

## Making of an Asia-Pacific High-Tech Hub

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# Making of an Asia-Pacific High-Tech Hub

Reflections on the Large-Scale Business Site Development Projects of the Osaka City and the Osaka Prefecture

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Osaka City and Osaka Prefecture introduced several large-scale business site and technopole development projects in the 1980s and 1990s, which appeared to be failures. This development was designed by the politico-administrative establishment of Osaka area in order to claim their share of anticipated global economic growth. The case of Osaka suggests that business site developments need to be built on premises that match the requirements of global knowledge economy. In 2000s Osaka started to create more balanced strategy and a new vision, in which Osaka as a knowledge intensive lifestyle city is the centre of interaction of the Kansai region.

Keywords: megaproject, business site, triple helix, Technoport Osaka, Rinku Town, Kansai Science City

JEL Codes: O: Economic Development, Technological Change, and Growth; R: Urban, Rural, and Regional Economics

## Formation d'une plate-forme High-tech dans la région Asie-Pacifique

Réflexions sur les projets de développement de sites industriels de grande ampleur à Osaka et dans sa région

1  
2  
3 Dr. Ari-Veikko Anttiroiko  
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10 La ville et la préfecture d'Osaka ont lancé dans les années 1980 et 1990 d'importants projets  
11 de développement de sites industriels et de technopoles qui semblent avoir été voués à  
12 l'échec. Ces travaux avaient été conçus par les instances politico-administratives d'Osaka qui  
13 demandaient leur part de la croissance économique globale escomptée. Le cas d'Osaka laisse  
14 à penser que les projets de développement de sites industriels doivent être réalisés dans des  
15 conditions qui correspondent aux exigences de l'économie globale de la connaissance. Dans  
16 les années 2000, Osaka a commencé à élaborer une stratégie plus équilibrée ainsi qu'une  
17 vision nouvelle où la ville en tant que cité de la connaissance se trouve au centre des  
18 interactions actions de la région de Kansai.  
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28 Mots-clés : mégaprojet, sites industriels, triple hélice, technopole d'Osaka, ville de Rinku,  
29 cité scientifique de Kansai.  
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33 Codes JEL : O : développement économique, changement technologique, croissance; R:  
34 économie urbaine, rurale et régionale.  
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38 **Die Entwicklung eines Hightech-Drehkreuzes für Asien-Pazifik: Überlegungen**  
39 **zu den umfangreichen Entwicklungsprojekten der Stadtverwaltung und**  
40 **Präfektur von Osaka für Gewerbegebiete**  
41 **Dr. Ari-Veikko Anttiroiko**  
42  
43

44 Die Stadtverwaltung und die Präfektur von Osaka führten in den achtziger und  
45 neunziger Jahren mehrere umfangreiche Entwicklungsprojekte für Gewerbegebiete  
46 und Technologiezentren durch, die offenbar gescheitert sind. Die Entwicklung wurde  
47 von der etablierten politischen Verwaltung des Gebiets Osaka ins Leben gerufen,  
48 um einen Anteil am erwarteten weltweiten Wirtschaftswachstum geltend zu machen.  
49 Der Fall Osaka legt nahe, dass die Entwicklung von Gewerbegebieten auf  
50 Prämissen gründen muss, die an den Anforderungen der weltweiten  
51 Wissenswirtschaft ausgerichtet sind. Im ersten Jahrzehnt des 21. Jahrhunderts  
52 entwickelte Osaka eine ausgeglichene Strategie und neue Vision, in der Osaka als  
53 wissensintensive Lifestyle-Stadt im Mittelpunkt der Wechselwirkungen in der Kansai-  
54 Region steht.  
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Keywords:

Megaprojekt

Gewerbegebiet

Dreifach-Helix

Technoport Osaka

Stadt Rinku

Kansai Science City

JEL Codes: O: Economic Development, Technological Change, and Growth; R: Urban, Rural, and Regional Economics

La creación de un centro de alta tecnología en el Asia-Pacífico

Consideraciones sobre los proyectos de desarrollo en zonas comerciales a gran escala en la ciudad de Osaka y la Prefectura de Osaka

Dr. Ari-Veikko Anttiroiko

La ciudad de Osaka y la Prefectura de Osaka introdujeron varios centros comerciales a gran escala y proyectos de desarrollo de tecnopolos en los ochenta y noventa, que parece que fracasaron. Este desarrollo fue diseñado por la clase dirigente político-administrativa de la zona de Osaka con el objetivo de reclamar su participación en el crecimiento económico global anticipado. El caso de Osaka indica que los desarrollos de zonas comerciales necesitan ser construidos en lugares que se adaptan a las necesidades de la economía global del conocimiento. En los primeros años del nuevo milenio Osaka empezó a crear una estrategia más equilibrada y una nueva visión, en la que Osaka como ciudad con un estilo de vida que demanda mucho conocimiento es el centro de la interacción en la región de Kansai.

Keywords:

Megaproyecto

Centro comercial

Triple hélice

Tecnopuerto Osaka

Ciudad de Rinku

Ciudad de la ciencia de Kansai

JEL Codes: O: Economic Development, Technological Change, and Growth; R: Urban, Rural, and Regional Economics

1. Introduction

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Creating a business site that is able to attract global flows of ideas, knowledge, people and capital and even to become a trend-setting high-tech hub has been a dream of urban and regional developers for decades. Such sites of innovation and industrial development are in most cases results of consciously designed development policies, varying from purely private real estate investments to public-private partnership-based developments to university-based science parks and further to science cities initiated by central governments. (Cf. CASTELLS and HALL, 1994.)

This article discusses technopolitan planning or high-tech-oriented business site development, i.e. deliberate attempts to plan and promote, within a concentrated area, the creation of innovation, technopreneurship and technologically innovative production (CASTELLS and HALL, 1994; KOMNINOS, 2002; ANTTIROIKO, 2004). Special attention is paid to the role of synergy between government, business and universities and of innovation governance in large-scale high-tech and internationally oriented business site development projects. The empirical section presented here comprises three business site development projects in Osaka area or Kansai in Japan: Technoport Osaka, Rinku Town and Kansai Science City.

