

PRACE NAUKOWE

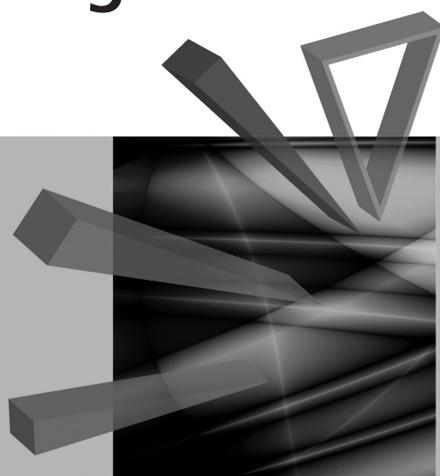
Uniwersytetu Ekonomicznego we Wrocławiu

RESEARCH PAPERS

of Wrocław University of Economics

257

Innovation as a Factor of the Development of the Asia-Pacific Region



edited by

Przemysław Skulski



Publishing House of Wrocław University of Economics
Wrocław 2012

Reviewers: Kazimierz Starzyk, Beata Stępień, Maciej Szymczak,
Maciej Walkowski, Katarzyna Żukrowska

Copy-editing: Marcin Orszulak

Layout: Barbara Łopusiewicz

Proof-reading: Barbara Łopusiewicz

Typesetting: Małgorzata Czupryńska

Cover design: Beata Dębska

This publication is available at www.ibuk.pl, www.ebscohost.com,
and in The Central and Eastern European Online Library www.ceeol.com
as well as in the annotated bibliography of economic issues of BazEkon
http://kangur.uek.krakow.pl/bazy_ae/bazekon/nowy/index.php

Information on submitting and reviewing papers is available
on the Publishing House's website
www.wydawnictwo.ue.wroc.pl

All rights reserved. No part of this book may be reproduced in any form
or in any means without the prior written permission of the Publisher

© Copyright by Wrocław University of Economics
Wrocław 2012

ISSN 1899-3192

ISBN 978-83-7695-214-7

The original version: printed

Printing: Printing House TOTEM

Contents

Introduction.....	7
-------------------	---

Part 1. Innovation and development in selected regions of the world. A comparative study

Anna Źyła: Characteristics of the ASEAN+3 cooperation and its influence on improving regional innovation	11
Elżbieta Czarny, Jerzy Menkes: Impact of the models of Asian, American and European regional integration on development potential	23
Grzegorz Mazur: The European Union–South Korea Free Trade Agreement. A new model of trade and economic cooperation between developed countries.....	33
Ufuk Bal: Defining the European knowledge-based urban development model. The Asia-Pacific region and European perspectives.....	45
Konrad Sobański: Inclusiveness of economic growth in emerging Asian and European economies.....	59
Marcin Nowik: Novelty in India’s approach towards South–South development cooperation	70

Part 2. Innovation policy in selected economies in the Asia-Pacific region

Katarzyna Źukrowska: Innovativeness and development in the economies of Japan, Korea and China. A comparative approach.....	85
Monika Szudy: Innovation-oriented policy in Japan and China. A comparative analysis	95
Tomasz Tylec: Transformation of China’s innovation policy. Selected issues	105
Agnieszka McCaleb: China’s National Innovation System.....	113
Monika Paradowska: China’s urban transport. Challenges and policy issues	125

Part 3. Different views on innovation in the Asia-Pacific region

Marcin Menkes: Principles of Internet governance. Economic growth and innovation in Asia.....	141
Anna Maria Dzienis: Japanese internal migration as a growth factor.....	157
Katarzyna Kita: Determinants of the food situation in the Asia-Pacific region	165
Marcin Jałowicki: China’s consumer market by 2020.....	173

Streszczenia

Anna Żyła: Charakterystyka współpracy w ramach ASEAN+3 i jej wpływ na poprawę konkurencyjności regionu.....	22
Elżbieta Czarny, Jerzy Menkes: Wpływ modeli integracji regionalnej w Azji, Ameryce i Europie na możliwości rozwojowe.....	32
Grzegorz Mazur: Umowa o wolnym handlu między Unią Europejską i Koreą Południową. Nowy model współpracy gospodarczo-handlowej pomiędzy krajami wysokorozwiniętymi.....	44
Ufuk Bal: Definiowanie europejskiego modelu rozwoju urbanistycznego opartego na wiedzy. Perspektywy regionu Azji i Pacyfiku oraz Europy	58
Konrad Sobański: Wzrost gospodarczy a wykluczenie społeczne we wschodzących gospodarkach Azji i Europy	69
Marcin Nowik: Innowacje w indyjskim podejściu wobec współpracy na rzecz rozwoju na linii południe-południe.....	81
Katarzyna Żukrowska: Innowacyjność i rozwój gospodarczy w Chinach, Japonii i Korei. Podejście porównawcze	94
Monika Szudy: Polityka innowacyjna w Japonii i w Chinach. Analiza porównawcza	104
Tomasz Tylec: Przeobrażenia polityki innowacyjnej Chin. Wybrane zagadnienia.....	112
Agnieszka McCaleb: Narodowy System Innowacji Chin	124
Monika Paradowska: Transport miejski w Chinach. Wyzwania i problemy .	138
Marcin Menkes: Zasady zarządzania Internetem. Wzrost gospodarczy i innowacje w Azji	156
Anna Maria Dzienis: Japońskie migracje wewnętrzne jako czynnik wzrostu	164
Katarzyna Kita: Czynniki determinujące sytuację żywienia w regionie Azji i Pacyfiku	172
Marcin Jałowiecki: Rynek konsumentów w Chinach w 2020 roku	183

