

Foreword

THE ROLE OF SUSTAINABLE URBAN AND INFRASTRUCTURE DEVELOPMENT IN AUGMENTING CITY COMPETITIVENESS

This book, entitled “*City Competitiveness and Improving Urban Subsystems: Technologies and Applications*,” explores a range of interests and activities concerning city competitiveness and urban systems from distinct disciplinary perspectives, including research from experts focusing on technology, planning, governance, and engineering. The primary focus of the book is one of the most important topics of our time, city competitiveness and urban systems. This book more specifically concentrates on the interconnectedness of social, economic, environmental and governing issues.

The book makes an important contribution to city competitiveness literature, highlighting the role of urban systems and bringing together the recent research findings from many disciplines in a single edited collection. This book is an invaluable resource as it highlights alternatives and approaches in urban systems technology and applications for not only academics, but also city administrators and the urban systems development industry. The book also provides useful directions for policy-makers to set sensible strategies for building prosperous and competitive cities for their citizens.

I was honoured when asked to write the foreword of this book and here below are some thoughts and insights from my academic, public sector, and professional practice experiences on the very topic of the book—urban competitiveness and urban systems.

CITIES AND COMPETITIVENESS

Cities in the course of history have always been the centres of civilisation and major economic activities. Throughout history, knowledge and creativity have been vital resources for building and sustaining a strong economy, society, and culture (Van Doren, 1992). Cities originally emerged as places of exchange of goods, nevertheless, production of these goods and the establishment of these cities relied heavily on knowledge, and today many of our modern cities are specialised havens for the production and exchange of knowledge, networks, and material goods (Yigitcanlar, 2010c). Furthermore, during the last few decades cities have become critical platforms for shaping and leveraging human capital into a collective intellectual capital, which is one of the main triggers of knowledge production, innovation, and competitiveness (Edvinsson, 2010).

The emergence of the first major cities and civilisation occurred in six widely separated places around the world dating from around 6,000 years ago: Mesopotamia, India, Egypt, China, Central America and Peru, and cities have been in competition with each other since then. The agricultural revolution turned

the ancient cities of Sumerian's Babylon, Egyptian's Cairo, Hittite's Hattusa, Greek's Athens and many others into melting pots of cultures and centres of technical and scientific innovation, creativity, trade, and finance. The industrial revolution accelerated the quantity of mass production and the speed of the physical and economic development of our cities in the course of the era of industrialisation (Mumford, 1968).

During the last three decades the shift from muscle-power based production to brain-power based production, along with rapid advancements in the information, communication, and transportation technologies, have initiated the revolution of the early 21st century, the so called information or knowledge revolution. This era of knowledge has brought numerous and tremendous changes in our lives and in the mechanisms that our cities function (Van Winden et al., 2007). The broad areas that have been impacted from the knowledge revolution are grouped under four major areas – economy, society, environment, and governance (Yigitcanlar, 2010c).

In history, the idea of globalisation-that was first put forward in action by Alexander the Great, the Macedonian Emperor, and then by Roman, British, and American imperialism, respectively-has been finally realised at the end of the 20th century. As a result of a rapidly globalising world and the move from an industrial to a knowledge era has impacted the economy and resulted in a shift from neo-traditional economic views and practices to knowledge-based economic ones (Metaxiotis et al., 2010).

The change in the economy did not only occur at the national level, but also had reflections in the local, regional, supra-national, and global economic levels. The new economy, the knowledge economy removed boundaries and provided opportunities for distribution and movement of the talent, investment, and finance across the globe, opportunities which have significantly changed the lifestyles of many residents of the world's global cities. Societies in these cities have become more diverse in terms of cultural and habitual perspectives and preferences (Durmaz et al., 2010). Although at times important social conflicts rose, tolerance to others has become the motto of these global cities in order to establish and maintain a cohesive society.

In this era of knowledge, major metropolises continue to attract more and more talented and lay populations; for the first time, in early 21st century the urban population figure exceeded the 50 percent mark. Although this rapid urbanisation helped local economies to flourish, due to increased local consumption and the service sector's rising role in the economy, both developed and developing countries have suffered from the environmental implications of this not so well planned sudden urban growth (Yigitcanlar and Dur, 2010).