## 2. Methodology

In this article conventional case study methodology is applied. The empirical case description is based on official documents and websites of Osaka City and Osaka Prefecture and their selected departments and project organisations. These are supplemented by interviews with

1  
2  
3 officials of the city and prefectural governments of Osaka (ITO, 2004b; SAITO, 2004;  
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5 NAKAMURA, 2004; HAYAMI, 2004; TAKE, 2004; YOSHIDA, 2004; TATSUMI, 2006a)  
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8 and focussed e-interviews with academics (MORI, 2005; KAMO, 2006; SHIKATANI and  
9  
10 NAJIMA, 2006) and administrators (MIYAZAKI, 2006; TATSUMI, 2006b; NAKAMICHI,  
11  
12 2006). Study visits by the author to Osaka took place in July 2001, June 2003, January 2004  
13  
14 and July 2006.  
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### 20 3. Perspectives on high-tech business site development 21 22 23

24 Large-scale business site development projects may be referred to as ‘megaprojects’ as most  
25  
26 of them have been based on huge public investment. As to the concept of a *megaproject*,  
27  
28 suffice it to say that they usually refer to large-scale infrastructure investments, such as  
29  
30 railways, big bridges, airports and the like. Why this article does not discuss the large-scale  
31  
32 business site developments within a genuine megaproject framework is because the interest  
33  
34 here is directed more to the institutional synergy and high-tech-related aspects of urban-  
35  
36 regional development policy rather than actual project management issues. Nevertheless,  
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38 megaproject analyses as such reveal many aspects that can be applied to business site  
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40 developments in Osaka too, such as occasional strategic ‘misrepresentations’ in the  
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42 motivation of the projects, misleading cost estimates and related cost overruns and a  
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44 secondary role given to the actual usefulness and functionality of the infrastructure or service  
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51 itself.  
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3 Analysing business site-related megaprojects in Osaka area could be based on conventional  
4 *business park management* with a property management perspective or more focussed theory  
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6 of *science park management*, but both of them are insufficient for the purposes of this study  
7  
8 (On the science park management assessment paradigm see CABRAL, 1998). The issue of  
9  
10 high-tech business site development is discussed here as a meso level policy issue, with  
11  
12 special reference to triple helix collaboration. Thus, to broaden the perspective the  
13  
14 framework applied is built upon selected contextual, institutional and managerial elements,  
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16 which are illustrated in Figure 1.  
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[FIGURE 1 SOMEWHERE HERE]

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30 The idea of a triple helix reflects the expansion of the role of knowledge in society and of the  
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32 university in economy (ETZKOWITZ, 2002). An institutional setting formed by  
33  
34 governments, universities and business has been identified as a critical element of national  
35  
36 and regional development. It brings together three institutional contexts and their complex  
37  
38 interrelations. Governments' dilemma in the setting is to find best ways to facilitate  
39  
40 interaction between these three sectors in order to create synergy and competitiveness in  
41  
42 global knowledge economy. (ETZKOWITZ et al., 1998; SUTZ, 1997; ETZKOWITZ and  
43  
44 LEYDENSORFF, 1997.)  
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51 What is essential in the functioning of triple helix is the increased complexity of organising  
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53 the work and relations of participating institutions. The model itself does not work properly if  
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55 any of the key actors does not possess the capability and power to play its role effectively  
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3 (SAAD, 2004). The construction of a triple helix includes the creation of institutions for the  
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5 production and transmission of knowledge. The creation of intermediary offices, joint  
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7 ventures, science parks and other interface mechanisms has raised a new set of issues about  
8  
9 the role of different institutions and academia in particular in knowledge-oriented urban-  
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11 regional development policy. (ETZKOWITZ et al., 1998; CASTELLS and HALL, 1994.)  
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14 However, the triple helix model itself goes beyond the simple idea of institutional mediation.

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16 In an ideal sense the triple helix model improves the conditions for innovation and  
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18 entrepreneurship in a knowledge-based society by (a) assigning the universities a more  
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20 prominent role in innovation, (b) facilitating collaborative relationships among the three  
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22 institutional spheres, which contributes to integrated innovation policy, and (c) encouraging  
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24 each institutional sphere to assume the role of the other in order to improve their performance  
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26 and to create fruitful soil for cross-sectoral collaboration.  
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34 At a general level the triple helix developments in different parts of the world tend to  
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36 converge into a common format: the process starts from a government-dominated model,  
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38 evolves towards the model of separate institutional spheres, and develops further towards the  
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40 model of overlapping institutional spheres, the latter being referred to as Triple Helix III.  
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43 (ETZKOWITZ, 2003.)  
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48 The primary perspective on megaprojects in Osaka in this article is based on this framework,  
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50 with a special view of the development policies of local and regional governments, regional  
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52 innovation system governance, the creation of innovation milieu, and the nature of  
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54 university-business-government collaboration.  
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#### 4. Internationalisation efforts in the Osaka area

##### 4.1. The Japanese economy and development in Osaka

The Japanese economy boomed for many decades after the World War II, due to its ability to adjust its industrial structure and performance to the requirements of opening and expanding global markets. The structure of the Japanese economy started to change due to two oil crises in the 1970s. During the high-growth period Japanese companies had invested in heavy industries, such as steel, nonferrous metals, chemicals, oil refining, shipbuilding industries and the like. In due course these industries started to lose their role as the engine of growth. It became clear that new industries should emerge to maintain the growth of the Japanese economy. Attention was paid to such emerging areas as high-tech industries and the service sector. (SUZUKI, 2004.)

The 1980s was a decade of fairly good economic performance. Everything started to change in 1989, however. What were waiting behind the corner were severe and persistent economic difficulties, which retrospectively made the 1990s look like a lost decade for Japan. In short, due to the bursting of the 'bubble economy' Japan faced the most severe economic crisis since World War II. (SAXONHOUSE and STERN, 2004; MORIOKA, 1999.)