Ufuk Bal

Wrocław University of Economics

DEFINING THE EUROPEAN KNOWLEDGE-BASED URBAN DEVELOPMENT MODEL. THE ASIA-PACIFIC REGION AND EUROPEAN PERSPECTIVES

Summary: The subject of this paper is to examine the urban transformations that have taken place recently in the Asia-Pacific region and Europe due to the dominant use of information and communication technologies (ICT) under the globalisation process. Main focus will be given to social and economical transformations as a result of physical changes on urban space during the knowledge city (trans)formations. Knowledge cities in the Asia-Pacific region and Europe have been analysed in order to give recommendations for the definition of the European knowledge-based urban development (KBUD) model. The outcomes of the research will provide a basis for European urban and regional planners, researchers as well as economists and sociologists, giving different examples of knowledge cities and a starting point for defining the European knowledge-based urban development model.

Keywords: new technologies, knowledge-based urban development, information and communication technology, European KBUD model, urbanisation.

1. Introduction

Knowledge is considered to be the driving force behind today's global economy. The knowledge-based economy is one of the major factors related to the global competitiveness of cities in different corners of the world, such as Europe, the Asia-Pacific region and the USA. The social and economic importance of knowledge creation in the knowledge-based economy is obvious and recognised as a newly emerging social phenomenon and the subject of research in economic sciences. In the era of rapid urbanisation, the creation of knowledge (i.e., where, how and by whom it is created) is still not clearly defined. Moreover, in view of the ongoing process of globalisation, integration, metropolisation and today's enormous developments in information and communication technologies (ICTs), only the cities with their well-organised structure and dynamics that allow generating and developing new knowledge can become leading cities of the knowledge economy. During the last decade, the Asia-Pacific region made a big step to become one of the strongest actors

in this competition and several special development zones were created. Moreover, the European Union puts a strong emphasis on developing strategies for creating community-based networks of knowledge and, therefore, this paper points out the emergence of the European model of knowledge-based urban development (KBUD).

The knowledge-intensive industries and knowledge workers are the main actors that today's cities compete to attract and retain. At this point, local and regional KBUD strategies by local governments have become one of the priority strategic approaches for the development of cities. However, as there is still no clear definition of KBUD, it is still not easy to determine the successful cities in the context of the knowledge economy. During the last decades, there have appeared several evaluation models as well as research studies on this subject which put the main emphasis on ICT, e-society, e-culture, e-logistics and knowledge as the important factors.¹

In particular, the paper puts forward the general understanding of KBUD, which defines and supports planning and designing the knowledge city. Next, it introduces the existing evaluation approaches for KBUD in order to provide a clear understanding of approaches to knowledge city formations within the process of developing strategies for attracting knowledge-intensive industries and workers. The paper tries to give a brief overview of existing KBUD strategies and examples of knowledge cities from the Asia-Pacific region and Europe in order to figure out economic, social and cultural aspects of those knowledge cities as well as the necessity of defining the European KBUD model in order to provide basic guidelines for the European authorities to develop strategies for better formation of knowledge cities, attracting and retaining knowledge-intensive industries and knowledge workers in Europe. Following this structure, the paper is organised in six sections in general. After the introduction, Section 2 provides an overview and gives relevant background of knowledge-based development as well as major effects of new technologies and transformation of existing cities into knowledge cities. Section 3 provides more detailed information about KBUD with definitions. The following section explains the evaluation of the KBUD strategies with different implications and European policies for network society and knowledge-based development. Section 5 presents the relative examples of the Asia-Pacific region and European knowledge cities and their adjustment to KBUD. Section 6 concludes with a discussion on the importance of the European KBUD model and the benefits to support knowledge-based development strategies in global competition.

