Osaka Renaissance News

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Welcome to "Osaka Renaissance News" - the email newsletter of Osaka City Government's "Urban Revitalization Task Force".

The Osaka Urban Revitalization Task Force

We are the first *City Task Force* established in Japan to address urban regeneration and revitalization issues within a common framework. We also collaborate with the central government's "Urban Renaissance Program". The role of the task force is to coordinate and promote the set of initiatives that taken together from the Osaka Revitalization Plan.

"Osaka Renaissance News" is distributed through multiple email channels to spread the word about important initiatives taking place in Osaka.

This Issue: Knowledge Clusters

Establishing industry clusters is an effective way of attracting foreign investment into a region as well. The Kansai region has several active clusters, supported by central government. Some of these have been initiated by the City of Osaka as well.

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KNOWLEDGE CLUSTERS

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INTRODUCTION

Industrial clusters occur naturally, but 'knowledge clusters' often have to be nurtured. Professor Michael Porter of Harvard University was the first to identify and describe the economic function of industry clusters in his book, "The Competitive Advantage of Nations". I heard him talk on the subject nearly 20 years ago when he was developing his thesis.

Osaka has several natural clusters. One is consumer electronics, an industry dominated by Matsushita, Sharp and Sanyo. This has spawned a large sub-supply industry. Consequently, the area in and around Osaka has many companies with specialist skills in engineering, electronics, software, and communications. Based on the natural advantage of such a cluster, Osaka city has selected three knowledge clusters to support – advanced robotics ubiquitous IT (mobile communication applications) and Preventive Medicine.

The central government has selected other areas, notably in the bio-life science area centring around Osaka and the Kansai area. At the same time, governments in Europe are promoting their own clusters. In the race to become the leading cluster internationally, this has led to increased interest to form alliances and exchanges in order to gather companies and institutes into major international hubs. The result of this is that the number of visits by foreign cluster organisations, universities and venture companies to the Kansai region is rising rapidly.

Osaka City has created an infrastructure of support services and subsidies to attract the attention of foreign clusters. The next step is to draw 'anchor' investors from these clusters or universities to participate at the centre of its cluster plans. The "Knowledge Capital Zone", which will be built at the centre of the Osaka Station North District redevelopment, is the key to the City's knowledge cluster strategy. The next article will talk about specific ways in which the city is seeking to attract knowledge partners to this zone

Alex Stewart

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KNOWLEDGE CLUSTERS

In the era of global competition knowledge is vital in order to maintain competitive. This issue discusses how the region around Osaka is trying to achieve thist.

(1) Cluster background

Clusters are a way of strengthening the industrial and technology base of particular regions. They can be defined by a particular product concentration, production networks supporting it, or by the presence of major customers nearby. The new kinds of knowledge clusters governments are promoting are usually based around a university or a government research institute. Some are more 'natural' (or less forced) than others, the problem being that there are sometimes too many look-alike clusters, especially in areas like bio-science and nano-science.

Japan began implementing its cluster policy in 2001. At that time the economy was still suffering the effects of the long 'Heisei Recession' and the USA was pulling away rapidly on the back of the internet revolution. Many ascribed the US success to the integration of university and industry networks in 'knowledge clusters' like Silicon Valley and Route 128. However, by 2001 it was also apparent that the Anglo-Saxon model, led by entrepreneurs and private venture capital, would not work in Japan, which had no history, or infrastructure, to support such bottom up development. Instead, Japan developed the 'San-Gaku-Kan' model of collaboration (standing for 'Industry-Academic-Government' collaboration).

Central government has overall direction of cluster activity in Japan, but cities like Osaka have developed their own cluster plans as well. Osaka has the additional benefit that it is a partner in the development of the largest city redevelopment in Japan, next to the main railway station, Umeda. The central part of the site has been reserved as a "Knowledge Capital" zone, which will focus on next-generation human-machine interactions, loosely termed 'advanced robotics' but going much further into areas related to Health and Wellness.

