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City Centers as Urban Growth Cores

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Abstract
The urban growth is a continuous challenge for any city. It requires continuous development strategies to meet the new economic and social requirements. Historical evidences show that architecture and urban design can be important tools to stimulate the urban growth by establishing urban cores to contain, facilitate and stimulate economic and social activities. The city's history shows that the city center is an important area in any city for its dominating role in creating the city's architectural characteristics and supporting its economic and social functions. The cities have developed different patterns of city centers in order to achieve the urban growth. This study shows how can architecture and urban design be used as a strategy to create livable city centers and how can this livability be an important source for urban growth? The paper is using three models of city centers Brasilia, Oslo and Dubai where all have attempted using the city center to generate urban growth but by applying different strategies. Brasilia has applied functionalism to build one city center which cannot be changed, Oslo has applied new multi city centers in its central area, Dubai has developed multi city centers spread in the whole city.
Keywords: City Center, urban core, Urban Design, Architecture, urban growth, economic growth, Street, Livability, Sustainability, Dubai, Oslo, Brasilia.

1. Introduction

The city's history provides us with three important lessons about the city centers vital role as a sustainable growth generator. The first is that the center is the *power core* for central religious buildings, ruling power's palaces and other related important buildings and structures. These important functions made the city center the power core and has continued from the ancient time till the present. The second is that the city center is the main *economic core* and the source of the economic growth in the city (Richards, 2012). It has contributed to build commercial buildings and streets to facilitate the concentrated commercial activities. The third role is that the city center is the main *social core* which contains and facilitates major social activities in the city and identifies its livability (Jacobs 1961). These three important roles *(Political, Economic, and Social*) had been established in the city center since the early civilization such as Babylon and Rome and continued till our contemporary time (Figure 1). These three roles demand a dynamic and a continuous interaction between city center's architecture and its continuous socio-economic changes and demands.

The industrialization was the major force to change the traditional city center's planning and architectural typologies along with its living nature. Industrialization (Morris, 1994) was also the major power to create new urban realities in the cities such as population and economic growth. The new urban realities had stimulated emerging new trends in planning the city and architecture. The new architectural and town planning trends had introduced new patterns for the city in general to deal with the new demands following social, economic, technological changes along with increasing role of the car as the main transportation mean. These patterns have divided the city into functional zones, removed the dense traditional city center where city's main social and economic activities amalgamated with a dense urban fabric (Tietz, 1999). Large number of cities have relocated the city center's functions outside the city center to suburbs. It has totally changed the traditional dense and multifunctional structure of the city center which had a vital role in creating the dense and active social life. The resulted segregated city has produced deserted city centers in many cities in North and south America and Europe with large economic and social consequences. Today we can identify different urban planning solutions to deal with the deserted city centers. In this study I will show three cases (Brasilia, Oslo, and Dubai) which can provide with some learnings about how to solve the deserted city centers and how to reactivate the city centers in a way to be strong sources for sustainable economic growth in addition to be livable places.

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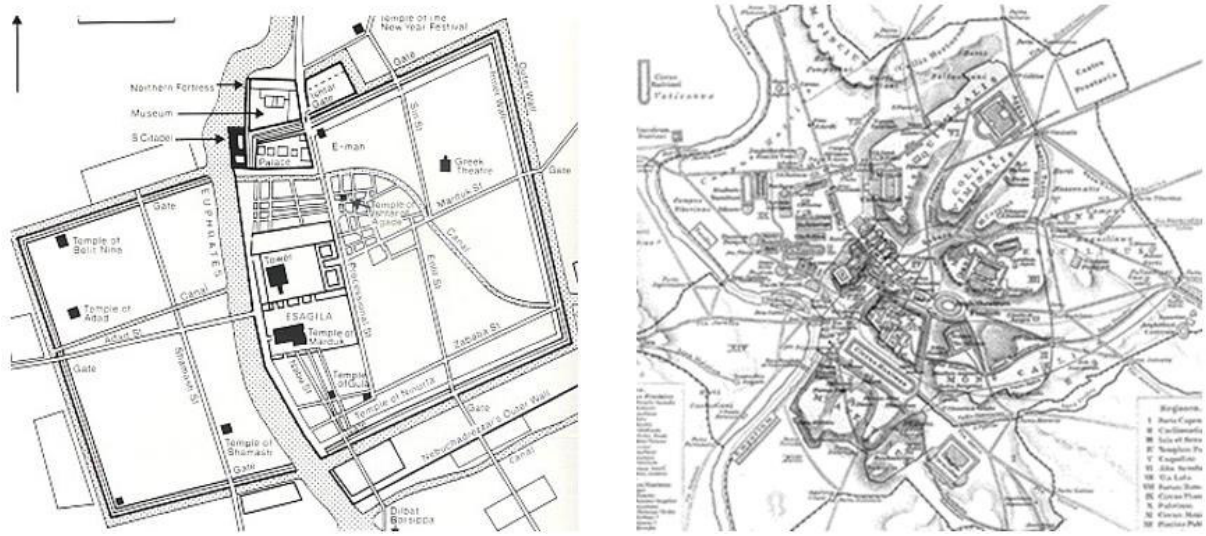