2. Background

For the last decades intensive changes in the urban areas of global competitors, such as the Asia-Pacific region, Europe and others, have been observed. The

¹ L. van den Berg, P. Pol, W. van Winden, P. Woets, *European Cities in the Knowledge Economy*, Ashgate Publishing, Hampshire 2005, p. 3.

effects of global competition, policies on network society, new rapid transportation infrastructures, the climate change and other environmental challenges have become important factors that affect the strategies regarding urban development policies.² One of the key factors that shape the contemporary urban spaces is the dynamic developments on ICT as a result of the ongoing globalisation process. ICTs have a major impact on the development of urban areas in terms of social, economic, cultural and political aspects. The developments of ICT undoubtedly affect the social and cultural life, as well as the economic developments of societies. Hence, the need for new spatial planning strategies for European cities to compete with other knowledge cities around the world is inevitable.

The paper, in this case, will focus on KBUD in the Asia-Pacific region and European urban space, determined by socio-economic processes and knowledge economy strategies in the era of globalisation. This “new” space is defined by contemporary processes of globalisation, integration and rapid development of the ICT sector, as well as the popular phenomena related to the knowledge economy, which are major factors within KBUD terminology. Defining such a research subject has been based on developing a new field of spatial planning, which combines traditional theories of planning with information and communication networks for knowledge workers and knowledge-intensive industries performing their activities. The research topic of the effects of new technologies and other determinants, such as human and social capital, intensifying the process of clustering in urban areas, aims to fill the gap in the literature on the relations between ICT, urban planning and design. The development of this “new field” is mainly going in accordance with the network theories, where the potential of information and communication networks should be seen as tools for urban planning.³ The entire research topic and nomenclature of newly developing “hybrid” cities has not yet been clearly formulated.⁴ KBUD plays an important role in order to define the model for the formation of knowledge cities, as well as their maintenance and sustainability.

Undertaking research as such is to understand the transformations that modern societies undergo on their path of becoming so-called “network societies”. This subject was presented by Manuel Castells in his work entitled *The Rise of the Network Society*, describing development of information societies and new challenges for local governments.⁵ Currently, ongoing changes inside the Asia-Pacific region and Europe (metropolitan areas) are based on the developments on new technologies and the effects of the knowledge economy. The information flow process between

² T. Yigitcanlar, Making space and place for the knowledge economy: Knowledge-based development of Australian cities, *European Planning Studies* 2010, Vol. 18, No. 11, pp. 1767–1784.

³ E. Sikiaridi, F. Vogelaar, *The Use of Space in Information/Communication Age-Processing the Unplannable*, Issue Paper, 11 April workshop Ruimtegebruik, Amsterdam 2000.

⁴ G.A. Sargin, *Hybrid Spaces*, METU Press, Ankara 2004.

⁵ M. Castells, *The Rise of the Network Society. The Information Age*, Vol. I, Blackwell Publication, Oxford 1996.

the tools used in ICT, such as television platforms, computing devices, communication networks and all kinds of media, will be interpreted as one of the basic factors of changes in the environment from the technical, organisational and infrastructure perspective. The specially defined development zones, such as technology-parks, so called “clusters” and others, are important locations in knowledge cities and need to be examined. The paper provides brief information on recent examples from the Asia-Pacific region and European cities in order to enhance the understanding of the current situation in a different social and economic background.

In particular, the research topic gives an important contribution to the process of defining and describing the changes in society and economy as a result of increasing knowledge-based developments across the Asia-Pacific region and Europe. The adopted structure of the paper allows the analysis of the processes at three different levels. The first one is the local level, where attention will be placed primarily on changes in social networks, the transmission of values and beliefs and the reformulation of accepted forms of inclusion and exclusion in the social and economic purposes inside the KBUD framework. The second one focuses on the analysis on major actors of KBUD, such as large corporations, local and national governments and international institutions, and their role in the creation and consolidation of the newly emerging strategic urban space network. The last level of analysis is the urban/metropolitan level, i.e., integration of the social, economic and political networks while creating new spatial forms and their individual characteristics for knowledge workers and knowledge-intensive industries. The ongoing debate on significant issues related to the urban space transformation processes, the socio-economic development of the society in post-fordist era, current and future information society, as well as post-modern society includes KBUD in its nature. The cases of the Asia-Pacific region and European knowledge cities are presented to show the epicentres of those clusters, both in the heart of cities and on their outskirts. Presenting selected examples of metropolitan areas will help to illustrate the processes of diffusion of new technologies among urban spaces, resulting in the emergence of new social, economic and political integration forms, as well as passing a parallel exclusion by trying to provide an answer to the way the role of cities is changing in the era of the knowledge economy; in other words, how knowledge-based developments affect urban spaces, cities and their structure, spatial distribution of economic processes and social networks. The main emphasis is given to social and economic transformations as results of physical changes in urban space caused by KBUD.

