the JBR project where sixty towers were built all together, in a single phase, with a single architectural style (see fig 3.9). The podium at the ground level and the restaurant strip of the 'Walk' consolidates its uniform aspect and insures its functional continuity.

Fig 3.9: JBR towers, in light brown (2013). They have been built in only one phase and following the same architectural design. (Source: Oula Aoun)

For Marina Project and the JLT project, despite the morphological differences of the various constructions styles, their articulation around central water bodies (the marina and

the ‘lakes’ respectively) provide them with elements of coherence (see fig 3.10). However, the need to ‘continually sell the project’ to attract investors and buyers requires periodic efforts to recreate a new image of the project while trying to ensure its unity.

Fig 3.10: JLT towers, built around four artificial lakes (2013). (Source: Oula Aoun)

Thus, the Marina Project in its last phases has faced fierce competition from the development of spectacular mega-projects that multiply throughout the city. This will lead it to deeply redefine its affection maps, especially in the eastern zone, to allow the development of skyscrapers (over 70 floors). This must be understood not only in the sense of a change in programming but also, and especially, as a change of image (As per the interview with Emaar).

The message of these changes was that the project is always in the race of the production of the spectacular city. The number of skyscrapers setting many records, in what is called the tallest block in the world, is evidence of this message (see fig 3.11). The Walk at JBR must also be seen in this light. This program change is above all a change of image for the project.

Fig 3.11: The 'tallest' block in the eastern part of Dubai Marina (2013). (Source: Oula Aoun)

It is interesting to see in this project the number of regulatory spaces that have enabled the development of localized and ad hoc arrangements between the various players, in order to accommodate their interests.

A characteristic regulatory space is the one that develops within Emaar to discuss with the developers the design guidelines for new construction in the vicinity of Marina Project. Indeed, Affection maps that represent the only official document do not provide detail in the design guidelines.

However, a tacit agreement between the municipality, as public authority in charge of construction and planning permits, and Emaar prompts the former to refer to a control unit within Emaar in dealing with these issues. This mechanism allows the different interests of developers who are at the same time 'clients' and the project partners to be taken into account and integrated, as far as it is possible. In fact, it is through their voluntary enrolment in Emaar's directives, at different stages of the project that an overall uniformity and possible adaptations to changes can be ensured.

Another regulatory space – that may be more veiled – is that concerning the Sheikhs. These are a separate caste in the socio-political system of the emirates of the Gulf. In fact, they benefit from an exceptional status that does not necessarily have to acknowledge any of the regulatory frameworks established by public authorities or parastatals. They only deal directly with the Sheikh, Governor of Dubai, who also gives them the 'royal lands' or plots within projects. However, although concrete information is lacking on this point, it is clear from the outcomes that spaces of negotiation between these Sheikhs and parastatals were used in order to articulate their private property interests in the whole project.

The solid relationship between parastatals and the municipality is central to the success of their projects. In the early years of Dubai Marina, although the municipality is officially in charge of planning issues, in reality it had a peripheral role in the development of the area. In practice everything came back, in terms of making decisions, to parastatals, either by official recognition accorded to a body that is attached to them, as in the case of DTMFZA (Dubai Technology & Media Free Zone), a subsidiary of Dubai Properties, or based on informal agreements as in the case of Emaar. Even after the restoration of the municipality's functions after the 2008 crisis and the centralization of all the responsibilities in terms of urban planning in municipal services – leading inter alia to the setting aside of the DTMFZA – the role of the municipality remained a secondary one in these projects. In reality, the regulation of these projects is highly time-consuming and is undertaken as part of informal interpersonal networks that are difficult to stabilize within an institution such as the municipality. The 'mutual trust' between city officials and project managers in concerned parastatal companies is the reason why, even today, they continue to operate in the same way as before.

This regulation is also strongly linked to the role played by certain individuals. Apart from the Sheikh, with his deep involvement in the strategic vision of the project and its relationship to the city, there are also the different CEOs of parastatals. So for the CEOs of Emaar, Dubai Properties, Nakheel or Meraas, there is a direct involvement in the various aspects of the regulation of projects that goes with their position.