Especially following the fear of peak-oil, global warming, climate change, and scarcity of agricultural lands to feed the world, local, regional, national, supra-national, and international organisations gave priority to properly deal with the negative impacts of rapid urbanisation and to target a development that is sustainable. This required a change of mind regarding the ill practices of the era of industrialisation, a restructuring of some of the institutions that oversee the governance of socio-economic and environmental urban development, and the achievement of a triple-bottom-line sustainability (Teriman et al., 2009).

This need for restructuring gave birth to a new city concept of knowledge cities, and a new urban development paradigm of knowledge-based urban development (Yigitcanlar, 2010d). In the era of knowledge, that is already upon us, knowledge-based urban development is seen as a new form of development to bring not only economic prosperity, but also environmental sustainability with a just socio-spatial order in cities, and aims to produce a knowledge city purposefully designed to encourage the production, exchange, and commercialisation of knowledge in an environmentally conserved, economically secure, and socially just human setting (Yigitcanlar, 2010c).

Knowledge cities are globally highly competitive cities as city competitiveness is basically determined by the ease with which value-creating activities or knowledge-based activities can take place (Yigitcanlar, 2009). Successful knowledge cities attract talented young highly-skilled knowledge workers, are centres of innovation and entrepreneurship, and are competitive locations for global and regional headquarters (Yigitcanlar and Velibeyoglu, 2008). However, building prosperous knowledge cities is a big, expensive, long-term, and challenging task as they require attracting and retaining both endogenous and exogenous talent and investment (Yigitcanlar et al., 2008a; 2008b).

Today talented knowledge workers, or in other words, the creative class of knowledge workers, have become perhaps the most important actors of knowledge production and city competitiveness, as investment is now following talent (Baum et al., 2009). Knowledge workers are highly mobile and are expected to change jobs, if not occupations, more frequently. Thus, they favour urban environments that contain thick labour markets offering opportunity to advance their careers by moving between employers (Yigitcanlar et al., 2007). Additionally, beyond a thick labour market, attracting and retaining knowledge workers involves building world-class and sustainable urban infrastructure and amenities and improving the quality of life and place in cities (Yigitcanlar et al., 2008c; 2008d).

SUSTAINABLE URBAN AND INFRASTRUCTURE DEVELOPMENT

A great deal of world population is now living in cities and the urbanisation trend in both developed and developing countries is following an upward trajectory. Many of the rapidly growing cities are developing strategies in becoming more competitive not only through their urban economies that offer employment, but also through lifestyle options that provide quality of life and place for their residents (endogenous), and strategies to become magnets for global talent (exogenous) by investing in their tangible and intangible assets (Velibeyoglu and Yigitcanlar, 2010).

Urban settings have substantial impacts on people's lifestyles, behaviours, and consumption patterns. Therefore, a development that is sustainable, as well as knowledge-based, is crucial in increasing the competitive edge of cities (Teriman et al., 2010). Much like knowledge-based urban development, sustainable urban development also aims for a balanced development of economy, society and environment (Yigitcanlar, 2010b). The incorporation of sustainability in an urban context is centred upon density, urban form, urban design, and infrastructure, and amenities. (Yigitcanlar and Dur, 2010).

As O'Connor (2010) states, the common current policy perspective is based on the idea that we can shape a city's development and vitality principally by containing and constraining the density and location of its residential development. However, the historical perspective, on the other hand, alerts us to the need to give much more attention to the way our investment in infrastructure is central to our capacity to invent, innovate, adapt, and become more competitive.

The changing circumstances of our cities today, such as coping with sprawl and rapid urbanisation, globalisation, climate change, the impacts of knowledge economy on urban space and place (e.g. knowledge city transformation), and a wider comprehension of sustainable urban development, call for different types and models of infrastructure provision. In recent years a vast amount of attention has been directed to this area (Yigitcanlar, 2010a; 2010b).