The twentieth century brought two factors that significantly contributed to lowering the cost of information sending – in other words, supporting the knowledge-based developments. The first one was the telephone followed by the mobile, which allowed people away from each other to communicate over long distances. The second one was the Internet and e-mail, which allowed not only voice, but also documents, sounds and images transmission. Both of those technologies require a huge capital to start; however, their appearance significantly reduced the cost of transfer-

ring information between distant places. At this initial stage of communication and information age, society has not yet fully understood the upcoming consequences of what had been brought by those two inventions. However, it is still early enough to look at what effects they have on urban spaces, social and economic life and to learn how to properly shape them. Today the formation of knowledge cities causes changes in urban life style, in both social and economic way. The roots of the knowledge economy era as well as the discussions and research studies about KBUD are linked with those two inventions of the last century.

At present, in the globalisation era, ICTs play a huge role in shaping urban spaces. For centuries, the ongoing developments in technology, planning theory and practice have varied between cities. Newly (trans)formed knowledge cities are also different from each other, but in fact there are similarities that can be classified as the first steps to define models for KBUD and the following sections are devoted to this attempt.

3. Definition of knowledge-based urban development

The similarities and differences of the Asia-Pacific region and European knowledge cities will provide ground for further steps in defining European KBUD model. Thus, the definition of KBUD is crucial and so far it has been formulated in different ways. In short, cities are the centres of the knowledge economy as they are the stages where the all knowledge-based activities take place – in other words, where knowledge is created, developed and exported. In the era of knowledge, KBUD combines the economic welfare and developments with the environmental sustainability under certain vision and strategy for (re)defining urban spaces and social activities that take place in knowledge cities. The definition of KBUD is not a unique one and refers to a comprehensive development process rather than to a single strategy plan. Hence, KBUD as the development process was defined as follows: “KBUD is a powerful strategy for economic growth and the post-industrial development of cities and nations to participate in the knowledge economy, which also a strategic management approach, applicable to different urban regions”.⁶

The main goal of KBUD is to provide all the necessary physical and natural environmental background for the knowledge city that is designed to intensify knowledge-based production as well as to provide a better quality of life for knowledge workers. In order to perform knowledge-based activities, KBUD should provide the technical infrastructure, organisational structure, economic programme, sustainable environment-friendly development. The four major purposes of KBUD are introduced to the literature by Yigitcanlar:⁷

⁶ T. Yigitcanlar, K. Velibeyoglu, C. Martinez-Fernandez, Rising knowledge cities: The role of knowledge precincts, *Journal of Knowledge Management* 2008, Vol. 12, No. 5, pp. 10.

⁷ T. Yigitcanlar, K. Metaxiotis, J. Carrillo (Eds.), *Building Prosperous Knowledge Cities: Policies, Plans and Metrics*, Edward Elgar Publishing, London 2012, pp. 327–351.

- economic development,
- socio-cultural development,
- enviro-urban development,
- institutional development.

Economic development includes technical, financial and human knowledge within the economic model. The socio-cultural development provides all necessary educational and personal development opportunities for citizens to gain skills and knowledge to perform knowledge-based activities. The sustainability and the quality of life play an important role in KBUD strategies. Hence, enviro-urban development creates spaces with strong network structure between different urban clusters with the environment-friendly approach. The institutional development is one of the key roles of KBUD that combines all the actors and sources together in order to organise necessary knowledge-intensive activities and formation of the knowledge city. Moreover, the four development areas, undoubtedly, come from the key pillars of KBUD, which are defined as economy, society, environment and management.⁸ Finally, in this case, the key factors of urban planning and design, such as physical aspects (character, continuity and enclosure, quality of public realm, ease of movement, legibility, adaptability and diversity) and economical aspects (economic impacts, social impacts, environmental impacts), should be also considered for sustainable development.⁹

The knowledge economy is based on regional and global cooperation as well as clustering – in other words – it is a network economy. The rapid changes in ICT also affect the speed of observing ongoing developments. In this sense, although KBUD takes place at the local and/or regional level, knowledge cities are naturally becoming a part of a network as the global hubs for exchanging knowledge. The evaluation of KBUD strategies of knowledge cities will be the starting point to analyse the ongoing process and generate guidelines for future practices.

