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**The Role of Advanced Producer Service Firms
in the Development of Urban Diversity in Doha**

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Abstract:

Qatar's capital city Doha has undergone rapid transformation processes socio-economically as well as spatially since the end of the 20th century. Large-scale public investments in local developments that were intended to establish Doha as a regional and international service hub ushered in a new evolutionary phase in the city's urbanism. Subsequently, an increasing number of international "Advanced Producer Service" (APS) firms set up offices in Doha, particularly attracted by emerging local real-estate markets. This paper attempts to clarify the distinct roles of APS firms and their employees in the development of urban complexity and diversity in Doha. It therefore explores currently existing APS networks in Doha as well as the morphological consequences for urban fabrics due to the recent economic diversification process. The applied methodologies include a network analysis of 98 APS firms in order to investigate the current characteristics of advanced producer services sectors in Doha. The dynamics in recent urban developments are investigated using a comparative assessment of GIS data of the city in 2003 and 2013 as well as a Space Syntax analysis, which is used to investigate the spatial integration of office locations in Doha. Furthermore, 350 questionnaires of employees engaged in APS firms were evaluated in order to examine the locations of their weekly activities. These empirical investigations of various parameters within contemporary urbanism provides insights into how the transition into a service hub based on emerging knowledge economies and their networks is currently interdependent on increasing urban qualities.

Keywords: Advanced Producer Service sector, Doha, urbanism, urban diversity, urban planning, knowledge economy.

1. Introduction

Before Doha and its particular conditions regarding urban transformation and economic diversification can be investigated, a general overview of contemporary urban developments worldwide needs to be introduced. Since the 1970s cities have become increasingly defined by globalisation and its various economic consequences, which meant the end of welfare states in the West. The dissolution of *collective consumption*, a terminology introduced by Manuel Castells to identify public control mechanisms (Castells, 1972), led to more dynamic and complex developments within newly emerging networks. Robert B. Cohen was one of the pioneers investigating the map of the new global urban order by focusing on the phenomenon of international division of labour (Cohen, 1981). The outsourcing of industrial production to less developed countries was not only the result of economic crises in the West. It was also enabled by an increasing level of connectivity via modern technologies such as fibre optic cables as well as the development and extension of aviation and shipping routes (Witlox and Derudder, 2007). The upcoming information age thus changed global urbanisation and Manuel Castells stated in this regard: *The new spatial logic, characteristic of the Informational City, is determined by the pre-eminence of the space of flows over the space of places. By space of flows I refer to the system of exchanges of information, capital and power that structures the basic processes of societies, economies and states between different localities, regardless of localisation* (Castells, 1993). Subsequently, cities became important nodal points in expanding international trading networks and the concentration of transnational companies and their headquarters turned cities into global control centres challenging the national state and its political boundaries

(Brenner, 1998).

In recent years newly emerging cities around the world have been challenging established networks and adding a new dimension of complexity. As in previous international economic crises, the financial crisis in 2008 became a major catalyst for new shifts within the dynamics of World City formation. Today, all cities within international networks compete for being perceived as secure havens for international capital. Thus, for any new player to be successful in entering the global network it must invest in the establishment of infrastructure that will enable it to access foreign markets and producers. To be a truly key hub within this global network however the emerging city must attract the business of international and trans-national firms as well as ideally their headquarters in order to diversify its economy toward independence from heavy industries and the export of natural resources (Alderson and Beckfield, 2007). The tightened competition has put additional extensive pressure on emerging urban regions to grow rapidly and thus to sustain their momentum as attractive markets. The implemented growth strategies include liberalisation and decentralisation measures to attract investments from the private sector while large-scale public investments are needed to establish modern infrastructure. The resulting construction booms have reshaped urban morphologies not only physically but also socio-economically due to exponential population growth via immigration and newly emerging service sectors. In the long term these cities are challenged to become not only attractive investment hubs during the period of rapid urban growth but to become international service hubs and thus operational centres of transnational companies by attracting knowledge economies long-term.

In the context of hierarchical network developments and functional differentiations between cities, the Arabian Peninsula has obtained a geostrategic importance that is currently unique. Gulf cities have developed into central hubs right in-between the developed Western nations and the rising economies of Asia. As a consequence, the significance of cities and urban spaces on the Arabian Peninsula in global networks has grown rapidly (Schein, 2009; Thierstein and Schein, 2008). In today's context of international competition between geographical locations, Gulf cities face completely new challenges. They need to find ways of how to sustain and improve their position in the context of a globally operating service economy. Thus, knowledge intensive activities have been identified as key spatial development drivers in global cities (Thierstein et al. 2006; Lüthi, Thierstein and Goebel, 2010). For APS firms, knowledge is an important resource for innovation, which in turn, is one of the major drivers of economic growth. Since the transfer of knowledge often requires direct face-to-face interactions, many APS firms require a high level of global connectivity as well as highly integrated local structures. Innovative activities have shown to be highly concentrated in a minority of urban regions (Simmie, 2003). The main reason why these urban regions play important roles in the supply of knowledge is that firm networks benefit from geographical proximity and local knowledge spill overs. Malecki (2000) describes this aspect as the "local nature of knowledge" and highlights the necessity to accept knowledge as a spatial factor of competition between cities (Malecki, 2000).

