Resource Architecture – XXI World Congress of Architecture
22 to 26 July 2002 in Berlin

Forum 2 Public Space and New Media

Name Dr. Mohamed Ayman Deaf

THE VIRTUAL-PHYSICAL NEXUS: FUTURE CITY SCENARIOS FOR THE ARAB WORLD

MOHAMED AYMAN DAEF

Associate Professor of Urban & Regional Planning
Department of Architecture – University of Assiut – EGYPT

E-mail daef@runbox.com

FOCUS

The electronic movement of information in almost real time transcends individual physical places and provides an arena for a new set of economic rules. The contemporary influences of digital technology are pervasive, and it is hard to escape the economic, social and environmental footprint of this profound technological change. The new digital revolution makes a truly borderless society possible. Distinctions are disappearing between town and country, private and public, here and there, and perhaps even between reality and fiction. At last, physical construction can be reduced, and long distances can be eliminated, whilst presence and social interaction can still be maintained, if not enhanced. Location and physical space requirements of major urban activities are being radically changed. Even the long-lasting phenomenon of rural-to-urban migration might also be reversed. From the "Arabianranta"[1] in Helsinki to 'Netville'[2] in Toronto, empirical evidence is accumulating, and major examples are emerging both in Europe and North America. Yet, the complexity and magnitude of urban problems in the Arab countries such as Egypt would justify a similar concern.

PROBLEM AREA

As in many other Arab countries, Egypt has witnessed the phenomenon of accelerated urban sprawl and the resultant informal housing development. Historically, most city nodes in Egypt are separated from the desert hinterlands by agricultural barriers. Therefore, most uncontrolled urban sprawl in the country has occurred at the expense of fertile agricultural lands, and that represents a major socio-economic challenge that faces urban planning and development strategies in Egypt (Figure 1). Similarly, in many other Arab countries, cities are separated from hinterlands by either harsh desert or mountainous landscapes. The situation as such has led to an increased urban spread out of existing city boundaries, while smaller towns and villages in the hinterlands are witnessing a socio-economic decline and an increased loss of their well-educated and well-trained inhabitants.

Figure (1) Uncontrolled Urban Sprawl on Agricultural Land – Awaldiya – Assiut – Egypt

[1] Helsinki Virtual Village is a public-private initiative that was established in order to develop the new Arabianranta area, into a virtual community providing the companies and residents of the area with the services and technology that the information society has to offer. The initiative for the Arabianranta development was launched in Finland in 1996. (*Source: Helsinki Virtual Village – Website*).

[2] "Netville" (a pseudonym) is located in suburban Toronto. It was one of the world's first residential developments to be equipped with a broadband local network. The neighbourhood was built from the ground up with a 10Mbs high-speed computer network supplied and operated free of charge by a consortium of private and public companies. (*Source: American Sociological Association – Website*).

Photographed by the Author on August 4th 2001

In spite of the recognition of the problem by most governments in Arab countries, rural-to-urban migration continued, existing major urban centres kept growing, and the urban environment has become more threatened. Regional imbalances have become the norm in most situations, and conventional urban and regional planning methods appear to have failed in addressing the pace and magnitude of the problem efficiently and sufficiently.

A second dimension of the problem is represented in the gender aspect of development planning in most Arab countries. Regardless of the ever increasing rates of women education in Arab countries, a considerable percentage of them still prefer not to join the work force after education. For cultural reasons, this tendency is due to their preference to stay at home after marriage.[3] Obstacles to combining family responsibilities with employment still persist in most Arab countries. This problem becomes even more noticeable in areas distanced away from major urban centres.

QUESTIONS & HYPOTHESES

This paper will seek answers to certain questions:

- *How does the invention of almost light-speed ultra-fast information media influence our perception of space and our spatial behaviours?*
- *What does this mean for future attempts of city planning in the Arab World?*
- *What are the benefits of placing the physical-virtual nexus on the urban planning agenda in the Arab World?*

Tentative answers to these questions would lead to the postulation of research hypotheses as follows:

- *In the electronically restructured cities of the twenty-first century, our perception of space and our spatial behaviour will be deeply influenced by the framework of a new economy of presence.*
- *Teleworking made possible by the present digital revolution could be utilised as a solution to many urban planning problems in the Arab countries. This can be achieved distinctively through the inducement of a migration reversal from rural-to-urban to urban-to-rural, and the opening-up of smart opportunities for women's participation in the labour force.*
- *Planning Agenda and areas of policy intervention in the Arab World could be adapted to make use of the new possibilities opened-up by the digital revolution.*

---

[3] For example, statistics compiled from the International Labour Office's (ILO) database have shown that in 1998, 19.9% of women available for work in Egypt were unemployed, as against only 5.1% of men. Similarly, in 1991, 14% of women available for work in Syria were unemployed, as against only 5.2% of men. (*Source: United Nations Statistics Division - Social Indicators Website*).