4. Evaluation of the knowledge-based development level

In the era of the knowledge economy, the global competition of governments as political actors changed into a level of individuals, societies, in other words, into a regional thing, but even more at the level of cities. The knowledge city, at this point, is a newly developing phenomenon during the last decades and KBUD has the key role for the formation, development and evaluation of the level of reaction of contemporary cities. The seven foundations of the knowledge economy are defined as: knowledge base, economic base, quality of life, accessibility, urban diversity,

⁸ *Ibidem.*

⁹ U. Bal, The economical importance of urban design for sustainable development, *Wyższa Szkoła Zarządzania i Finansów we Wrocławiu, Zeszyty Naukowe* 2011, nr 31, pp. 9–22.

urban scale, social equity.¹⁰ The foundations of the knowledge economy are a comprehensive tool of increasing the level of success of KBUD. Each foundation brings an added value and enhances the quality in the process of formation of knowledge cities. The activities of the knowledge city, if they are based on the foundations, can be more attractive, innovative and sustainable, which also results in long-term developments. The main activities of the knowledge city are grouped as:

- attracting and retaining knowledge workers,
- creating new knowledge,
- applying new knowledge,
- making new combinations and developing new growth clusters.¹¹

In order to attract and retain knowledge workers, the foundations of the knowledge city are: economic base, quality of life and social equity.¹² They can be provided by potential job opportunities that increase welfare with high quality of life within an attractive and safe urban environment. Creating (new) knowledge is the core activity which needs to be supported by well-organised institutional structure in cooperation with universities and R&D with the string strategy for promoting those activities that affect the capacity of knowledge creation. The newly generated knowledge should be developed and translated into the business sector. The transfer of knowledge into the business sector is also related with urban scale as the scale economies play the crucial role in applying new knowledge. The most important activity of the knowledge city is to develop new growth clusters. For this purpose, all foundations explained above are crucial. Cluster development can be provided by increasing the attractiveness of the city and the quality of life. Urban scale, urban diversity and social equity are three major foundations in terms of the capacity of the city to host a higher number of companies and research centres, where its accessibility is another important factor for regional cooperation.¹³ While focusing on defining clusters for creating and marketing knowledge, the utilisation of urban design principles for sustainable development is another inevitable stage in order to provide attractive urban environment for knowledge workers.¹⁴ In the contemporary literature, as indicated in the previous section, the framework of KBUD was introduced according to Yigitcanlar as economic development, socio-cultural development, enviro-urban development and institutional development. Moreover, Yigitcanlar also mentions the key pillars of KBUD, which are economy, society, environment and management.¹⁵ The four development domains and the key pillars of KBUD need to be equally integrated in the development strategies of knowledge

¹⁰ L. van den Berg, P. Pol, W. van Winden, P. Woets, *op. cit.*, pp. 15–17.

¹¹ *Ibidem*, p. 18.

¹² *Ibidem*, p. 19.

¹³ *Ibidem*, pp. 20–26.

¹⁴ U. Bal, Urban design principles as the key for sustainable development, *Nauka i Gospodarka* 2011, nr 2 (9), pp. 74–80.

¹⁵ T. Yigitcanlar, K. Metaxiotis, J. Carrillo (Eds.), *op. cit.*

cities, which provides a comprehensive approach and affects the level of success of KBUD at urban and regional levels.

The emerging global competition between continents, the global financial crisis, environmental disasters around the world and the high level of consumption of resources have pushed mankind to develop alternative solutions. Since the beginning of 21st century, the European Union has also issued regional development strategies in the frame of “Innovation and Knowledge Society”.¹⁶ In order to increase the use of ICT in the EU, the European Commission in 1999 launched the “eEurope” programme, which after its creation was integrated into the Lisbon agenda – i2010 – for anced knowledge-based economy” in the world.¹⁷ In other words, to create a “knowledge-based society” EU strategies are also supporting the (trans)formations of knowledge cities. Hence, “eEurope” supported with a long series of European programmes focused on R&D, knowledge-based activities and provided financial support by means of national or regional funds. The evaluation of the Lisbon strategy resulted with the following programme in 2010: “Europe 2020”, which aims to become a smart, sustainable, inclusive economy.¹⁸ By the end of 2020, the EU aims to reach five objectives on employment, innovation, education, social inclusion and climate/energy. The programmes are redefined with new objectives regarding the outcomes of the Lisbon agenda and the new development models.¹⁹ The effects of Europe 2020, undoubtedly, on potential knowledge cities and KBUD strategies need to be observed and as major indicators integrated to define the European KBUD model.

During the last decades, ongoing knowledge-based developments around the World, such as Vancouver, Melbourne, Singapore, Boston, Barcelona, Austin and others, have given much inspiration to other cities. The ongoing developments of knowledge cities are under scrutiny and different approaches have been proposed in order to classify the success of strategies of knowledge cities and the effects of new technologies on society. The following section summarises the knowledge-based development strategies of the Asia-Pacific region and European cities in order to classify the differences and similarities of the transformation process.

5. KBUD in Asia-Pacific region and European cities

The rapid developments of ICT and new technologies have increased the number of (trans)formations of cities into knowledge cities. The local governments’ development plans as well as regional and national strategies of KBUD have resulted in new

¹⁶ <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1563&format=HTML&aged=0&language=EN&guiLanguage=en>.

¹⁷ http://ec.europa.eu/information_society/eeurope/i2010/ict_and_lisbon/index_en.htm.

¹⁸ http://ec.europa.eu/europe2020/index_en.htm.