For Emaar, it was its CEO who was behind the concept of Dubai Marina. As said above, he was personally in contact with Canadian architects to invite them to design the first plan of the project and discuss it with them. He was also in direct contact with the majority of project stakeholders to manage the various stages of the project's progression, but also all the related investments within the project. He also represents the media side of the project as well as being the key person to deal with strategic issues related to the project, with the

city authorities and with the Sheikh, given his place in the circle of power (As per interview with Emaar).

A powerful and omnipotent person within his organization, he is involved in the selection of senior consultants, reviewing plans, and he invests his time heavily in the daily monitoring of many technical details, through discussing various issues with the employees.

2.5 Competition or complementarity

Despite the competition between the different projects constituting Dubai Marina pushing everyone to stand out by highlighting their own specificities compared to the others, we stress also the degree to which complementarities, cooperation and even compromises, come into play to ensure the collective interest of this new urban centre and its status *vis à vis* the city.

This link between competition, specificity and complementarity can be observed at different levels. This is mainly concerning the different functions that are included in the projects. Even if all projects are competing in the market of residential real estate, this is less clearly the case for other functions. For example, we see commercial functions taking different forms in different projects: a shopping centre in Marina Project, a strip on the 'Walk' of JBR, or a leisure centre at 'The Beach'.

A second example is that all projects are seeking to highlight an image of places offering public spaces, especially through promenade areas, that are not otherwise so available in Dubai (see fig 3.12). However, at the same time it is about different types of promenade, in each project. At Marina Project, there is a promenade along the water, reserved for pedestrians, while at JBR The Walk offers the opportunity to a car promenade in a close proximity to cafes and restaurants. At The Beach, the promenade has a character that is more in keeping with the beach and tourists who frequent the seaside projects nearby.