For example, O'Connor (2010) suggested that smaller units in urban sub-regional networks are potentially more effective at meeting the new pattern of infrastructure demand, as diseconomies are felt when the original, large systems attempt to reach out into very much larger service areas. These smaller,

regionally focused units have greater potential to enhance sustainability as they can mould and change to meet the specific needs of particular parts of cities. This is also a valid view for the new form of urban food production such as urban farming, which is the Holy Grail of sustainable cities (Yigitcanlar, 2010a).

Searle (2010) pointed to the cost issues surrounding the infrastructure and noted that the provision of an infrastructure that is sustainable is a central challenge of contemporary urban governance and city competitiveness. Despite the availability of the necessary technology, progress continues to be slow. There are a number of reasons for this. A key reason is that the externality costs of unsustainable infrastructure are not priced properly or otherwise taken into account. More fundamentally, this arises to a significant extent because governments lack sufficient popular legitimacy to price or regulate such costs; this lack of legitimacy, in turn, largely stems from a lack of public awareness of the full costs of unsustainability.

Probably the most popular infrastructure type that sits in the middle of the sustainability debate is transport infrastructure. This is mainly because a more sustainable transport system combined with good urban design (e.g. transit oriented development) is proven to minimise transport disadvantages and the amount of private motor vehicle trips, increase the sustainability of urban environments, and contribute to the quality of life and place in cities (Duvarci and Yigitcanlar, 2007; Yigitcanlar et al., 2007; 2007).

However, beyond typical hard infrastructure (e.g. transport, water, and power) sustainability of the soft infrastructure also plays considerable roles in building sustainable urban environments. Soft infrastructures; such as emergency, health, employment, and education services, offer necessary community services and assist in forming a cohesive society and contribute immensely to the liveability of cities. In the era of knowledge, additionally knowledge infrastructures such as history, culture, and identity of the place are also considered as essential infrastructures contributing to cities standing out in the global competition.

In the development of a sustainable urban infrastructure, the biggest challenge, beyond the cost, has been the integration of the entire, both hard and soft infrastructure systems and their effective and efficient delivery and management (Yigitcanlar, 2010a; 2010b). In recent years, provision, monitoring, integration, management of infrastructure, service, and amenities have started being supported with advance information and communication technologies (Lee et al., 2008; Yigitcanlar and Han, 2010). Wired and wireless networks, ubiquitous technologies, urban and infrastructure management systems, geographic Information Systems, global positioning systems, intelligent transport technology, and e-government are among some of these rapidly developing and converging technologies (Yigitcanlar et al., 2003; Baum et al., 2004; Yigitcanlar, 2005; Yigitcanlar, 2006; Baum et al., 2007).

CITY COMPETITIVENESS AND SUSTAINABLE INFRASTRUCTURE

Previous research has shown how dramatic growth in the size, health and prosperity of cities over the thousands of years of civilisation has depended on a city's ability to invent and install appropriate urban infrastructures (Yigitcanlar, 2010a). Starting with access to water, roads, and waste disposal, through provisions for health and education, to the more recent additions of power and electronic communications, the extraordinary growth of cities to their current role of accommodating more than half the world's six billion plus people on a tiny fraction of the earth's surface has been made possible by successive waves of new urban infrastructure (UN, 2001).

It is widely accepted that an appropriate urban infrastructure of our time is a sustainable urban infrastructure, which refers to anything built or used in a way that contributes to the overall sustainability of our economy, society, and natural resources; in most cases, this is related to energy consumption and

water use, two of the highest profile conservation areas. The availability of a sustainable urban infrastructure helps cities maintain their competitive edge in the highly competitive global environment, the evolving knowledge economy, and the knowledge society (Corey, 2004).