(2) Central Government Direction

The Ministry for Economic Affairs (METI), and the Ministry for Education and Science (MEXT), launched their cluster plans in fiscal 2001 and 2002 respectively. The two ministries share information to avoid waste and to enjoy added synergies

To obtain central government support, local regions are invited to submit proposals. In Kansai, METI's regional bureau is the point of coordination for five main cluster programs, out of a total of 16 across Japan.

Kansai Bio Five Star Company and Tissue Engineering Program: centres on world class bio-venture companies (rather than major Pharma companies) with the final goal to help smaller companies to gain better access to world markets.

Kansai Active Manufacturing Industry Support Program: aims to link companies with unique high technology to universities, research institutes and other networks, especially in fields related to nano-technology.

Kansai IT Promotion Cluster Program: is similar to above, but focused on IT related companies.

Kansai Energy and Environment Promotion Cluster: helps SMEs especially to work in intra-industry, academic and government networks in the field of energy and environmental technology.

(3) MEXT's Knowledge Clusters

The MEXT cluster plan focuses on university-centred research to encourage more industry-university tie-ups. The goal is to create a "concentration of knowledge and talent" for internationally competitive innovation. There are a total of 18 clusters, of which four are in Kansai: two of them are related to bio-medical research (one in Kobe, the other in North Osaka); the other two are centred on Kyoto University and the Nara Institute for Advanced Science and Technology respectively.

The Osaka cluster known as SAITO is formed around Osaka University, the National Cardiovascular Centre and the National Institute of BioMedical Innovation. The goal is to create a university-centred research hub, addressing specific research themes, such as molecular targeted medical technologies. It has a stronger focus on university spin outs. From this fiscal year, starting April 2007, it will also have a stronger emphasis on building links with overseas clusters and leading universities.

(4) New Status of Universities

The change in the status of national universities, from public to quasi-private (independently managed) has also stimulated the growth of knowledge clusters. The changed status of universities in Japan became effective in April 2006. Some of the desired results are: to force mergers between universities to cope with the falling birth rate; and to improve the quality of research and teaching. The most important merger currently planned in Kansai is between the Osaka University of Foreign Languages and Osaka University, which will make the post merger University the largest in Japan, as well as one of the most international.

Currently Japanese companies undertake a much higher percentage of their university-linked research in the US, and to a lesser extent with universities in Europe, rather than with universities in Japan. To try to correct this, the government introduced a Centre of Excellence programme (COE). To qualify for funding under this program, universities undergo a peer review evaluation (i.e. other universities rather than the government decide which are the best candidates). One of the major indicators to qualify is the existence of strong linkages with other leading centres of research outside Japan. This in

turn has put pressure on Japanese universities to seek collaborations outside Japan.

(5) Competition to achieve cluster status

The same conditions will start to apply to the selection of clusters from this fiscal year, starting April 2007. Notably, clusters will have to show that they have linkages with leading clusters overseas in order to qualify for further government support. A similar trend is occurring in Europe, with major clusters seeking to internationalise in order to make themselves more influential, and hence able to attract more investment.

Europe has lagged slightly behind Japan in establishing its cluster programs, but all European countries are now actively promoting them. The most consistent area of engagement is in the bio and health care sectors. Last year for example the main international biotech event in Japan was held in Osaka. All of the major consulates in Osaka facilitated inward missions to attend the event, and supported seminars and business matchmaking events. As a result, the number of foreign biotech companies accessing the Kansai region is starting to increase strongly.

(6) Cluster promotion by foreign governments

There are now a large number of university-to-university and cluster-to-cluster activities underway, notably between Japan and Europe. The following describe those related to clusters in the Kansai-Osaka area:

UK-Kansai R&D promotion:

The British Consulate has been building up its capability to promote UK research in Japan and bilateral collaboration in all areas of R&D for over a year. At the start of 2007, it held its first "Science and Innovation New Year Reception" in Osaka at which it welcomed university researchers and research departments with links to the UK from around the Kansai. During 2007, the Consulate will host several seminars and workshops in subjects ranging from developmental biology, to hydrogen storage, to liquid crystal technology. These are aimed at developing new, or strengthening existing, academic and industrial R&D links between the UK and the Kansai/western Japan region. At the university level, one of the key developments is an agreement between the Judge Institute of Management of Cambridge University and the School of Biotechnology at Osaka University to offer an international *Management of Technology* course for senior executives in the Kansai. Part of the course will be taught in Cambridge. It is probably the first such course offered by a national university and a university overseas. 2008 will be 'UK in Japan Year', and even more seminars, missions, and workshops with an R&D theme are planned.