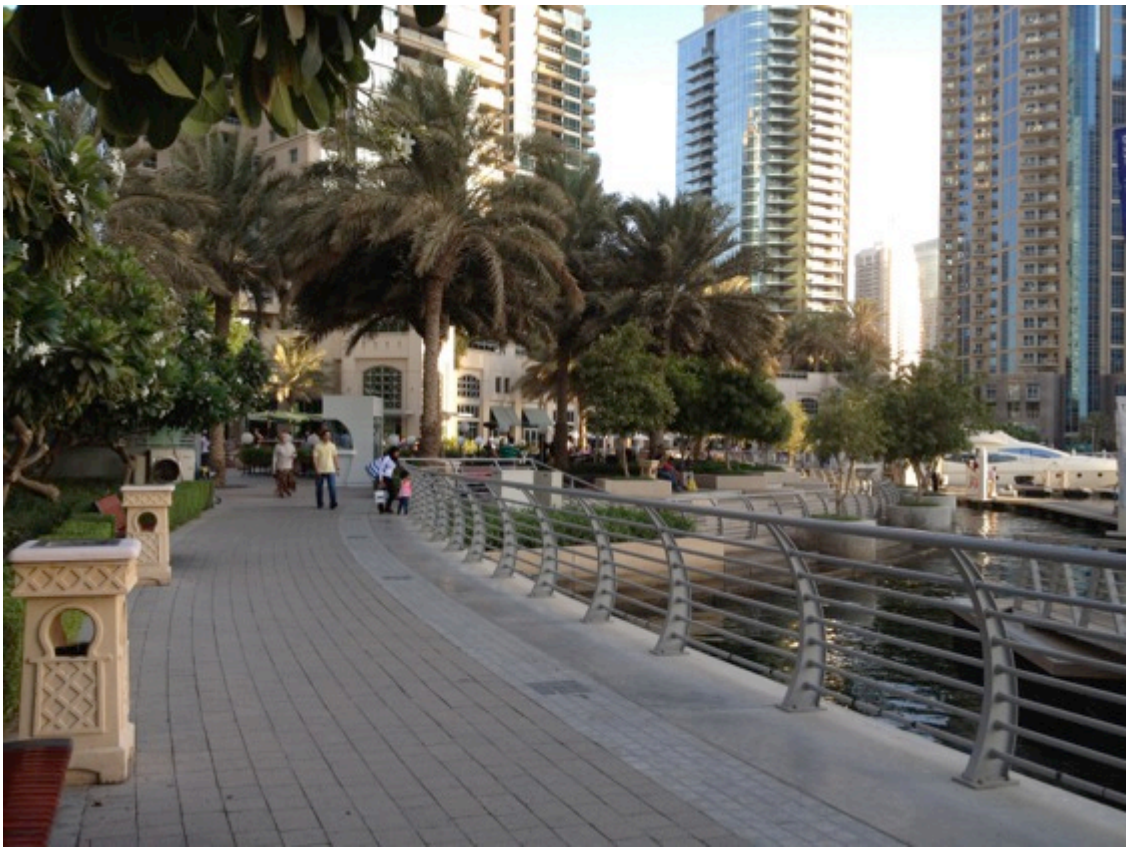

Fig 3.12: Pedestrian promenade in Dubai Marina, (2013). (Source: Oula Aoun)

It is also apparent from the way the different projects are approaching the issue of quality and luxury image that they all seek to promote, a complex interrelation that articulates competition, specificity and complementarity. In Marina Project, this is reflected through the yacht clubs and luxurious boats that occupy the banks of the marina. At JBR the Walk itself is promoted as a refined public space dedicated to the promenade but also to commercial activities targeting upper middle classes. In The Beach, this is reflected through a selection of restaurants and upscale cafés, creating a luxurious restaurants pavilion.

It is about an underlying search for a complementary in providing facilities and atmospheres, even if in practice the interactions between different actors remain occasional and minimal. Thus, The Beach project has grown through continuity logic with the dynamics of the existing Walk (see fig 3.13), in order to benefit from existing dynamics while being different. However, in terms of competition logic, there has been no formal and official coordination with the actors of neighbouring projects, including JBR, in the development of the project and its orientations.

Fig 3.13: The Beach Project, being built in parallel to the existing 'The Walk' in JBR. (2013) (Source: Oula Aoun)

Thus there exists a particular articulation of projects and a search for coherence in implementing this complex world of Dubai Marina. It does not take the form of either an adopted or a stabilized governance around a common project, but rather a logical synchronization and adjustment of temporalities, places and interests of different spaces and practice. It is a logic of reactivity where each actor redefines its project in response to initiatives, actions and projects of the other actors. It is mainly through this mechanism the particular interests of the different actors are connected, as well as their collective interest focused on the development of Dubai Marina.

2.6 Between the project scale and the city scale

The case study of Dubai Marina allowed understanding procedural dimensions of UMPs but also at city scale. In fact, many similarities between the characteristics of strategic

pilotage at both scales can be found. More importantly, these strategic pilotage scales are also interconnected. Several elements explained in terms of pilotage can be seen simultaneously at the UMP and city levels.

First, at the substantial level, the continuous adaptation of form and content can be seen at the city level. More specifically, it can be seen in the number of the city's master plans and strategic plans, that aim each time at readapting the characteristics of the city, and reorienting its development (see for example the case of Dubai 2020 explained earlier).

Second, at the procedural level, the ad hoc regulatory spaces that exist at the project and sub-project level also exist at the city level. These are interpersonal spaces that include the municipality, the Sheikh, the developers and the regulatory authorities. These spaces are also clearly connected to the UMPs' negotiation and ad hoc regulatory spaces, since many actors are present in both chambers. In fact, it is this very asset, beyond all institutional frameworks and strategic documents, that serves best the articulation of UMP processes to the city-level urban planning and development processes led by the Sheikh's close circle. However, the articulation between the two scales of ad hoc negotiation and regulatory spaces is not rigid and operates mainly through synchronization. Although this synchronization is more driven by a competitive context than a search for mutual interest, as is often the case for sub-projects.

