FOREIGN DIRECT INVESTMENT, INTERNATIONALISATION STRATEGIES AND ECONOMIC DEVELOPMENT IN VALENCIA, SPAIN

A review by the Local Economic and Employment Development (LEED) Programme of the Organisation for Economic Co-operation and Development (OECD)

FINAL REPORT

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Key Issues

This OECD review examines policy challenges for the internationalisation of the Valencia economy.[1] It aims to help the Valencia City authorities and their partners to respond to the challenge of globalisation and the shift to the knowledge economy by examining how policy could further foster innovation through promoting internationalisation. Key components of a successful innovation strategy for a city economy include building human capital, fostering entrepreneurship, attracting knowledge-intensive firms, increasing public and private sector R&D activity and strengthening science-industry linkages. Internationalisation has an important role to play in each of these areas.

Internationalisation activities help local firms and organisations to secure new sources of knowledge (knowledge inflows) that enable them to improve their products and services and increase their efficiency, thus supporting their ability to compete in local, national and international markets. They also help local firms and organisations to exploit their knowledge in external markets (knowledge outflows), thus increasing the local incomes associated with their innovation activities. In addition, both knowledge inflows and knowledge outflows increase local returns to innovation, which can be expected to lead to a virtuous circle involving increased innovation investment, increased innovation outputs, increased incomes from innovation and hence increased innovation investment.

This report examines three major internationalisation channels that can be further exploited for the growth and competitiveness of the Valencia economy, namely:

- attracting and embedding inward Foreign Direct Investment (FDI) projects that are associated with international technology transfer and access to global value chains,
- encouraging international alliances and market seeking by local Small and Medium-sized Enterprises (SMEs), and
- international research collaborations and international flows of students and researchers by local universities and research organisations.

The following sections discuss the issues and the actions that can be taken for each of these internationalisation channels in turn.

[1] Comprising Valencia City, Horta Nord and Horta Sud.

Attracting Foreign Direct Investment

Strengths and opportunities

Local estimates suggest that around 300 foreign direct investment projects are based in and around the city of Valencia. This indicates that Valencia has the characteristics necessary to attract and retain FDI and to ensure a satisfactory operating environment for FDI ventures.

The importance of developing the knowledge-based economy has been recognised in existing economic development strategies, which will support the attraction of knowledge-based FDI to Valencia. Important local initiatives to promote knowledge-based economic development in Valencia include the creation of an optic fibre network in the city, the ValenciaYa project, which aims to tackle the digital divide, and the Aventic strategy to consolidate advanced telecommunications activities in the city. In addition, the Foundation for Innovation created by Valencia City Council supports the development of the knowledge economy and innovation services in Valencia.

There is a strong local knowledge base that can support attraction of knowledge-intensive FDI. The two public universities, the University of Valencia and the Technical University of University, have some 130,000 students in graduate and postgraduate programmes, excellent scientific knowledge and highly qualified graduate output. There are significant scientific strengths in life sciences, which is therefore a key opportunity sector for the attraction of FDI projects to Valencia. The diffusion of this R&D activity is supported by sector specific research institutions covering electrical technology, energy, electronics & automation, communications technology and life sciences. The economic development potential of Valencia's universities and technical institutions is an opportunity as yet to be fully unlocked.

There are a number of very positive policy initiatives in place to support innovation and technological entrepreneurship in Valencia. Good practice initiatives include FIVEC, which is identifying technological demands and networking possibilities in the city, and IVEX, which is proactive in seeking to identify technology partners for indigenous companies.

The average annual FDI inflow into Spain between 2006 and 2010 can be expected to be substantial, with Spain expected to capture a significant share of FDI inflows to Europe. With the right visibility and positioning within Spain, Valencia has a good chance to secure significant investment.

Given the ongoing de-compartmentalisation of the value chain across a broad range of technologically advanced sectors, with each element now being located, in principle, wherever it is most effective, there is an opportunity for Valencia to capitalise on the disintegration of value chains across a broad range of technologically advanced sectors by attracting niche foreign investments in design, R&D, technology centres and high value added business support services.

During the period up to and during hosting of the Americas Cup, Valencian Community Investment (VCI) has had a significant workload in simply reacting to expressions of interest by foreign investors. There is an opportunity in the forthcoming period to focus more strongly on proactively seeking out appropriate investment prospects.

Weaknesses and threats

Whilst estimates from The Economist World Investment Prospects report suggest that Spain will attract significant FDI in the period 2006-10, the country is associated with relatively poor conditions

for attracting the knowledge-intensive FDI that is most likely to promote innovation in Valencia. The European Innovation Scoreboard published by Eurostat indicates that Spain performs poorly relative to competitor countries on a number of measures of the innovation environment. For example, it ranks 16 of 25 EU Member States on the Scoreboard's summary innovation index. Furthermore, much of the investment that has been attracted to Spain in recent years has been in traditional manufacturing sectors, like automotive, rather than in knowledge-intensive sectors such as higher added value business support services, ICT and life sciences.

Common weaknesses in Spanish support conditions for knowledge-intensive FDI include relatively weak university-industry linkages, labour supply issues, including shortages of some types of skilled labour, relatively low labour mobility and flexibility and relative lack of business English.

Valencia's share of FDI in Spain is low relative to the size of its population and economy. Furthermore, Valencia's stock of foreign investors is weighted towards traditional manufacturing, food processing, logistics and tourism infrastructure activities, which are not necessarily conducive to upgrading towards higher value added technologically advanced output through greater innovation.

Valencia has missed out on opportunities to fully capitalise on inward FDI in some of the sectors demonstrating the highest demand characteristics for investment locations in Western Europe – namely software, business support services and electronics – or to attract significant investment in life sciences, another sector with strong innovative characteristics. Valencia is therefore a comparatively late entrant in the competition to attract knowledge-intensive FDI, necessitating a strategy aimed at leapfrogging the competition.

There are some significant initiatives promoted by the City Council for the promotion of Valencia as a location for knowledge-based industry. However, there is no unified strategy for the innovation and growth of knowledge-based industries, which FDI promotion efforts can link to, and no clear responsibility with a particular promotional institution to implement a strategy to create a knowledge-based innovative economy.

VCI currently has a narrow investment promotion mandate associated with traditional agencies rather than the wider scope to pursue the broader economic development activities required to integrate FDI promotion with other technology development activities found in many forefront agencies.

The competition for knowledge-intensive inward investment has increased dramatically in recent years with, for example, Central European cities like, Prague, Budapest, Warsaw, Bratislava and, more recently, St. Petersburg and Belgrade, already establishing an impressive track record in attracting ICT, technology centres and, indeed, global design activities. FDI flows to China are increasing rapidly. This increases competition for FDI and raises pressure for further reforms in supporting knowledge-intensive activities.

Although branding work is currently being undertaken, and strong visibility has been built through the Americas Cup, Valencia's current promotional material does not fully support the case for investing in Valencia as opposed to its principal competitor with appropriate comparative data.

Recommendations

Undertake a location audit

Undertake an in-depth location audit of Valencia as a host for ICT, life sciences and high valued added business support services (e.g. head quarter operations, shared service centres, technology centres), benchmarked with key competitor cities in Spain and Europe. The audit should focus on quantifying skills availability; profiling clusters; elaborating on technical university and technological institution competencies; preparing case studies on the most successful or innovative companies; benchmarking operational cost overheads – particularly labour, real estate and telecoms related, clarifying incentive and taxation regime; benchmarking linguistic skills; and assessing the percentage of international customers served from Valencia.

Re-brand the image of the city

The Americas Cup provides a strong basis for further development of the Valencia brand. The awareness has already been built in the market can be further fostered and refined through provision of evidence on the strengths and weaknesses of Valencia as an investment location relative to competitor cities, such as Madrid, Barcelona, Vienna and Prague. The brand message should be strongly focused on a well-identified target audience and should be forward looking in terms of company and policy needs.

There is an opportunity to focus more strongly on the knowledge economy in brand messages aimed at FDI attraction. Agreement of a clear vision or goal will support the brand, for example that 'Valencia will achieve first tier European city status and become a major centre for innovation and technology entrepreneurship during the next 10 years'. The branding strategy should also define responsibilities for implementation, the audience with which to communicate, the message to communicate and the relative weight given to different communication methods must also be established, including advertising, Internet, direct marketing, public relations, promotional events and networking. All the major economic development organisations should be willing to share and help implement this re-branding strategy.

With respect to FDI attraction, the major issue is to communicate the unique selling proposition of Valencia, i.e. those factors that are superior to Valencia's competitors and which are highly attractive to the target group. It is best practice to define the unique selling proposition sector by sector for priority target sectors. Two key elements of the unique selling proposition of Valencia are likely to be access to customers and sources of intellectual capital.

Strengthen factor conditions attractive to knowledge-based foreign investors

Efforts should be made to strengthen the key factor conditions required to attract FDI in knowledge-intensive sectors in which Valencia could build competitive advantage, in particular ICT and life sciences, and in particular in terms of:

- Science base.
- Entrepreneurial culture.
- Company base.
- Ability to attract key staff.

- Availability of finance, especially for start-up.
- Availability of appropriate premises and public infrastructure.
- Business support services and large companies in related industries.
- A skilled workforce, in particular availability of people with R&D related skills and people with business English.
- Effective networks.
- A supportive policy environment.

Undertake more proactive investor servicing

It is important to increase the proactivity of local agencies in identifying and targeting companies with mobile R&D and technologically advanced innovative projects, including companies that can provide currently unfulfilled functions in Valencia clusters.

Retaining and Embedding Foreign Direct Investment

Strengths and opportunities

The Valencia community's appreciation of the importance of FDI in building local capacity has strengthened in line with the intensification of international competition over the last 4-5 years. Foreign investors are seen as important to the future economic development of Valencia.

Valencia has strong institutional networks. The fourteen Technological Institutes provide a very good framework for developing embedding initiatives with foreign companies. The Valencian administrations, through VCI and CEyD, play an important role in inter-agency coordination in the support of foreign investment retention and embedding.

The science park at the Technical University of University (UPV) is one of the first in Spain to be linked to a university - as well as a large-scale incubator. It has an emerging track record of collaboration with significant multinationals such as Analog Devices, Motorola, Intel and IBM. The Parc Científic de la Universitat de València (PCUV) has 200.000 square meters of space in the city of Paterna. It has 5 research institutes on its own and will include a particular Centre for Medical Physics with a building for central services, a business innovation building and a business incubator building for *spin offs* of the University of Valencia (UV).

There is a reasonable supply of skilled labour to underpin plant expansion as well as good capability in the metals, automotive, ceramics and textiles industries.

VCI has the opportunity to play centre stage by developing a strong aftercare programme to complement its investment attraction responsibilities in the Valencian region.

Valencia has the opportunity to be a city in Europe that has systematically engaged with the dynamic Asian economies. In this regard, China and South Korea are looking for a doorway to the European Community, and Valencia Port and Feria Valencia are strong infrastructural assets in this regard.

There is scope to increase the involvement of the Technological Institutes, the Chamber of Commerce, the universities, IMPIVA and VCI in aftercare and embedding initiatives.

A strong cluster programme could drive many of the collaborative projects required for an effective aftercare and embedding strategy.

Weaknesses and threats

While some agencies see Valencia as having good institutional networks others point to a lack of connectivity amongst the actions of different organisations and hence limited collaboration on aftercare and embedding policies.

FDI aftercare and embedding activities are less well developed in Valencia than efforts for FDI attraction.

There are significant skill shortages in some areas of traditional manufacturing.

Recommendations

Create an aftercare and embedding programme

VCI currently focuses principally on attracting FDI projects, rather than on securing their retention, expansion and embedding in the Valencia economy. This may make sense in the short term in dealing with the significant number of enquiries generated by the publicity associated with the Americas Cup, but once this pressure on VCI resources eases it is important to expand the activities of the agency to incorporate the aftercare and embedding that will maximise the impact of FDI and the chances of retention and expansion.

The aftercare and embedding strategy should include joint activities with foreign investors to support the local provision of competitively priced material and services, upgrade the competencies of suppliers, delivery appropriate quality local infrastructure, improve labour skills, reduce bureaucracy and support local technology transfer.

A key component of the aftercare and embedding programme should be a strong effort to discuss with foreign investors their future plans in order to identify how public agencies might assist moves that would support the attainment of their economic development objectives. Options for engaging firms in these discussions include a simple questionnaire, followed by an interview with senior company executives, informal discussions, formal discussions.

Another key component of the strategy should be the development of formal agreements between foreign investors and aftercare delivery agencies. These can range from an exchange of letters outlining the state-of-play with the investment and the intentions of both parties to legally binding arrangements with commitments from both sides during a specified time period.

Linkages between foreign investors and local SMEs must be promoted, in order to develop supply chains in which local companies improve business practices and enhance capabilities to meet foreign investor needs and to promote knowledge transfers between international and local companies. The aftercare and embedding strategy should therefore introduce a supplier development programme aimed at providing access to international companies' innovative techniques and technologies by local SMEs. A key goal would be to enable Valencian companies to develop the supply chain expertise and

capabilities to become preferred suppliers to international companies, not necessarily restricted to those operating within Valencia.

It is also important to pay attention to the delivery mechanism for aftercare as well as the account managers and site selection team. The options in clued vesting responsibility for aftercare and embedding with one central agency, having a lead agency with supporting groups, creating a shared arrangement between agency, and creating a one-stop shop with a nominated contact person for each client.

Initiatives should be developed to promote joint ventures between innovative local SMEs and high-performing foreign companies. Priority industries are food; ceramic tiles; healthcare; logistics; film; alternative fuels; environmental monitoring; health sciences. The science park and business incubator at the Technical University of Valencia (UPV) provide a possible focal point for such strategic alliances. Also, the UV has currently an incubator with seven enterprises already established and two more in the process of starting up. This incubator will be part of one of the three central buildings of the science park at the University of Valencia (PCUV). The priority fields of research are biotechnology, nanotechnology, ICTs and applied physics.

In order to promote the building of local networks amongst research institutions, indigenous firms and foreign investors it is recommended that the university sector be commissioned to prepare a 'City Knowledge Map' in order to support local players to understand their respective roles and activities.

The negotiation of a Collaboration Agreement may be timely given the impetus for the university sector to become more relevant to the needs of industry. There are 20 or so technology entities whose participation should be encouraged.

Establish a cluster programme

FDI aftercare and embedding increasingly involves cluster building policies. In the Valencia context, a strong cluster programme would provide the mechanism for connecting researchers with industry. The mechanism could also identify industry and community champions to organise the other players, drive the agendas and undertake lobbying work. It is also a proven means of getting foreign companies involved in local initiatives. The cluster programme should also be used to progress collaborative activities within specific sectors. Those that appear to have some merit include logistics, nanotechnology, health sciences, transport equipment and food processing.

Internationalising Small and Medium-sized Enterprises

Strengths and opportunities

Valencia has a flexible, open economy and a long-standing tradition of exporting and internationalisation. Valencia also benefits from good transport links, logistics and other communications facilities.

A number of very good public exporting programmes are available. Both IVEX and the Cámara offer good quality programmes to assist SMEs in their internationalisation activities. IVEX has 28 foreign based offices and 11 of these also house a business centre, which provides additional support to exporters including workspace and gathering market intelligence. Cámara Valencia offers three programmes specifically intended to support businesses wanting to export.

There is a strong research base. Research institutions in Valencia can provide significant support to SMEs in developing their innovative capacities. This type of support is in turn likely to encourage greater SME exporting and international technology alliances. There is a desire to transfer knowledge to local businesses and a series of technology transfer initiatives including the 'science city' initiative of the Technical University of Valencia and the activities of the technological institutes.

The relatively high level of manufacturing in Valencia and the continuing efforts to attract FDI almost certainly mean that there are many opportunities to develop supply chains, identifying products or service being bought by larger businesses but which are not supplied locally.