The bursting of the bubble affected Osaka dramatically, resulting in a fall in local tax revenues, especially from the financial, securities, insurance and real estate sectors, together

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3 with the slump in the manufacturing industries – such as steel, machinery, metals and  
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5 electrical equipment – that were vital to the regional economy. Many large-scale business site  
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7 projects were initiated before the bursting of the bubble, but apparently the downturn caused  
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9 hardly any changes in the policy and its implementation. As explained by Shigemori (1999,  
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11 72): “[...] in response to the hope of Kansai financial circles for an escape from the decline  
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13 of real estate prices, large projects were started, such as the construction of the New Kansai  
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15 International Airport, Rinku Town, Izumisano Cosmopolis, International and Cultural Park  
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17 City, a rapid railway, and an automobile expressway.” (On public investments in Japan, see  
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19 MORI, 1997.)  
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#### 27 4.2. Development path of Osaka

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32 In the first decades of the 20th century Osaka’s economic performance was approximately  
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34 equal to that of Tokyo. The change of balance became visible in economic terms as late as  
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36 around the 1930s. Thereafter Osaka’s relative position declined in every respect.  
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39 Traditionally, Osaka area has been a home to the textile and other light industries and to  
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41 shipbuilding, as well as to iron- and metal-casting factories. These industries and textiles in  
42  
43 particular were important in the pre-war era, making Osaka the heartland of the nation’s  
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45 industrialisation, a ‘Manchester of the Orient’, as they used to say. Yet, many of these  
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47 industries became obsolete in the post-war years. (KAMO, 2000.)  
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53 The Osaka area got a new strategy in the 1980s, emphasising internationalisation and high-  
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55 tech development. This happened during the same period when Tokyo’s pre-eminence as a  
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3 global city and a national pride was becoming more visible than ever (see MASAI, 1989). It  
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5 is illuminating how the Nakasone administration proposed in the Fourth National  
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7 Comprehensive Development Plan in 1987 to enhance the world city functions of Tokyo in  
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9 order to create a locus in Japan that was able to serve as a centre of the global economy. This  
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11 policy was criticised by the establishment of the Osaka and wider Kansai area for  
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13 understandable reasons. The counter-policy created in the Kansai area was based on an idea  
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15 that Tokyo should share some of the world city functions with Kansai. Some of the huge  
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17 projects, such as Kansai International Airport and Kansai Science City, were the outgrowth  
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19 of this process. (KAMO, 2000.)  
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27 Since the mid-1980s Kansai's development boosted with the help of a deliberate high  
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29 investment strategy, even to the extent that the total scale of development projects in the area  
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31 surpassed those in the Tokyo area in terms of the assumed amount of investment. This gave  
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33 reason even to speak of a 'Kansai Renaissance'. Everything changed due to the bursting of  
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35 the bubble economy in the early 1990s, however. The economic degeneration of Kansai area  
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37 was exceptionally severe. In fact, Kansai's situation turned out to be the worst in the nation.  
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39 (KAMO, 2000.)  
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#### 46 4.3. Internationalisation strategies 47 48 49

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51 Osaka's policies toward internationalisation started to flourish in the 1980s and continued to  
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53 the next decade. One of the cornerstone was "The General Development Plan for the 21st  
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55 Century" approved in 1990 by the Osaka 21st Century Association, financially backed up by  
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3 the Osaka City, Osaka Prefecture and local companies (BORJA and CASTELLS, 1999). This  
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5 was supplemented by “The Basic Guideline for the Promotion of Internationalisation of  
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8 Osaka – Osaka Contributing to the Global Society”, formulated by the Osaka Prefectural  
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10 Government in May 1992. It expressed Osaka’s long-term vision for the early part of the 21st  
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12 century. (OSAKA PREFECTURAL GOVERNMENT, 2003.)  
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17 The main lines of the development policy of Osaka City are close to those adopted by Osaka  
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19 Prefecture: *internationalisation and high technology*. The City reacted to the global challenge  
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21 by drafting in 1997 guidelines for internationalisation of Osaka. One part of this plan was  
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23 ‘International exchange city’, which aimed at promoting intercity economic networking  
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25 arrangements with eight cities of the Asia-Pacific. The city government constructed in the  
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27 first half of the 1990s the Asia and Pacific Trade Centre (ATC) in order to provide a basis for  
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29 such exchange and business on Japanese soil. This policy reflects the fact that import to and  
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31 export from other Asian countries is higher in Kansai than what it is in average in Japan.  
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36 (KAMO, 2000.)  
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41 Let us now take a closer look at the large-scale business site development projects of Osaka  
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43 City and Osaka Prefecture which were established to make the Osaka area an attractive  
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45 internationally-oriented high-tech hub in the Asia-Pacific.  
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## 49 50 51 5. A glance at three megaprojects 52