This paper focuses on the role of advanced producer services in transforming the urban environment in Qatar's capital Doha. The change in Qatar's ruler ship in 1995 when Sheikh Hamad Bin Khalifa Al Thani came to the throne opened the door to a new path of economic development for what was a restrictive and conservative country (Scholz, 1999). In the following years Qatar has developed to an uprising political centre in the Middle East claiming the role as intermediary within relationships between the West and Arab World (Fromherz, 2012). Parallel to its growing political engagement various projects were launched to develop the capital city Doha into

a global hub. Since the mid-1990s the population has more than tripled, making Qatar one of the fastest growing nations in the world. This rate of population growth is mainly due to the recent construction boom that incited the immigration of hundreds of thousands of guest workers from South Asia (Naqy, 2006). Today almost 86% of Qatar's current population of around 1.8 million is foreign (Qatar Statistics Authority, 2013). While liberalisation mechanisms have been introduced by deregulating the real-estate market in 2004, increasing interest from the private sector in investing in Qatar was mainly ignited by direct investments of oil and gas revenues, which can be distinguished in five major development strategies.

Investments in Al Jazeera to establish an international media hub were followed by mega projects in the education and science sectors as initiatives of Qatar Foundation, which was founded in 1995 as a non-profit organisation to develop a basis for new economies by focusing on three pillars, namely, education, science and community development (Miles, 2005). Furthermore, new airport and harbour developments aim for turning Doha into an international transit hub, which is furthermore accelerated by the public engagement to establish Qatar Airways as one of the leading aviation providers. Various public investments in real estate projects have moreover established Doha as one of the major investment hubs in the region (Adham, 2008). A very distinct development strategy has been the launch of various projects to establish Doha as a new tourism and cultural hub in the Middle East by investing in international sports events and cultural projects, such as the redevelopment of the historic city centre (Wiedmann, Salama and Thierstein, 2012). The main consequence of all five public investment strategies has been rapid urban growth and thus new realities in socio-economic structures as well as the physical urban environment. In the following the multi-layered and interdisciplinary methodologies are introduced before the various characteristics of emerging APS firm networks are examined as well as their spatial implications for urban developments.

2. Methodologies and Sampling Strategy

In this paper the analysis of intra-firm advanced producer service networks is based on the interlocking network model developed by the Globalisation and World Cities Study Group (GaWC) at Loughborough University. It provides one specific way to address the question how inter-city relations can be empirically measured despite the chronic lack of data on inter-city information flows. The method was originally developed to measure the connectivity between global cities based on multi-branch APS firms as they organize business activities across their offices worldwide. The model uses a proxy – i.e. intra-firm networks of multi-branch, multi-location enterprises – to estimate potential flows of knowledge creating information between cities. The basic premise of this method is that the more important the office, the greater its flow of information will be to other office locations. The empirical work comprised two steps. In the first stage of this empirical work, a reliable company database had to be created in identifying knowledge-based firms within the emerging city of Doha. In the case of Qatar the Zawya Databank was used to select 98 APS firms as sample for the interlocking network analysis. The firms were allocated to the sectors using its *Nomenclature statistique des Activités économiques dans la Communauté Européenne* (NACE) codes. In addition to this, the collected firms were crosschecked and where necessary completed by using a company list provided by the GAWC Research Group (Taylor, 2011) and other company lists of globally operating companies such as Forbes.

Knowledge exchange and business activities do not only arise through intra-firm branch office networks, but primarily from the division of labour between companies. In many cases, outsourcing strategies in

respect of single activities are often efficient and lead to a higher quality of products and services. It is assumed that these extra-firm networks are strongly anchored within cities due to the quality of infrastructures like airports, universities with good reputation or large settlements of leading global companies, as well as the availability of specific knowledge (Thierstein et al 2006). By means of a web survey that combines relational data on the firm's locations with the degree of importance of working interrelationships along individual firm's chain of value. By overlaying a multiplicity of different value chains, patterns of spatial division of labour and localized value chain systems can be identified. As first step, information was gathered about the firm's business location and the spatial range where they source inputs for their products. In the second, these firms were asked to localize and assess the importance of their extra-firm relations to other firms. And finally, in order to relate the extra-firm relationships to a stylized value chain, the firms had to localize their business activities along the individual value chain elements of 'research & development', 'processing', 'marketing', 'sales & distribution' and 'customers'. With this procedure, a comprehensive picture about the spatial value chain patterns of APS firms was obtained in Doha on the global, European, local and supra-regional scale.

The spatial transformation of urban structures due to the move and growth of advanced producer service sectors was analysed by comparing GIS data from 2003, when the construction boom began, to the state of development in 2012 by focusing on an assessment of commercial as well as residential real estate. The initial GIS data from 2011 was provided by the Ministry of Municipalities and Urban Planning in Doha. The authors updated the data by various survey techniques including field surveys and the evaluation of high-resolution satellite images. The GIS data was also used as the basis for investigating the office locations of the 98 previously selected APS firms in order to explore their spatial integration within urban fabrics. In this regard Bill Hillier's Space Syntax methodology (Hillier, 1996) was applied to examine the accessibility of common business centres in Doha on a macro scale. Furthermore, 350 employees of 21 APS firms were interviewed regarding the locations of their weekly activities in order to investigate the various ways how knowledge workers live in Doha. The locations were mapped in GIS files in order to calculate the various distances interviewees have to travel on a weekly basis as well as to investigate the various road connections between activities. All GIS surveys combined are applied to develop a comprehensive view on the complex dynamics between supply- and demand-driven development patterns in the case of Doha.

3. Advanced Producer Service Networks in Doha

3.1 Interlocking Network Analysis

Since oil and gas revenues have been invested in large scale urban developments since the end of the 20th century many international firms within APS sectors have moved to Doha in order to be involved in the emerging local markets. Particularly the investments in infrastructure and the launch of mega projects in combination with the introduction of freehold property rights in 2003 (Colliers International, 2008) led to an expanding real estate market, which can be currently identified as one of the major factors for attracting international APS firms to relocate to Doha. Furthermore, the more strategic approach to invest Qatar's wealth in domestic and foreign markets led to the foundation of the Qatar Investment Authority in 2005, which caused an emerging investment banking sector in Doha.