¹⁹ http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2014/proposals/regulation2014_leaflet_en.pdf.

knowledge cities that joined the global competition of attracting knowledge-intensive industries and knowledge workers. This section presents briefly KBUD examples from the Asia-Pacific region and European knowledge cities: Helsinki, Manchester, Rotterdam, Singapore and Melbourne. The economic sectoral differences as well as similarities in developing strong visions and KBUD strategies for different regions can be the key to formulate the recommendations for European KBUD model.

Helsinki is known as the capital of Finland and as having well-known Nokia; the city is one of the strongest telecommunication centres too. The effects of the economic crisis in 1980s and the collapse of the Soviet Union in 1990s resulted in the need for new development strategies for Helsinki, which were formulated in 1995 with the aim of a long term socio-economic success depending on education, science and research.²⁰ The importance of Helsinki's case is the involvement of national actors which played important roles in shifting to the knowledge economy with a strong emphasis on the quality of education, R&D and cooperation between both the education and the business sector, as well as public organisations.²¹ The effects of ICT on the formation and development of the Helsinki city are comprehensive and powerful; however, the domination of a single economic sector, as well as the rise of different popular brands in the mobile sector, resulted in a decline in economic welfare.²² For the last decades Helsinki has already proved its potential and strength in the global competition with clear KBUD strategies and became the "telecommunications capital" of Europe. Today, Helsinki is focusing on developing new ICT-based activities in order to attract and retain more diverse technology clusters.

Manchester is the commercial, educational, cultural and medical centre of England's north-west region. As one of the well-known cities of the industrial revolution, Manchester had enormous decline of industrial activities by the end of 1980s and most of the population was employed in the service sector. However, starting with the 1994 "City Pride Prospectus" and the strategy document in 2003 entitled "Manchester: Knowledge Capital", it aimed to achieve and create a more attractive and competitive region.²³ The essential aim of the "Knowledge Capital" vision is to strengthen the links between higher education, business sector and local communities. Today, the major sectors of growing industry clusters, such as biotechnology, advanced engineering, ICT, software, new media and cultural industries, make the Manchester region one of the competitive leaders of Europe.²⁴ In addition, Manchester implemented environmental and urban sustainability development strategies and created affordable housing opportunities, better urban

²⁰ L. van den Berg, P. Pol, W. van Winden, P. Woets, *op. cit.*, p. 130.

²¹ *Ibidem*, pp. 131–133.

²² T. Yigitcanlar, Planning for knowledge-based development: Global perspectives, *Journal of Knowledge Management* 2009, Vol. 13, No. 5, pp. 228–242.

²³ L. van den Berg, P. Pol, W. van Winden, P. Woets, *op. cit.*, pp. 161–162.

²⁴ *Ibidem*, pp. 162–165.

quality of life for the knowledge workers that makes Manchester one of the most attractive EU clusters.²⁵

Rotterdam is the second largest city in the Netherlands after the capital Amsterdam and the only big city where the average age of the population is decreasing. Starting in 2003, the local government published a policy paper “Programme Knowledge Economy” and created an inclusive platform of the government, universities and institutions for the implementation stage. This programme stressed the importance of providing high quality education, cooperation between the actors of knowledge-based development and enhancing the quality of life.²⁶ Moreover, the Economic Vision Rotterdam 2002–2006 defines the ways of a long-term economic development by enhancing the quality of life of the Rotterdam city, alternative economic activities through the cluster policy and attracting and retaining knowledge-intensive industries. At the regional level, Rotterdam is a part of Knowledge Alliance South-Holland (supported by the European Union, big municipalities and universities), which aims to increase the cooperation between the education, research and business sectors and the government in the areas such as knowledge pillars of the water technology, ICT, aerospace, life sciences, shipping, transport, logistics and several others in order to become one of the leading knowledge regions of Europe.²⁷

Singapore is known as the knowledge capital of South-East Asia and considered as “the city of constant change”. The city launched its first KBUD project in 2001 “One-North knowledge community precinct” with a proposal of twenty-year development of the city state and made Singapore one of the main actors in the knowledge era by establishing strong R&D centre.²⁸ One-North, the global talent hub, is organised around three distinctive stages: Biopolis, Fusionpolis, Infopolis.²⁹ In short, One-North is a total knowledge environment to become “the knowledge capital” of South-East Asia with a specific focus on attracting creative talents and retaining them in Singapore. What is important in Singapore’s case is that the overall strategy for KBUD is defined by the authoritarian policy approach which fastens decision-making process and overall management of development. Besides the technological developments, Singapore focused on infrastructural investments, such as the Changi Airport that enables knowledge workers to connect other clusters in the Asia-Pacific region as well as Europe and the USA. Moreover, one of the successes of Singapore is that the long-term comprehensive strategies that combine science- and technology-oriented developments with ecological approach resulted in a higher quality of life and social equity for knowledge workers. Singapore, as the knowledge city, has become one of the leaders in the world in terms of sustainable development with this

²⁵ T. Yigitcanlar, K. Metaxiotis, J. Carrillo (Eds.), *op. cit.*

²⁶ L. van den Berg, P. Pol, W. van Winden, P. Woets, *op. cit.*, pp. 257–258.