The complementarity, reactivity, competition and synchronization that we have identified at the project scale do exist at the city scale, though at different levels. Rarely there may be complementarity between two projects, as for example when the same developer is building two different projects, whether or not they lie in close proximity to each other. Reactivity is not frequently observed at the program level. In the case of Dubailand for example, which was put on hold after the 2008 crisis, the sub-projects did not change or adapt their programs, and the majority were cancelled or simply frozen. Instead of adapting the program or the image, new projects are implemented in other locations, with a completely new program and a new image. Competition exists between megaprojects at city level. This can be seen in each project claiming status as a centre for the city, or a new city within the city. However, it is difficult to interpret the duplication of functions and programs that do occur with great frequency. One interpretation may be found in the absence of market and feasibility studies.

Increasingly, and despite the challenges to the articulation of the infrastructure planning and UMPs instruments, the RTA seems to hold a growing role in linking city and UMPs scales.

This can be seen at the UMP scale when the RTA has recently imposed more significant measures to be followed by the developers in order to ensure some unity and complementarity at the infrastructure level.

In this third chapter, we have analysed the UMPs-based approach in urban planning and development in Dubai. The chapter aimed at understanding the characteristics of this approach, the place UMPs hold in it and the interconnection between the two scales.

In the first section, focus was on the location of the UMPs-based approach midst urban planning approaches with a focus on those approaches that give emphasis to the physical/spatial dimension. It also investigated the role of UMPs as planning instruments and the challenges they raise to any city-level planning strategy. UMPs-based approach in Dubai seems a hybrid approach drawing on both urban planning and urban design traditions. It has many similarities with royal mode of planning, mainly a strong central actor with vision and means, the use of iconicity in architecture and urban design as a mean of asserting and legitimating political power and the capacity to generate ad hoc resources for large investments. It has also similarities with the liberal mode of planning, especially the absence of strong regulatory frameworks, a focus on entrepreneurial initiative and the seemingly fragmented landscape that this mode of planning produces. Hence, the UMPs-based approach to planning and development in Dubai emerges as a physically-oriented mode of planning where large UMPs play a central role in their competition and complementarity.

In this approach UMPs as planning instruments play a range of roles that are essential for the capacity of the city to answer the challenges of catering to the needs of globalization economic dynamics and profit from them. This includes mainly: (1) creating housing and other facilities to the expected international population and tourists that will allow this economy to work, through a considerable expansion of the city and through rapidly produced and self-regulated large territorial fragments, (2) the consolidation of the fascinating globalized image Dubai is trying to project of itself, (3) the provision of facilities needed for emerging sectors linked to globalization economy and, (4) the

contribution to a multi-billions dollars investment market that is one of the major wheels of economic development in this emirate. But they also bring challenges, not the least the difficulty of articulating this ever-changing and opportunistic instrument of urban development with other long-term, bureaucracy-led processes.

In the second part of the chapter, focus is on the way this articulation is done on the different scale of the UMP, its sub-parts and the city level. Based on the case study of the Dubai Marina, representative of many large UMPs in Dubai, UMPs seems to hold many characteristics of what scholars in the footsteps of Lascoumes & Legalès (2004) call public policy instruments. UMPs as physical objects and as processes provide technical procedures and ad hoc arenas for bringing together and articulating, in a strategic pilotage manner, actors, interests, sectorial processes, scales and budgets. The way they get to inscribe in each other and interconnect different scales, like Matryoshka Russian dolls, allow simplification of the complexity at each scale keeping it manageable. Hence, when a project gets to a point where complexity is becoming too difficult for the pilot to lead, it might well get divided in several projects. The synchronization of projects at different levels operates through a dynamic of competition, complementarity and voluntary adjustment. The regulation of this dynamic is in many aspect in informal ad hoc spaces bringing together a restricted number of key influential persons, usually holding many responsibilities and connected more or less directly to the close circle of the Sheikh.