Figure 1. City centers of old cultures: a. Babylon b. Rome

2. Brasilia: A City Center with Functional Segregation

Brasilia is one of strong examples of a large coordinated city-building in our modern time. Brasilia (figure 2) was an experiment to apply the functionalism following Athens Charter of 1933 by the Brazilian architect Lucio Costa and which was based on Le Corbusier's notions (Le Corbusier,1987) of the distribution and ordering of functions of the city including segregating housing areas to be in high-rise blocks and destructing the traditional wholesale (Kostof, 1991), (figure 3). The city was built by the central authority's decision to achieve new growth in the country by consuming Barazil's economic surplus but this big goal was associated with creating large social and economic problems (Holston, 1989). The city can be criticized for its total dependence on the functionalism as the only design framework which ended with a city that imposes a rigid urban life in the city.

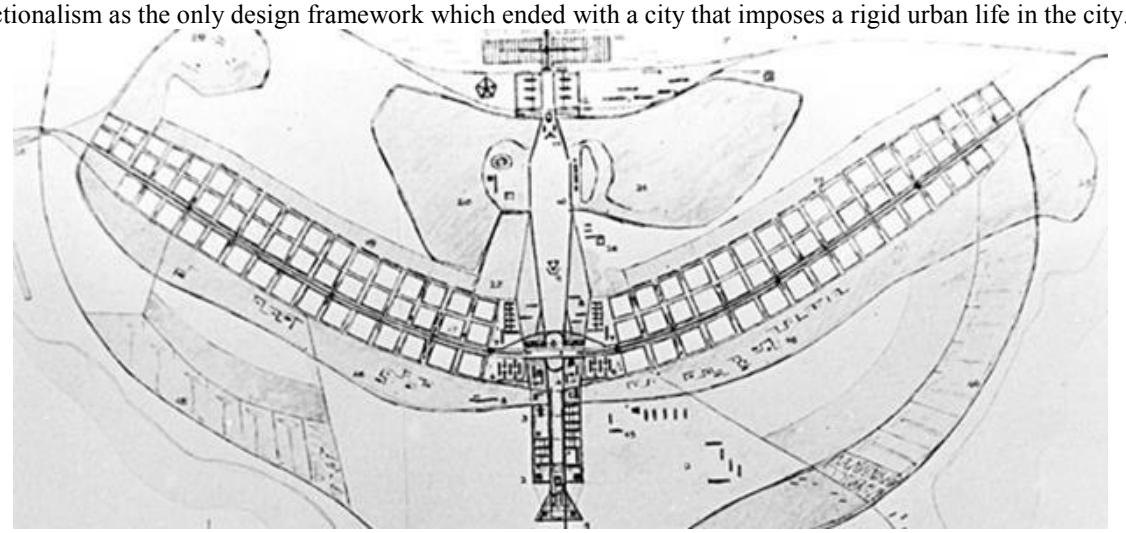

Figure 2. Brasilia: Architect Oscar Niemeyer 1960 an ideal futuristic city which had targeted reforming the social and economic systems and relationships.