²⁷ *Ibidem*, p. 260.

²⁸ T. Yigitcanlar, *Planning for knowledge-based...*, *op. cit.*

²⁹ <http://en.wikipedia.org/wiki/One-North>.

combination of effective strategies to attract knowledge workers and knowledge-intensive industries.

Melbourne is known as the arts and culture capital of the Asia-Pacific region. Recently, the developments in Melbourne have been influenced by the current trends of world leading cities which based on knowledge work. “The 2010 Melbourne City Plan” was one of the strategic tools for the KBUD, which aimed to shape the future development of Melbourne as: “prosperous, innovative, culturally vital, attractive, people focused, and sustainable city”.³⁰ Additionally, “Melbourne 2030” strategy plan is focusing on more sustainability issues, such as city management, crating regional cities networks, greenery, effective transportation, urban quality and prosperous city.³¹ “Melbourne 2030” focuses on both strong and innovative economy and the sustainable development to provide better conditions for knowledge workers as well as emphasising knowledge clusters as important factor in the success of the KBUD of Melbourne. Another important point is the governmental funds for small and medium size as well as international companies which helped Melbourne to become one of the biggest hubs of advanced industrial and scientific research area in the Asia-Pacific region.³² The high number of universities that provide high education standards enables knowledge workers to increase their skills with combined research opportunities in international companies, such as Toyota, GE Money, IBM and others.³³ In addition to the successful strategies on business, education and research clusters, Melbourne is also known as the art and culture capital of the Asia-Pacific region with international art, culture and sport activities, which also enhance the speed and quality of the process of transformation into the knowledge city.

The well-known examples of knowledge cities from the Asia-Pacific region and Europe have common similarities when it comes to the success of the whole KBUD process. The majority of the cities is based on dominant sectors in particular, however with clearly defined objectives and strong vision supported by KBUD strategies. The conclusion section will try to define common KBUD strategies for knowledge cities as well as recommendations for defining the European KBUD model.

6. Conclusions

At present, in the era of the knowledge economy, cities are inside global competition. The rapid developments in the Asia-Pacific region have increased the level of competition and other regions, such as Europe and the USA, also react with advanced development strategies. Europe, at this point, with its long-term strategies

³⁰ T. Yigitcanlar, Planning for knowledge-based..., *op. cit.*

³¹ <http://www.melbourne.vic.gov.au/AboutMelbourne/ProjectsandInitiatives/Pages/Melbourne2030.aspx>.

³² T. Yigitcanlar, Position paper: Redefining knowledge-based urban development, *International Journal of Knowledge-Based Development* 2011, Vol. 2, No. 4, pp. 340–356.

³³ *Ibidem.*

and policies of creating “network society” and the “most advanced knowledge-based economy” as its priority, is one of the strongest competitors. The knowledge-based development requires full integration of the business sector, local governments, institutions, universities and, more importantly, society itself. Thus, this paper emphasises the need for developing the European KBUD model and utilising principles of this model in order to reach the objectives of the European knowledge city formation.

The previous sections – the background, the evaluation of KBUD levels and the successful examples of knowledge cities of the Asia-Pacific region and Europe – provided important facts that European cities should consider while developing their KBUD strategies. Singapore and Melbourne as well as Helsinki and Manchester have similar strategies in order to provide sustainable development strategies to attract and retain knowledge workers and knowledge-intensive industries. Following the common points, the recommendations for the European KBUD model are explained as follows:

- comprehensive needs assessment of the existing conditions and potential of cities;
- the involvement of institutions and citizens;
- strong organisational capacity of governments and full support for ongoing processes;
- a long-term strategic and development plan;
- establishing cooperation between education and business sectors;
- high quality of life, social equity and economic welfare;
- full access of citizens to ICT networks;
- high quality of education and support for R&D;
- opportunities for citizens to develop necessary knowledge and skills;
- diversifying economic sectors in order to create a strong cluster character;
- rising citizens’ awareness of ongoing processes
- integrating all professions/actors into the process.

Today, both in the Asia-Pacific region and Europe, institutions, local governments, researchers, urban planners, economists and the business sector need to create a dynamic and strategic KBUD mechanism in order to increase the level of success in the formation of knowledge cities. Thus, the European KBUD model should be comprehensive and include all actors in the process, and act to provide all objectives equally. The creation of the (new) knowledge is a matter that keeps the knowledge city concept valuable and attractive to all professions and knowledge employees. During the last decades, several European cities have developed their KBUD strategies independently. Although this situation brings diversity and specialisation of different clusters, the EU has to define clear steps to enhance and strengthen the formation and development of European knowledge cities, and thus EU clusters, which generate the knowledge and market it to the rest of the world.