Conclusion

Urban megaprojects are considered as a tool for cities' revitalization, and are pursued in search for economic growth and competitiveness. They constitute icons of the managerial and technical prowess in the production of the contemporary city. They have different designations that vary with time, place and authors. However they have a large set of similarities such as the large scale, the complex implementation, the large number of actors and partnerships between private and public sectors.

The old version of megaprojects has existed in different periods and forms, such as the mega structures movement of the 60s. However the contemporary ones are very complex, with mixed-use content and numbers of signature buildings. In the context of this research, we haven't included large-scale infrastructure projects, large architectural projects nor territorial projects. We have defined UMPs as large urban development projects that are specific for their size, complexity and duration. While they are considered as expressions of neo-liberal urban planning policies, they are as well the product of specific local factors such as socio-political and economic contexts and professional *milieus*. Similar to neoliberal policies, UMPs have to undergo an adaptation and transformation process in each context.

This research has focused on UMPs in Dubai, a particular context where these have contributed to a massive urban transformation and to drawing the image of a high-tech, smart, successful and competitive city that can be considered as a world metropolis. Dubai has a specific process of development since it has went in only one century from a fishing and pearling village to a city that is 'present' on the map of world cities. It is considered however as in a hectic search for spectacle and superlatives, and its policies are mainly oriented toward the market, combining taxes minimalization and a lean regulatory framework.

The main argument is that UMPs, as a reflection of globalization, are at the same time: (1) a territorial processes and forms that are rooted in the local context of Dubai, and (2) the first tool of the city's development through which the city is controlled and oriented. The research aimed at questioning many related issues: first the specific context's factors that have contributed to the emergence and the adoption of UMPs as main tool in the city production; second, the ways these UMPs have impacted the city's urban dynamics and

urban form; third, the ways UMPs are contributing to forging a particular planning approach in the city.

The first chapter, divided into three parts, examines respectively the specific urban history of Dubai, the particular governance and the customized expertise that focus on the international consultancy firms.

We have drawn a chronological description of the major phases in the urban history of the city, going from a small fishing village, to the oil discovery that have fuelled the city's development and the building of modern infrastructure. The tradition of open policies adopted by the ruling family, the geographic location and a focus on an economy of spectacle and fascination, are the main elements that mark and explain the city's present dynamics.

We have also described the morphological transformation characterized by the extension of an old centre, based around a creek and a port, to a linear and polycentric pattern, along the main axis of Sheikh Zayed road, and through scattered agglomerations of UMPs. The adopted tools by the city such as strategic plans and master plans are numerous and quickly replaced, mirroring a lack of efficiency facing the rapid emergence of large number of megaprojects built in a short period of time that does not exceed 15 years.

In this context, UMPs are the dominant tool that contributes to the city development. They are the major component of the adopted policy in Dubai that focuses on city marketing and an economy of fascination, where semiotics and theming are observed in urban spaces. This is contributing to the commodification of the city, and an increased sectorization aiming at giving meanings and roles to the various city's parts.

The particular governance was examined through three major actors in Dubai: The Sheikh, the municipality and other relevant authorities, and the parastatals. Planning and development in Dubai is carried out following the vision of the Sheikh. A small elite circle surrounds the Sheikh and contributes as well at this centralized form of governance. The system is often described as a corporate style in managing the city, where the Sheikh is considered as its CEO who runs the emirate as if it was his own company. He is the main actor and the most decisive along with his small team. Key persons within this circle are chairmen of large parastatals. He often allows exceptional procedures and is involved at any time in the process of projects' conception and implementation, through the 'Executive Council', be it in the public or the private, to change the course of things. The Executive

Council has a structure that is similar to a government with heads of institutions and departments playing ministry's roles.