### 53 54 55 5.1. Megaproject number one: Technoport Osaka 56 57 58 59 60

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6 In the Osaka Bay Area there are three manmade islands, built by the city government as the  
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8 site for growing international business, or as stated by the developers of the area, as a site for  
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10 “people, goods and money”. This huge project is known as the *Technoport Osaka*, which was  
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12 introduced in the heyday of the bubble economy in 1988 based on an anticipated yearly  
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14 growth rate of 4%. The purpose was to build and develop three manmade islands in the port  
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16 of Osaka, in Suminoe ward, each having a special role: *Sakishima* island was to become a  
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18 centre of international trade, *Maishima* a sports island and *Yumeshima* mainly a residential  
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20 island. The area was to form a new centre of international and domestic business  
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22 (NINOMIYA, 1992). The project focused on three strategic areas: international trade,  
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24 advanced information and communication facilities, and leading-edge technological  
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26 developments. The total budget at that time was astronomic 2.2 trillion yen.  
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34 A final decision on the Technoport Osaka Project was made by the Osaka City Council,  
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36 which gave its approval to the project in the comprehensive development plan of the city of  
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38 1990. Concrete operations were managed by different bureaus of the city government, the  
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40 Port and Harbour Bureau having the main responsibility by providing land for three artificial  
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42 islands and constructing one of the high-rise buildings in the area, the Cosmo Tower. (ITO,  
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44 2004a; SAITO, 2004.)  
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50 Sakishima island in the district known as Nanko was under construction for decades and was  
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52 completed in the mid-1980s. It is the most important of the three artificial islands. As a  
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54 business site development it centres around Cosmosquare, in which the landmark and symbol  
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3 of the area is the *Osaka World Trade Center Building* or ‘Cosmo Tower’, inaugurated in  
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5 April 1995. Cosmo Tower houses the activities of World Trade Center Osaka (WTCO), but  
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7 most of the building is used by the city government. It was originally designed to be 150 m  
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9 high, but due to the competition between it and the Rinku Tower of Osaka Prefecture, its  
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11 height was increased to 256 m with 55 storeys, resulting in a considerable increase in  
12  
13 construction costs (ITO, 2004b). Two other major facilities established by Osaka City are  
14  
15 one of the largest international exhibition centres of Japan, *INTEX Osaka*, which was opened  
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17 in the mid-1980s, and *The Asia and Pacific Trade Centre* (ATC) with two facilities: the 12-  
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19 storey International Trade Mart (ITM) and the amenity zone known as O’s. ATC was opened  
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21 in April 1994.  
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29 There are also various other buildings, facilities and attractions on the island. Business  
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31 support and research organisations operating there include Osaka International Business  
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33 Promotion Center (IBPC Osaka), Incubator for Multimedia Industry Osaka (iMedio),  
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35 Multimedia Advanced Development Organization (MADO) and Osaka Visual Media  
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37 Support Center. Major companies operating in Cosmosquare District include IBM Japan,  
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39 Sumitomo Life Insurance, the Nomura Research Institute, Hitachi Zosen, NTT DoCoMo  
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41 Kansai, Fujisawa Pharmaceutical and many others. Beside these, there are still harbour  
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43 activities, ferry terminals and warehouses in the bay area, the largest wharf areas located in  
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45 Sakishima island.  
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53 In spite of all the huge investments made by the Osaka City Government, local companies  
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55 did not find the area attractive enough, as there is neither local demand nor sufficient  
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3 agglomeration of business in the area (SAITO, 2004). Furthermore, it was even less attractive  
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5 from the point of view of international companies. It became a 'maritime edge city' or a  
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7 waterfront business district with a few half-empty buildings and vacant lots. It still suffers  
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9 from a fairly long distance to the city centre as perceived by local customers and business  
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11 people.  
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17 Only 6 % of the land planned to be sold on Sakishima island was actually sold, which left the  
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19 area full of vacant lots. At the time of its opening some 33% of the space of the WTC were  
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21 occupied, but the number of private sector tenants diminished considerably by the end of  
22  
23 1999. The result was that the city government placed some of its own departments in the  
24  
25 Cosmo Tower, which gave it an ironic nickname 'the second city hall of Osaka'. As the  
26  
27 organisations affiliated to the City of Osaka occupy most of the office space of the building,  
28  
29 the WTC became a financially unviable enterprise and a source of a huge deficit to the city  
30  
31 government. Similarly the ATC never attracted the international wholesale companies as  
32  
33 expected, which turned it eventually into a rather conventional shopping centre, with three  
34  
35 storeys in the building reserved for just one Japanese furniture retail company Otsuka/iDC.  
36  
37 Eventually both the WTC and the ATC went through a "special mediation" between city  
38  
39 government and creditors, which resulted in long-term business and financial plans and  
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41 renegotiation of loans. This rearrangement was approved by the Court in the early 2004  
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43 (MORI, 2005).  
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## 53 5.2. Rinku Town

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3 Rinku Town was a flagship project of the Osaka Prefecture. It was built for the purpose of  
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5 utilising the close proximity of the Kansai International Airport, which was supposed to  
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7 generate a lot of new businesses, indirectly from increased international exchanges and  
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9 directly from services related to the airport activities.  
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15 The idea of Rinku Town arose in the years of booming business and globalisation of  
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17 economy. The story began in the late 1970s, when feasibility studies were conducted with  
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19 regard to reclaiming land on the opposite shore of the *Kansai International Airport (KIX)*.  
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21 The airport itself was built on a manmade island; work started in September 1994.  
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27 The planning of Rinku Town began in the early years of the 1980s, under the name South  
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29 Osaka Coastal Development Project. 'Rinku' was adopted as a nickname for the project in  
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31 1987. The Rinku Town project outline was made public in 1989. Around that time the total  
32  
33 costs of this ambitious project had already risen from 170 to 550 billion yen. What was then  
34  
35 envisioned was a coastal high-profile business attraction housing high-tech firms and  
36  
37 financial institutions, making it a kind of Wall Street of Osaka region. As said, much of all  
38  
39 these hopes rested on the attractiveness of the international airport, which eventually proved  
40  
41 to be an illusion.  
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48 The critical phase was the lot sale outline, which was made public in April 1990. In  
49  
50 December in the same year corporations had been accepted for location on 15 lots. Yet, by  
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52 1992 most of these companies had encountered difficulties due to economic turmoil, which  
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54 first led to delays in entering the area and then finally to total withdrawal from the project.  
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3 By the mid-1990s it had become clear that the project had faced enormous difficulties. A  
4 review of the income and expenditure was made, resulting significant changes in the plans.  
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6 The total project costs were raised from 550 to 740 billion yen. The development period was  
7  
8 extended to 2012. Another review of income and expenditure was made at the end of the  
9  
10 decade, in which the project costs were reduced from 740 to 643 billion yen. Later in 2001  
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12 this figure was slightly reduced, to 620 billion yen together with the extension of the  
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14 development period to 2025.  
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22 In its present form Rinku Town, even if it includes some modern high-rise buildings, gives  
23  
24 an impression of a beautiful but deserted and lifeless suburban business site on the  
25  
26 waterfront. Rinku Town was built around *Rinku Gate Tower Building* or Rinku Tower with  
27  
28 55 storeys above the ground, making it the highest building (256 m) in Western Japan  
29  
30 together with Cosmo Tower in the Osaka Bay Area. It was built to provide intelligent office  
31  
32 space and related facilities mainly for international business. However, business did not want  
33  
34 to locate in the coastal area near the airport, but was attracted by the central business district  
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36 of the City of Osaka and the adjacent areas. Another important point is that the railway  
37  
38 connections to Rinku Town are not frequent enough by Japanese standards.  
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46 Rinku Town was born in the heyday of the bubble economy in the last years of the 1980s.  
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48 After the bursting of the bubble around 1992, private corporations cancelled their initial  
49  
50 contracts with Rinku Town. A business site that was to become a symbol of the  
51  
52 internationalisation and IT boom for Osaka Prefecture, in a year or so became a place that  
53  
54 had lost hope for the future. (see NAKAMURA, 2004; HAYAMI, 2004.)  
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6 The future of Rinku Town is uncertain. Investments have been made and the bill for the  
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8 project is to be paid. It will be a long process, which means that the prefectural government  
9  
10 will have prolonged financial difficulties. A recent move to improve the situation has been  
11  
12 the rehabilitation of Rinku Gate Tower Building Company in April 2005 under the  
13  
14 Corporation Reorganisation Act. This aimed at improving the company's financial standing  
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16 on the basis of the formal agreement between creditors, shareholders and other parties  
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19 (MORI, 2005).  
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### 24 5.3. Kansai Science City and Tsuda Science Hills 25 26 27 28