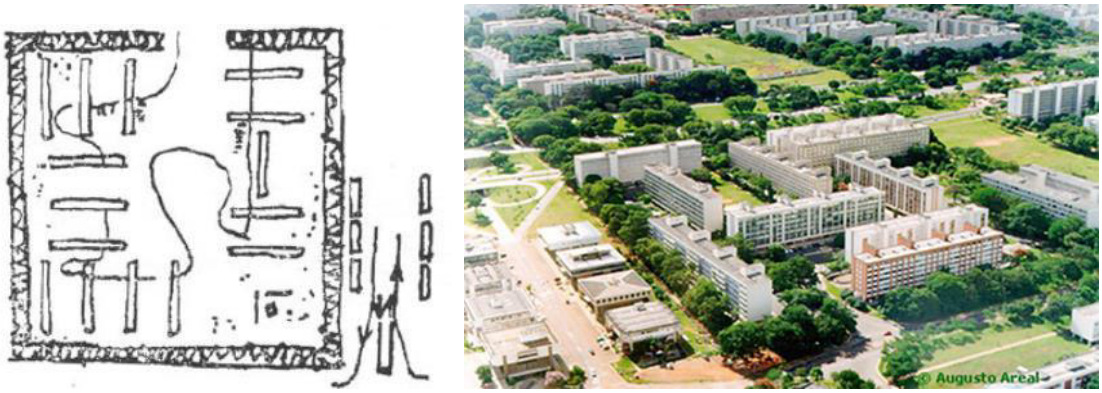

Figure 3. The residential Super Block pattern of Brasilia with its buildings, loop road system and large open spaces (Belli & Gelgun 2014)

The main concept of the city is based on having a central city center which contains all governmental, economic and cultural functions and two wings which contain all residential areas. The residential areas are designed as super blocks. Each particular super block of Brasilia is designed to be an independent low density residential area in average 6 floors with its own infrastructure, facilities and services. The main city functions are concentrated in the city center. All buildings of the city center have various and strong architectural design characteristics while all residential blocks have similar design characteristics.

This urban design concept had showed many negative consequences to the city center's livability and growth capacity which could be found in many other cities applied similar concepts (Jacobs, 1961). Dividing the city to segregated functional zones was one of the principles which had contributed to large social, economic and environmental problems. These principles had been criticized because they have changed the physical structure of the city in a way that street life has also segregated following these zoning principles. By this way the city center has lost its characteristics of being a facilitator and a container of dense mixed and multi urban social and economic activities (Mamfford 1989).

3. Oslo: A City Center with Multi Cores

Raising critics against the functionalism in many cities have enforced new urban design trends in order to bring real social life into the city centers. An important factor that is dominating the new trend is how to create the urban livability in the whole city center and how make the city center a growth center. Many cities around the world have applied new urban design strategies to reform their city centers.

The present Oslo is a planned city built in 1642 using a grid system (figure 4). In 1945-1960 the city had experienced large growth and the local authority solved that by decentralizing the city structure, building satellite residential areas around the city and using motorways to connect them with the city center. The satellite residential settlements were developed to be sleeping areas and lost all real urban life quality. The fjord area in the city center had also lost its main industrial function due to relocating of ship industry and other related industries and services. As a consequence, the city center had large number of users and had provided the city center with the required density and social and economic activities.

Building the satellite residential and economic areas have created a big urban challenge for the city center of Oslo and required new urban design strategy to revive the city center. The new strategies are based on building new projects in the city center. These projects have created new compact urban cores within the city center area, integrate them with a network of natural green, creating attractive and safe environment, and finally creating public oriented streets (figure 5). In this way the city center is grown to a domain with multi urban cores where each particular core has its own center and using particular architecture, urban design to contain and facilitate its functions.

Figure 4. Transformation of Oslo Oslo 1642 Oslo 1930

Bjerke: A housing areas in the suburb of Oslo (the sleeping cities) Oslo 2016

Figure 5. The green network of Oslo The compact urban development

Bjorvika or the Fjord city (figure 6) is the main urban development project to realize the new strategy of creating the chain of multi urban cores. Bjorvika is located in the central part of old Oslo, about 10 km long, covering 225 hectares divided into 10 project areas. The project has applied several principles to create an interesting living environment for its own residences and attract visitors and business. The key principles which are applied to achieve the new targets are mainly:

1. Compact, multiuse, intensive land use.
2. Public oriented urban development.

3. New diversified architectural solutions and urban design

These principles provide the required components to create multi urban cores in the center and support their capacity to grow and be livable. The case shows a strong relationship between the the architectural solutions capacity to facilitate the creation of sub cores along the Fjord as method to decentrlize the cores and achieve their growth. Although these multi cores are showing a positive growth yet all these cores are located a long the fjord while the inner city areas are left. Such strategy creates another problem to Oslo's growth because the resulted city has unbalanced destribution of the growth cores in the city. This can be easily observed in the new cores high property speculation both residential and commercial properties.

Figure 6. Bjorvika, Oslo, Norway

4. Dubai: The Multi City Centers

Dubai has been grown rapidly since 1990s (Krane 2010) to an important tourist, business and financial city (figure 7). The economic growth has created a rapid urban growth and attracting large number of people from the whole world (Gupte, 2011, Davidson, 2005). Dubai with its 2.5 million inhabitants (Dubai Statistic Center, 2016) has created a unique urban phenomenon in the region and even in the world for its capacity to grow and diversify its economy parallel with applying new architectural and urban design solutions. The process is strongly influenced by the city's ruler Sheikh Mohammed AlMaktum who is personally involved in city's major construction projects and economic development processes. This personal involvement gives the decision making higher speed.