Advanced Producer Service firms in Doha show a clear global distribution pattern. The different ranges, directions and importance of the different spatial scales are clearly shown in Figure 1. The map presents the

connectivities differentiated by the four cardinal points of directions and on different spatial scales symbolized by varyingly strong lines. The national scale plays no major importance within the network since Metro Doha is the only large scale urban agglomeration in Qatar. The strongest connection - with 43% of all connections - exists with Europe followed by Asia with 24%, North America with 18%, Africa 7%, South America with 5% and Australia with approximately 3 %. On this scale the interlocking network analysis proves the strong ties of APS firms, located in Doha, with headquarters in European cities, particularly London.

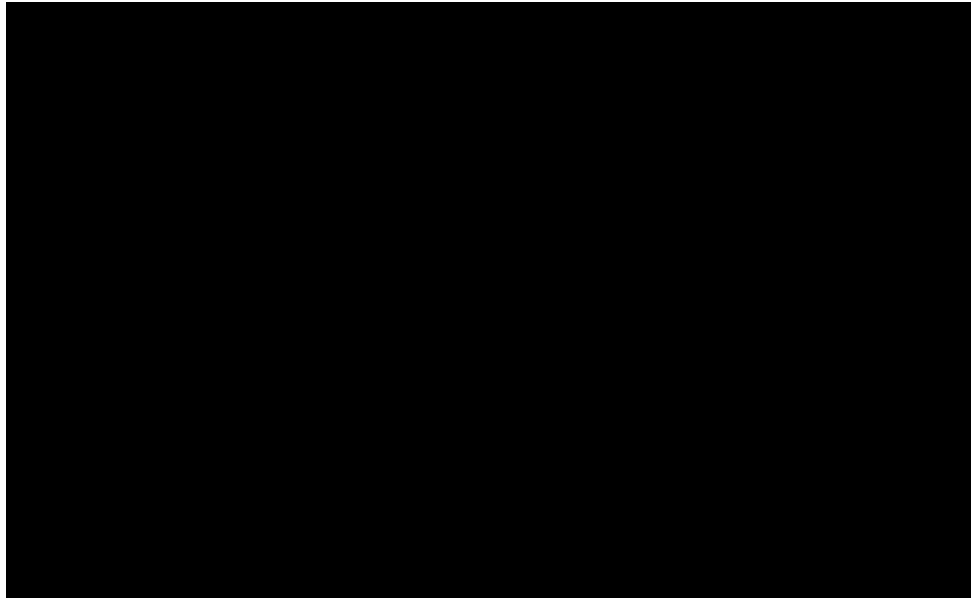


Fig. 1: *Connectivity of Advanced Producer Service firms on different spatial scales.*
Source: Authors (TUM).

A closer look on a regional spatial scale which contains the countries Syria, Israel, Saudi Arabia, Lebanon, Jordan, Palestine, Kuwait, United Arab Emirates, Yemen, Iran, Iraq, Bahrain and Oman shows the strongest connectivities with cities of the United Arab Emirates, particularly Dubai (Fig. 2). Around 30% of all connections go to the United Arab Emirates followed by Saudi Arabia with 15%, Lebanon with 10%, Syria with 3%, Israel with 5%, Jordan with 7% Palestine with 2%, Kuwait with 8 %, Yemen with 2 %, Iran with 3 %, Iraq with 1%, Bahrain with 8 % and Oman with 6 %. These results prove the strong interrelations of APS networks to firms located in Dubai, where many operational headquarters are located. This predominant role of Dubai is mainly based on the early attempts during the 1980s to enter global networks as regional service hub (Davidson, 2009).

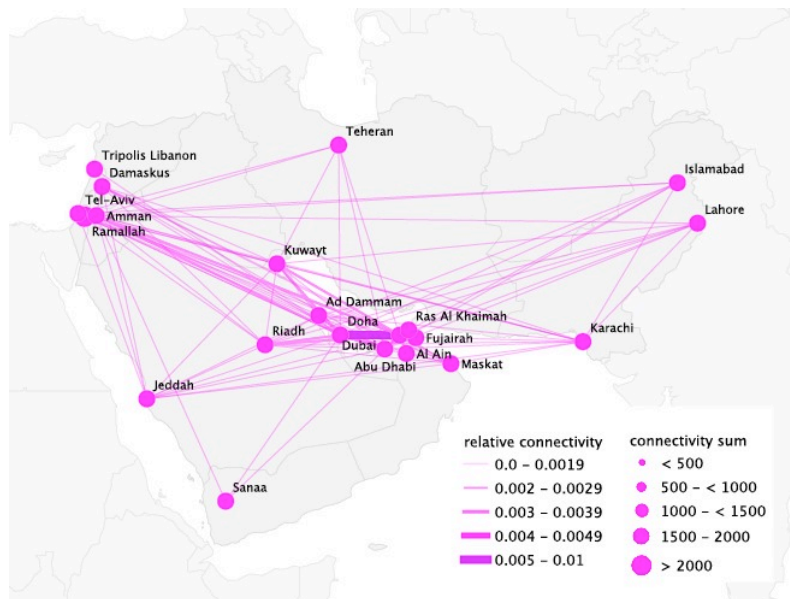


Fig. 2: Regional connectivity of advanced producer service firms based in Doha.
Source: Authors (TUM).

3.2 Value Chain Analysis of Extra-firm Networks

The Interlocking Network analysis outlines the structural organizations and spatial impacts of intra-firm networks. In order to explore the extra-firm networks of APS firms a value chain analysis has been applied in form of a web-survey and face-to-face interviews. All in all 19 APS firms participated in the case of the value chain analysis. The firms are from various backgrounds like for example accounting and finance, real estate as well as information and communication services. Based on the evaluated data and interviews the most frequent interactions of the participating firms are with other APS firms, in particular insurance, law, advertising & media companies. This can be seen as clear indicator that APS firms in Doha are highly interdependent as in other cases worldwide. These branches assume an important role as an entrepreneurial support network within the city. On the European scale, a high number of extra-firm relations in banking & finance, marketing and research can be observed reflecting the fact that many firms in Doha have to attract financial and marketing services as well as research inputs from outside of the State of Qatar.