29 Another ambitious project in which Osaka Prefecture has been involved is Kansai Science  
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31 City, established in collaboration between the prefectures of Osaka, Kyoto and Nara. It is a  
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33 wide development area around Keihanna Hill surrounded by cities of Osaka, Kyoto, and  
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35 Nara. This is why it is sometimes called Keihanna Science City.  
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41 Kansai Science City consists of six cities and two towns in all, spreading through the three  
42  
43 abovementioned prefectures. It was meant to be a pilot model city for the 21st century with  
44  
45 facilities for advanced academic research, information centres, international exchange and  
46  
47 the development of cutting-edge technology. The idea of the new model city arose in the late  
48  
49 1970s. A study committee chaired by Azuma Okuda, former President of Kyoto University,  
50  
51 was established in 1978. The Association of Kansai Science City was established in 1983,  
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53 and the other key coordinating institution, the Kansai Research Institute, was established in  
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3 1986. All the necessary plans and official actions were taken in the first half of the 1980s by  
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5 the prefectures, followed by discussions with and decisions of national government. The  
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7 Kansai Science City Promotion Act was passed in 1987, making it a national project with  
8  
9 special tax incentives, followed by the approval of the construction plans by the central  
10  
11 government in the following year (CASTELLS and HALL, 1994). The cultural and scientific  
12  
13 exchange facility known as Keihanna Plaza (in Kyoto), was opened in April 1993.  
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20 The objectives of this huge project were ambitious, reflecting a high sentiment that Kansai  
21  
22 region needed to develop a new hub equipped with advanced educational and R&D facilities  
23  
24 in order to take a role in the development of global high-profile academic activities and  
25  
26 related value-adding functions. Another characteristic feature of the project was the high  
27  
28 importance attached to culture in the original plan of the science city. It was to become a hub  
29  
30 of both cultural and scientific research. Eventually, however, the bursting of the bubble  
31  
32 economy and the following prolonged stagnation of the Japanese economy resulted in severe  
33  
34 setbacks in its realisation. Due to this unfortunate turn some aspects of its policies were  
35  
36 revised in the latter half of the 1990s. (ANTTIROIKO, 2004.) Several educational and  
37  
38 research institutions are spread over the area of the science city. In a nutshell, these include  
39  
40 six national and municipal institutes, some private institutes and research centres, and six  
41  
42 universities and colleges.  
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51 There are three cultural and scientific research districts in the Osaka side of the science city:  
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53 Himuro-Tsuda, Kiyotaki-Muroike and Tawara. The Himuro-Tsuda district of Kansai science  
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55 city is for promotional purposes usually referred to as *Tsuda Science Hills*. It is about 25 km  
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3 from Osaka and 15 km from Kyoto. Tsuda Science Hills aimed to form a center of research  
4 and development through the gathering of research and educational facilities in the wide field  
5  
6 of technology. In this respect the most important institutes of the site are Ion Engineering  
7  
8 Center Corporation (IECC, opened in July 1990) and its affiliate known as the Ion  
9  
10 Engineering Research Institute Corporation as well as the Institute of Free Electron Laser  
11  
12 Graduate School of Engineering of Osaka University, opened in April 2000. Necessary  
13  
14 facilities, such as restaurants, conference rooms, exhibition space and salons for common  
15  
16 use, are provided by Tsuda Science Center. The idea was to even expand the area when  
17  
18 certain conditions were met. However, conditions never reached the level that was  
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20 satisfactory for such an expansion. Actually, the area has hardly reached a sufficient level of  
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22 functionality.  
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32 What characterises the development efforts of Kansai Science City is that in contrast to most  
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34 other science cities it attempts an inter-municipal and multi-nucleus scheme which is based  
35  
36 on 12 Culture and Scientific Research Districts linked by transportation and information  
37  
38 networks. Yet the reality looks rather different than what is presented in the science city  
39  
40 blueprint, for Kansai Science City is hard to reach, lacks broadband cable infrastructure and  
41  
42 suffers from a poor environment for social interaction and from an absence of a rooted  
43  
44 community (STEWART, 2001). The other core element was originally the significance of  
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46 private sector involvement in the project, which did not materialise the way the developers  
47  
48 expected. (ANTTIROIKO, 2004. On Kansai Science City, see CASTELLS and HALL,  
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50 1994.)  
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## 6. Analysis of large-scale business site development projects in Osaka

The bursting of the bubble economy and the stagnation that followed in Japan were certainly decisive factors that caused severe problems for the megaprojects of Osaka City and Osaka Prefecture. Yet bad luck with timing and economic conjunctures are not enough to explain all the problems discussed in previous chapters. Rather, the explanation needs to be sought from the political leadership and the administrative culture, on the one hand, and from the very nature of the megaprojects themselves, on the other.