The need for the European KBUD model is inevitable. The development of this model will play the crucial role in the position of the EU in the global competition. However, as the examples from the Asia-Pacific region show, the focus on knowledge cities should be shifted to creative regions, which can result in stronger clusters and act as development zones that create more attractive environment and job opportunities for knowledge workers, high level of accessibility and diversity of knowledge creation. The definition of the European KBUD model needs a detailed analysis of the current developments, strategies and potentials all around Europe, and with contribution of researchers and all the institutions the questions of how the model should be formulated can be answered.

References

- Bal U., The economical importance of urban design for sustainable development, *Wyższa Szkoła Zarządzania i Finansów we Wrocławiu, Zeszyty Naukowe* 2011, nr 31, pp. 9–22.
- Bal U., Urban design principles as the key for sustainable development, *Nauka i Gospodarka* 2011, nr 2 (9), pp. 74–80.
- Berg van den L., Pol P., Winden van W., Woets P., *European Cities in the Knowledge Economy*, Ashgate Publishing, Hampshire 2005.
- Castells M., *The Rise of the Network Society. The Information Age*, Vol. I, Blackwell Publication, Oxford 1996.
- Sargin G.A., *Hybrid Spaces*, METU Press, Ankara 2004.
- Sikiariidi E., Vogelaar F., *The Use of Space in Information/Communication Age—Processing the Unplannable*, Issue Paper, 11 April workshop Ruimtegebruik, Amsterdam 2000.
- Yigitcanlar T., Making space and place for the knowledge economy: Knowledge-based development of Australian cities, *European Planning Studies* 2010, Vol. 18, No. 11, pp. 1767–1784.
- Yigitcanlar T., Planning for knowledge-based development: Global perspectives, *Journal of Knowledge Management* 2009, Vol. 13, No. 5, pp. 228–242.
- Yigitcanlar T., Position paper: Redefining knowledge-based urban development, *International Journal of Knowledge-Based Development* 2011, Vol. 2, No. 4, pp. 340–356.
- Yigitcanlar T., Metaxiotis K., Carrillo J. (Eds.), *Building Prosperous Knowledge Cities: Policies, Plans and Metrics*, Edward Elgar Publishing, London 2012, pp. 327–351.
- Yigitcanlar T., Velibeyoglu K., Martinez-Fernandez C., Rising knowledge cities: The role of knowledge precincts, *Journal of Knowledge Management* 2008, Vol. 12, No. 5, pp. 8–20.

Websites

- http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2014/proposals/regulation2014_leaflet_en.pdf.
- <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1563&format=HTML&aged=0&language=EN&guiLanguage=en>.
- http://ec.europa.eu/information_society/europe/i2010/ict_and_lisbon/index_en.htm.
- http://ec.europa.eu/europe2020/index_en.htm.
- <http://en.wikipedia.org/wiki/One-North>.
- <http://www.melbourne.vic.gov.au/AboutMelbourne/ProjectsandInitiatives/Pages/Melbourne2030.aspx>.

DEFINIOWANIE EUROPEJSKIEGO MODELU ROZWOJU URBANISTYCZNEGO OPARTEGO NA WIEDZY. PERSPEKTYWY REGIONU AZJI I PACYFIKU ORAZ EUROPY

Streszczenie: Przedmiotem artykułu jest poddanie analizie przemian urbanistycznych zachodzących współcześnie wskutek dominacji technologii informacyjnych i komunikacyjnych (ICT) w procesie globalizacji w regionie Azji i Pacyfiku oraz w Europie. Nacisk został położony na społeczno-ekonomiczne efekty zmian zachodzących w czasie (trans)formacji w opartych na wiedzy przestrzeniach miejskich. Miasta wiedzy regionu Azji i Pacyfiku oraz Europy poddano analizie, aby sformułować rekomendacje do tworzenia modelu definicji opartego na wiedzy europejskiego rozwoju urbanistycznego (KBUD). Wyniki przeprowadzonego badania będą stanowiły bazę dla europejskich planistów przestrzennych, badaczy, ekonomistów i socjologów, dostarczając im szeregu przykładów miast wiedzy i stanowiąc punkt wyjściowy na drodze do sformułowania europejskiego modelu rozwoju przestrzennego opartego na wiedzy.

Słowa kluczowe: nowe technologie, rozwój urbanistyczny oparty na wiedzy, technologie informacyjne i komunikacyjne, europejski model rozwoju urbanistycznego opartego na wiedzy, urbanizacja.