France-Kansai R&D promotion:

The French government started developing a cluster promotion plan, similar to Japan's, in 2004. France already had several natural industry clusters, but it did not have a formal plan to promote and strengthen them drawing on the resources of the public and university sectors. It now has nominated 66 clusters of which 16 have been classified "international clusters". The change of direction is showing up in Japan, where in the last year there has been a regular flow of missions. In

March alone, two clusters visited the Kansai region. Indeed, the Kansai region is viewed as one of the most promising research clusters, with a special focus on bio-technologies. There are 440 university-to-university collaborations between France and Japan, of which at least 25% are with universities in the Kansai region.

Germany-Kansai R&D promotion: Germany's growing interest in R&D collaboration is reflected in the number of university collaborations which have been signed in the last three years with Japan, up from 150 to 280. Approximately 25% of these collaborations are with universities in the Kansai. Germany already has a number of companies active in the Kansai region, especially in pharmaceuticals (including biomedical research) and chemicals. The other area of special interest is engineering, which includes robotics and nanotechnology. Germany is also boosting its inward investment program. Last year was 'German Year in Japan' which resulted in a number of high-level agreements with universities, notably in Osaka and Kyoto.

Italy-Kansai R&D promotion:
This year will be 'Italy in Japan Year' (or 'Italian Spring' as the organisers have called it). There will be more emphasis on science and technology (rather than the better-known brand industries). The Kansai will be the focus for seminars on nanotechnology and biotechnology. The biotech event will feature all of the major bio clusters in Italy. It will also include about 10 universities and government research institutes. The coordinator of the event includes the Italian National Research Centre, which is the key organiser of R&D projects in Italy, including university-linked research. At any time there are around 150 Italian researchers working in Japan. It even operates joint research labs with Japanese research institutions. The most successful is a collaboration with the Kyoto Institute of Technology, in the field of carbon nanotubes. The centre is going to operate on a stand alone basis and is shortly moving to its own building outside the university. At any time about 10 researchers from Italy work alongside the same number of Japanese counterparts. An Italian professor who teaches at the Kyoto Institute is the Director of the Centre.

Netherlands-Kansai R&D promotion:
The Netherlands has an aggressive policy to attract investment into its clusters, even funding (up to 40%) foreign entities who conduct their research domestically. In the university sector the most notable example of Dutch success is a university-wide agreement signed in 2002 between Osaka University and Groningen University. This is Osaka University's most intensive exchange agreement with a university in Europe. The attraction of Groningen is that it routinely teaches subjects in English as well as Dutch, and it aims to raise the portion of foreign students to 20% by 2015. Osaka is also very keen to internationalise its activities, and therefore Groningen serves both as model and partner. Osaka University's representative office (since 2005) in Groningen covers the whole of Europe. It has two similar offices in San Francisco (for the Americas) and Bangkok (for SE-Asia). With Groningen as its partner Osaka has also become a third party university in the "EU

Erasmus program" which provides for transparency and full academic recognition of studies and qualifications throughout the European Union.

(7) City government's action

Osaka city government's Office for Revitalisation is extremely keen to develop links with university and research institutes in Japan and overseas. The main building on the Osaka Station North District redevelopment site is designed to serve as a "Knowledge Capital" which will house the research and venture activities of university and corporate research and consumer testing laboratories. The focus will be on intelligent robotics and ubiquitous IT. This is a highly inter-disciplinary area of research which includes brain research, psychology, vision recognition, natural language processing, tactile sensing and artificial intelligence. Osaka's vision is to be one of the world's leading clusters in this field.

From this fiscal year, starting in April 2007, Osaka city will start offering subsidies to attract overseas universities to establish research facilities or campuses in the city, twice as much as subsidies now available for domestic universities. The city's university program will be the subject of the next newsletter.

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