ECONOMY OF PRESENCE

The technological advancements in the past 10 years or so have had a profound impact on the organisation of space and time. The new technologies make a truly borderless society possible. In his E-topia, Mitchell rightfully asserts that in the electronically restructured cities of the twenty-first century, perception of space and spatial behaviour will be deeply influenced by the framework of a new "economy of presence".[4] The digital revolution has recently opened up a new dimension of communication which is both *remote* and *asynchronous*.

Table (1) Advantages, Disadvantages and Costs of Various Interaction Modes

	Synchronous	Asynchronous
Local	Requires Transportation Requires Coordination Intense & Personal Very High Cost	Requires Transportation Eliminates Coordination Displaces In Time Reduces Cost
Remote	Eliminates Transportation Requires Coordination Displaces In Space Reduces Cost	Eliminates Transportation Eliminates Coordination Displaces In Time & Space Very Low Cost

Source: ***Mitchell, William J (2000: 138).***

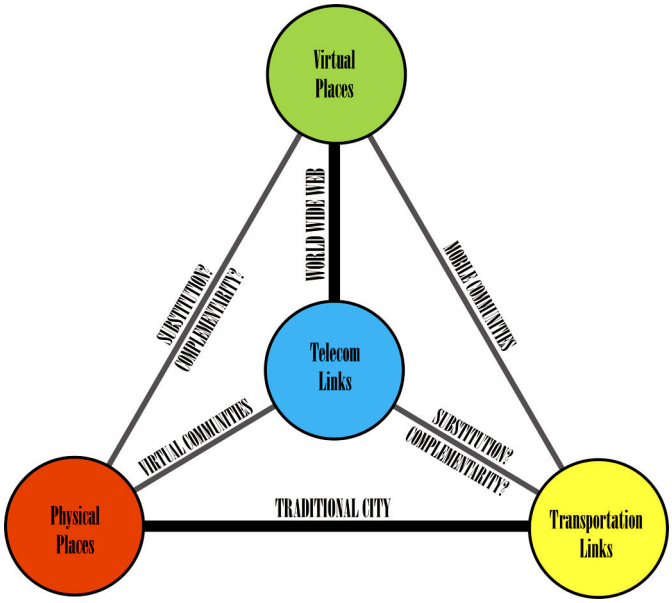
This mode of interaction goes to the extreme of separating participants in both space and time. Advantages of this newly introduced mode of interaction in comparison to other previous conventional modes can be summarised as illustrated in Table (1). With the development of digital networks, a rapid and massive shift has occurred towards the very low cost, remote-asynchronous quadrant of the table. This has been the most fundamental effect of the digital revolution.

Confronted with the new developments of the digital revolution, conventional theories and instruments of both architects and urban planners do not seem to be sufficient – if not valid – anymore. The architect does not design *objects* anymore, but rather *relations*, and although the space as an object is diminishing, there is still a possibility of planning. The multitude of both physical places and virtual ones – as represented in the structure of sites on the World Wide Web – have now become intricately intertwined. Ties between places are no longer confined to transportation links, as electronic hyperlinks are also used in this very present age to link virtual places. Mitchell depicts the interrelationship amongst all of these components as illustrated in Figure (2).[5] Thus, in different contexts, very different patterns and mixes may make sense. Architects, urban designers and planners will need to consider the trade-offs among the many emerging possibilities.

Figure (2) Physical and Virtual Structures and their Interrelationships

[4] The term is coined by William J Mitchell. See Ch. 9, in Mitchell, William J (2000).

[5] Mitchell, William J (1999: 126).



Source: *Mitchell/William J (1999: 126).*

With the combination of both physical and virtual structures, numerous hybrids are becoming possible, where both physical and virtual places play significant roles, and where linkages are formed both by transportation and electronic connections. Such hybrids are possible to include – amongst other things – established cities on which networks have been overlaid, and scattered rural communities tied together and to the existing cities themselves by networks.

The emergence of powerful and convenient electronic alternatives to traditional means has opened up many new possibilities for the arrangement and distribution of office work space, shopping areas, educational facilities, home banking, entertainment facilities, housing neighbourhoods and many other services and facilities. Thus the economy of presence has already started – and will continue – to produce new patterns of urban structures based on the physical-virtual nexus ;e.g. teleworking, online shopping, distance education, home banking and online entertainment. Home-based working could possibly introduce new criteria for deciding upon the best location for housing neighbourhoods, as locating near to workplaces is no longer a preference that is solely measured in a physical sense.