### 6.1. Public investments and one-dimensional growth image

The development efforts in Osaka concentrated on constructing premises and facilities, which evidently was not a sufficient condition for attracting businesses or industries in the area. This is what the case of Osaka shows clearly (SAITO, 2004). A likely explanation is that politicians and developers in Osaka relied on too rosy a 'growth image' which was rooted in such universal symbols of success as Wall Street and Silicon Valley, flavoured with rhetoric on the internationalisation of business, high-tech production and financial services. These dreams guided the vision, but they were not accompanied by analyses of the premises and dynamics of real-life mechanisms and developments. In the strategy-making process local conditions were given a marginal role vis-à-vis global growth images and trends. In addition to this, the urban-regional political forces that in principle had a potential to counter the dominance of exogenously inspired economic growth targets, simply legitimised and catalysed this growth strategy. (Cf. MOULAERT and SEKIA, 2003.) The result was that

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3 such aspects of high-tech business site development as growth mechanisms and global  
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5 market integration were given insufficient attention (cf. KOH et al., 2005).  
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10 Projects like Rinku Town and the World Trade Center Osaka at the Osaka Bay Area lacked  
11  
12 the kind of milieu that would have attracted high-tech and knowledge-intensive firms and  
13  
14 created a growing agglomeration of high-tech and innovation activities. It is self-evident that  
15  
16 these megaprojects suffered from bad timing, but this cannot be used as an excuse of the lack  
17  
18 of sensitivity to global trends and the logic of the location of high-tech businesses and  
19  
20 advanced business services.  
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27 This explanatory scheme boils down to a new version of the growth machine thesis in the  
28  
29 Japanese context (see LOGAN and MOLOTCH, 1987). First, these high-profile development  
30  
31 projects were quite similar to uncompetitive public works projects aiming at building  
32  
33 impressive facilities without sufficient management capacity and realist assessment of the  
34  
35 numbers of users of the facilities, leading eventually to rising running costs and maintenance  
36  
37 problems and also to a decrease in the attractiveness of the site. This phenomenon is  
38  
39 cynically called in Japanese “hakomono gyosei”, a syndrome of egoistic administration.  
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41  
42 (SAMURA, 2004.)  
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48 Second, the other side of the Osakan growth machine is an active and powerful business  
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50 community. Construction companies and property owners and other influential  
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52 representatives of the business community seemed to pursue their short-term business  
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54 interests through public development policies, which resulted in real estate-oriented business  
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3 site construction projects at the expense of serious innovation milieu development. This has a  
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5 connection to the national development policy, for in a wider picture, it was the central  
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7 government that over-invested in development projects. (KAMO, 2000.) It goes without  
8  
9 saying that such a one-dimensional approach neither encouraged a careful consideration of  
10  
11 the growth conception nor the means for sustainable growth (see e.g. SAVITCH and  
12  
13 KANTOR, 2003).  
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## 20 6.2. Defective triple helix 21 22 23

24 Japanese universities have traditionally been insulated from the market forces that feature  
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26 prominently in the new mode of knowledge production. They used to seeing this issue  
27  
28 against the principle of academic freedom, which has caused some inertia in the evolution of  
29  
30 triple helix connections (KAMO, 2006). Moreover, the Ministry of Education used to  
31  
32 emphasise that national universities conform to ministerial guidelines rather than show  
33  
34 academic entrepreneurship, which created a natural control-orientation to the government-  
35  
36 university relationship. In fact, it has been claimed that the national conformity and  
37  
38 underdeveloped university-industry linkages have continued to cause tensions arising when  
39  
40 local and regional authorities have promoted science parks, technopolises and science cities,  
41  
42 educational institutions ostensibly as their core component. (LOW, 1997.) Even if the  
43  
44 attitudes have been changing in this respect, university-industry linkages do not work as  
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46 smoothly as they should. This is evident in Tsuda Science Hills, in which the triple helix  
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48 connections have in many respects remained underdeveloped.  
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3 In a usual case the university side of triple helix rests in Japan on the individual professors  
4 participating in policy networks or certain policy-making committees. One well-known  
5  
6 exception to this rule is Tohoku University, which had a decisive role in establishing triple  
7  
8 helix connections in Tohoku area, much influenced by Dr. Junichi Nishizawa, who was the  
9  
10 President of the university from 1990 to 1996. The same entrepreneurial spirit has  
11  
12 characterised the university's strategies in the 2000s. (JIANG et al., 2006.) Kansai area is a  
13  
14 multi-polar region with many renowned universities, but its triple helix system remained  
15  
16 fragmented. (KAMO, 2006.) Consequently, some individual distinguished universities, such  
17  
18 as Osaka University or Kyoto University, have for long time had close connections to  
19  
20 businesses, but some others, like small universities with a Buddhist background in Kyoto,  
21  
22 have not actively contributed to the functioning of the triple helix or to regional development.  
23  
24 In all, the universities' impact on regional high-tech development and internationalisation of  
25  
26 Kansai area has been modest. Part of the explanation is "hakomono gyosei", for in the  
27  
28 booming economy developers considered it sufficient to built luxurious facilities, without  
29  
30 knowledge networks, innovation milieu or active participation of universities. The very same  
31  
32 syndrome made the projects "faceless", causing a lack of managerial and entrepreneurial  
33  
34 capacity in the management of these new facilities. (NAKAMICHI, 2006.) Even if path  
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36 dependency kept the policy much on the same track after the collapse of the bubble economy,  
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38 this picture has gradually started to change (TATSUMI, 2006).  
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When assessed within the triple helix framework, it seems that megaproject management in  
Osaka reflected the Triple Helix I model, which emphasises the role of government as a key  
organiser and mediator. In fact, we may claim that none of the key elements of the ideal