Weaknesses and threats

According to the Global Entrepreneurship Monitor 2004 report, Total Entrepreneurial Activity is low in the city of Valencia, at 4.09, relative to the region (5.54) and Spain as a whole (5.15). There is also a strong weighting towards necessity entrepreneurship rather than opportunity entrepreneurship in Valencia. This limits the opportunity for exporting and other forms of internationalisation.

There is more room for the development of an overall policy for SME development and support. The support for new and growing businesses is not fully comprehensive and there is scope for more collaboration amongst the agencies providing support.

There is some lack of understanding of the SME sector by public agencies and limited public-funded research of the SME sector. For example, little effort is made to analyse supply chains and to encourage businesses to fill the gaps.

Innovation capacity is relatively low in Valencia SMEs. This is reflected in relatively low R&D expenditure among small firms in Valencia, although new product innovation is above the Spanish average. It also seems that SMEs need some encouragement to recruit graduates.

Firms have difficulty accessing skilled labour at technician level. Too few people appear to be receiving vocational or technical skills training.

Although there is a range of finance mechanisms available to support internationalisation and innovation, they are not comprehensive and take up is relatively low. Businesses perceive access to finance as a problem and it appears that there are still a number of gaps in provision.

Recommendations

Promote entrepreneurship. It is recommended that more is done to encourage people to think about starting a business, ideally one that is based in tradable activities such as manufacturing or industrial service sectors rather than in local services. This could be achieved through efforts in schools to raise awareness of business, efforts in higher education to encourage students and graduates to consider starting a business, and encouragement and support for business start by researchers.

Provide growth counselling. Business clubs and peer group mentoring should be established to assist businesses to think about their strategic development. As appropriate, follow-up support should be provided to assist growth, for example in accessing finance and developing differentiated products and services.

Undertake supply chain development. Analysis should be undertaken of opportunities to supply local large companies and these opportunities should be discussed with local businesses and perhaps

potential inward investors. As well as information, innovation and financing support is likely to be required to enable firms to exploit these opportunities.

Promote access to finance. It may be appropriate to commission research to investigate in more detail on whether the neediest businesses are receiving public support with access to finance. There appear to be two main requirements for further intervention, namely creation of a micro-loan fund and a seed capital and equity fund. There is scope for further collaboration, for example, between IMPIVA, the Valencian Institute of Finance and the City of Valencia, to fill some of the gaps.

Expand technology transfer activities. Effort should be made to expand the 'breakfast club', which brings together small businesses and research institutes, to allow more businesses to benefit. It may also be appropriate to look at mechanisms for placing students in manufacturing businesses to look generally at ways of improving products or processes, initially as more of an 'academic' exercise, but with the ultimate objective of encouraging the businesses to take up good ideas.

Build international links. There is scope to do more to assist businesses to build international links. In particular, where IVEX identifies through its market intelligence gathering interesting opportunities, it should be more proactive in seeking Valencian businesses that could benefit from the links. There is scope for collaboration, for example, between IVEX, Cámara Valencia and the City of Valencia.

Promote innovation. More could be done to promote innovation amongst small firms, for example, through innovation awards designed to give a high profile to innovating companies. The FIVEC initiative is a very good local programme to promote SME innovation, which could be a model for further development.

Develop technical skills training programmes. A strategy should be developed jointly between business and the City of Valencia to ensure that people are trained in the vocational and technical skills required by business.

Research Organisation Internationalisation

Strengths and opportunities

Valencia benefits from open attitudes towards internationalisation. There is a widespread consensus among key local stakeholders about the importance of internationalisation activities linked to the development of the knowledge economy.

There is also a very strong infrastructure for research organisation internationalisation. The international knowledge flows of research organisations are underpinned by first-rate university research, science parks, technology institutions, rising R&D activity, highly capable individual researchers and experts, student exchange programmes, technology transfer offices and networks and other public programmes.

Weaknesses and threats

Academic cultures and behaviours are still generally traditional and reactive in their approach to engagement with the private sector and entrepreneurship. Incentives are strongly dominated by teaching and publication in established areas and there are some constraints to the attraction of foreign experts.

The international linkages in research organisations are expanding but generally represent the result of the activities of individual researchers or academic departments rather than the reflection of formal economy-wide or institution-wide strategy. This limits the possibility to develop relationships that could capture synergies among relationships developed by different actors.

While a few industry clusters can be identified, no proper "knowledge clusters" exist today involving strong interactions on innovation amongst businesses and research organisations following certain development paths leading to innovations in given product or service areas. Rather, the Valencia economy is marked by a divide between companies and universities and research centres. Moreover, there continues to be a divide between the research strengths of Valencia research organisations and sectoral specialisation patterns in Valencia industry.

International knowledge flows have few connections to commercialisation avenues, for example the local generation of spin-offs and creation of new high-growth firms. This partly reflects a lack of existing businesses operating in activities that could use first-rate technology and the lack of mechanisms to foster such new actors, such as seed and venture capital institutions.

There is an overemphasis in current research internationalisation on Latin America and the Mahgreb region, reflecting a tilt towards exploiting existing technology at the expense of processes of developing and/or sourcing new technologies from developed countries. Few dynamic relationships and linkages have developed to support industrially relevant knowledge exchange with strategically important regions, such as the United States, Europe and Asia.

There are few connections between ongoing processes of research internationalisation and the issues confronting businesses in Valencia. This is associated with difficulties in identifying and communicating the technology needs of local firms to research organisations capable of acquiring technology from overseas. It is also reflected in a lack of connection between industry needs and the priorities of universities or research institutes in collaborating with international partners. Companies and science parks show signs of movement towards collaboration in support of higher value-added production, but unless progress is fast enough the present industrial basis may be destroyed without any sufficient diversification emerging in its place.

There is a lack of strategic direction in research organisations and their internationalisation activities. In part, weaknesses in strategic direction reflect the state of governance mechanisms, which basically leave it up to individual researchers or divisions how to engage in international partnerships. This leads to overlap and lost opportunities for synergies between different actors.

Recommendations

Increase business involvement in university research. Valencia companies must be active parties in knowledge value chains. Measures should be put in place to spur both local research institutions and science parks to take into account the behaviour and needs of the recipient business actors in their internationalisation activities.

- The number of private sector representatives on the boards of science parks, university and research institutions should be increased.

- Incentives should be introduced to help create closer links between universities, institutes and firms as well as risk-sharing in support of new ventures. Available leverage factors include the capacity to open special funds, distributing land and organising events.

- Exchange of experience and greater mobility of managers and experts between the key societal spheres should be facilitated including schemes for training of researchers within firms and engaging researchers in company training programmes.

- The incentives for applied research should be improved, implying that scientific publications must not always come in the first room nor dominate all ranking and remuneration criteria.

- Appropriate physical space should be made available for private firms in the science parks, on terms that allow for full transparency, respectability and flexibility, as a basis for creating linkages between firms and research organisations.

Increase information on business needs and opportunities. A strategy is needed for boosting information on local market demand for new skills and technologies so that knowledge is diffused and generated in networks allowing for matching between the research organisations and industry. The most innovative companies in Valencia should contribute to "spin-in" of creative ideas into the research community, for the purpose of generating outcome-driven research. Evaluations and assessments of research internationalization should be arranged with the participation of domestic as well as foreign firms and researchers, who are willing and able to identify the commercialization potential.

Engage foreign multinationals. Engagement of foreign multinationals should be encouraged in Valencia research and innovation activities in order to open up new opportunities as regards factor inputs and commercialisation channels. It would be highly useful for the universities to create a mechanism for tapping in to foreign companies working with science parks in other countries. Efforts should be increased to host international companies in science parks, for instance by favouring investments and research projects that involve such firms.

Establish spaces of collaboration. 'Collaboratories' should be established, i.e. lab type infrastructures that link up teams of people from university and companies with disparate cultures, different cognitive systems and skills. These would allow academic researchers to work alongside company employees for the purpose of creating, developing and testing a prototype based on their reciprocal ideas. They could also serve as the platform for the development of new products or services possibly leading to new venture creation focused on application fields far from the original application of the knowledge transferred.

Reinforce attraction of highly-skilled migrants. Mechanisms for attracting foreign researchers and professors need to be reviewed, and measures be taken to adjust current practices of election within departments. The incumbent scheme offered by the City Government in the past years to support hiring of foreign researchers is now in the process of phasing out. Alternative ways of achieving objectives in this area should be considered in order to strengthen the contribution of foreign researchers. It is recommended that the conditions for financing of foreign researchers should be revisited and, e.g., be linked to integrated research projects engaging academia and the private sector.

Conclusions

The report concludes by identifying a number of overarching issues that should be addressed in the building a more supportive environment for FDI and internationalisation activities in Valencia:

- Focus on promoting innovation as the key to city economic success.

- Support innovation through internationalisation activities.

- Launch an innovation and economic development strategy.
- Further build the brand and image of Valencia.
- Support the CEyD to work as a city development agency.
- Learn from other cities and regions.

CHAPTER 1

INTRODUCTION

Innovation is critical to the success of city and region economies in securing economic growth, job creation and structural adjustment. However, in the context of globalisation and the shift to the knowledge economy it is clear that a local economy cannot be successful in the innovation process in isolation from potential suppliers, collaborators and clients elsewhere. Thus city and regional economic prosperity is clearly linked to the ability of firms, universities and other organisations to exploit the various mechanisms available to access knowledge generated overseas and to exploit home grown knowledge in wider markets.

International partners have an important role to play in supporting all the key components of a successful local innovation strategy, including building human capital, fostering entrepreneurship, attracting knowledge-intensive firms, increasing public and private sector R&D activity and strengthening science-industry linkages. In addition, promoting knowledge inflows and outflows will increase local returns to innovation, which can be expected to lead to a virtuous circle of investment and returns.

This report examines the case of the internationalisation of the Valencia economy.[2] It aims to assist the Valencia City authorities and their partners to develop and refine their policies and programmes to foster innovation through helping local firms, universities and other organisations to benefit from globalisation.

It examines three major internationalisation channels that can be further exploited for the growth and competitiveness of the Valencia economy, namely:

- attracting and embedding inward Foreign Direct Investment (FDI) projects that are associated with international technology transfer and access to global value chains,
- encouraging international alliances and market seeking by local Small and Medium-sized Enterprises (SMEs), and
- international research collaborations and international flows of students and researchers by local universities and research organisations.

The report is organised as follows. It starts by examining the current situation and challenges in Valencia in terms of current internationalisation activities by local actors, current policy initiatives and key associated strengths and weaknesses. The following four chapters then focus in more detail on four specific issues, namely attracting knowledge-intensive FDI, retaining existing FDI and embedding it in the Valencia economy, supporting internationalisation by SMEs and increasing the international connections of universities and other research organisations. For each of these issues

[2] Comprising Valencia City, Horta Nord and Horta Sud.

current strengths and weaknesses are identified and recommendations are made for policy development. Key overarching conclusions are then presented in chapter 7.

The recommendations in this report are supported by a series of examples of learning model programmes that show how the proposed approaches have been applied in other OECD Member countries and the lessons that can be learned. Some of these learning models are integrated within the main chapters of the report, whilst additional learning model examples are included as an Appendix. It is intended that they should be read in conjunction with the main text in order to provide more detail on the proposed actions suggested in the report.

This report was prepared by the Local Economic and Employment Development Programme of the Organisation for Economic Co-operation and Development (OECD) in collaboration with the City of Valencia and its economic development agency Centro de Estrategias y Desarrollo de Valencia (CEyD). It forms part of the OECD review series on Foreign Direct Investment and Local Development. Further information on the series and how to participate in the activities of the LEED Programme is available at www.oecd.org/cfe/leed.

The report is based on information from a local diagnostic report, the findings of an international review panel visit to Valencia and comparisons with international experiences and best practices. The main steps of the methodology are as follows:

i. Review of documentation and diagnostic report

The review of documentation and evaluation reports has two purposes. Firstly, it helps to understand the trends and issues affecting how sub-national FDI policies need to be designed and implemented to better attract, retain and embed FDI. Secondly, it identifies some best practice projects and programmes from existing evaluation evidence on effectiveness and efficiency. The local diagnostic report on policies, operational arrangements, expenditures and impacts in Valencia was prepared by Prof. Javier Quesada from the IVIE.

ii. Case study visit

After reviewing the diagnostic report and other local documentation and data, the OECD and the international panel of experts undertook a one-week peer review visit to Valencia, from 11-15 September 2006, with the aim to interview local policy makers and other relevant actors.

iii. Synthesis report

Drawing on the results of the case study visit, a report was prepared making policy recommendations on how to attract, retain and embed knowledge-intensive direct investment and how to enhance the internationalisation of SMEs and research organisations in Valencia. The recommendations are supported by international comparisons and overall recommendations for policy.

iv. Expert workshop

An expert workshop was organised by the OECD in collaboration with the Ayuntamiento de Valencia and the Centro de Estrategias y Desarrollo de Valencia (CEyD) on 23th January 2007. In addition to presenting international best practices in the field, the aim of this event was to discuss the draft report, preliminary findings and study recommendations with the local stakeholders, and to include their feedback in this final revised version of the report.

CHAPTER 2

INTERNATIONALISING THE VALENCIA ECONOMY: CURRENT SITUATION AND CHALLENGES

by Prof. Javier Quesada
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Introduction: A brief description of the Greater Valencia Area (GVA)

The City of Valencia, is the main central city on the Mediterranean coast of Spain. It has 796,549 inhabitants in his municipal area and 1,462,701, in its metropolitan area Greater Valencia Area (GVA) (17.3% and 31.17% of the whole region, respectively)[3]. A slightly broader definition of GVA, including the areas within a 45-60 minute driving distance, would reach 2,000,000 inhabitants[4].

It is located 350 km south from Barcelona, the main Spanish city on the east coast and the capital of the Catalonian Region. Valencia is 650 km north from Malaga, the second largest city of the region of Andalusia, also located on the east coast. Valencia is the nearest port to the City of Madrid (about 350 km).

On January 2005, the population surrounding the City of Valencia within a 4-hour drive by car amounted roughly to 20 million residents, not including 1 million persons from the Balearic Islands.

The City of Valencia is the capital of the *Comunidad Valenciana (Valencian Community VC)*, the region of Valencia, formed by 3 different provinces, namely, Castellón on the north, Valencia in the centre and Alicante in the south. The main regional cities other than Valencia are Castellón (167,000), Alicante (319,000) and Elche (215,000). As capital of the Autonomous Community, the City of Valencia holds many institutions like the Delegation of the Central Government, the Executive Power of the Regional Government, the Legislative Regional Parliament, and the Court of Justice among others.

The City of Valencia lost population over the period 1991-2001 at an annual rate of 0.2%, but from the year 2000 on reversed this trend growing at an annual rate of 1.5%.

3. 17.3% of the population live in 0,58% of the territory.

4. Including Valencia, Camp de Morvedre, Horta Nord, El Camp del Turia, Horta Sud, Horta Oest, La Plana de Utiel-Requena, La Hoya de Buñol, La Ribera Alta and La Ribera Baixa.

The unemployment rate is higher in the city than in the whole region.[5] 19.86% of all bank branches in the region are located in the City of Valencia with a somewhat higher presence of commercial and savings banks an a lower presence of credit cooperative banks. The figures reflect that 10.12% of the total industrial firms, 17.9% of the wholesale trade firms[6] and 17.3% of the retail trade[7] sector, are located in Valencia. An index of trade[8] activity sets the share of total trade activity in Valencia on 24.7% of the region (20.3% for wholesale and 27.5% for retail).

Figure 2.1. City of Valencia

5. 14.4% versus 11.6% unemployment rates in 2004 with respect to the census population of 2001.