A web-survey, which was carried out during 2012, shows quite clearly that geographical proximity to other enterprises appears to be a driving force generating extra-firm networks and interactions. This finding provides evidence that extra-firm linkages of advanced producer service firms concentrate in Doha and that there is currently very little interaction concerning the extra-firm linkages with companies outside Qatar. These empirical findings correspond with the findings of the qualitative network analysis. The most important finding of the web-survey is that Doha's APS firms organise their external-firm linkage predominately on a local spatial scale or supranational scale that is to say the Gulf region. Spatial scales beyond these scales play nearly no role. As the figure shows extra-firm networks are strongly pronounced within the city of Doha and the State of Qatar. Moreover APS firms in Doha predominately serve services for the domestic market and local customers and clients. In order to compete successfully in the global economy, most APS firms have to rely on resources and expertise provided by other firms. In this sense, Doha is not a self-sustaining system, but interconnected in a wide space of flows composed of flows of information, capital, goods and people travelling along various modes of infrastructure.

3.3 Potentials and Challenges for APS Firms in Doha

In order to identify the various potentials and challenges for APS firms in Doha from the standpoint of internationally acting business practitioner seven face-to-face interviews were carried out. According to the interviewees Doha offers a unique combination of strengths that will be very helpful to establish and promote the emergence of Doha as an influential city on the regional and global stage. The tremendous wealth on oil and gas makes Qatar to one of the richest economies in the world. During the current global economic downturn Doha is still characterized by a prospering economic landscape with economic growth rates that are far above average. The revenues of the oil and gas production permit large scale infrastructure developments, including the construction of a new port and new international airport. The ability to embark on new projects and far reaching development activities of the urban landscape in times of a global crisis and global instability illustrates the power and potentials of Qatar. The economic potentials of Doha are thus along two key dimensions: One is capital, which permits state-of-the-art infrastructure and the ability to launch various new initiatives, such as Education City. And the second key dimension is the fortunate geopolitical location of Doha within the Gulf region itself between the Kingdom of Bahrain and Kuwait in the north, main urban centres in Saudi Arabia in the west and the UAE and Oman in the south.

In a second section of the interview APS firms were asked about their internal and external value chains, the way knowledge is created and about the role spatial proximity plays within their daily business practices. Nearly all companies are exclusively focusing on the local market and are mostly cooperating with companies and research institutes located in Doha. Most of the companies have founded their own independent entities that are fully responsible for the domestic market. Cooperation on shared projects can happen but are not usual. Based on the estimation of the interviewed companies Qatar has an attractive and extremely fast growing domestic market so that there are enough projects and business opportunities and subsequently no need for an international acquisition of projects.

All interviewed companies and offices have no function as supra-national headquarter for example for the Gulf-region. Instead offices that serve such a regional headquarter function are operating out of the Emirate of Dubai. According to the interviewed executives it is not expected that Doha will serve the function as regional business hub in the nearer future. In the case there are collaborations regarding projects firms often prefer virtual communication on the distance. Nevertheless there are differences between the internal and external form of communication for example with business partners or other companies. While a firm's internal communication mostly happens via internet and conference callings and thus virtually, external communication mostly happens face-to-face. Only if the external relationship has been established over a long time, especially to Arab business customers and clients, the form of communication might switch to virtual forms of communication. However, all companies have underlined that face-to-face contacts is of absolute importance in the Arab business context.

Many APS firms are currently facing severe challenges to establish businesses in Doha. The main problem identified by interviewees is to attract skilled, gifted and talented people for a long-term employment to Doha. Although attractive and far above average salaries are paid or offered by the companies, other aspects and incentives seem to be important, for example urban design qualities, facilities for families and an adequate form of housing. The fact that more than 86% of the people who live in Qatar are expatriates documents that Qatar can attract people. The problem is that the pool of human capital includes very few people from the knowledge

economy. Most APS firms are found to be important driving forces for spatial development in Doha. Up to now Doha cannot be considered as a hub for knowledge-based activities in the Gulf region. Nevertheless Qatar's and thus Doha's ambition is clearly articulated: to become a service centre for the region. The activities and efforts in order to fulfil this ambitious vision are visible within the urban context and recognized by international business practitioners who have participated in this qualitative network analysis. In summary one can state that Doha is an emerging market with potential for a hub city between the east and the west. Despite Qatar's efforts to diversify the economy, Qatar will inevitably remain dependent on oil and gas production in the near future. The pace and strength of Qatar's development will depend, in large part, on whether the country will be able to transform its economic landscape from a public investment driven diversification process towards emerging knowledge economies as actual basis of future growth and prosperity.

4. The Spatial Impact of APS Networks in Doha

4.1 The Real Estate Development Patterns

Based on public investment strategies rapid urban growth was initiated particularly after 2003, when the population increased from around 744,000 inhabitants to about 1.8 million in 2013 (Qatar Statistics Authority, 2013). Thus, almost one million people moved to Doha within only one decade. Although other developments such as the extension of the industrial hub in Ras Laffan have also contributed to increased immigration, the main factor should be seen in the construction boom in Doha and its metro region. In a survey of 2010 by the Qatar Statistics Authority almost 40% of labour was directly engaged in the construction business itself. Another 30% to 40% was engaged in general services wherein growth is indirectly linked to the immigration fuelled by the expanding real-estate market (Qatar Statistics Authority, 2013). Thus, it can be stated that the construction boom has been a major cause of new socio-economic realities and social structures due to a high increase of foreign labour as well as the large scale immigration of qualified guest workers engaged in APS sectors. Consequently, urban morphologies have witnessed an extensive transformation process during this short period of less than ten years.