Dubai municipality, supposed to be the main authority in governing the urban, is far from being a key actor in managing the planning and the organization of the city. Other authorities, such as those managing the free zones, are powerful actors in this system. Dubai municipality plays therefore a reactive adjustment role, as for example adjusting strategic plans to adapt with the quick emergence of megaprojects, or from the other side facilitating the administrative procedures for developers. It can be argued that the governance system is marked by interpersonal relationships and compromises, privileging leadership and trust instead of rules and regulations, and by the unclear limits between public and private, since the majority of key developers are controlled by the Sheikh. From another part, being the controller and the owner of the great majority of lands in the Emirate, the Sheikh allocates lands to key developers in order to built megaprojects; a way through which he exercises control over the city's parts.

International consultancy firms are also a key actor in this system. We have examined the knowledge transfer in the domain of urban planning, in the context of a lack of local expertise, professionals and norms in the real estate market in Dubai. We have also analysed the adaptation measures undertaken by these firms facing the market instability, the clients' demand and the intrinsic complexity of UMPs. These measures are related to their internal organization, their modalities in accessing the market, and their mobilized methods. We have also set a typology differentiating engineering firms from architecture firms. It was shown that the first are mostly involved in UMPs requiring a high level of engineering prowess, while the latter are involved in the context of UMPs requiring a spectacular image and design.

In the second chapter we have focused on the morphological aspects of UMPs, and their role in the wider dynamics of the city, as main engine in driving the urban extension and the city's transformation. In the first section we have drawn a model of UMPs in Dubai based on the literature in this domain. In a second section we have compared this model's characteristics to the characteristics that emanate from our corpus of 36 surveyed megaprojects. The comparison is articulated around three axis: UMPs as governance tool, UMPs as tools for the city's expansion, and UMPs as elements of a 'fragmented' urban planning. We have structured the literature-based model into two sets of characteristics, the ones related to governance and the ones related to morphology. In the first, we have identified a corporate leadership, a major role for international consultancy firms, weak

public authorities, distant end-users, and the financialisation of the real-estate market in Dubai, in the context of UMPs. The morphological aspects are the exceptional size, the mixed-use program, the architectural records, the location on waterfronts, and the role of greenery and water as major components of the design.

From the other side, analysing UMPs characteristics from an empirical approach is based on the following analytical grid: (1) highlighting the role and status of UMPs through identifying two factors: first: the Key developers and their location within the centralized system of governance and second: the number of megaprojects located in free zone, mirroring a major role of these flexible spaces within the city's regulatory framework. (2) Understanding the role of UMPs in the city's expansion through analysing the potentiality of the various projects' locations, and their role as engine of urban expansion that contributes to a snowball effect. (3) Understanding UMPs as fragmented and commodified parts that are at the same time elements of a potential unified system of the city. This was addressed through analysing the role of theming, symbolism, records and the relation to the city. We concluded this section by arguing that three factors contribute at understanding Dubai as one entity, in a fragmented urban development. First, despite the seemingly various master developers that have each his own agenda, we have shown that these latters are grouped under the umbrella of few giant holdings that are controlled by the Sheikh who has his centralised vision for the city. Second, and following Mangin (2004), commodified spaces in are contributing at holding the city's parts together, through producing an image of a modern, capable and experimental city. Third, infrastructure networks constitute a physical element that connects the city and provides an asset for development.

The third part has analysed four case studies at a closer scale: we have focused on the morphological aspects, including the urban design of the master plan and the modalities of relations between the project and its surrounding from one side, and the city parts from the other. In analysing urban morphology, we have suggested three elements: the divisibility of the master plan, the accessibility of the project, and aspects of iconicity. These elements were analysed and illustrated through, respectively: (1) the project management and implementation through the plan's form, (2) the status of the project within the city's dynamics and the type of relation with its context, and (3) the physical image of UMPs in contributing to the city's promotion and adopted fascination economy.