The book on competitive cities in the global economy, by OECD (2006), emphasises the importance of sustainable urban and infrastructure development, and suggests government action in cities to combine ‘remedial’ actions aimed at correcting the usual negative effects of urbanisation, such as sprawl and social deprivation, with ‘proactive’ measures for competitiveness, such as enhancing local social capital networks, developing links between higher education institutions and industry, and strengthening infrastructures, from roads and airports to information highways. OECD also recommends (2006):

- A flexible strategic vision is necessary to foster competitiveness, ensure a diversified range inter-dependent ventures, and information and transportation links between universities, researchers, technicians, and manufacturers.
- Liveable cities with high-quality infrastructure, green spaces, and inner city residential areas and public projects can contribute to economic success, attracting foreign investors as well as highly qualified professionals and tourists.
- Effective governance of cities depends on leadership from the national government to encourage reform, a formal government at the metro-regional level, and lower level local networks that include non-governmental actors, associations and businesses, which can deal with social tensions and understand market realities.
- To balance the financial needs of cities with those of the rest of the country, cities can diversify tax revenues with ‘smart taxes’ such as congestion charges and use public-private partnerships to raise money for public projects. Equalisation payments between metropolitan regions can be effective, but national equalisation schemes to redistribute resources from richer to poorer regions sometimes disregard the higher spending needs of cities and act as a disincentive to poorer regions to increase tax revenues.

CONCLUDING REMARKS

Building cities is about building competitiveness and attractiveness, as well as being drivers of local, regional, and global economies. In other words, cities in the era of knowledge need to be competitive in their own leagues. Global cities, such as London, New York, Paris, Sydney, and Tokyo, have been in the global race for centuries competing head on with each other. Established knowledge cities, such as Boston, Barcelona, Melbourne, Singapore, and Stockholm, have been in a tough global competition for quite some time in order to attract and retain talent and investment that is now highly mobile. Global and knowledge cities are considered well-established cities in terms of their economies, societies, environments and governing institutions. Furthermore, in the international city rankings these cities receive high scores in terms of competitiveness, quality of life, knowledge city status, eco-city status, city branding and so on.

Global competition in attracting talent, investment and finance is much harder for the newly emerging knowledge cities, such as Bangalore, Brisbane, Istanbul, Shenzhen, and Valencia. These cities have the advantage to learn from other prosperous global and knowledge city experiences and develop their own development pattern by not copying others, but being more creative and innovative and putting citizens in the heart of the development that is sustainable and knowledge-based. Moreover, for these

cities investing on sustainable urban and infrastructure development will help in their progress and in augmenting their city competitiveness globally.

Balancing economic, socio-cultural, enviro-urban and institutional development, and providing sustainable infrastructure to support development are the cruxes of the challenge facing cities in today's globalised world. While dealing with this challenge, it should be always kept in mind that, as Shakespeare put it, "what is the city but the people?" and a human and environment oriented policy framework should be put into action.

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Tan Yigitcanlar has a multi-disciplinary background and over two decades of work experience in private consulting, government and academia. Dr Yigitcanlar currently holds a senior academic position at the School of Urban Development, Queensland University of Technology, Brisbane, Australia, and a managerial position as the Events Program Executive Director at the World Capital Institute, which is an international Think Tank. The main foci of his research are advocating and promoting sustainable knowledge-based urban development, and infrastructure and transport development in city-regions. These two broad research areas are clustered around several themes: knowledge economy, knowledge-intensive activities, knowledge city, ubiquitous city, local governance, civic engagement, sustainable urban and infrastructure development, urban and transportation modelling, accessibility planning, online planning support systems, and understanding urban structures, processes and driving forces in the knowledge era. Dr Yigitcanlar is one of the leading researchers in the field of 'knowledge-based and sustainable urban development', and he has been responsible for research, teaching, training and capacity building programmes on urban and regional planning, transport modelling, environmental science, policy analysis and Information and Communication Technologies in respected Turkish, Japanese and Australian universities. He is the Editor of five books entitled 'Knowledge-based urban development', 'Creative urban regions', 'Knowledge-based development for cities and societies', 'Sustainable urban and regional infrastructure development' and 'Rethinking sustainable development'. He is the founding Editor-in-Chief of the 'International Journal of Knowledge Based Development', Special Issue Co-Editor of the 'Journal of Knowledge Management', and the Chairman of the 'Knowledge Cities World Summits'.

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