Based on the authors' GIS survey the recent construction boom caused the total settlement area of metropolitan Doha to grow from around 162 square km in 2003 to around 292 square km in 2012, which is more than 80% of its previous size (Fig. 3). During the first period between 2003 and 2006 developers focused on commercial projects, which had a share of around 50% of the total built-up area. These commercial developments were mainly office buildings located in West Bay and along the main road grid in central areas in addition to several shopping malls. After the first period of rapid growth, which was fuelled by initial investments and the Asian Games in 2006, a total area of almost 50 square km was added. Due to the international financial crisis in 2008 and an oversupply of commercial projects less than 17 square km of settlement area was built during 2006 and 2009, which meant a decrease of 66% in the growth rate. However, the growth rate picked up again during 2009 and 2012 when a total area of 62 square km was developed in addition to the new airport development of approximately 22 square km. In contrast to the first extensive development period between 2003 and 2006 over 95% of the total development area between 2009 and 2012 is occupied by low-rise residential projects in the periphery of Doha.

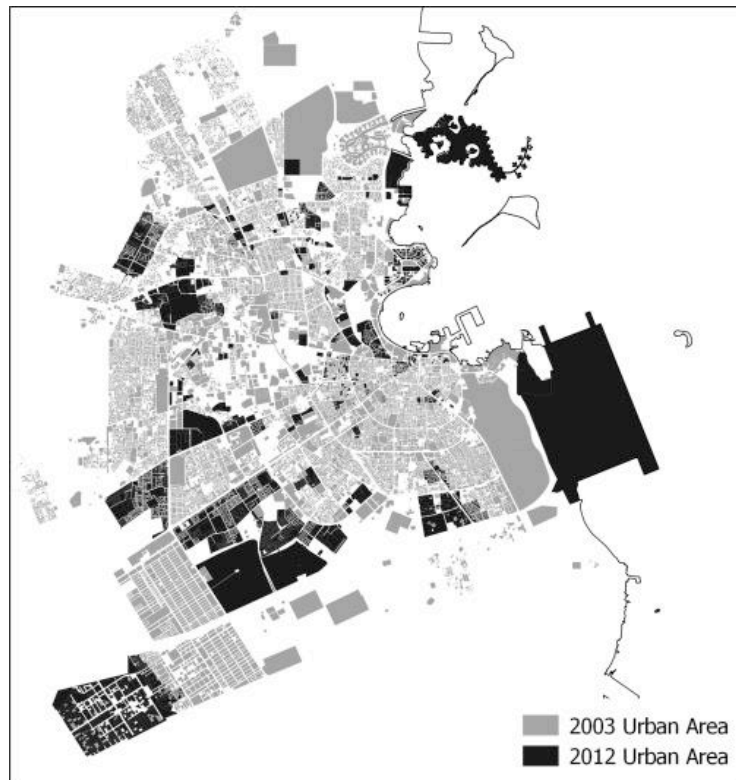


Fig. 3: The settlement growth between 2003 and 2012. Source: Authors (QU).

According to the GIS data evaluation and field surveys five main consequences of the recent construction boom can be distinguished:

- *Up-market real estate in mega-projects:*

One main focus of developers has been freehold property projects in master-planned surroundings. The most prominent example is the Pearl development of the United Development Company, a reclaimed island along the northern coast of Doha. This kind of project integrates a mixture of residential high-rises, apartment buildings and villas, served by leisure and retail facilities. Further projects under construction are the Lusail City in the north of Doha and the Msheireb project in the old centre of Doha, which follows a new approach to attract medium to high income groups to live in the historic downtown area.

- *The high-rise agglomeration in West Bay:*

The prominently located West Bay area has been initially developed mainly for public or semi-public tenants such as ministries or QATARGAS. In recent years residential projects and hotel developments have been launched. Today, more than 88 high-rise buildings have been completed in the West Bay, which has become the main icon of modern urbanism in Qatar. The waterfront location and the extensive public involvement in developing the new business district in West Bay have attracted investors. The subsequently rising land prices have led to high office rental prices. A survey of 77 office properties in West Bay, carried out by the authors in the beginning of 2013, has resulted in an average of 696 USD per square metre and year, which is the highest rate in Qatar followed by an average of 492 USD in Al Sadd, where 75 properties were evaluated.

- *The commercial and residential projects in downtown areas:*

Due to the rapid need for more affordable and accessible office space as well as housing units a large quantity of commercial and residential developments have been launched along the main road grid in downtown areas. The main agglomeration of these individual developments is located in Al Sadd, where a lot of commercial and residential developments were built in the form of multi-storey blocks. Further areas are Al Salata in proximity to the historic city core and the downtown areas near by the international airport. The high quantity of blocks has led to a densification process in most areas resulting in major traffic congestions and parking space deficits. As a result many multi-storey car parks have been erected leading to an even higher built density and weakened ventilation in certain areas. The high attractiveness for investors to develop projects in downtown areas is mainly based on accessibility aspects as well as building height restrictions in most other urban areas.

- *Compound developments:*

Another focus of particularly smaller developers has been compound developments with detached or semi-detached villas in Doha's suburban areas. Many of these projects are financed by individual Qatari land owners, who rent their developments to individuals or companies. According to the GIS survey, more than 50% of Doha's entire urban area is currently occupied by low-rise residential developments, causing a low average density of 6,000 people per square kilometre. Main areas of compound developments are the districts adjacent to Aspire Zone in the west of Doha and Education City in the north-west. A recent phenomenon has been the integration of certain services in large scale compound projects, such as the Beverly Hills complex in Al Rayyan.