6. There is a higher presence in Valencia of pharmaceutical and durable goods wholesale trade.

7. As expected, department stores in number and total size are also overwhelmingly represented in Valencia.

8. Published by La Caixa.

Over the last fifteen years the city of Valencia has opened itself up to the Mediterranean (see Figure 2.1). Large urban development projects have moved the centre of gravity of the city towards the shore. It could very well be an indication of the will to becoming a more global city with its eyes fixed abroad, where the best opportunities lie. Figure 2.2 shows, approximately, our definition of GVA.

Figure 2.2. The Greater Valencia Area (GVA)

Main current drivers of the economy of the City

The starting point for the future, more international and knowledge base city is the present position with all the associated strengths and weaknesses. In fact, the main engines that will have to transform the city-region into an international and modern economy are already in place. They have taken Valencia to its actual position. So it is interesting to review what we consider are the main drivers of development of the city/region.

Main site for National and Regional Institutions

Valencia is the capital of the region and this entails several important roles and functions to play. The four different levels of government have a local dimension with economic implications. Consequently, power accumulates in the city/region, in particular if you compare it with other cities in the Valencian Community (VC).

Firstly, it is the main site for National Institutions that have a regional presence. The Delegation of the Central Government in the Valencian Community holds the official representation of the

National Government. The national delegate runs an administrative team. They coordinate, from a territorial point of view, the activities of National Organizations and Public institutions that develop state competences in the VC. The most important are the following ones: Security (National Police, Civil Guard), Defence (military company, field and general headquarters), the Foreign Office (consular representation), National Health, Internal affairs, (immigration). The Delegation in Valencia supervises and coordinates all other delegations located in many cities around the region.

Secondly, Valencia is the capital of the Regional or Autonomous Government which means that the main regional institutions are located in its municipal term: the Executive Power (the Presidency, Vice-presidency and the Regional Ministries), the Legislative Body (Regional Parliament, Control and Audit institutions), the Judicial Power (Regional Supreme Court, Labour Courts), and cultural institutions (Consell Valenciá de Cultura, City of Arts and Sciences, Museums, Theatres and Orchestras).

It should be noted that the Autonomous (or regional) Government was gradually developed after the Constitution of 1978.[9] It entailed the creation from scratch of a new administrative level that did not exist before. The city of Valencia benefited substantially from this process although one should keep in mind that this decentralization process will show a lower intensity in the future than what it had in the past.

Thirdly, Valencia is the capital of the province of Valencia. This implies the site of the executive government of the province (the presidency, the executive office, and the province ministries), the legislative power of the province, cultural institutions (museums, orchestras, and theatres). Contrary to the Autonomous Administrative, the provincial level is not expected to grow in the future.

Lastly, there is the municipal government of the city of Valencia, similar in competences to any other of the existing ones but larger due to its different scale. There is no legislative body at the local level or a judicial branch; but there is a quite large executive and administrative body that runs the city. With respect to the importance on the local development, this level of administrative power is expected to rise.

All things considered, there is a sizable "administrative sector"- located in Valencia- that plays a very important role in the sustainable development of the city. In terms of concentration of power at the local level, this element could play an important role in terms of, both, attracting quality FDI and increasing the degree of internationalization of the city. In a global economy, visibility is a very valuable asset and Valencia has gained a great deal of international image for being the capital of the region.

It is quite clear that the public administrative sector has many links with many other industries like advance business & administration services, financial institutions (banking & insurance), hotels and restaurants or transport and communications. Being located near the centres of political and economic power is a key requirement for many companies and professionals.

In conclusion, over the next decade this role of GVA as the leading administrative city/region is expected to be at least as strong as it has been in the recent past. One should not expect too big a push towards modernization from the inner development of the political/administrative sector, which, usually, is not a very innovative one. However, being the administrative and political capital of the region may be a very relevant question for the continuous modernization of the GVA.

9. This decentralization process was a very asymmetric one since mainly only the power to spend and not the power to tax was transferred from the Central to the Regional Government.

The Research & Development and Innovation (R&D&I) system: Universities, Research and Technology Centres, Educational Institutions

Some years ago it was asked to the COTEC Foundation if the Valencian Community could be considered on itself a regional system of innovation. After a detailed study, carried out in cooperation with all the agents involved, the answer was yes. The Valencian regional system of innovation had enough specific weight and structure to be considered a system.

The Cotec Annual Report on Innovation is based on quantitative and qualitative information for Spain. The report on the Valencian Community was the first regional study on the innovation system. It was presented on April 9, 2002. It found a network of relationships among the different agents of innovation quite similar to the Spanish system. It was also a small and fragile system, with too little presence of the private companies. The region deserved a better system.

However, there were clear indications that the system was growing and COTEC recommended the continuous reinforcement of this effort. The Report found the Ceramic, Textile, Wood and Furniture and Food & Beverage Industries as the most innovative sectors in the VC. However, the technological content of exports was found quite low in the VC, being one of the reasons for a descending share of VC exports in the national total.

Human capital at firms was found lower than the national average level. R&D cooperation appeared to be low and only the Technological Institutes Network were found very active in encouraging firms to carry out more R&D investment in cooperation with other agents of innovation.

The academic/scientific return from the public system had improved substantially over the last years but cooperation with private companies was still insufficient, although improving. COTEC recommended a much more integrated approach of the public system with the Technological Institutes Network and a more active role of the Chambers of Commerce in supporting R&D & innovation culture in private firms.

The report recommended investing in human capital: more training courses, adapted to the needs of the firms and oriented according to the product specialization of each economic area (cluster) of the VC.

As explained later on in this report, the GVA has approximately 130 different centres and institutions that carry out all kind of R&D&I activities. Evidently, these work centres imply the production of advanced services (high education, R&D&I) and a given number of specialized jobs of a high level of education and training.

Of the 70 Spanish universities, 7 are located in VC and 4 in the GVA with an enrolment of 92,000 students[10]. They have near 6,000 staff teachers and researchers and 3.500 administrative positions. Courses are offered in a total of 135 degrees and their aggregate annual budget approaches 750 million euros.

This existing knowledge cluster will be one of the main pillars for the construction of the knowledge base economy. Today, the missing pillars are still the private companies; firms that design, develop and manufacture products with high technological content that are placed in the market. This technology transfer is not taking place at the required speed. The current product specialization of the

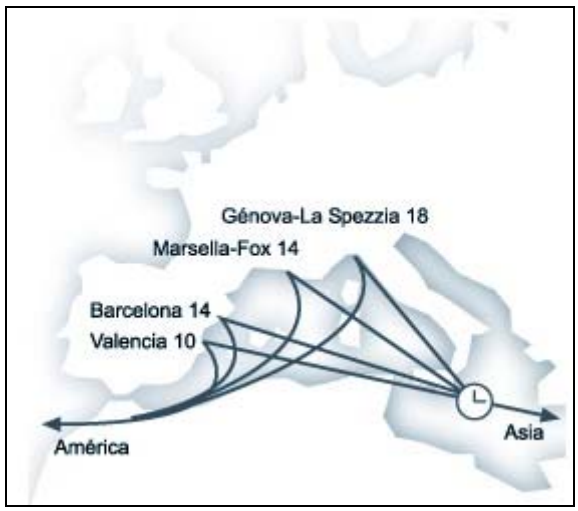
10. 46.500 at the Universitat de Valencia Estudi General and 35.700 at the Universidad Politécnica de Valencia.

GVA economy does not demand R&D&I services, and the supply of advanced services does not match the actual needs of the existing firms. This is one of the key problems that will have to be solved.

The Port of Valencia and its associated logistics area

The Port of Valencia –together with all the logistics & advanced business services activities surrounding it- has been one of the main drivers of the GVA economy as well as that of the *hinterland*. With more than 300 direct workers – and 3 000 jobs generated in contractor and subcontractor companies – is one of the largest firms in town.

Figure 2.3. The Port of Valencia connections)



The Port of Valencia has a privileged position on the Western Mediterranean coast, the closest to the Suez-Gibraltar axis. It is located near the main Spanish markets (Madrid, Barcelona, Zaragoza) and it is well connected to Continental Europe and Northern Africa by train/truck (a market for 243 million people). More than 140 regular lines service the port and it is connected with 850 other ports around the world. The direct area of influence involves a radius of 350 km, 20 million inhabitants and half the Spanish GDP. Presently, Valencia is the largest Mediterranean Port in transport of Containers. More than 500 national and international companies (in all fields like transport, loading, labelling, distribution, warehouses, insurance, brokerage, container rental and repair, tug, shipyards among others) work with the Valencia Port. The Valencia Port Foundation was created to promote the development of the region.

Furthermore, the Port of Valencia is also one of the main users of ICT technologies in all its activities. Business to business commerce is carried out on a very modern worldwide ICT platform.

The light industry belt

Until three or four decades ago the main factories of light industry (wood and furniture, metal, food, construction, textile, paper mills, alcohol, etc.,) were located in different neighbourhoods on the east, south and west bound of the city. Since then, the great majority of firms have moved out to the outskirts of the city or to the industrial parks of towns around Valencia.[11]

11. In many cases the sale of the liberated industrial land for residential use provided the necessary financial funds.

A great deal of these firms has been export oriented, so that GVA has always had a very positive balance of trade. This trade has (over) concentrated on the European markets and, over the last years, this positive trend has been reversed. Consequently, the foreign sector demand contribution to growth has been reduced very substantially.

Foreign competition from Far East countries -plus fierce competition among European producers- in national and global markets have put a lot of pressure on local firms. The wood and furniture sector has almost 500 firms in the GVA. To the south of the city of Valencia this sector has a cluster structure, with many very small, small and medium sized firms spread around a few small towns.

The shipyard located in the harbour of Valencia, used to be another important cluster of the economy of the city-region. The indirect impact of this company was very high when passenger ferry ships were built, since it implied the construction and decoration of many rooms and apartments. Jobs for carpenters, plumbers, painters, furniture firms or logistics were created in a continuous way. Ship engines were built in Manises, also in the GVA. When Korea stepped in the international market, only liquid and gas carriers were built in the Shipyard of Valencia, reducing the impact to a narrower range of professionals (basically plumbers). Today this cluster has lost a lot of impulse and it could be transferred from Valencia to the Port of Sagunto, 20 km north from Valencia and also in the GVA.

Today the main industrial & commercial sites in the GVA appear in the following table. A total of 16 840 firms are distributed in 54 towns within 30-45 minute drive from the centre of Valencia. Lots of workers commute daily to work among the following towns:

Table 2.1. Industrial Sites in GVA

TOWN	# FIRMS	TOWN	# FIRMS
Puig	114	Aldaia	408
Benetuser	101	Quart de Poblet	470
Alfafar	129	Manises	443
Catarroja	358	Mislata	197
Beniparrell	249	Godelleta	11
Silla	259	Chest	70
Picassent	166	Requena	151
Almussafes	94	Utiel	104
Alaquas	363	Vinalesa	17
Torrent	548	Paterna	800
Xirivella	211	Burjassot	244
LÉliana	81	Godella	76
Pobla de Vallbona	123	Lliria	126
Vilamarxant	50	Moncada	191
Benisanó	16	Bétera	86
Alboraya	278	Rocafort	26
Albuixech	54	Sagunt	392
Meliana	83	Sueca	216
Puzol	105	Albalat	25
Albal	194	Benifaio	132
Chiva	116	Foios	70
Godella	76	Massamagrell	112
Meliana	83	Museros	92
Náquera	67	Picaña	132
Pobla de Farnals	70	Rafelbuñol	165
Ribarroja	350	San Antonio	30
Valencia	**9.862**	**Sollana**	54

Source: www.paginas-salmon.com/index.asp

The main international companies located in the GVA are[12]:

- Ford car assembly plant in Almussafes;
- Celestica: formerly IBM & MSL computer plant located in Pobla de Vallbona;
- SOLMED, SIDMED, (steel), ALCOA;
- Voslogh (formerly GEC-ALSTHOM);
- Boluda Tugboat service company;
- Air-Nostrum, a regional air company associated with Iberia;
- The Shipyard company;
- Pilkington (integrated in NSG: car glass industry);
- Johnson Control, Tenneco, Autoliv, METALDYNE, IBERICA DE SUSPENSIONESMSA; BOSAL, Plastic OMNIUM, Guardian, (car subcontractors);
- IZAR engine factory (ship and power plant diesel engines).

The case of the Ford Plant in Almussafes deserves a specific reference. This plant is 30 years old and was the main FDI in the history of the VC. Not only for the direct impact but, very significantly, for the indirect impact. This factory not only gave rise to the complementary investments of suppliers at the industrial site, connected through intelligent tunnels that work "just on time". It gave an opportunity to many local manufacturers to develop their own projects, processes and procedures to the very edge of technology. Valencian firms, entrepreneurs and workers were induced, or rather forced; to learn the way a leading multinational firm works. Some of the suppliers became medium sized firms that decided to follow Ford wherever a new plant is being built. In this way they transformed themselves into international or global firms. Also the transport sector, including the Port of Valencia, could grow with the success of the Almussafes plant. Today, a good share of Valencian exports is due to Ford exports and the economy of the GVA is quite dependent on the future of this plant.

As for the IBM factory it did not give rise to a supplier network of Valencian firms linked to the assembly plant. When contract manufacturing was introduced in the ICT sector, IBM sold the plant to MSL with a long-term contract of supplying certain products. "Contract manufacturing" means shopping around the world for the components that are used in the specific definition of a computer product. Very little manufacturing and a lot of assembling were home made. Most of the components were imported. When the contract expired, MSL went on with its activity for some years and finally sold the factory to Celestica, another US company. This experience has not left behind a significant, well developed, local ICT sector.

Although most of the foreign companies have had some relationship with the local R&D&I sector, its intensity has been rather low. High level R&D has been developed at their central headquarters and only some product developments have been carried out in the GVA in collaboration with the Regional System of Innovation (universities or research & technology centres). In the R&D sector we do not consider that the FDI experience has been as positive as in the other aspects.

12. For a more complete list see below.

The service sector

Over the last thirty years the city of Valencia has been the main provider of public and private services to the citizens of the CV. In a gradual form, most of these services have been moved closer to the citizens. This is true of public and private services.

New capital infrastructures (hospitals, health centres, residence for the elderly, schools, training centres, universities among others) have been spread throughout the territory. Consequently, students or patients do not have to come to the capital city any more to get the services they need. Area hospitals or local university branches reduce the role of Valencia as the only provider of this type of advanced services.

Private specialised services are also available now in many towns other than the capital of the region, and the ICT technologies have moved them even closer to the customers. Retail trade, banking, insurance, tax and accounting, travel and real estate agencies, great malls, department stores are now distributed throughout the VC, and in the GVA we find the coordination centres and executive offices of these more decentralized companies. This last role as an attractive site for decision-making centres should be one of the main drivers of the economy of the city-region of GVA over the next years.

Main future drivers of the economy of the City Region GVA

The GVA is going under a period of structural change. Some of the engines that have pushed the economy to its presence state will lose power and new and stronger drivers will have to replace them. The sectors of light industry like furniture, decoration (lamps), interiors, or complements of the construction sector that are export oriented will suffer from the increasing international competition. We think that these companies will have to diversify to other activities where they may have a competitive advantage like knowing the markets, the channels of distribution, the suppliers, etc. The solution will vary by firm and sector: it will probably involve many factor like the following: getting more specialized, more technological, more oriented towards high quality and brand, less time of response, taking good care of after sale service, or being more focused on final customers. In general one might say that Valencian product manufacturing firms should become "more integrated firms and less manufacturers."

Before dealing with the future drivers of the economy of the GVA it may be useful to put the area in context.