Within three decades, Dubai has created an urban growth phenomenon by its rapid growth which has been reflected in developing new growth model using several parallel strategies including architecture and urban design. One of these strategies is developing multi urban cores or centers to stimulate the commercial activities and social life in their areas.

The urban growth of Dubai is based on parallel and large number of urban development projects in strategic locations in order to attract new businesses, residences and users. The early projects were incremental projects funded by local and international investors. These incremental projects have created individual urban communities where each community has developed its own identity in terms of architectural features, outdoor design and community life (figure 7). The observations show that each particular community contains mixed functions such as residential and commercial. Some communities have basically one main particular function such as education, media, free zone, industrial and so forth. These different communities have different architectural characteristics and urban design solutions to achieve the community's particular identity and its growth. The architectural patterns are developed in a way that each particular area facilitates types of functions for particular types of users. Consumption and entertainment are two important targets shared by all these large development projects.

This urban growth model of Dubai reflects a strong similarity with Heliopolis in Cairo but with new dimensions and higher speed where parallel large urban development projects are built and each particular one forms a core. The core is planned and designed to facilitate and encourage economic and social activities. By this way the livability is integrated in urban design and architecture of each particular urban development project in order to attract the users and sustain its development. Since the majority of Dubai population is composed of foreigners, therefore, the node of each particular urban development has a multi-cultural social structure.

These nodes can be malls, bazars, public installations, streets, and parks which are designed in a way to contain large number of commercial, entertainment, and social facilities. These urban development projects apply different types of architectural styles. This characteristic has made it possible to experience the same social and economic activities in different built up environments according to the applied architecture and the urban design (figure 7). The city has built a large network of modern roads composed of highways and main roads. This network plays an important role into facilitating the relationship between the existing cores and. All

these projects in Dubai have created a new model of urban development with the following characteristics:

1. The city has not one urban core but a net of cores
2. New cores are added by building new areas or cores with distinct architectural features and urban design solution in order to attract the users.
3. The new cores can be a mixed used such as residential, commercial or specialized such as sport, media, and knowledge.
4. Each area develops particular public activities facilitated by its particular urban design and architectural style in order to attract different types of users to the area and create livability.
5. The car is the dominating transportation mean.
6. Green belts and water canals are often used to attract users and support livability
7. Entertainment and consumption are the two dominating functions in most cores.

Therefore, the city planning of Dubai, the infrastructure and architecture are developed in a way to facilitate different kinds of economic and social activities. This characteristic has increased its capacity to attract tourists from around the world in addition to its own people.

Figure 7. Transformation of Dubai from one city center to multi city centers

Dubai 1950: Deira and its main city center

2007. New urban developments with sub city centers

Deira the main city center

Dubai Mall


JBR


Festival City

4.1 The streets livability as the core's economic growth source

The case study of Dubai shows that creating livable streets has been used as a strategy to support cores growth. The sustainable economic revenue is the main target for this strategy. The core can be complex buildings or streets. Most of the streets network in Dubai is based on car traffic premises and play an important role in linking between the different districts or cores. Different types of public transportations have been provided in the city including Taxis, Buses, and water taxi. Recently a tram has been provided in some area in addition to a long metro line has also been built to increase the accessibility of some of these focal sites by public transportation (figures 8, 9). The car is still dominating the passengers' transportation. The bus and taxi have no particular lanes in the streets therefore their role as alternative public and sustainable transportation is less than their potential capacity.

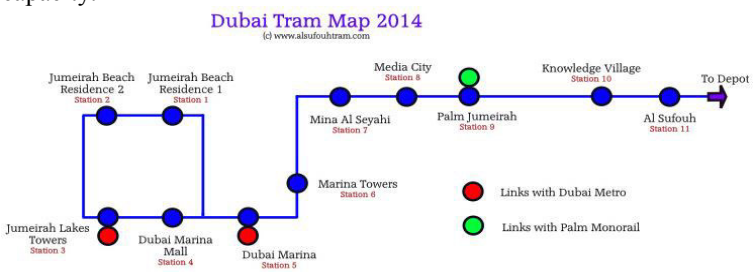


Figure 8. Dubai Tram


Figure 9. Dubai Metro

The second point is that Dubai is witnessing building large number of skyscrapers and shopping malls but parallel with this there is a new trend to develop low raised commercial and entertainment streets and they are establishing to forms of urban cores. The buildings and the outdoor spaces of these cores are designed in a way to meet different types of public needs to attract users and create livable streets. Each core is applying its own street design, architecture, urban design, functions and use patterns. For example, City Walk and The Box City are two neighboring projects but are applying different types of architecture, urban design and landscape.