- *Shopping-mall complexes:*

Three major shopping malls have been developed in West Bay, Al Duhail and Al Aziziyah. While the City Centre Mall in West Bay is the most central shopping mall, Landmark Mall and Villagio Mall have been built in Doha's periphery. Today, several large-scale mall complexes are under construction. The most prominent example is the Doha Festival City in the north of Doha providing 260,000 square metres of retail space by 2014 (Doha Festival City, 2013). While shopping malls have been built in Doha since the 1960s, the recent developments have reached new scales as well as they feature new characteristics. In contrast to the past retail components have become equally important as the extensive integration of theme parks, cinemas and restaurants, which has established malls as preferred leisure spaces due to the generally hot climate.

The high quantity of international APS firms, which have launched offices in Doha during recent years and the subsequent immigration of expatriate workforce with medium to high income have led to new dynamics in local real estate markets. Exclusive residences in towers in West Bay or the Pearl project or in compounds like the Lagoon development are rented to expatriates with high incomes, while medium income groups usually reside in multi-storey apartment buildings in central areas or in compounds in the west of Doha. The compound housing typology has caused continuous urban sprawl, while the apartment blocks led to increasing urban densities in certain central districts, like Al Sadd. Initial office developments have focused on Al Salata as the oldest Central Business District of Doha. Due to the decision to move ministries from central areas and the subsequent permission to develop high rises for public and commercial projects, an agglomeration of office towers has begun to form the new waterfront of Doha in West Bay. In parallel office developments have been launched in downtown areas along the main road grid, where existing zoning plans have permitted commercial

projects. Another consequence has been the development of various large scale shopping mall complexes, which have begun to integrate leisure spaces for higher income groups. Thus it can be stated that the shift to new social structures due to the high increase of medium income groups and the internationalisation process due to extensive immigration have led to new development patterns transforming Doha's urban environment.

4.2 The Spatial Context of Office Locations

Qatar's service sector is to a large extent based on local holdings such as Al Fardan and Al Mannai, whose background is the oil and gas business (Al Mannai, 2012). These large-scale holdings founded subsidiaries that deal in various sectors from construction, trade and telecommunications to logistics. In addition to these local company networks organised in the form of holdings, many international APS firms have relocated to Doha, particularly those working in construction related services. While local holdings usually develop and own their office buildings, international firms rent offices according to the criteria of affordability and accessibility, which has caused a concentration in certain central areas, like Al Salata, in proximity to the international airport.

In recent years, the rapidly increasing number of APS firms has caused new commercial developments at the periphery of the old centre, particularly along the C-Ring road. A GIS survey of the 98 office locations, rented by the selected international APS firms, in combination with a Space Syntax analysis illustrates the preference of most firms to locate in accessible locations due to the required interaction with other companies and clients as well as the need for spatial proximity to the residences of employees (Fig. 4). The previous zoning plans have permitted commercial developments mainly along the central road grid. In recent years many office buildings have been built in West Bay, where the prospect of gaining public or semi-public tenants has attracted investor interests. These office towers however do not suit most international firms due to high rents, reduced accessibility, missing services and large office sizes. Consequently, the envisioned Central Business District in West Bay faces current office vacancy rates of more than 17% (DTZ, 2012). Most companies of the private sector locate in areas like Al Sadd along C-Ring, which is leading to newly emerging business centres and densification processes due to the subsequent construction of residential projects and thus the move of commercial as well as social services (Mirincheva, 2012).

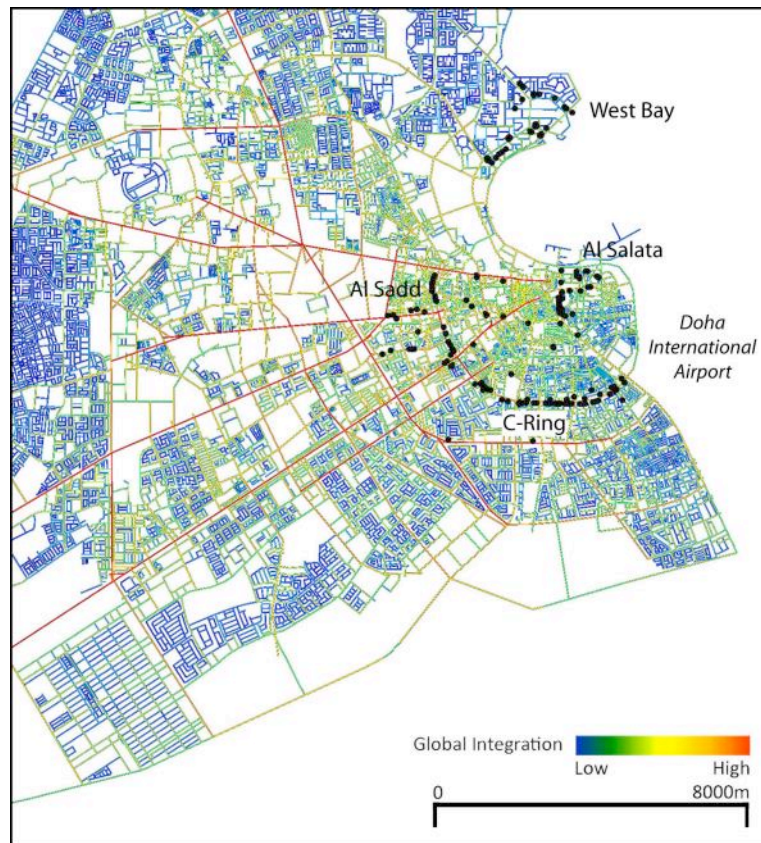


Fig. 4: A Space Syntax study based on a GIS survey illustrating the office locations of international companies in the context of global spatial integration. Source: Authors (QU).