Competing City-Regions with Valencia and the GVA

- With the purpose of clarifying the reasonable and legitimate aspirations of the City of Valencia it could be useful to classify European Cities or City-Regions into three different groups:

Global city-regions:

- Their influence and capacity of attracting foreign interest is worldwide.
- They are considered as alternative sites to locate Head Centres of companies from other continents.
- Examples: London, Paris, Berlin, Madrid, Rome, and Brussels…

European city-regions:

- They don't reach the *global status* level except maybe for some activities, but play a global role at the European level.
- A number of them compete with their country capitals to keep (or achieve) the role of first national business centres.
- Examples are: Barcelona, Milan, Toulouse, Frankfurt, Stockholm, Helsinki, Budapest, Munich, and Amsterdam…

National cities:

- They are fully recognised on the top of the national list but lack an image as European cities.
- Their competitors are mainly national and, only in particular aspects, international.
- Examples: Bilbao, Valencia, Seville in Spain; Cologne, Hamburg, in Germany; Bologna, Mokena, Florence, etc., in Italy…

- An ambitious but realistic aspiration for the GVA should be the development of a strategy to try to move itself one step upwards. That is to say, to become a member of the group of cities enjoying a European image status.

- The attempt to make GVA a more knowledge base and more internationalised economy should be done with the idea of becoming a European city-region. Consequently, GVA has to show significant strength in at least one potential development axis. We include a list with some alternatives. Additional options would be desirable:

GVA: an attractive place to live and work

a. The standard quality of life is one of the comparative advantages of a city-region like GVA. It is not only based on its per capita income level, but also on the average quality of life of its citizens. This advantage is shared with some other European cities that belong to the same group but not by others who do not enjoy a similar level.

   The available standard of comfort of a city-region is not only a relevant variable for its citizens (workers), but also by companies (staff, headquarters and workers). To decide where to locate their investments, firms care more and more about the social capital of one region or another.

   Decision makers on large multinational firms usually consider the quality (and price) of housing, schools, public transport, health system or the cultural ambience before they decide on where to locate the next investment.

   Professional people consider also the same type of characteristics of the external conditions of their affairs. The more attractive a place is in terms of standards of living, the easier is to attract and keep FDI for a long period of time.

Also retired people may feel increasingly attracted by GVA. Well connected with the main city-regions in Europe, and well equipped in social services, GVA may become a favourite destination for many Europeans. However one must recognise that, in this particular field, the city-region of Valencia has very strong competitors in Spain as well as in other EU countries.

The new, and much more modern, image of Valencia and surrounding GVA means a solid start to benefit from the present momentum. Valencia is very much in fashion these days, and local businesses ought to take full advantage of it.

b. On the capacity for attracting quality work, things look a little less optimistic. Particularly if one thinks in terms of attracting the type of work whose generation is included as one of the main goals of the Lisbon/Gothenburg agendas.

   Over the last years, the evidence shown on the great capacity of creating jobs by the GVA has not been accompanied by a sufficient improvement in the quality of these jobs. Very often it is not the lack of education or training level on the workers' side, but the underutilization by firms of the accumulated skills.

   Over the next years, GVA immigration should be more balanced and include a greater proportion of European professionals and workers, attracted, hopefully, by technologically innovative jobs. They would be a building block for the new knowledge base economy.

   It is quite evident that to attract quality work from elsewhere (possibly a foreign country) the economy has to create good opportunities in these fields. One way to promote this entrance of foreign quality work could be the introduction of international exchange programmes among countries and institutions.

c. To make GVA an even more attractive place to live and work it is necessary to improve its degree of interconnection and communication.

   i. The high-speed bullet train (now under construction and due on 2008-2010) will place Madrid and Barcelona at a 100-minute distance. It will difficult not to underestimate the impact of this structural change in the relative competitiveness of GVA.

   ii. The renovation of the Valencia airport terminal, parking facilities and runways (currently under construction) will improve the possibilities of attracting and keeping quality foreign work.

An attractive place to visit

a. Over the last thirty years the tourist industry has been one of the main driving forces (in output and employment) in the VC, particularly in the southern province of Alicante. This was not the case in the GVA, but things are changing in recent times because of the city's cultural and business tourism has picked up with great strength.

b. The new cultural offer includes now, among others:

   i. City of Arts and Sciences:

      1. Planetarium-Imax (culturally programmed)

2. Museum of Sciences (15 million visitors in 5 years)
3. Umbracle (gardens)
4. Aquarium (the largest in Europe)
5. Opera House (100% sold out on his first annual programme)

ii. A remodelled historical centre of the City

1. It is one of the largest in Europe. Private properties, streets and squares.
2. It has been reconstructed partially financed by the Urban Initiative of the EC.
3. Various churches, museums and chapels (Cathedral and others)
4. Completely renovated Central Market
5. Many renovated (formerly private) palaces now publicly owned

iii. A completely remodelled waterfront of the city.

1. This is one of the most ambitious urban projects in Spain. The coastline stretches more than 8 kilometres to the north (and 24 km to the south) and offers clean and neatly kept beaches for the citizens (and visitors) of Valencia. They offer leisure spaces that are extremely popular.
2. The celebration of the America's Cup race in Valencia in the year 2007, which will take place right in front of the city, will bring world visibility to the city-region, through the extraordinary impact on global TV networks.

iv. A new network of museums. A list of the most outstanding would include:

1. Museum of Modern Art IVAM (Vanguards)
2. Museo San Pío V (largest Spanish collection after El Prado)
3. Museo del Carmen (New remodelled cloister)
4. Sagunto's Roman Theatre and City

v. New Music Hall

1. A very busy and popular theatre with good cultural programmes that attract many people from out of town.

vi. Cheste's Race Track

1. It has held world championship motorbike's races and is scheduled to hold Formula One races in the near future.
2. It has had a tremendous impact on the local economy and also on the world recognition of the city of Valencia.

a. The new infrastructures related with business developments are the following:

   i. Foster's new Convention Centre
   ii. International Fair (second largest in EU-25)
   iii. Valencia Polytechnic University Innovation City and the Science Park of the University of Valencia
   iv. Congress Halls, meeting auditoriums:
      I. City of Arts and Sciences
      II. Renovated palaces in town
      III. New grand hotels

These infrastructures are one of the key requirements if GVA wants to become an International Business Centre.

b. To service this whole new business area, more than 20 new hotels have been built in the GVA. Three of these are five star GL hotels. This high growth rate is a good private indicator of the excellent future expectations for this market.

c. The main forthcoming city projects are:

   i. *Agora* (A new complex in the City of Arts and Sciences)

   ii. *Central Station*

      1. The construction of a new underground station in the centre of the city will liberate the modernist Station building for cultural exhibits and the track surface for one of the largest city parks in Spain. (It will hold also a huge Armillary Sphere)

   iii. *A new Stadium (with 75,000 seats, for soccer/football games and shows)*

   iv. *The Albufera Natural Park*

      1. Located 10 Km south from the city it is one of the most important, valuable and beautiful fresh water natural lake in Europe. It has many commercial possibilities as an ecological tourist centre.

   v. *The new Marine*

      1. Built with the occasion of the America's Cup, the Marine is the newest infrastructure for pleasure/sport yachting and the closest to Madrid. It will attract high standard national and international tourism into the city.

d. All these tourism projects should be reinforced by the improvement of infrastructures – railroad, airport and port- mentioned above.

i. Valencia has become one of the regular stops for many cruiser routes that already bring many high standard tourists who shop in town. In the future a one-day visit to Madrid using the high-speed train might be feasible. This possibility would open many new opportunities for this sector.

A cluster of knowledge

The presence in the GVA of a large set of knowledge institutions allows the consideration of this axis as one of the key driving forces of future development, that is, simultaneous continuous growth *and* structural change[13].

One of the missing achievements of the Valencian Regional Innovative System is the lack of integration among the different innovative agents. Consequently, the economic impact of R&D&I is neither large nor evident. There are several fields in which this integration among producers and users of R&D&I might be possible and show some success. The following industry fields have been suggested from the local and regional administrations, the R&D institutions and the business associations and Chambers of Commerce:

- Biomedicine: although today there are probably no more than 20 private biotech companies in the VC (of a Spanish total of 300)[14] this industry remains an opportunity sector. According to the experts in the field, Proteomics, Pluri-potential cells research, biochips, and genomics are all fields with excellent technological perspectives. It is expected that the sales volume in this sector will multiply by 6 in 5 years.

  - GVA has good biomedical research centres in this field but these are insufficiently oriented to the development of innovation strategies. A wide dispersion in research fields is probably good for research but only for research, and not so much for developing new technologies.

  - Biomedicine is one of the priorities of the VII Framework Programme of the EU, and it will have a large assignment of funds. Biomedical institutions ought to seek funds forming part of international networks.

  - There are a few examples in the CV of biotech companies that have been created as spin-offs of research centres. *Biopolis* is the first case in which the Consejo Superior de Investigaciones Científicas (National Scientific Research Council) has been involved in the creation of a start up company and has decided to stay as one of the shareholders together with private individuals, private investors and venture capitalists.[15]

  - In general, there is lack of tradition in technology transfers from R&D centres to companies. These are more common in advanced countries but the presence of foreign companies in GV is very low.

13. An exhaustive list of centres appears below on point 3.

14. See Genoma España 2004.

15. From the administrative point of view it was a difficult step to take by the CSIC, traditionally more inclined to selling or licensing out its patents.

- It should be defined the most appropriate way of promoting technology transference from R&D centres to the industry. The Regional Government has recently presented a specific programme to promote a biotech sector in the VC. GVA should be the main user of this new instrument.

- Biomedical assistance could be also an opportunity for the GVA where most of the hospitals and health centres are located. This might be a sector with rapidly increasing demand as age and income grow together over the next years.

  - ICT applications that might link foreign residents of the VC with their home doctors and hospitals could provide a good opportunity to improve the health services.

- Food Industry: this is one of the fields in which our region concentrates most of its R&D effort.

  - There are different Research Centres specialised in different fields from basic to applied research, to technology development to product and process innovation.

  - The genomics of oranges or rice, the battle against certain viruses that destroy orange trees, the efficiency of the irrigation systems, and the technologies on food transformation by industries, are all fields of the most interest for our primary and food industry sectors.

- Nanotechnology: the main reasons supporting this area of development are probably two: first, it is one of the fields with the widest perspectives of growth in the near future and, secondly, there is presently enough specific weight in the GVA for a quick start of the development process. However, for this type of economic development there is a missing agent: the high-tech company. It is still a missing industry in the GVA and it should be created almost from scratch.[16]

  - Nanotechnology, as a wide scope technology field, incorporates some of the R&D Centres located in the GVA who presently use in his research this type of technology. The most outstanding groups of high research in this field are located at the Science Parks of the two public universities:

    - Institute of Material Sciences
    - Institute of Molecular Science
    - Institute of Corpuscular Physics
    - Group of Astrophysics and High Energy Physics
    - Group of High Energy Mathematical Physics
    - Elementary particles group: colour and taste physics
    - Institute of Photonics
    - Free Radicals and Antioxidants and Research Group

16. This comment applies also to the renewal energy sector.

- Institute of Applied Molecular Chemistry
- Institute of Material Technologies
- Advanced Centre for Food Microbiology
- Biomaterial Centre
- Web Centres on Biomedical engineering

- Renewal energy: facing the higher oil energy prices and considering the lack of natural energy resources in the VC, the renewal energy sector appears as an attractive field for developing business opportunities out of the renewable sources: wind, solar, hydrogen batteries. Although a sunny area, VC has very few investments in solar energy and even less in solar energy R&D. Wind energy has been the object of a currently going very ambitious plan at the VC. Many important local and national investing groups presented their tenders to get the contracts that were auctioned by the Regional Government. As for the technologies used, most of them come from the Northern European Countries, although most of the components are built locally (generators, propellers, towers).[17]

  - As for the hydrogen batteries we are aware of the existence of a small, spin-off type, high-tech company carrying out business activities to develop hydrogen batteries to be tested at residence buildings.

  - There is a Group on Solar radiation at the university.

  In this case there is a much lesser presence of public and private institutions already involved in the development of these renewal energy technologies. Although there is an obvious demand for such technologies we do not foresee clearly the rapid development of such a cluster at the GVA. However it is considered by the Regional Ministry as one of the emergent sectors in the VC.

- Informatics

  - Informatics or computer sciences are general horizontal technologies of very wide applications and, nowadays, quite critical to develop any field of science: physics, chemistry, biogenetics, astrophysics, nanotechnogies, medical digital image techniques, etc, are all fully dependable on computer sciences.

  - From this point of view no region can be allowed to dispose of a strong computer cluster where, at least, all the new developments can be known, adapted, utilized and developed to guarantee endogenous growth.

  - GVA still has the presence of the former IBM plan which never became a computer cluster. Most of the innovation is product innovation and no large research programmes have been pursued locally. GVA has some institutions with very powerful informatics departments. We cite some:

    - Institute of Robotics
    - Diffraction and 3D Images group

17. We are not aware of R&D being carried out on this field in the VC.

- Biophysics and biomedical applications of RMN group
- Electronic systems for design group
- Optoelectronic Image processing group
- Semiconductors and optical fibber group
- Chromatography group
- Signal digital processing group.

For the case of informatics there are some good experiences of university departments who carry out the R&D on informatics outsourced by some Irish companies. Although there exist some demand for computer services there are usually covered by software packages (finished programmes) rather than by specific software on demand.

- Audiovisual/design sector
  - Almost 60% of the VC companies are located in the GVA (540 firms).
  - Agencies of publicity add up to 1864 firms in the VC. Most of the firms are small.
  - This sector employs 7,000 workers in the VC.
  - They are locally oriented and export very little.
  - It develops artistic and creative capacities that are abundant in the area.
  - Animation movie making has given rise to some strong local companies linked to international projects.
  - Video producing is booming with new TV stations.
  - A new large project in Alicante, "La Ciudad de la Luz", has developed movie studios for shooting films.
- Advanced Technological sectors

This is a growing field for individual professionals, specialised firms, university departments and technological centres. It provides services for companies not only located in GVA but elsewhere. These are high value added types of work and should be adequately paid. These fields of activity should be programmed in cooperation with the Polytechnic University of Valencia.

A few examples appear in the following catalogue:

- Consultancy
  - Industrial and technological auditing
  - ICT consultancy
  - Environment consultancy

  - Environment Diagnosis
  - Quality certification
  - Environmental impact studies
  - Natural resources, biodiversity, sustainability
  - Emission controls, contaminants identification

- Engineering
  - Project developing
  - Design and validation of pilot processes
  - Industrial processes: automatics
  - Engineering solutions for projects on construction, public works, naval, forestry and mining.

- Analytical essays
  - Product certificates
  - Material specification controls
  - Chemical and biological essays
  - Metal and electrical essays

- Production services
  - Computer design
  - Product simulation models
  - Pre-series manufacturing
  - Process control

- R&D projects
  - Project management
  - Finance
  - Technology transfers
  - Patent management
  - Cooperation in R&D
  - Proposals

- Training
  - Abilities and skill in non regular training
  - Seminars, workshops

- Information
  - Bibliographic references
  - Watch out technological services
  - Informational distribution
- Fashion
  - For part of the textile sector it may mean a way of confronting foreign (far East) competition in prices.
  - It can be internationalized through promotion in international fairs, festivals and exhibitions
  - It is based on the development of abilities and skills of the workers. GVA is well positioned in this respect.
  - The attraction of foreign designing companies could be an optimal way of developing this sector.

The main site for Regional Institutions

The status of GVA as the main capital of the region should still represent an opportunity for further development. The proximity of the decision makers is always an attractive characteristic for any area.

The major part of what might be called "Star regional projects" will be located most likely in GVA.