Aspects of iconicity were illustrated through the type of composition (concentric, organic, linear, others), the role of central green and water bodies, the existence of artificial islands, and the records. In terms of accessibility, it has been illustrated through the projects'

location, the availability of various types of transport within their surrounding, the relation to the context at the level of urban design (meaning continuity or discontinuity of urban fabric), and the catchment area. We have concluded that UMPs are clearly designed to contribute to the city's visibility, through iconicity aspects. We have concluded as well that UMPs may be closed to their near context, however they are connected to the city through sophisticated infrastructure. Finally we have concluded that urban form is a way by which UMPs are managed, through the divisibility that helps implementing the project through different separate phases.

The third chapter's objective is to analyse the UMPs-based approach of urban planning and development in Dubai. It aims to situate it in the larger literature on physically-oriented planning approaches, identify the role UMPs play, as planning instruments, in this approach and the challenges they bring mainly in terms of articulating them to other planning instruments and city scales. The chapter is structured around two sections.

In the first section, we start by localizing UMPs within the analytical grid that differentiates urban planning and urban design, and second, comparing UMPs to similar physical approaches in planning. It was shown that the UMPs-based approach is a hybrid standing on the fence between urban planning and urban design traditions. It tries to bridge the considerable gap between a neoliberal city making approach, building on visibility, the focus on the 'Place' and the physical form, the flexible governance, the short term of implementation, the variety of design options, and the absence of a critical reflection on one hand, and a "caring state" approach building strategies to address the socioeconomic development of the city as a whole on the other. The UMPs-base approach has strong similarities with the historic royal planning approaches giving a central role for the Prince in building the city, mainly through iconicity in architecture and urban design. But at the same time it relates, at least in the urban landscape it produces, to a radical form of liberal planning where regulations are limited and entrepreneurial private initiative brings out a spatially very differentiated, sometimes fragmented, city.

In this UMPs based approach, the presence of different urban planning and design traditions cannot be brought to a simple issue of scale where planning operates on the city scale and design on the local project scale. The interconnection between scales is more complex and cannot be understood but through the role UMPs hold in this approach and the way they get to link actors, institutions, sectors, instruments, temporalities, scales and resources. To understand this complexity, we have resorted to understand UMPs as instruments, planning instruments but also and mainly public policy instruments. In this perspective, UMPs bring

a certain “inertia effect” and simplification that can help deal with complexity while maintaining the values and will of the Sheikh – the backbone of the “Dubai adventure” – embedded in all processes.

For that we have first identified the role played by the UMPs in Dubai’s UMPs-base approach and the challenges it faces in articulating with other instruments. UMPs are in fact the planning instrument that allow Dubai to cater, on the urban spatial and development levels, for the needs of a globalized economy it is trying to integrate: a huge need for housing for incoming population, new state-of-the-art facilities, a fascination image and a multi-billions dollars real-estate market that drives its economic development. But at the same time, its opportunistic short and mid-term investment nature puts it in tension with more traditional government/bureaucracy-led long-term planning instruments like infrastructure planning and strategic planning.

Second, and in another section, and through the case of the UMP of Dubai Marina, we have questioned the way UMPs as objects and processes constitute policy instruments holding different actors and scales together. For that we have resorted to the literature on project’s management, and more particularly the project engineering and the pilotage. First we have identified main divergences between these two methods. The rationality and pre-set methods characterize the first, while uncertainty, adaptation and flexibility characterize the second. We have analysed the presence of both methods in a case study, Dubai Marina. Dominated by pilotage methods, the implementation of this megaproject is marked, at the substantial level, by continuous adaptation, of the form, the content and the image. It is also marked by the subdivision of the project in several sub-projects in order to keep it manageable for a leading pilot. This subdivision, in the way of Russian dolls, allows at each scale an important simplification of the complexity. As for the way the relation in each project, between the different sub-projects in the larger project and between different project at city level, the existence of unveiled ad hoc informal regulatory spaces piloted by key persons connected to the Sheikh’s inner circle allows a framed negotiation at each level between the concerned actors at that level. This regulation between different sub-projects and projects takes the form of synchronization, adaptation actions and high reactivity facing any changes that may occur, as well as an equilibrium between complementarity and competition dynamics.