4.3 The Spatial Practice of Employees

Notably, rental prices in the city are highest to the north and along the waterfront, particularly in West Bay (DTZ, 2012). Subsequently, most mid-income employees of APS firms live in proximity to the old city centre along B- or C-Ring road or in compound developments in Doha's inland periphery. In order to explore the various ways inhabitants use the urban environment of the city, 350 questionnaire responses received from inhabitants of medium income and differing cultural backgrounds were analysed. Each questionnaire participant was requested to provide the addresses of their residences, favourite leisure spaces, preferred grocery stores and working places. Around 130 participants provided accurate addresses, which could be located in the GIS map (Fig. 5). The analysis conveys that 70% of these participants are accommodated in apartment blocks along A-, B- and C-Ring road, while around 20% reside in compounds in the periphery and the remaining 10% are housed in waterfront developments along the northern shore.

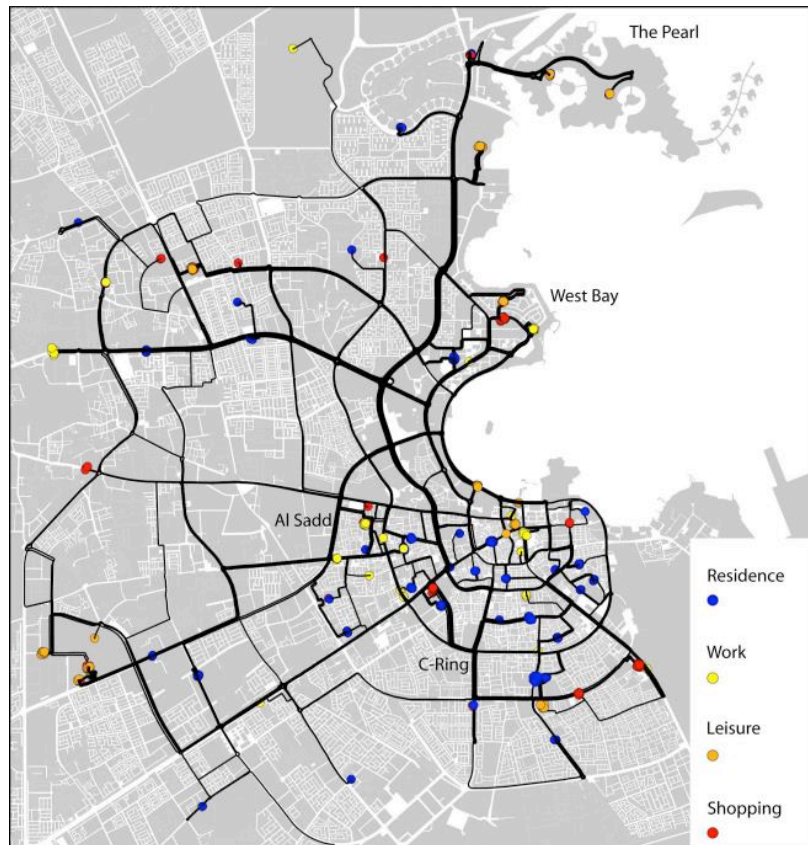


Fig. 5: The movement map of 130 employees and their weekly activities.
Source: Authors (QU).

On average most participants live at distances of around 7 kilometres to their working places, 6 kilometres to their favoured grocery stores and 8 kilometres to their favourite leisure spaces. The main leisure spaces include hotel developments in West Bay, the Corniche as well as Souq Waqif in the old city centre and inland shopping-mall complexes. According to the GIS survey of current land use data, only around two square metres of public green area per inhabitant is currently supplied in the city, which indicates a very low integration of public leisure space in most districts. The map of inhabitant movements (Fig. 5) illustrates the long travel distances from the employees' residences to working places, leisure spaces as well as favoured grocery stores. The lack of land use integration on district scales has led to a high dependency on the main road grid. Today, the most integrated urban area is the Al Sadd district due to its high spatial accessibility along C-Ring on a macro and local level. Therefore, it can be argued that in the future the tendency of a growing number of mid-income employees and their families to prefer services at short distances will lead to more integrated and diverse urban districts. The continuous exchange of guest workers however currently still hinders the demands of communities from having a more efficient impact on development patterns.

5. Conclusions and Outlook

Large-scale public investments initiated by Qatar's rulers have shaped contemporary Doha into one of the fastest growing cities in the world and a serious contender as an emerging hub city in the region. However the various public development strategies initially followed no cohesive development vision or plan and were thus often carried out in a rather isolated manner from one another based on top down and case-by-case decision making. In

contrast to other Gulf cities, such as Dubai, where trade played a major role in the beginning of economic diversification (Schmid, 2009), the construction boom in Doha was mainly ignited by public investments. A rather similar development strategy can be found in the case of the Emirate of Abu Dhabi in the United Arab Emirates, where the large oil wealth has permitted initial public investments to stimulate urban growth. While in the case of Kuwait comparable developments were hindered due to preferred public investments within international markets, which was mainly caused by the on-going conflict in Iraq, the rulers of the Kingdom of Bahrain initiated certain economic development strategies as early as during the 1970s. But due to limited wealth on fossil fuels as well as the complex economic dependency on Saudi Arabia and the on-going domestic political conflicts, Bahrain's capital Manama has remained restricted in its development toward an international hub in spite of its established position as regional service centre and tourism destination.