4.2 Dubai City Walk, built in 2014 along Safa Road of Jumeirah district in 2013, and is a low-rise setting providing a range of retail, food and beverage options (figure 10). It is located right in the center of Jumeirah,

making it a convenient destination for visiting. It has a play area for children, as well as a great promenade for visitors' stroll that stretches up to 1,3 kilometers. The total area of the complex is 13000 square meters with its Phase 1 reaching 350 meters of uninterrupted retailed frontage made of high quality materials and in soft colours.There is a lake with sleek pavilion style buildings and small kiosks of urban character surrounding it. Small courtyards are set up near the lake, which make ideal places for relaxing outdoors. Citywalk is considered to be unique because of its architectural style combining the features of both country and city. In addition to its variety in retail stores, food and beverage places, Citywalk hosts various celebrations and activities throughout the year

Figure 10. Dubai City Walk

4.3 Dubai Box Park, built in 2015 is located at Al Wasl Road beside the City walk. The basic principles of the project are built on container architecture (Kotnic, 2013). Its architecture and urban design are developed in a way to attract mainly young users. The project is a shopping and entertainment district. The projects architecture is based on using warehouse and shipping containers to create buildings and form the outdoor spaces. The project is changing the towering skyscrapers style of Dubai to more street style by using new ideas in forming the buildings and the outdoor spaces along the streets to create attractive containers for commercial and entertaining activities (figure 11).

Figure 11: Box Park

5. Conclusion

The historical transformation of the urban structure has changed the city's structural and functional integration to segregation which has contributed to create new economic, social and environmental challenges which have required developing new urban design solutions. The three case studies provide us with an important lesson that the city centre's capacity as a source for urban growth depends on how effectively it can change over time and apply new solutions to contain the new emerging functions and forces. Using attractive urban design and architecture can be important factor to encourage people to use and stay in the city center. Such capacity needs changing the traditional concept of the city centre by developing new urban design concepts such as transferring the city centre to multi city centres, compact urban structure and intensive land use principles. These multi centres can function as interrelated cores where each particular urban core can be a strong urban area to achieve the urban growth by its important functions supported by creative architecture and urban design.

Brasilia with its total functional urban design and architecture is a typical example of a city which is bounded and limited by its total functional predesign where the city structure cannot be modified. In this model the city centre has limited capacity to change and meet the new social, economic or environmental requirements. Such pre designed city gives no possibility to develop new local city centres within its central areas or in its residential areas.

The city centre's livability can support its total role in the city by unique architectural and urban design solutions to integrate the commercial, social, cultural, and entertainment functions. The multi local centres can either be located in the central areas of the city such as the case of Oslo or spread in the whole city as the case of Dubai. Oslo shows that the new urban cores in the central area have provided city centre new city life and growth possibilities but concentration these multi centres in the central zone dose not solve the other areas need for similar cores which support their need for livability and growth particularly in its sub areas which are called sleeping cities.

Dubai has created a unique phenomenon in the contemporary urban development by developing an economic concept which is based on using architecture and urban design to realize its economic growth. One of its basic principles is dividing the city into sub-areas where each area has its urban core. By this way Dubai has been transferred to a net of urban cores rather than concentrating in the central areas. Each particular urban core

is designed with particular architecture and functions to attract particular types of users in order to make the core successful. It is also obvious that each particular core is depending on building landmark buildings with particular architecture to highlight the cores identity and attract the users. This strategy is playing an important role to attract the citizens and also people from other cities in UAE, Region and the world. The different urban cores of Dubai show that urban communities with more compact and mixed functions and activities can play a positive role in supporting its liveability. The net of urban cores is developing several urban cores in the city is encouraging the people to use the whole city same time which is an important factor to support continuous social interactions and economic growth in the city. These cores are of different types including large malls, commercial Streets, Heritage areas, and entertainment buildings and parks.

On the other hand, missing a common architecture and urban design between the different cores is a challenge because the city will miss its particularity as one place. It is important to know the social consequences for making architecture as a mean for economic growth when it considers consumption as a design principle. The city also needs to consider the environmental consequences of such urban design method and develop solutions to reduce the negative environmental consequences due to increasing the car use. Finally, the multi urban cores will require continuous development process to keep a balanced city growth.

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