Quality FDI in the Greater Valencia Area

Economic Theory explains the rationale behind FDI on different aspects like: i) market imperfections, that is multinationals gaining market power through their direct presence in a foreign country; ii) cost advantages; iii) economies of scale; iv) advanced technology or v) improvement in distribution and marketing. All these factors make international companies more willing to expand production plants than to do it through trade.

Regulatory restrictions have also explained FDI as a strategy to overcome tariffs, quotas or any other type of limited access to markets. This was the case of Spain in the 60's and 70's when, for example, foreign car assembly plants were built in different regions/cities around the country. They want to gain access to the Spanish market and, eventually, to the EEC market as it was expected that Spain would eventually become a full member of the EEC.

Today it is clear that, many of the factors that explained FDI years ago, are not present any more. Globalization has provided almost full access to any market from anywhere in the world. So, both the (labour and transport) cost advantages and the legal requirement of actually producing in Europe have disappeared. Also, after the introduction of the euro, the possible benefit of an exchange rate depreciation of the host currency that could improve FDI profit return is not present any more.

FDI, as opposed to foreign portfolio equity ownership (FPEO), entails a direct control over management and allows a full appropriation of the generated profits. It is assumed that the FDI investor incorporates better management skills and a higher level of technology than the existing ones

in the host country. Foreign companies look for the opportunity to penetrate an unexploited activity or to cream-skim the companies that are in an outstanding position in the host country.

It is shown in the literature that the share of FDI in total capital inflows is greater in riskier countries and in countries with lower quality of corporate governance institutions. In recent years, Spain has become less risky and has seen the quality of its management go up, so the potential benefits of FDI have become much lower. FDI might be attracted by countries with less efficient markets or by high speed growing economies expected to go through deep structural changes.[18]

Another element that helps any country in capturing FDI is the degree of dissimilarity in product specialization between the investor and the host country. Very possibly, Spain has become more and more alike to the former investor countries, so that the benefits of a more efficient specialization have also disappeared.

In principle, quality FDI is desirable because it creates jobs in high tech activities, it generates exports to advanced markets, it improves the competitiveness of their local customers and it provides new markets to existing or new supplying firms. Outside their sector, but quite important for the territory, there are many complementary effects for the rest of the economy through the income/consumption effect: demand for advanced business services, quality housing, household services, cultural and health services, etc. Furthermore, FDI enlarges the relevant market for the region because it enhances the capability to export (outside the territory).

If today the GVA enjoys fewer reasons for getting FDI than it had in the past we should concentrate on alternative mechanisms that lead to the same benefits. FPEO[19] could be an alternative way to get the interest from other investors around the world to locate and expand their business in our city. Some of the advantages would still remain but other formerly existing ones would not be present any more. Also SME's FDI through partnerships and joint ventures with local entrepreneurs would be an alternative way of getting the traditional benefits from FDI.

According to the Spanish law, foreign investments can take the following forms:

- Sharing the ownership of a Spanish corporation
- Creating and/or extending the endowments of their branches
- Acquisition of negotiable loan securities issued by residents
- Participating in investment funds
- Purchases of real estate located in Spain
- Participation accounts in foundations, economic associations, cooperative and communities of economic interest.

18. According to this argument, Spain would have become more similar to the rest of EU countries in all economic characteristics and, in this way, it has lost part of its former attractiveness.

19. Foreign Private Equity Ownership.

Current FDI in industry and business services: Quality, innovation, linkages

Foreign Direct Investment has not been very significant in the VC over the last years. This is true also of the rest of Spain (see table below).[20] FDI in 2005 was lower than in 1999. Apparently, either FDI attracting factors have changed or Spain has lost them. Probably, both elements are true. Globalization has changed the relative potential importance of the different economic regions in the world. Political and economic macro stability has transformed many economies into consumer countries, producer countries or both. Spain has gradually become a service economy, and manufacturing industries have moved abroad where much lower labour costs compensate for the ever-decreasing transportation costs. Something similar has taken place in the VC. [21]

Table 2.2a. Foreign Investment in Spain

Million euros						
YEARS	GROSS INVESTMENT			NET INVESTMENT		
	Total	in ETVE	excluding ETVE	Total	in ETVE	without ETVE
1993	5,429	-	-	3,573	-	-
1994	6,529	-	-	3,240	-	-
1995	5,392	-	-	3,544	-	-
1996	5,473	-	-	2,770	-	-
1997	6,822	1,035	5,787	4,045	1,035	3,010
1998	9,199	488	8,711	4,067	408	3,659
1999	18,434	7,829	10,605	13,738	7,829	5,908
2000	38,309	12,414	25,895	29,343	12,096	17,246
2001	34,786	19,387	15,399	28,952	19,367	9,585
2002	32,523	21,181	11,342	28,749	21,179	7,570
2003	18,178	7,927	10,252	14,802	7,916	6,886
2004	18,581	6,901	11,680	9,055	6,731	2,324
2005	16,618	2,185	14,433	10,276	1,967	8,309

Notes: Alter 1999 direct investment in stock market shares is included ETVE: Entidades tenedoras de valores extranjeros. Holding Entities of foreign securities

Source: Registro de Inversiones Exteriores

20. In 2004 gross investment in Spain was 236.756 million euros, so **FDI** was a 7.6% of the total.

21. Official statistical information on **FDI** is not available for the **GVA**. It is provided only by Autonomous Region and/or by sector.

Table 2.2b. Foreign Investment in Spain

As Of. 19/06/2006			Million euros
GROSS	1,715	3,718	116.7
IN ETVES EXCLUDING ETVES	608 1,107	733 2,985	20.5 169.5
NET	131	-175	-233.6
IN ETVES EXCLUDING ETVES	510 -379	733 -908	43.7 -139.8

Source: Registro de Inversiones Exteriores Provisional data.

FDI in Spain was concentrated basically on Madrid and Barcelona (see Table 2.3), followed at a great distance by the rest of the industrial regions, VC and the Basque country. The share of the VC (four times the size of GVA) of total FDI in Spain is quite small, except for two years of substantial large investments at the Ford Motor Plant in Almussafes.

Table 2.3. Share of FDI by Region

REGION	1997	1998	1999	2000	2001	2002	2003	2004	2005
ANDALUCIA	2.74%	3.61%	2.39%	1.64%	4.15%	2.76%	2.50%	2.62%	1.86%
CATALUÑA	25.98%	22.85%	18.43%	10.50%	21.61%	18.13%	16.88%	16.45%	17.79%
C. VALENCIANA	**1.87%**	**2.60%**	**1.87%**	**1.92%**	**17.96%**	**2.50%**	**2.54%**	**19.56%**	**1.26%**
MADRID	46.68%	41.86%	38.81%	73.65%	43.06%	50.97%	61.65%	37.01%	30.89%
PAIS VASCO	2.18%	6.22%	12.73%	0.89%	2.96%	1.66%	1.32%	2.88%	1.29%

Source: Registro de Inversiones Exteriores Provisional data.

As seen in table 1.4[22], FDI in Spain concentrated on Chemicals and Plastic (7.27%), Transport & Telecommunications (39.99%), Real Estate (11.05%) and Security Holding Entities (13.15%). These shares change a lot from year to year. It can be noticed that the Security Holding Entities sector averaged 42.2% over the last six years.[23]

22. In 2005.

23. According to experts it is very difficult to track the final destination of a specific FDI, since it could be registered in Madrid but be implemented elsewhere. The geographical distribution is not that reliable.

Table 2.4. Foreign Investment in Spain by Sector

SECTOR	2000	2001	2002	2003	2004	2005
GAS & ELECTRICITY	0.73%	1.63%	5.27%	3.87%	3.68%	0.38%
OIL & EXTRACTIVE INDUSTRIES	0.07%	0.04%	1.27%	0.60%	0.40%	0.46%
FOOD. BEVERAGES & TOBACCO	1.31%	3.05%	0.58%	0.63%	1.99%	1.65%
TEXTILE	0.48%	0.09%	0.12%	0.08%	1.15%	0.15%
PRINT & EDITING	0.86%	1.26%	0.61%	2.22%	0.76%	0.74%
CHEMICALS & PLASTIC	1.66%	0.90%	0.81%	8.96%	3.95%	7.27%
WOOD	0.05%	0.02%	0.01%	0.03%	0.10%	0.03%
NON METALLIC PRODUCTS	0.19%	8.52%	1.27%	1.65%	11.98%	2.39%
METALURGICS	0.11%	0.20%	0.13%	0.20%	1.35%	0.71%
METALLIC PRODUCTS EXCLUDING MACHINERY	0.11%	0.39%	0.37%	0.07%	0.09%	0.38%
CONSTRUCTION MACHINERY & EQUIPMENT	0.28%	0.10%	0.13%	0.18%	0.19%	0.37%
ICT	0.00%	0.01%	0.01%	0.05%	0.01%	0.01%
MACHINERY & ELECTRICAL APPLIANCES	0.33%	0.25%	0.10%	0.41%	0.11%	0.08%
ELECTRONICS & EQUIPMENT	0.13%	0.22%	0.06%	0.36%	0.04%	0.10%
MEDICAL INSTRUMENTS & EQUIPMENT	0.01%	0.01%	0.03%	0.15%	0.01%	0.03%
RECYCLING	0.15%	0.72%	1.11%	0.87%	0.44%	6.50%
OTHER TRANSPORT MANUFACTURING	0.07%	2.70%	0.00%	0.02%	0.12%	0.18%
FURNITURE. OTHER MANUFACTURING	0.01%	0.03%	0.11%	0.09%	0.02%	0.04%
RECYCLING	0.01%	0.05%	0.06%	0.02%	0.00%	0.01%
CONSTRUCTION	1.03%	0.41%	0.83%	0.40%	0.28%	0.80%
TOTAL TRADE	2.46%	2.13%	2.54%	4.72%	13.81%	4.82%
TOTAL HOTELS & RESTAURANTS	0.55%	1.69%	0.42%	1.86%	0.71%	1.00%
TRANSPORTS & TELECOMMUNICATIONS	38.91%	5.06%	8.46%	12.11%	4.11%	39.99%
FINANCIAL INTERMEDIARIES	8.15%	6.48%	4.60%	4.25%	8.67%	5.12%
REAL ESTATE	6.77%	5.87%	5.16%	7.39%	7.17%	11.05%
SECURITY HOLDING ENTITIES	33.00%	56.48%	65.14%	43.61%	37.15%	13.15%
OTHERS	2.46%	1.51%	0.68%	4.93%	1.44%	2.42%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Registro de Inversiones Exteriores.

Almost all FDI (95%) originates in OECD countries. The first countries of immediate origin are the Netherlands and Belgium, USA, Germany, Luxembourg and France, concentrating more than 80% of the total. The countries where ultimately FDI originates are France (45%), USA (17%), UK (8%) and Germany (8%).

Over the last ten years Spain has become a net direct investor in the rest of the world[24]. If we compare Table 2.2 with Tables 2.5 we see the reversal of the positive trend in the mid nineties. This is an indicator of a certain degree of internationalization of Spain. In fact, the most advanced countries are usually net direct investors although they may have a negative balance of trade and end up being net borrowers from abroad.

24. Since the year 1996 the net balance is negative.

Table 2.5a. Spanish Investment Abroad

Million euros

YEARS	GROSS INVESTMENT			NET INVESTMENT		
	Total	in ETVE	excluding ETVE	Total	in ETVE	excluding ETVE
1993	1.837	-	-	796	-	-
1994	4.233	-	-	3.113	-	-
1995	5.890	-	-	2.840	-	-
1996	4.981	12	4.969	3.338	12	3.327
1997	10.433	1.019	9.414	9.003	1.009	7.994
1998	15.409	1.657	13.751	12.219	1.473	10.746
1999	51.386	8.523	42.863	43.610	8.420	35.190
2000	60.128	10.604	49.524	48.401	7.931	40.470
2001	46.982	22.276	24.706	42.195	21.197	20.998
2002	45.726	19.674	26.052	30.148	15.672	14.476
2003	31.206	12.496	18.709	25.302	10.699	14.603
2004	49.589	10.966	38.622	43.756	9.991	33.765
2005	26.345	3.371	22.975	22.991	2.961	20.031

Notes: ETVE: Security holding entities

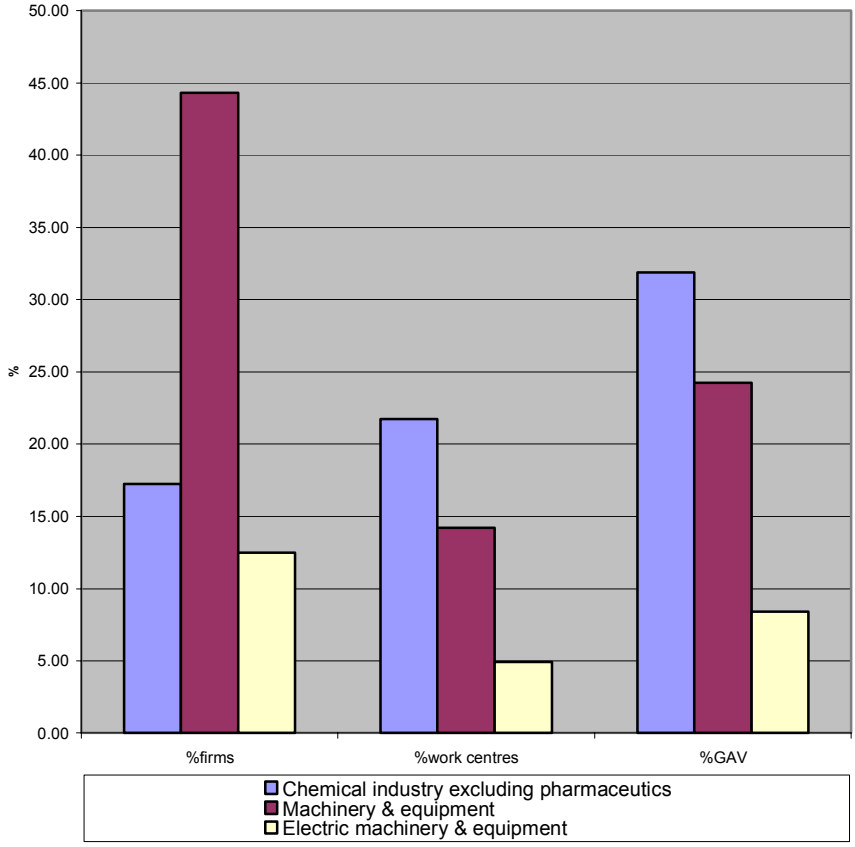
Source: Registro de Inversiones Exteriores

Table 2.5b. Spanish Investment Abroad

20/ 06/ 2006	Million euros	Million euros	Percentage
INVESTMENT	1ST QUARTER 2005	1ST QUARTER 2006	2005/2006
GROSS	4,128	29,543	705.52
IN ETVES	488	795	62.9
EXCLUDING ETVES	3,640	28,748	689.53
NETA	3,624	28,977	699.58
IN ETVES	398	457	14,82
EXCLUDING ETVES	3,226	28,519	784.06

According to the Valencian Community Investment (VCI), over the period 1996-2001, more than 260 foreign companies have been established in the CV, basically, in the areas of transport equipment (*Hirotec, Johnson Control, Pilkington Automotive* (glass), *Metaldyne, Comp. Plastic Omnium,* linked to the Ford Assembly plant of Almussafes or other car makers in the country), petrol and chemical industry (linked to Castellón's *BP's* refinery, *Iberdrola's Gas* plant for electricity and *UBE's* fine chemical plant, the new gas plant in Sagunto), electrical components, electronics, metal products (*Galmed, Solmed and Sidmed: Acerlor*) and logistics (*ALCAN Packaging Lawson Mardon*).

Figure 2.3. Percentage of high & medium technology manufacturing sectors



Source: IVE

Most of these foreign companies are located in the GVA,[25] and their influence reaches the area of great Valencia in many ways: communication services (airports, ports, railroad), business services and cultural services.