TELEWORKING

The economic future of Arab cities will be defined by their capacity to generate, process, and distribute information. With the emergence of a new economy of presence, businesses can reassess where jobs and work are to be located. Powerful economic factors, involving pressures to increase productivity and reduce costs, are influencing the way that businesses take these decisions. When information is stored in digital form, the data required can be extracted, worked on and eventually re-filed from a computer located hundreds or thousands of kilometres away. In theory, the workers can be based anywhere in the world. Accordingly, work is being relocated to other geographical areas within a country's boundary ;e.g. to back offices in rural areas where overheads and labour costs may be cheaper, or from conventional offices into the homes of workers.

On the one hand, teleworking may be a tool for employers to move work to geographical areas where working conditions, salaries and collective bargaining rights are the poorest. But on the other hand, teleworking may be an interesting alternative for employees in certain phases of their lives ;e.g. as an attractive alternative to married women with household responsibilities.

Teleworking offers many advantages for the employee. It widens the choice for the individual, and enhances flexibility in working time and methods. It also gives more people the opportunity to work, and enables combination of work, personal life and caring responsibilities. Teleworking also removes the strain of traveling to the place of work. Above all, teleworking can thus foster a reversal of migration from rural-to-urban areas, and help retain workers who want to spend more time caring for their families – especially women.[6]

CONCLUSION: AREAS OF POLICY INTERVENTION

Within the expansion of information and communication technologies (ICTs), the poor and the rural populations in the Arab countries can be marginalised as the market interest in establishing costly access to internet for these communities is low. Nevertheless, teleworking opens the whole array of possibilities for rural socio-economic development. New employment opportunities can be generated through telework in rural areas. ICTs would enable a greater number of people an easier access to educational opportunities irrespective of their geographical location. Increased levels of education and knowledge combined with an increased scope of social participation might lead to empowerment of rural and remote populations, and greater grassroots participation in community affairs.

Teleworking may also help curb rural migration in Arab countries, as the cities lose their exclusivity as centres of employment due to the growing opportunities for income-generation locally through remote channels. In addition to the retention of rural population, there is a likelihood of migration of previously urban teleworkers to rural areas. There is also a possibility of migration from areas of high livelihood costs in industrialised countries to cheaper and environmentally more attractive regions in Arab countries.

Teleworking can be harnessed in Arab countries to empower women and assist them to gain better employment opportunities and improve their livelihoods while preserving and distributing the gender-specific knowledge; e.g. in agriculture, environmental resource management and health. Home-based teleworking often appeals to women as it allows them to retain their careers while taking care of children. Yet, more ought to be done in Arab countries to encourage the capacity mobilisation of female population through ICTs.

Reduction in the cost of telecommunications services as well as the provision of suitable ICTs infrastructure is a precondition to the successful utilization of the ICTs by Arab countries. Replacement of bricks with bits, and mortar with clicks, can have a profound impact on the organisation of space and time and, hence, future city scenarios in the Arab World in the third millennium.

REFERENCES

American Sociological Association. 2002. *ASA News*. Available at: http://www.asanet.org/media/hevilet.htm, accessed on 13 April 2002.

Di Martino, V and Wirth, L. 1990. "Telework: A New Way of Working and Living" in: *International Labour Review*. Vol 129, No. 5.

Helsinki Virtual Village. 2002. *The Arabianranta Virtual Community*. Available at: http://www.teamware.com/top_story/smartcities/virtual_village.htm, accessed on 13 April 2002.

Mitchell, William J. 2000. *E-topia: Urban Life, Jim – But Not As We Know It*. Cambridge, MA: The MIT Press.

[6] This part is based on surveying existing literature on teleworking with special emphasis on its relevance to Arab countries; e.g. Shaw, L (1996), Di Martino, V & Wirth, L (1990), and Nilles, J (1985).

Mitchell, William J. 1999. "The City of Bits Hypothesis," In: D. A. Schön, B. Sanyal and W. J. Mitchell (Eds.), *High Technology and Low-Income Communities: Prospects for the Positive Use of Advanced Information Technology*. Cambridge, MA: The MIT Press.

Nilles, J. 1985. "Teleworking from Home" In: Forester T (Ed.), *The Information Technology Revolution*. UK: Blackwell

Shaw, L. 1996. *Telecommute! Go to Work Without Leaving Home*. NY: John Wiley & Sons.

United Nations Statistics Division (UNSD). 2001. *Social Indicators*. Available at: http://www.un.org/Depts/unsd/socialunemp.htm, accessed on 26 December 2001.