Based on public investments many APS firms settled in Doha in order to be involved in local projects while regional headquarters remained in Dubai and global headquarters in London or other global cities. Based on the APS network analyses it can be stated that company networks in Doha are currently mainly focused on local markets rather than on using their location for doing business beyond the borders of Qatar. This focus on local projects however is depending on continuous urban growth in Doha, which has led to the predominant role of developers in defining urban morphologies and thus weakened demand-driven dynamics. Subsequently, large scale mega projects in form of cities within the city and high rise clusters as well as continuous urban sprawl are results of this urban development background. Today, Doha is experienced as being more and more diverse and contrasted, offering a state-of-the-art waterfront built by various architectural landmarks. The overall urban structure however is dominated by the fragmented clustering of single "island" developments and a low rise urban periphery. The lack of central planning has led to an incoherent urban landscape lacking a clear hierarchy of centres.

In spite the initial public vision to establish West Bay as Doha's modern Central Business District recent demand-driven incentives regarding preferred office locations have led to the incentives of newly emerging business centres in other urban areas. In addition to high rents and a lack of integrated services West Bay is currently avoided by most APS firms also due to its isolation within overall urban fabrics. Based on the authors' Space Syntax analysis most APS firms prefer highly accessible locations along C-Ring road due to their high demand on interaction with clients and business partners. The public zoning plans from 1999 permit commercial developments along all main ring and access roads, while all central areas were previously designated for low rise housing. In recent years central areas of districts are however more and more occupied by multi-storey residential developments, which received building permissions due to the increasing housing demand from medium income groups. In some cases, like the Al Sadd district, restaurants as well as certain services, like print shops, have settled along access roads in order to benefit from the high concentration of APS firms.

The evaluation of employee movements has furthermore led to the empirical evidence that employees residing in Al Sadd or in proximity to the C-Ring road have in average shorter travel distances to services and their working places. In spite of missing public physical planning to establish a central business spine along C-Ring road the pure demand on integrated urban areas by APS firms and their employees has led to transformation processes of adjacent districts. Today old compound developments are replaced and urban densities are rising due to rather low minimum distance regulations between multi-storey buildings. Due to very

few publicly owned areas public spaces or social services, such as schools, are hardly integrated within these new cluster developments. The result has been a rather dynamic form of urbanism adjusting to certain needs and demands of modern APS networks, which rely on accessible, integrated and diverse urban districts. The lack of physical planning and the missing integration of public services - including public transportation - are currently however leading to enhanced traffic congestion and thus decreasing liveability, which is endangering any future upgrading process.

In the case of Doha the first visions to create an international service hub was not restricted by public growth limitations. The subsequent rapid urban growth was hardly regulated due to outdated planning, capacity deficits within the public administration and the decentralisation of decision-making. Although the most recent master plan was introduced in 1999, it had hardly any impact on urban developments since it was still based on previous growth assumptions disregarding the future impact of new public investment strategies. In parallel to the missing reorganisation of physical planning, capacities with the public administration were hardly improved and instead of reforming urban governance towards integrated decision making, major projects had to be decided case-by-case. The result has been a fragmented urban structure with four main characteristics – isolated mega projects, high-rise waterfronts, densification processes in central areas and continuous urban sprawl in Doha's periphery. The lack of cohesion between urban areas was exacerbated by the missing of integrated development strategies and land use planning. Subsequently, the lack of urban efficiency has been increasing by a lack of legal frameworks and insufficient infrastructural supply, which includes the missing integration of public transportation. Today, one major challenge of urban governance is the implementation and re-establishment of holistic and central planning based on comprehensive legal frameworks to enforce urban consolidation based on the highest possible land use integration and the introduction of multi-mode transportation networks. An efficient polycentric urban structure will become a major precondition for the long-term development of international APS networks in Doha.

Enhanced urban diversity is mainly dependent on the demand-driven dynamics between investors, companies and inhabitants. In the case of Doha developers and their investors play the most decisive role in diversifying the urban environment since their speculative interests have been the driving force of the recent urbanisation process. A major problem of this kind of urbanisation basis is a lack of direct interaction between developers and end-users of properties. Most real estate is developed for short-term investment interests rather than with an expectation of long-term returns. Thus, neither companies nor individual inhabitants can choose between a large variety of locations, construction qualities, rental prices and typologies regarding offices and residences. This lack of physical diversity in combination with legal rigidity regarding business initiatives is, however, problematic for flexible and dynamic economic growth in service sectors. Thus, the growth dependency on real-estate markets needs to be restricted in order to stimulate demand-driven incentives within other emerging economic sectors. APS firms can play a major role in developing more diverse urban environments as the case of the Al Sadd district illustrates. But a high standard of urban diversity in Doha can only be established by a major shift on the part of the private sector from short-term interests attracted by emerging local markets to long-term commitments due to Doha's new hub function in the region and beyond. This transition will again highly depend on public incentives to introduce reliable legal environments as well as to stimulate the growth of new economic sectors.

Thus, urban governance has to react on the emerging demands of new economies and introduce more

integrated development patterns based on central planning. In recent years various steps have been made to reconfigure urban governance in this direction by implementing strategic plans and to consolidate urban structures to more cohesiveness and integration. In 2008 the Qatar National Vision (QNV) was introduced to mark a new era in guiding developments toward a comprehensive vision, which integrates social, economic and environmental development goals (GSDP, 2008). Based on the QNV the Qatar National Development Strategy was introduced in 2011 to guide parallel strategies during the next five years including the reorganisation of urban governance (GSDP, 2011). Key element in this regard is the implementation of the Qatar National Master Plan in 2013, which will mark a new development step in regaining public control by introducing a cohesive legal framework as basis for future zoning plans and regulations. These strategies and plans are accompanied by the reconfiguration of public bodies towards more integrated organisational structures. Thus, in 2011 the Central Planning Unit was introduced at the Ministry of Municipalities and Urban Planning to survey and coordinate the various infrastructural projects. Today urbanism in Qatar enters a new evolutionary phase driven by cohesive consolidation strategies, which will replace the initial incentives to stimulate rapid urban growth as main factors in urban developments.

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