Figure 2.3 shows the most important high or medium tech sectors in the VC. Three different criteria are used: the number of firms and workplaces businesses and the gross value added. In terms of GVA, the chemical industry is the most important one because it includes large international companies. Machinery and equipment shows a much larger presence in terms of number of firms.

25. If we included the area of Castellón (70 km north from Valencia) in the GVA, then nearly all FDI in the VC would be included in this widely defined city-region.

Table 2.6. Main foreign companies in the GVA

Sector	Firm	Country of origin
Automobile	Autoliv	USA Sweden
	BOSAL	Belgium
	SCHEFENACKER VISION SYSTEMS ESPAÑA	UK
	COMP. PLASTIC OMNIUM	France
	DR. FRANZ SCHNEIDER	Germany
	FORD ESPAÑA	USA
	GALMED	France, Luxemburg
	IBERICA DE SUSPENSIONES, S.A.	France & Japan
	JOHNSON CONTROLS	USA
	PILKINGTON AUTOMOTIVE	UK
	METALDYNE	USA
Petrol and Chemical	British Petroleum	UK
	Colorobbia España	Italy
	Johnson Matthey	UK
	IFF	USA
	UBE CORPORATION EUROPE	Japan
Metallurgies	ALCOA Transformation	USA
	GALMED THYSSEN KRUPP	France/Luxemburg
	THYSSEN-ROS CASARES, S.A.	Germany
	SOLMED & SIDMED (ACERLOR)	France/Luxemburg

Source: Valencian Community Investments.

The foreign companies that carried out the FDI in the automobile industry came with the creation of the Auto Suppliers Park at the Almussafes Ford plant site (see Table 2.6). It was a very innovative production process at the time. This "just in time" production process was pioneering in the automobile industry. Within the Ford Motor Company it was the most advanced (and the most efficient assembly plant) of all. The Saar Louis Ford Plant (Germany) copied later on the Almussafes innovative project.

Basically, all of these companies came to Valencia because of Ford and we think that their future is very tied to the future of the Ford plant. In the mean time they have expanded their presence quite substantially at the industrial site in Almussafes, which has gone under two consecutive enlargement phases.

The supplier companies do not carry out any R&D in site. It is developed at their central headquarters. In the case of Ford, a great part of the product design is done in Cologne (Germany). In

general, the auto suppliers build the same plants everywhere, without much new innovative development. There is a lot of replication in these cases.

BP has had research contracts with local technology suppliers like the "Instituto Técnico Químico" (ITQ), a mixed institute owned by the CSIC (National Research Council) and the Polytechnic University. By the number of patent activities, ITQ is one of the most outstanding institutions in the country. Avelli Corma, a worldwide first level expert on catalysis, heads ITQ. [26] UBE industry develops high tech chemical components (caprolactama 12) but, to our knowledge, the technology is developed at the headquarters in Japan. However they have some contacts with the Universidad Jaime I.

GEC ALSTHOM used to have innovation contracts with the Polytechnic University, regarding the design of some of the components of the diesel railroad engines and fast train bogies. Training courses at the premises of the company were arranged as part of the university educational programme.

FDI carried out with the presence of foreign companies have done a lot of benefit to local companies. First, the local companies have been suppliers /builders of the new premises and have kept maintenance contracts with them. Secondly, they have learned how to work with a multinational company and have all gone through a quality enhancement process. This means innovation diffusion of management and organisational knowledge. Thirdly, some of these companies have become stable suppliers for Ford and have followed it to new investment sites around the world, becoming international companies themselves.

Foreign companies have provided specialized, well-paid labour for local workers, an alternative to the SME's labour contracts. The presence of some of these large companies has changed many little villages where they are located. This special effect is due to the lack of large Spanish/Valencian firms, which make them quite exceptional. Furthermore, these companies pay the Spanish Corporate Tax that is collected by the central government.

Output and labour creation, productivity gains, innovation, modernization (quality, just in time and excellence in management), increase in exports, some R&D contracts with local institutions, maintenance contracts are, all of them, positive impacts of quality FDI on the local economy.

Last but not least, we can outline some potential reasons for the low level of inward FDI in GVA.

Firstly, financial FDI has been located mainly in Madrid, and industrial FDI in Barcelona. Third partners (including GVA, the Basque country with more heavy industry experience or Andalusia and Aragon with the support of being at the time very backward regions) share a very small fraction of the total. Foreign companies have the tendency to locate their investment where other companies have already sited their plants. The Barcelona region has been the most preferred area for industrial FDI. Financial FDI has concentrated in Madrid with no alternative really competitive choices.

Secondly, the total volume of FDI in Spain has gone down because some of the formerly attraction points have been lost to the competing sites (Ireland, Eastern Europe or Third Countries): wage costs, distance and cost to new markets, environment regulation, reduction in relative flexibility, increase in the general cost of living.

26. It would be wise to talk to Dr. Corma. He has a wide vision on technology at the World, Europe, Spain and VC level.

Thirdly, the absence of a sufficiently strong and continuous active (regional& national) policy of attracting FDI through the establishment of commercial and business rapports with business communities of foreign countries. Furthermore, the strong endogenous growth based on the housing sector has lowered the need to look for more FDI to create new employment.

FDI policies: Regional and Local

Knowing that the EU and the National Governments also favour FDI we concentrate on the policy issues regarding the regional and local level.

When a foreign company is considering an FDI in Spain it usually contacts all levels of government. Although the company has always a favourite location for the investment project, derived from purely economic/cost related aspects, it seeks all kinds of public support. It starts an auction among the different potential sites and, advised by professional bureaus, it takes a final decision based on the confidence built and the numbers reached when adding up all the subsidies.

The Regional Government of Valencia has always tailored its integrated offering package to the specific characteristics of foreign investors. The regional minister of economic affairs, with his general directors, is usually the person in charge of making the contacts with the main CBO's of the foreign companies. The package comprises all the actions a regional government can do to make the investment project either more profitable, less risky or both.

- Regional policies for FDI attraction
    - According to the law that develops the Regional Statue (Estatuto), the competences for attracting FDI lye on the Dirección General de Economía (General Direction of Economic Affairs). It is part of the Regional Ministry of Economic Affairs, Public Finance and Employment.
    - The acting institutions are the following
        - GENERAL DIRECTION FOR ECONOMIC AFFAIRS
            - Still is the administrative office responsible for FDI management. It deals directly with the largest (potential or actual) investors (Ford, Celestica, ACERLOR…)
            - Investment promotion programmes are not different for FDI than for National direct investment.
            - It manages the Investment incentive programmes of the national government for all kind of investment projects to be carried out in the VC. This programme is co financed by the Structural Funds of the EC and admits FDI.
            - It managed an autonomous regional investment programme, co financed by the Structural Funds, until 1995, when it was suspended. Investment at the time was booming.
        - VALENCIA COMMUNITY INVESTMENT
            - Recently created to enhance the promotion of the VC abroad.

- It works together with the Valencian Community Foundation, located in Brussels to deal mainly with EU affairs.

- IVEX

  - Created for the promotion of VC exports, it had a contract with the General Direction of Economic Affairs to promote FDI through the use of its branch network around the world.

  - IVEX has organized many trips of foreign delegations visiting the region for prospective contacts.

  - IVEX has provided support to foreign companies arranging specific packages.

- IMPIVA

  - Created for the promotion of industry in the region by giving support to SME's.

  - It is not well prepared (in terms of budget) to deal with large FDI projects. It carries out:

    - Innovation Programmes

    - Training Programmes

    - R&D Programmes

    - Design promotion Programmes

    - Technology cooperation Programmes

- SEPIVA

  - Created for the promotion of industrial land it has dealt with FDI when large projects were considered (Euro-Disney, Ford, BMW, Boeing R&D).

  - Land prices and purchasing conditions are arranged on a vis-à-vis manner with the potential investor.

- Regional policies for FDI embedding

  - We are not aware of any explicit programme dealing with the embedding of FDI in the VC or in any other region of Spain.

  - A different issue is that policy makers care a lot about the key FDI projects and try to accommodate their needs with the interest of the region. In this respect, indirect support is giving through the prioritization of the infrastructures that improve the return of FDI. Direct support is also given to embed the investments.

- When an important on-going FDI project foresees any risk of leaving the VC, it usually approaches the authorities (General Direction of Economic Affairs) for support/advice and they develop a common strategy to embed the company. The attitude of the managers of the foreign corporation is as decisive as that of the supporting authorities.

- Regional policies to promote SMEs internationalisation
  - IVEX
    - It provides economic incentives to Valencian corporations to open branches and make "start ups" and joint ventures with foreign partners.
    - Subsidies are adjusted to the quality of the project, the interest for the VC, the availability of funds and the number of petitioners.
    - Here are some of the current programmes:
      - Introduction to new markets
      - Identification programme of enterprises with export potential
      - Initiating the promotion abroad 2001-2006
      - Following up of firms programme
      - Support for reorientation of firm strategies
      - Programmes for firm grounding in foreign markets
      - Firm cooperation to achieve international status
      - International cooperation
      - Duty free markets
      - International tenders
      - Among others
  - IMPIVA
    - It has an internationalization programme to help SMEs to open delegations abroad and start joint ventures with local companies.
  - CONSELLERIA DE EMPRESA, UNIVERSIDAD Y CIENCIA

- It has internationalization programmes within the "sectoral competitiveness programmes". We present the chemical sector as a representative example[27]:

- Chemical sector

  - Action 5.1 Plan for the internationalization of the Chemical Company.

    Initiate and reinforce the presence of the chemical sector abroad through planned actions tending to increase the export capacity of the firms and their integration with the global market. Explore new markets like Japan, Finland, etc. Cooperate with IVEX. Some of the proposed actions are the following ones:

- Subsidies to attend direct international missions, business encounters, international fairs, and the reverse action.

- Support of publicity in targeted markets.

- Logistic infrastructures. Purchasing centralized centres.

- Support to individual internationalization strategic plans.

- Information actions on market opportunities.

- Investment subsidies for land acquisition, initial sunk costs, machinery and plant equipment and labour training.

- Firm cooperative actions.

- Support for the managing of Patents and Trade marks.

- Regional policies to promote research organisations' internationalization

  - We are not aware of any regional programme aimed specifically at the promotion of internationalisation of research organisations.

  - However, being an international research organisation has been always considered a positive characteristic when applying for public funding. The Excellence Research Group Programme, initiated in 2002, was precisely aimed at the distinction among research groups by international quality standards.

  - University vice-chancellors for internationalisation may use economic or academic incentives for enhancing international cooperation (programmes for foreign students, English groups, etc.)

All governments offer many types of support to FDI. The most important actions deal with:

27. Each sectoral programme has a similar structure and content. Mature sectors are: Food, Shoes, Ceramics, Housing, Toys, Word and Furniture, Metal and Lamps, Plastic, Chemicals, Textile, Tourism. Emergent sectors are: fish farming, audiovisual, biomedicine, renewal energy, fashion, health and social services.

- Industrial land
  - It is a very powerful way of attracting the attention of many foreign companies who like to see physically the particular land where the facilities would be built.
  - Price, availability, services, connectivity and image are all very important factors for foreign decision makers.
  - GVA has a public policy of promotion of industrial sites
- Corporate tax
  - It is not under the control of the region. Only the National Government can change the rate.
    - The rival case of Ireland with the 10-year tax holidays hurt many potential FDI in Valencia and Spain (governments try to fight back with other types of support and level off the corporate tax rate differential).
- Employment subsidies
  - Very powerful in a country like Spain that had very high unemployment rates 12 years ago.
  - A lump sum subsidy per job created has been very common in the VC.
  - Today there are subsidies for the creation of permanent jobs as opposed to temporary ones.
  - A general reduction in social security taxes has been asked by business representatives
- Investment subsidies
  - Very important at the National and Regional Level. Open to FDI or national investment.
  - They reimburse the investor with a percentage rate of the approved investment expenditures. Land purchases have not been considered eligible for this programme.
  - Until the mid nineties there were similar National and Regional programmes: in the VC a company could get roughly 8-11% from the National Govt and 6-8% from the Regional one, the rate depending on the amount of employment created with the investment.
  - VC was one of the star regions in the programme because of the large number of projects, their substantial size and the high degree of success.
  - These incentive programmes are co-financed by the EU through the Structural Funds. The Regional Programme stopped in 1995 whereas the National Programme is still active and will last until the end of the new EU structural funds period 2007-2013.
- Global limits

- EU puts a maximum limit to the global subsidy according to the characteristics of the region. It was 30% for some Objective 1 regions and 50% for some others.

- Most of the VC had the 30% limit although very seldom the sum of all investment subsidies reached that level.

- For the period 2007-2013, again, part of the VC will be eligible for investment subsidies, although it may be a smaller part than the current one.

- Financial support

  - Loans, interest rate subsidies, warranties or risk capital are different forms of giving financial support to FDI.

  - In periods of a general capital shortage, the availability of loanable funds was crucial.

  - When 10 years ago interest rates were very subsidies were important to turn the return on investment projects. Once interest rates.

  - Over the last five years, financial support has lost part of its potential because private markets provide finance in an adequately way.

- Confidence and specific support

  - Last but not least, the authorities of the GV have always tried to dissolve any doubts that foreign investors may have on the development of the project.

  - Local support by city managers is very important in terms of permits, accesses, disposal of residuals, noise and air pollution regulations, etc.

  - The attitude of the local power is crucial at this point. Some cities are very active in promoting business activity including FDI. Other cities simply oppose and stop any incoming project.

Some policy suggestions

- FDI has still a role to play in the economic future of the GVA. Recent growth has become too dependable on the housing sector. This has been good news for employment creation but not for productivity growth. FDI may help in bringing the necessary structural change the GVA economy needs, if it is going to become the main knowledge base area in the VC.

- However, VC needs a different kind of FDI. It is not the funding of investments what is needed nowadays as it was in the past. The future FDI should come accompanied by knowledge-base entrepreneurship, a lacking factor in the area that could be imported from other countries. It should develop the potential of the local resources through the creation of SMEs specialised in high-tech activities. Local-foreign joint ventures should be the starting instrument to gain international visibility. Exploiting the existing technical capabilities and the human capital under the form of business opportunities should be the main attracting element.

- In this respect, the GVA has strong points that should be appropriately marketed. An attractive and modern open city, with a high standard of quality of life for professionals and entrepreneurs (relative low cost of living, marine sports, science and arts activities, golf, good weather all year around), well equipped with advanced business services, well connected with the main European cities, with large universities and R&D&innovation Centres, with a long tradition of doing business all over the world, all these are strong elements to support GVA as a destiny for new quality FDI. All new projects in the city try to make it stronger in this respect. However, GVA should make an effort in making Valencian citizens fluent in English and ICT literates as soon as possible.

- The GVA should be promoted outside Spain as an optimal destiny for FDI in a more unified and coordinated manner.

  - There should be an institutional leader (a consortium) who would consider the city-region as the main territorial target. A dual combination of the regional and the city government of Valencia should lead it.

  - Currently there are too many departments that deal with the promotion of quality FDI.

  - The promotion of the VC is the responsibility of the Valencian Community Investment VCI, a recently created public company, located in the centre of Valencia: www.invest-vci.com/es. Working together with the Valencian Community Foundation in Brussels VCF, it promotes FDI in the VC.

  - VCI, VCF, IVEX, two Regional Ministries, Chambers of Commerce, Business Associations, and Business Lobbies are all institutions that promote FDI in the VC.

  - It is clear that all these institutions should work together in a cooperative way to give a unique path for foreign companies to know the possibilities of carrying out an investment project in the VC. GVA's local institutions and agencies should also coordinate themselves and join efforts.