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2  
3 triple helix model were fully developed in Osaka. First, *universities* were not given a  
4 prominent role in any of the high-profile business site development projects. Second,  
5 megaprojects were not based on *cross-sectoral collaborative relationships* but on a “growth  
6 machine” orientation, which highlights the role of the real estate business and its connections  
7 to the urban-regional governance system. In such a model regional innovation policy is seen  
8 as an outcome of a prescription from government and partly also an internal development  
9 within industry, rather than that of interactions among three major institutional spheres.  
10  
11 Third, it seems that institutional spheres are only slowly taking each other’s roles in the case  
12 of Osaka, which suggests that there is a long way to go before the full realisation of the  
13 Triple Helix III model. Thus, we may reasonably conclude that megaprojects in Osaka were  
14 developed in the context of defective triple helix. (On the problems of triple helix initiatives  
15 in regions with poor structural preconditions, see e.g. JENSEN and TRAGARDH, 2004; see  
16 also ETZKOWITZ, 2003.)  
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36 There is need to emphasise that much has happened since the early 2000s. The budget  
37 funding for universities has continued to decline and competition among universities  
38 intensified due to budget constraints and demographic trends. Concrete signs of change  
39 include a new evaluation system established in the early 2000s. That is the time when  
40 university-business-government collaboration was taken explicitly onto the national agenda.  
41 For example, the Conference for the Promotion of Collaboration among Business, Academia  
42 and Government sponsored by the Japanese Government has been held yearly since 2002.  
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44 There are also measures that are designed to directly promote academic entrepreneurship,  
45 such as providing funding for approved Technology Licensing Offices (TLOs) on the basis  
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3 of the 1998 Law on Promoting Technology Transfer from Universities to Industry, which  
4 aimed at encouraging university-based venture start-ups. The legal status of national  
5 universities changed in 2004 into that of independent public corporations, which may also  
6 encourage entrepreneurship. (MIYAZAKI, 2006.) These changes are expected to change  
7 Japanese universities and their external relations in many ways. However, it seems that  
8 especially a higher degree of flexibility, spontaneity and entrepreneurship is needed to make  
9 the Japanese triple helix function optimally.  
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### 22 6.3. Benchmarking high-tech centres in Japan 23 24 25 26

27 Prolonged stagnation in regional development in Osaka has partly been due to the fact that it  
28 is difficult to create a boom in a sluggish national economic context. Yet, even in such a  
29 situation there were also cases that were considered to be at least relatively successful, which  
30 are worth describing here to provide comparisons to the case of Osaka.  
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39 A good case of a Government-sponsored high-profile science city project is Tsukuba Science  
40 City, which was the first Asian science city, and has maintained its position through hard  
41 times mainly due to the location of national R&D institutes in the city and continuous  
42 support from national Government (ANTTIROIKO 2004, 409; CASTELLS and HALL,  
43 1994). This is the feature that makes it very different from the case of Kansai Science City.  
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53 In the area of local and regional innovation policy even the much criticised national  
54 Technopolis Plan originating in the early 1980s helped cases like Hamamatsu in Shizuoka  
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3 Prefecture to gain a reputation as a successful technopolis. It started in the late 1990s to  
4  
5 create an internationally competitive optical industry cluster by integrating new optical  
6  
7 technology in the automotive and machinery industries. ‘Reinventing triple helix’ has been a  
8  
9 visible part of Hamamatsu’s recent development policy. Suffice it to say that the Technopolis  
10  
11 Plan itself was more or less like swimming against the tide and was eventually terminated in  
12  
13 1998. (SUZUKI, 2004; cf. PARK, 1997.) In fact, Tohoku and a number of other Japanese  
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15 cities and regions have shown innovativeness and determination in their cluster policies and  
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17 emerging triple helix collaboration.  
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25 In recent years Japan’s pride in regional development has been Toyota City in Aichi  
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27 Prefecture, the “Motown of Japan” or the “Detroit of the Far East”. At the heart of the Toyota  
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29 phenomenon is Toyota Motor Corporation and its headquarters in Toyota City, which  
30  
31 epicentres a network of twelve manufacturing plants and supplier facilities located within a  
32  
33 30 km radius. It has been estimated that some 3/4 of adults in the area work for Toyota or its  
34  
35 suppliers. What is essential here is that the development of Toyota City is not a result of local  
36  
37 or regional development policy. The city government, however, has been very sensitive to  
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39 Toyota’s needs, starting from the change of the name of the city of Koromo in 1959 into  
40  
41 Toyota. Toyota City represents a case of a “headquarters city” dominated by one of the  
42  
43 world’s largest companies, which started to create a regional cluster around it. Not only  
44  
45 Toyota City, but also other major cities in Aichi prefecture have continued to thrive. The  
46  
47 capital of Aichi Prefecture is Nagoya, Japan’s fourth largest city. It had a low profile until  
48  
49 recent years, for it followed a more cautious and low-profile policy during the bubble  
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51 economy than let’s say Osaka. In general, Aichi Prefecture has shown signs of above-average  
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3 success and attracted increasing attention from experts and developers from Japan and  
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5 abroad. (Cf. JACOBS, 2002.)  
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10 These examples suggest that the source of recent regional success in Japan have been based  
11  
12 mainly on strong support from central government, productive triple helix collaboration or  
13  
14 the involvement of exceptionally successful global companies. In this comparison Osaka's  
15  
16 strategy was different from these as it was mainly a large-scale public investment strategy  
17  
18 that ignored to some extent the development of internal dynamism, which as a whole became  
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20 counter-productive after the burst of the bubble economy and the following stagnation.  
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#### 27 7. Searching for success in Osaka in 2000s 28 29 30 31