In the light of these three chapters, we bring forward a set of conclusions that summarize our understanding of the UMPs-based planning approach and provide material and starting questions for launching future research.

Large urban projects are not particular to Dubai. In a context of city competition at the global level, many cities have supported the development of large urban projects. These projects are there to build a new image for cities as much as to answer their pressing needs for diversified residential demand and economic activities. However, what we see in Dubai with the UMPs-based planning approach is taking the large urban projects' production process to another limit. It is making of this process the building block of city-making in a context of very rapid growth and uncertainty, through a complex assemblage of the various fragments and actors of the city.

In fact, the most important asset of the UMPs-based planning approach is its speed. Like most large urban projects in Europe and the USA, UMPs seek iconicity and contribute to the production of the image of the city. Like their European and American counterparts, they are imbricated in multi-scalar governance dynamics involving a large variety of public and private actors. However, the tempo in which the UMPs develop in Dubai is unprecedented and in that very different. Speed does not mean simple acceleration to already well-known and analyzed European and American processes. Speed is here essential and provides answers to new and different stakes. For a rising city with no history, no image, this UMPs-based planning approach has allowed the creation of a fascinating and attractive image. In the absence of clear and stabilized urban strategic plans, this approach has helped cope with large demand for growth while allowing key governing actors to maintain control of the city's development.

It is exactly for their capacity to rapidly change the whole landscape and dynamic of the city that UMPs have been recognized, in the now documented process of "dubaisation", as a main "export" of the city. From Morocco to Turkey and beyond, many have seen in these UMPs a lever that could help revitalize cities living deep urban crises. The capacity of this planning approach to ignore existing urban dynamics – in an amnesiac way – and to develop its own dynamics, seems to be a magical solution for governing actors in these cities.

However, to the difference of UMPs built in the periphery of Cairo or Casablanca, in Dubai, UMPs are not isolated fragments but part of a large assemblage process. The latter is what we have called in this thesis the Dubai's UMPs-based approach to urban planning and development. Of course, many UMPs in Dubai are gated communities, while other are conceived to function independently from the rest of the city. But all these UMPs are related through a main process. It can be seen as a complex multi-scalar governance process allowing the involvement of a large number of private actors and areas all over the city in

the urban development process while giving the Sheikh's circle the needed weight to maintain an efficient and effective tight control of this process. Paradoxically, the UMPs that are usually seen as symbols of fragmentation are the very backbone instruments that allow the process of synchronization to work.

This assemblage to whom the city owes its success is far from being a top-down engineering exercise. In fact, there is has been in the last decade a formidable growth and change at the demographic and economic level while there is too few recognized formal norms and conventions and too little available and stable data. To provide a stabilized mode of urban development in the midst of all this uncertainty, this assemblage through a UMPs-based planning approach operates less in an engineering mode and more in a pilotage mode. It is this very fuzziness of this multi-scalar pilotage that allows its flexibility and capacity of adaptation.

These conclusions lead to reflections and questions that could be developed in future research. A first question relates to planning in context of very rapid growth. This rapid growth in many cities around the world, especially in the global South, has translated in informal development and more slums. It has produced very large metropolises whose very governability is put to question. However, as shown by recent research, in some cases - especially in China -rapid growth and complexity have not necessarily led to ungovernable metropolises. On the contrary, authoritarian rule, infrastructure and urban services governance have allowed these cities to stabilize and orient their rapid growth and urban development. Questioning elements of convergence and divergence with the Dubai UMPs-based planning approach, especially in terms of governance, in a comparative approach could hence present the starting point of a research project.

In the continuity of the first question – but with more focus on materiality of infrastructure – and building on the analyses of this thesis on the way certain physical characteristics of UMP's design allow for flexible arrangements between different actors and interests, another possible future research track would be to focus on elaborating our understanding of the role physical characteristics play in allowing or blocking flexibility in multi-scalar governance processes.

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