- The promotion of quality FDI should receive the maximum attention from the Regional and City authorities

  - The president of the Region and the Mayor of the City of Valencia should make a personal effort in promoting the GVA outside Spain.

    - They should use international platforms like the Cañada Blanch Foundation Chair at the London School of Economics in the UK or any other business centre worldwide.

  - More promotion actions should be made in foreign countries. International companies already operating in Valencia should be invited to take an active role in these actions.

  - Regional authorities should ask multinational companies located in Valencia which companies could be interested in locating themselves in the GVA too.

  - The promotion of FDI should keep the format of an action plan tailored to the specific characteristics of each case.

- It would be preferable to define a unique representative of all the administrative departments involved to make things easier to the foreign investor.

- Tenders and compromises should be made on the government side only on the most interesting and viable projects and not raising the support beyond a reasonable level. The projects should be good on their own.

- Indirect support should be preferable to direct subsidies e.g.; an improvement (or merely speeding up the project) of the transport and communication system that benefits all the firms in the community –including the foreign ones carrying out the new FDI- would be more rational than a direct reimbursement to the company.

- It is quite useful to work the new FDI projects with the executives of the foreign companies currently operating in GVA. They know which FDI projects it would be likely to be attracted into GVA, in what way they should be approached, etc.

Internationalisation of the GVA

Since FDI is losing specific weight in the Spanish economy it is worth looking at the internationalisation of the economy, the degree of openness and the different ways to promote it. Although there are common elements within themselves we distinguish between SMEs and Research Institutions.

Internationalisation of local companies (SMEs)

Since ancient times the **VC** has been an open economy. It is the most open region in Spain and has always had the best ration between exports and imports. Over the last five years, the positive balance has reduced itself until it has become slightly negative[28].

Internationalization means not only export goods and services all over the world but, also, locating some of the activity abroad. Some companies of the GVA have been able to buy or build manufacturing plants in Morocco, Egypt, China or India.

Some entrepreneurs of the ceramic, furniture, textile, toy, lamp, and house accessories industries have decided to establish a joint venture with local businessmen abroad. They usually start by trying to protect their Spanish and Export markets from the harsh competition coming from third countries. One way to protect the access to customers is to do some contract manufacturing with some of the products (usually the less high tech) and keeping at home the production and the knowledge of the most sophisticated ones. In compensation the local companies let the foreign manufacturer export the joint product to new markets or to areas that do not represent a present conflict for the local firm.

Experiences by local firms have varied a lot. Companies like Fermax (electronics) is successfully manufacturing in China, whereas other tile industries have not been able to build a reliable plant in India. Many furniture companies produce abroad and keep the local production for trendy goods to be marketed in first rate markets like the US.

28. Belonging to the Euro-EU has meant for Valencian companies that competitive devaluations, often used and abused in the past, are not the tool for the recovery of the international level of competitiveness. This one reason why Valencian exports have not grown the same way they use to grow before the introduction of the euro. A second reason for the slow growth in exports is the excessive concentration on the EU markets that have been almost stalled over the last five years.

FDI by local companies has always run the risk of devaluation by the targeted country's currency, something common in the Eastern countries over the last years. Current financial stability has lowered this risk but the perception of the former crashes keeps the firms very inactive in this field.

Contract manufacturing by local firms of foreign multinationals, or joined ventures, are also additional ways of internationalizing the SMEs. It is usually the first step towards developing an independent way. For some companies growing abroad is a must because the national markets either grow very slowly or are under very competitive pressure.

There are export-promoting programmes like PIPE 2000 supported by the EU, the Chambers of Commerce, ICEX and IVEX (Generalitat Valenciana). The total subsidy rate is 80% of the total cost.

Diapex is a programme of IVEX & the Chambers of Commerce that provides financial support to hire an external export professional agent up to a maximum of 40 hours. It is aimed at providing the firm with an initial point of departure for considering export markets as a business opportunity.

Market Landing is also a programme of IVEX and the Chambers of Commerce with the object of supporting the internationalization of companies through the help of a promoter in the target country. This expert belongs to the Business Centres of the External Network of IVEX.

There are Commercial Actions organized by the Chambers of Commerce of the VC. They include prospective and promotion international trips to different countries with the purpose of opening up new markets and consolidating the existing ones. IVEX, ICEX, External Commercial Offices and Chambers of Commerce support these initiatives. The most recent actions were made in Berlin, Essen, Greece & Turkey, Milan, Russia, Florence, Amman, among others.

International Fairs. Valencia has the second largest European Fair premises. It has more than 40 events every year although two of these are worth mentioning for their national and international repercussion: the Wood & Furniture and the Ceramic International Fairs. Fairs are ideal spaces for promotion, communication, innovation and internationalization. Particularly for SMEs that do not have individually the capacity to reach so many customers.

Export consortia are also very useful for SMEs to penetrate new international markets. Firms get together to share costs and reach specific weight to be notorious in a foreign market.

The Regional Institution in charge of promoting the internationalization of the firm in the VC is called IVEX. It has programmes aimed at achieving the following goals:

- Penetration of new markets
- Identification of firms with export potential
- Initiation of external promotion (including a following up programme)
- Strategic reorientation of export firms in the VC
- Firm cooperation in international markets
- International cooperation
- Advisory programmes for export firms in duty free markets and in international tenders

Finally, the Conselleria de Empresa, Universidad y Ciencia (Regional Ministry for Firms, Universities and Science), together with the representatives of the different sectors, has developed a number of competitiveness programmes for different sectors of the VC. They have classified industries (see Table 2.7) into two different categories: mature and emerging sub-sectors.

Adjusted to the circumstances of each of these industries there is a proposed strategy. Internationalization (either export growth or contract manufacturing abroad) is one of the options in most cases.

Table 2.7. Identified sectors with competitiveness plans

MATURE SECTORS		EMERGING SECTORS	
Food Industry	***	Fish farming	*
Shoes	*	Audiovisual	**
Ceramics	*	Biomedicine	***
Construction	***	Fashion	**
Toy	*	Social & health services	***
Wood & Furniture	***		
Metal & lamps	***		
Micro-sectors	*		
Plastic	*		
Fine chemicals	*		
Textile	**		

Table 2.8 provides the shows the most recent data on exports published by the Valencian Institute of Statistics, IVE. They refer to the VC and not to the GVA. We have added one star * for those items where GVA's participation is significant and two stars ** where it is very significant. VC automobile exports are 100% Ford exports located in the GVA, but VC automobile imports are not exclusively of the GVA.[29]

Except for cars, computers, diesel railroad engines and some chemicals (fertilizers), Spanish companies carry out all the exports and 99.5% of them are SMEs.

Table 2.8. Main Exports and Imports 2006

Exports			Imports		
Items	Mil. €	%	Items	Mil. €	%
Automobiles**	1,534	20.2	Automobiles *	1,190	14.2
Fruits *	1,014	13.4	Fuels, oils and mineral wax *	1,025	12.2
Ceramics	913	12.1	Metal machinery *	824	9.8
Shoes	465	6.1	Iron and Steel **	558	6.7
Metal machinery (computers) **	372	4.9	Electric machinery *	507	6.1
Others *	3,279	43.3	Others *	4,278	51.0

Notes: ** Very significant presence of the GVA. * Significant presence of the GVA.

Source: IVE (2006).

29. There are no official export data on the GVA, or on domestically owned SMEs.

On the existence of possible barriers to internationalization we must recognize that GVA enjoys a significant export tradition started at the end of the XIXth century with the agricultural sector (fruits and vegetables). International markets have always been considered by the (light) industrial sector, basing the competitiveness more on low prices than on high quality and brand recognition. Third countries new fierce competition in these sectors, in foreign as well as in the domestic markets, is what companies are suffering most. Export specialization of the VC is not concentrated on fast growing demand products because they do not have a high content in technology. To increase the export potential of the GVA we need a previous structural change.

Firms have to become either more specialized in higher tech areas, or bigger in size or both. Also, larger firm sizes may better justify investing in new brands and image. One difficulty for firms to acquire a larger dimension is the predominant familiar ownership. Family's additional direct involvement in managing the companies set up structural limits on the maximum dimension or the degree of internationalization, based on the number of family members that are willing to settle in some other country. We think that cultural and language barriers still play a very significant role in many family-run companies in deciding whether or not to become a multinational company.

Table 2.9 provides information on the main export items of the VC for the year 2005 classified by type of products. It can be seen that consumption goods are the main type of goods exported.

According to a study published by the Ministry of Science and Industry in 2004, Spanish patent activity (1978-2002) concentrated in Madrid and the VC. This study uses registered data from the European Patent Office. An additional study in 2005 put the VC in second place after Catalonia. The Polytechnic University was very active in this field (150 protected in Spain and 50 globally). Petrochemistry, Food, materials are the main patent fields. The University of Valencia has 68 patents, mostly at the national level. Pharmaceutics, chemistry, materials and electronics are the main fields. The universities and the Regional Government subsidize the cost of keeping a patent.[30]

Statistics show that the share of patents registered in the VC (13%) exceeds its 10% average size of the region in the whole country. This could be an indication of a certain relative dynamism with respect to other Spanish regions, although the VC should compare itself with the competing regions around the World, and in this respect the comparison is not a favourable one.

Basically all the R&D&innovation centres keep international relationships with foreign institutions. There are Technology Observatories at the National and Regional levels. They maintain technological correspondence with other institutions from different countries. Some institutes carry out technological cooperation with third countries. This is not the general case with private companies, less inclined to cooperation and much less with international partners. This could become a policy recommendation, how to enhance international technology cooperation with foreign private firms.

30. The cost of registering a brand is around 250 euros in Spain and 1.000 euros in Europe.

Table 2.9. CV Exports In 2005

EXPORTS 2005	%
ENERGY PRODUCTS	1.43
CONSUMPTION ENERGY PRODUCTS	0.22
INTERMEDIATE ENERGY PRODUCTS	1.21
NON ENERGY PRODUCTS	98.57
CONSUMPTION GOODS	49.95
FOOD BEVERAGES AND TOBACCO	19.38
OTHER CONSUMPTION GOODS	30.57
DURABLE CONSUMPTION GOODS	18.60
AUTOMOBILE	16.39
OTHERS	2.21
NON DURABLE CONSUMPTION GOODS	11.97
CAPITAL GOODS	6.40
MACHINERY AND EQUIPMENT	4.83
Metal structures	0.33
Machinery	4.50
Farming machinery	0.16
Construction machinery	0.14
Other machinery	4.20
Transport equipment	0.57
Non railroad equipment	0.35
Farm equipment	0.00
Non farm equipment	0.35
Railroad	0.00
Naval	0.20
Air	0.01
Other capital goods	1.01
Live cattle	0.01
Optics, photography	0.01
Chirurgical, medical	0.13
Others	0.86
INTERMEDIATE GOODS	42.21
Agriculture and fishing	0.93
Intermediate industrial products	41.28
Mineral products	16.99
Intermediate chemical products	7.45
Metallic intermediate products	6.86
Intermediate electrical components	0.87
Intermediate products for transport	0.31
Intermediate products for food, beverages & tobacco	0.93
Intermediate products for textiles, shoes & leather	3.50
Other intermediate products	4.37
NON CLASSIFIED	0.00
TOTAL EXPORTS	100.00

Source: IVE (2006).

All universities pay an increasing attention to internationalization. Vice-chancellors for international activities have been appointed to pursue internationalization policies. Facing the Bologna Process all institutions are redefining their teaching and research roles at the European level. International cooperation between university departments from different countries is now quite common in the GVA.

Internationalisation of research organisations

Research, Development and Innovation organisations are also engines of progress and internationalisation. By the specific nature of the activity developed by these organisations, they maintain continuous relationships with other international organisations. Research has, by definition, a universal scope and the excellence that it requires obliges the contributions to be visible to the whole community worldwide.

Technological centres have a scope that is closer to the territory in which they work but, also, the results that are obtained are adopted by all the industry around the world as they become available. Innovation is still more focused than technical development on the territory and sometimes it is not produced in an explicit way but it is produced implicitly. So innovation centres are less exposed to universal scrutiny than technology research centres.

Recognising these three different scope levels of R&D&I, these institutions are clearly more related to foreign partners than SME's. It is quite common to have R&D&I personnel formed abroad (PhD's from foreign universities) who know foreign languages, have worked abroad, are always in contact with the world community participating in conferences and seminars all over the world.[31] Consequently, the R&D&I institutions are much more in contact with the world community and should be more capable of internationalising the GVA.

The Regional Government has several programmes and actions that enhance the internationalisation of R&D&I centres. There are exchange programmes for researchers and technicians with international institutions, scholarship programmes for PhD students to go abroad, financial subsidies for foreigners to visit GVA institutions, for organizing or attending International Conference and Meetings. Also the universities promote the exchange of researchers and the same kind of activities.

The Erasmus Programme for the undergraduates has been a great success in making students more international. They not only learn a foreign language but also consider all the VC a European region and not simply a national one any more. This increase in international mobility may be significant in the future for the degree of internationalization of the VC.

The main difficulty for moving one great step forward in internationalizing the Valencian universities lies on the personnel. Most of the researchers and professors hold their positions permanently. Although the departments may hire foreign researchers on a permanent basis, this is seldom done. Most of the time, the members of the staff are public servants who have gained their position at a national context. 99% of them are Spaniards.

The public research centres face the same difficulties. Also the private technological centres have a general tendency to hire Spaniards and not promote international competitive contexts.

31. This is quite in contrast with SMEs that have a familiar tradition of not having left town for generations.

Very recently[32] the Regional Government has publicly presented the project of the new *International University of Valencia*. It is a private university co-financed by the Regional Government, with a structure similar to that of the Open University in the UK, Universitat Oberta de Catalunya or the Universidad a Distancia UNED in Spain. It is a virtual university with no immediate proximity. No physical presence is required.

To see the complete offer of R&D&I institutions we have adapted the tables 11-26 (see Annex I) produced by the VCI. R&D&I centres constitute a Knowledge cluster in GVA. According to the VCI the following areas involve a certain number of centres.

In this table, R&D&I institutions, centres and units are classified according to the fields in which they define their research activity in their annual reports. This is a very general classification and to get specific detail one should go into the website of each of the institutions. However this classification shows some knowledge areas in which a certain number of institutions have research interests.

It is a different matter if the elements included in each field cooperate with one another. They may work with institutions from other regions and still be in the same cluster. Some of the R&D centres have a more central orientation than others. It depends on their past trajectory. When the direction defines lines of R&D the technology results tend to be more visible, since there is more cooperation within the members of the centre. If each researcher is free to decide the line of R&D, then there is more publishing and less patenting activity.

Table 2.10 shows the 14 different knowledge sectors implying the presence of 132 institutions. Approximately 110 of them are located in the GVA.

32. July, 24, 2006.

Table 2.10. Research Centres By Knowledge Area

KNOWLEDGE AREA	Nº RESEARCH CENTRES
Environment / Water	**19**
Information Technology	**9**
Food, beverages and tobacco	**11**
Machinery and equipment, optics, bio and similar	**39**
Construction	**4**
Coke plants, petrol and chemical refining	**7**
Electrical and electronic material	**12**
Tourism	**4**
Electric, gas and steam energy	**3**
Transport material	**8**
Rubber and plastic products	**4**
Production, primary transformation and smelting of metals	**2**
Metal products	**5**
Non-metallic mineral products	**5**
Total	**132**

Source: Valencian Community Investment.

We can see that the areas where more institutions concentrate are Machinery and Equipment, Optics, Bio and similar, Environment/Water and Food, Beverages and tobacco.

Internationalisation policies

Although the Spanish firm has become more and more international over the last years, it is believed that the export capacity has not grown at a sufficiently high rate. The recent large trade deficit may be an indicator of a relative loss of competitiveness due to domestic cost inflation (very slow productivity growth) as compared to other international producers. Also, Spanish export industry specialization in products with slow growing demand, and too concentrated on the EU market, may be the reason behind the slower growth of exports than of imports. This external bottleneck used to be solved in the past with exchange rate devaluations, but nowadays this "solution" is not possible any more.