32 After encountering persistent problems with megaprojects, both the City of Osaka and the  
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34 Prefecture of Osaka started to make the necessary changes in their policies in order to cure  
35  
36 their budgetary deficits and to fine-tune their development policies. The national policies  
37  
38 supported this turn by leaving the technopolis-scheme behind and focussing more on the  
39  
40 promotion of venture business and support for triple helix linkages (SUZUKI, 2004). The  
41  
42 strategic focus remains to become an Asian trade hub with close connections especially to  
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44 China and Korea.  
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50 The Osaka Bay Area is persistently developed and promoted by providing land for  
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52 manufacturing and other functions. Sakishima island and its Cosmosquare waterfront area are  
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54 in the focus of these efforts. Cosmosquare is currently planned to become a 24-hour lifestyle  
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3 zone which is attractive for research-based business and university-industry collaboration.  
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5 The central government designated Cosmosquare a Priority Urban Redevelopment Area in  
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7  
8 2002. In addition, the City of Osaka incorporated Cosmosquare into its Urban Revitalisation  
9  
10 Programme of 2003. The idea is to build upon such unique features of the island as its  
11  
12 waterside location and various leisure facilities, in which Osaka may seek inspiration from  
13  
14 places like Dubai, Barcelona or Singapore. (OSAKA CITY URBAN REVITALIZATION  
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16 TASK FORCE, 2004.)  
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22 Even if Osaka may be regarded as an “industrial city” rather than a “capital exporter” or  
23  
24 “command-and-control centre” like Tokyo, Taipei or Seoul in the functional city system in  
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26 Asia (cf. MARCOTULLIO, 2004), it seems to be firmly on its way towards becoming a  
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28 knowledge intensive lifestyle city. Osaka’s failure to take a quick grasp of the global  
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30 economic development is now turning into a more balanced strategy. One expression of these  
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32 efforts is an attempt to better combine urban planning and development with industrial  
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34 promotion, of which the establishment of the *Office of Urban Revitalization and Promotion*  
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36 is a good sign, as pointed out by Director Yasuo Tatsumi (2006a).  
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44 Osaka’s new policy was formulated in the previously mentioned revitalisation plan of 2003,  
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46 which identifies three targets: to promote intellectual business, to ensure attractive urban  
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48 development and to develop cultural and touristic activities. Maybe the most important new  
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50 development project that resembles earlier megaprojects is the redevelopment of the freight  
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52 yard next to JR Osaka Station. Such an undeveloped area at the heart of the city centre,  
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54 similar to what Shiodome was in Tokyo, is unique and provides a great opportunity for urban  
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3 developers. The area is planned to become the centre of interaction of the Kansai region,  
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5 surrounded by big cities and various high-tech and business centres, including Cosmosquare  
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7 and Rinku Town. These ideas became a bold and innovative Knowledge-Capital Project  
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9 which was launched in 2005. This time the location is on the side of developers, but whether  
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11 they pay sufficient attention to the creation of an innovative milieu, triple helix and growth  
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13 mechanisms remains to be seen.  
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## 20 8. Conclusion

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24 Osaka City and Osaka Prefecture have had ambitious plans to develop the city and the region  
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26 with strong support from the business community. Close links with political and business  
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28 elites may be seen as a strength but they have also led to problems, which were seen in the  
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30 form of excessively speculative investments in business site development projects.  
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37 What we may learn from the case of Osaka is that in large-scale business site development  
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39 projects risk assessment and cost-benefit analyses should always play a role. Another  
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41 message is that if the site is intended to attract high-tech and knowledge-intensive activities  
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43 and international companies in particular, such projects cannot be based on a conventional  
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45 property-oriented business park concept, for it is not attractive enough from the point of view  
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47 of leading IT firms. Osaka seemed to become trapped, for it was not able to provide cheap  
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49 labour, but it also failed to develop a well-functioning innovation milieu resulting in a weak  
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51 position in the global competition of high-tech centres. Insufficient integration of spin-offs  
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53 and startups into the new sites made them even less attractive to IT firms. Thus, the rhetoric  
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3 in the cases of Rinku Town and Technoport Osaka was about high-tech business site  
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5 development, but the reality was about property-based business parks. The problems of  
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7 Tsuda Science Hills resembled this style to some extent, but had also special problems in  
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9 logistics, telecommunications and institutional synergy.  
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15 What is stated above implies that the fewer elements of innovation milieu and local synergy,  
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17 the less the site has to offer knowledge-intensive firms. We may also hypothesise that this  
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19 feature makes the difference in times of economic downturn, for it is critical innovation  
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21 activities and advanced business services that have in recent decades proved to be vital for  
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23 sustainability in high-tech centres. Due to deficiencies in its innovation milieu and the  
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25 functioning of triple helix, Osaka did not have the capacity for focused 'micro-restructuring',  
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27 which partly resulted in weakening prospects in regional development. As there are new  
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29 elements in the regional development policy in Osaka, it remains to be seen how much  
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31 developers in Osaka have learned from these lessons and what the Asia-Pacific high-tech hub  
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33 in Kansai will look like after ten years or so.  
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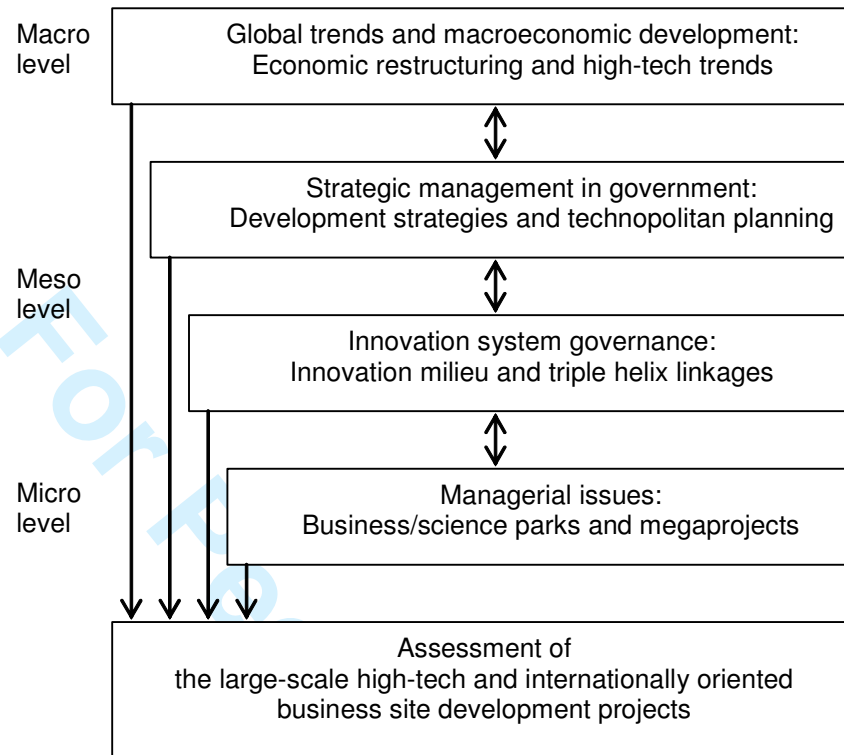


Figure 1. Levels of analysis of business site developments.