How to Integrate Universities and Cities Through Local Spatial Developments:
Case Study of Wuhan, China

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ABSTRACT

As irreplaceable knowledge infrastructures, universities have been acknowledged to play the roles of fostering knowledge workers, supporting knowledge economies, and building knowledge cities. Through spatial developments, localized interactions can be built between cities and universities. There has been a global trend to design new knowledge precincts revolving around universities to make knowledge cities. This article focuses on how the local governments in Wuhan, known as the "Forest of Campus" in China, have proposed the vision of making a "Univercity," building knowledge cities by integrating universities and cities through local spatial developments. To interpret the concept of the knowledge precinct namely "Univercity," an analytical framework has been set up in the dimensions of fostering knowledge workers, supporting knowledge economies and building knowledge cities. Then, the spatial strategies of making a "Univercity" have been given accordingly, including enhancing the interaction between universities, knowledge businesses, and knowledge cities.

KEYWORDS

China, Knowledge City, Knowledge Economy, Knowledge Worker, Knowledge-Based Urban Development, University, Wuhan

INTRODUCTION

Along with the global prevalence of knowledge-based urban policies, universities, with their ability to provide a strong platform for knowledge marketing and transfer, have been regarded as one of the key knowledge infrastructures (Carrillo 2004; Martinez-Fernandez, 2008; Yigitcanlar et al., 2008b; Yigtcanlar & Sarimin, 2011). Recognized as an urban amenity, a promoter of population dynamics, a driver of economic development and an active actor for governance and social improvement, universities, with their "third mission" addressing questions arising from the spatial and socio-economic settings within which they function, can contribute to fostering knowledge workers, supporting knowledge economies and building knowledge cities (Esquinas & Pinto, 2013; Yigtcanlar & Sarimin, 2011). With not only mutual benefits but also negative externalities, the spatial relations

between universities and cities can be very diverse and complex, depending on the university locations, the character of their expansion and the nature of their host cities (Benneworth & Madanipour, 2010).

However, city-university interaction, though involving more than spatial dimensions, can be strengthened through spatial developments in the modes like high-technology engagement, standalone campus, regional engagement, multiple interfaces, and collaborative growth management (Benneworth & Madanipour, 2010). In the past few years, there has been a global trend to design new knowledge precincts at local scales centered around universities in their visions, strategies and action plans for making knowledge cities. Although a huge amount of literature has been written about the spatial relations between universities and cities at national and regional scales, studies focused on planning practices for building knowledge cities at an urban scale can be considered relatively scarce (Esquinas & Pinto, 2013).

The aim of this paper is to investigate how to integrate universities and cities through local spatial developments in the contexts of China. The Chinese knowledge city experience, unlike those in many developed countries, can best represent the characters of top-down planning and policy making. Wuhan, a metropolis with a high concentration of universities, known as the "Forest of Campus" in Central China, has been chosen as the subject of this case study to understand and analyze its transformation into a knowledge city by integrating itself with universities through local spatial development strategies to. As the relationship between universities and their host cities has been shaped by a complex set of institutional factors, like the interaction between the management of the university and an array of external pressures and norms(Perry,2011), local spatial development strategies in Wuhan may not be all applicable to different ecosystems but it can be transferable and can provide references for other cities which aim to use universities as key leverage to support their knowledge-based developments in the formation of vision, strategies and action plans.

The methodological approaches, therefore, consist of: (a) a review of the literature on relevant topics including universities, knowledge-based developments, knowledge workers, knowledge economies and knowledge cities; (b) a case study investigation on the current relations between Wuhan and its universities in aspects of industries, talent output and placemaking by comparing with its counterparts domestically and abroad; (c) a set of interviews conducted with local governments, representatives from 21 local universities and 19 local enterprises; (d) a survey carried out and filled both offline and online regarding to the demands of knowledge workers.

Following this introduction, the second section of the paper provides a review of the literature related to the universities' engagement in the knowledge-based urban development as well as their spatial relations. The third section focuses on the Chinese context and discusses the spatial relations between universities and their host cities in China from historical perspectives. A case study of Wuhan, which has designed a new knowledge precinct resolving around universities, was introduced and examined. To interpret the new concept of the knowledge precinct namely "Univercity", an analytical framework has been set up in the dimensions of fostering knowledge workers, supporting knowledge economies and building knowledge cities. This is followed by spatial strategies to enhance the interaction between universities, knowledge businesses and knowledge cities in making a "Univercity". Finally, the concluding section also sets up a draft system of land use regulation to assist the implementation of the spatial strategies and proposes that the real challenge lies in policymaking at local levels.

LITERATURE REVIEW

To better understand how to integrate universities and cities through local spatial developments, this section intends to extend the review in two main directions. Firstly, literature concerning the historical engagements of universities with urban development will be reviewed. By analyzing the evolution of universities' roles, their contributions in fostering knowledge workers, supporting knowledge economies and building knowledge cities will be discussed. Secondly, the focus will be placed over

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