Therefore the national government encourages exports through different support policies, although we know that most of the responsibility lies on the companies themselves. Furthermore, some of the policies –like the promotion of a structural change and the increase in productivity - are long run policies, have no immediate results and must count with the consensus and the interests of the firms.

ICEX develops mainly the promotion actions of Spain on the main markets around the world. They concentrate actions in different countries. This year's main action has been Japan, with a specific plan of 18 million euros. Support to increasing the presence of Spanish companies in foreign Fairs, support to International Fairs held in Spain, export consortia, support for business meetings, export

projects, cooperation programmes with the EU initiatives, with international developing banks, export associations, electronic markets, training and seminars on international trade, are all lines of action to support export firms in Spain.

The Central Government supports also the internationalization of the Spanish firm –either in Spain or abroad- through the special (preferred) financial conditions provided by Instituto de Crédito Oficial, ICO. This line of credit, with an amount of 500 million euros for 2006, is channelled to SMEs and large firms in two different groups so that these two do not compete with each other. They give special interest rate conditions and loan terms. In 2005, more than 100 operations were made: China accumulated 18% of the operations, Portugal 10.49%, Roumania 10.09% and the Czech Republic 7.32%. The sectors appear in Table 2.11.

Table 2.11. Sector participation in ICO Credit

Textiles, paper and chemical industry	47.06%
Machinery, electric components & transport equipment	10.60%
Real Estate	9.67%
Metallurgy and non metallic minerals	8.39%
Food industry	6.89%
Extractive industries	5.82%
Others	11.57%
TOTAL	100%

Source: ICO (2006).

The Region of Valencia was involved in one RITTS Programme of the EU. This innovation programme had one objective (LE4) of Internationalization and Excellence. This goal implied the register of patents abroad, the participation in European projects, the temporary exchange of personnel, the cooperation with foreign technological centres or with other companies aimed at the improvement of the competitive position of the Valencian firm.

The innovation policy was to be implemented by IMPIVA, the Regional Government Centre for Innovation. More specific objectives were:

- Promotion of regional centres (nuclei) of excellence, able to compete and capture funds from the European Programmes (VI FP).

- Reinforcement of industrial clusters in the VC and their connection with their international partners.

The proposed actions were the following:

- Promotion of international strategic alliances

  The objective was to facilitate the internationalization of the firms in the VC, in terms of innovation, giving support to those R&D&I initiatives carried out in the region to make them profitable. This includes providing international protection, diffusion and promotion of new technological advances and the supply of technology trough international organizations.

- Incentives to participation and cooperation

  This incentive programme is designed to increase the participation of all agents in the Regional System of Innovation in international programmes of R&D&I, in particular in the

VI FP. Actions to increase sensitivity towards these programmes, the updating of technology, support to present and follow up of the applications and incentives to pay for some of the costs incurred.

Also de Chamber of Commerce -together with IVEX- has a programme supporting the internationalization of the firms of the VC. "Market landing" promotes the market prospective and promotion as a way of enhancing firm internationalization. A native agent analyzes the business opportunities for export/import activities. In the year 2005, they concentrated on the following sectors: interiors, construction materials, machinery, food and fashion. The main targeted countries were Check Republic, Emirates and China, among others.

They also organize Export Promotion actions. In 2005, there were 7 in Mexico, 6 in Russia, 5 in China and Eastern Europe for a total of 68 actions. Europe is the first targeted area, particularly Eastern Europe, followed by Mexico and China (Guangzhou, Shanghai, Hong-Kong, Beijing and Chengdú). The Chamber of Commerce and IVEX offer also services to form export consortia (from 1992 until 2005 112 consortia involving 500 firms were formed). They also develop programmes supporting firms in reorienting their strategy towards export markets (more than 50 firms from 2001-2004) and to initiate themselves into export markets (240 firms since 1997).

Some policy suggestions

- Universities should hire more foreign people on a permanent basis, under competitive contexts, but moving away from the civil service promotion system.
- Universities should introduce more incentives for researchers to go abroad and for foreigners to come to GVA.
- Technological Centres should also open up more to other foreign institutions and companies.
- International agreements on teaching should also make our universities and GVA more international.

Strengths and weaknesses

We present a table summarizing the main weaknesses, strengths, threats and opportunities of the GVA with respect to i) attracting FDI, ii) embedding it and iii) making the city-region a more knowledge based and international economic area. See tables 2.12-15.

Table 2.12. Attracting quality FDI

WEAKNESSES	STRENGTHS
Low-medium added value product and service specialization	Export tradition
Insufficient total & private R&D&i investment	Transoceanic port
Low technical formation of (local) entrepreneurs as partners	Proximity to main Spanish markets (Madrid, Barcelona)
Low use of ICT (firms, households, administration)	Local promotion of internationalisation: IVEX, IMPIVA, VCI, Ruisnet
Transport and communication infrastructures (railroad, highways, air services...)	International R&D sectoral clusters
Low presence of international investment banks	Business oriented community
Very low level of English (government, ministers, entrepreneurs, workers...)	Well diversified industry
Absence of Japanese, Chinese or other special foreign schools	International vice-presidencies at the universities
Social values far away from science and technology	Universities with good scientific knowledge and highly qualified human resources
Universities still too isolated from the business sector and *vice versa*	Universities increasingly willing to get involved in regional development
Low incentives for academic staff to collaborate with other institutions/companies	An attractive place to live
THREATS	**OPPORTUNITIES**
Reduction in European Structural Funds for 2007-2013	High degree of public consciousness on the issue
European Structural Funds in competing countries New EU Member States	Innovative administrative organization: Science, Universities and Industry
R&D funding in EU VII FP difficult to reach	Profile of the regional minister and the vice-ministers
Non defined priorities on technology fields	International Image drivers: Jaime I Awards, International Events (America's Cup, Astronautics World Congress), Cañada Blanch
International trade too concentrated on EU countries	An International University City: focus on East Asian markets
Increasing red tape on administrative programmes.	Attracting decision making units of foreign corporations
	Make labour a more competitive market
	Liberalize all service sectors
	Promote industry specialization in more technological sectors
	Promote the integration of the public R&D sector with the private technological and business sector. Science parks
	Look for opportunities with the new Member States of the EU
	Create new R&D&I centres and enlarge the existing ones
	EU support of internationalisation and external promotion

The main weakness of the GVA could be the lack of tradition in creating and developing business companies based on science & technology. The innovative character of the Valencian entrepreneur is basically non-technological due to its weak educational background.

The main strength could be the potential of the GVA as shown by many successful cases of first quality R&D finding its way to the market. This potential lies on the possibility of putting together a very strong public R&D sector with a very dynamic (in other fields) private sector.

The main threats for quality FDI are the open opportunities of other European regions, well located near the central European markets, with well-trained & educated people, eager to catch up with the EU and benefiting from the structural funds and the special attention of the strongest EU economies.

A great opportunity to underline is a very conscious team at the Regional Government, who knows very well the diagnosis and the treatment needed to strengthen the R&D system. On the business side there is also "awareness" of the needed structural change and the opportunity lies on the recent successful process of capitalization of the firms due to a long period of prosperity.

Table 2.13. Embedding quality FDI

WEAKNESSES	STRENGTHS
Small size of the knowledge base sector	Business oriented community
Labour market inflexibility: lack of mobility	Well diversified industry
Transport and communication infrastructures (railroad, highways, air services...)	International R&D sectoral clusters
Low average relative level of education and training	Transoceanic port
Universities isolated from the business sector and *vice versa*	Proximity to main Spanish markets (Madrid, Barcelona)
Low incentives for academic staff to collaborate with other institutions/companies	Industrial clusters benefiting from agglomeration scale economies
Wage & environment/regulation cost evolution	An attractive place to live
	Universities with good scientific knowledge and highly qualified human resources
	Universities increasingly willing to get actively involved in regional development
	High degree of public consciousness on the issue: public grants
THREATS	**OPPORTUNITIES**
Reduction in European Structural Funds for 2007-2013	EU service sector liberalization
European Structural Funds in competing countries New EU Member States	Promote industry specialization in more technological sectors
R&D funding in EU VII FP difficult to reach	Make labour a more competitive market
Light industry firms may move production activities to third countries	Attracting decision making units of foreign corporations
Some large international company might leave the region	Promote the integration of the public R&D sector with the private technological and business sector. Science parks
The distance with the most advanced competing regions may widen	Look for opportunities with the new Member States of the EU
International trade too concentrated on EU countries	Create new R&D&I centres and enlarge the existing ones
Other Spanish regions are gaining competitiveness	
Increasing red tape on administrative programmes.	
Non defined priorities on technology fields	

The main weakness may be the still small size of the knowledge base sector in the GVA. It could be an indicator for existing firms that the development of the region does not bring new competitiveness tools. The relative delay of the region in solving its communication problems with Madrid and France may jeopardize some of the current FDI projects.

One of the important strengths of the VC in keeping FDI may be the dynamism shown by the region over the last ten years. Any complementary project of a foreign company receives the highest attention from all agents implicated. The local and regional authorities, the banks, the potential suppliers or customers, the agents of innovation, the whole community are very receptive towards any decision taken that may root further any foreign company.

The main threats lie on the changing conditions imposed by globalization that may render some FDI non competitive any more due to the emergent countries. One way of facing the threat of manufacturing plants leaving the GVA is to try to introduce in these plants more of the production (and other related activities like design or R&D) that is presently produced at the company's home country.

The growth in size of the Regional system of innovation and the liberalization process of services may recover some of the relative loss in competitiveness with respect to other regions. GVA should have an active strategy to get the maximum return from the National Government goal of reaching 2% of GDP in R&D in the year 2010.

Table 2.14. Internationalisation of SMEs

WEAKNESSES	STRENGTHS
Low-medium added value product and service specialization: sectors with weak relatively demand growth	Export tradition and general globalization trend
Too strong a presence of sectors like: housing construction…	High foreign VC visibility from tourism visitors
Insufficient total & private R&D&i investment	Transoceanic port
Low technical formation of entrepreneurs	Proximity to main Spanish markets (Madrid, Barcelona)
Low use of ICT (firms, households, administration)	Local promotion of internationalisation: IVEX, IMPIVA, VCI, Ruisnet
Transport and communication infrastructures (railroad, highways, air services...)	International R&D sectoral clusters
Firms are small and family owned	Business oriented community
Low tradition of Spanish banks in financing international projects	International vice-presidencies at the universities
Low presence of international investment banks	Some university studies taught in English
Very low level of English (government, ministers, entrepreneurs, workers...)	English, French, German and Italian schools
Skills concentrate mostly on manufacturing and less on marketing	An attractive place to live
	EU (included Spaniards) retirees may be attracted by GVA
	Universities with good scientific knowledge and highly qualified human resources
	Universities increasingly willing to get actively involved in regional development
THREATS	**OPPORTUNITIES**
Reduction in European Structural Funds for 2007-2013	EU support of internationalisation and external promotion
European Structural Funds in competing countries New EU Member States	Attracting decision making units of foreign corporations
Light industry firms may move production activities to third countries	International Image drivers: Jaime I Awards, International Events (America's Cup, Astronautics World Congress), Cañada Blanch
Some large international companies might leave the region	EU liberalization of all service sectors
The distance with the most advanced competing regions may widen	Make labour a more competitive market
International trade too concentrated on EU countries	Promote industry specialization in more technological (international) sectors
	Promote the integration of the public R&D sector with the private technological and business sector. Science parks
	Look for opportunities with the new Member States of the EU
	Create new R&D&I centres and enlarge the existing ones

The main strength is the traditional openness of the GVA. Valencian companies are used to sell in international markets. However, going from exporting to internationalizing is one further step not easy to take for family owned and run SME's. This difficulty in being large enough to become worldwide companies may be the main weakness we foresee.

EU integration has concentrated too much the attention of our firms. Other regions in the world show better future perspectives and GVA should change its orientation. This is a good opportunity to

establishing new relationships with these new countries, either increasing the presence of SME's there, or attracting to GVA their decision centres for the EU market.

Table 2.15. Internationalisation of research organizations

WEAKNESSES	STRENGTHS
Low-medium added value product and service specialization	Universities with good scientific knowledge and highly qualified human resources
Insufficient total & private R&D&i investment	Universities increasingly willing to get actively involved in regional development
Low technical formation of entrepreneurs	EU support of internationalisation and external promotion
Low use of ICT (firms, households, administration)	Local promotion of internationalisation: IVEX, IMPIVA, VCI, Ruisnet
Low tradition of Spanish banks in financing international projects	International R&D sectoral clusters
Low presence of international investment banks	Industrial clusters benefiting from agglomeration scale economies
Very low level of English (government, ministers, entrepreneurs, workers...)	International vice-presidencies at the universities
Low average relative level of education and training	Some university studies taught in English
Universities isolated from the business sector and *vice versa*	An attractive place to live
Low incentives for academic staff to collaborate with other institutions/companies	EU (included Spaniards) retirees may be attracted by GVA
THREATS	**OPPORTUNITIES**
Reduction in European Structural Funds for 2007-2013	High degree of public consciousness on the issue
European Structural Funds in competing countries New EU Member States	Innovative administrative organization: Science, Universities and Industry
R&D funding in EU VII FP difficult to reach	Profile of the regional minister and the vice-ministers
The distance with the most advanced competing regions may widen	International Image drivers: Jaime I Awards, International Events (America's Cup, Astronautics World Congress), Cañada Blanch
International relationships too concentrated on EU countries	An International University City: focus on East Asian markets
Non defined priorities on technology fields	Attracting decision making units of foreign corporations
	Liberalization of university hiring policies
	Promote industry specialization in more technological sectors
	Promote the integration of the public R&D sector with the private technological and business sector. Science parks
	Look for opportunities with the new Member States of the EU
	Create new R&D&I centres and enlarge the existing ones

The high quality of R&D done in our public system may be the main passport for establishing international connections with other foreign R&D centres. In innovation, the network of technological institutes may be our main driver towards internationalization. However, the hiring policy at the universities and R&D centres may be a serious drawback for internationalization. This labour inflexibility makes the already low labour mobility even worse.

As for the main threats there is a two-sided perspective on the availability of funds. GVA loses half of the previous Structural Funds for the 2007-2013 period but the National Government has

announced a very ambitious R&D plan until 2010. We think that there will be enough funding but probably it will be difficult to get under very competitive conditions.

Concluding remarks and suggestions for policy

It is clear that the GVA economy is going under a period of structural change. Some of the drivers of the economy like the light industry and its trading exports are losing power. But other industries like the advanced services, finance & insurance, construction or tourism, are strongly gaining ground.

FDI strategies are not only difficult to track statistically, but also difficult to implement. Portfolio investments have increasingly become new ways of importing capital. Mergers and acquisitions imply gradual organizational changes, somewhat less innovative than what FDI used to be in the past.

It is quite clear that within the VC, GVA certainly enjoys an outstanding position, and that it will face a challenging future as the leader region-city of the community.

GVA should elaborate a common and unified strategy to try to move itself upwards from the group of "*Main National City-Regions*" into the group of "*European City-Regions*". This strategy requires important steps that have to be taken:

- Define the level of government that has to take the leadership in this project. (We favour a shared leadership of the Regional Government with the Valencia Municipal Government).
- Define (politically) the goals of the internationalization project.
- Ask the institutions in charge of the promotion of the VC to consider the GVA not only one target among many, but also the main driving force of the whole community.
- Identify the companies and groups that may benefit from this project and promote the creation of a specific lobby to guarantee a continuous impulse.
- Carry out base economic studies of the city/region GVA to support and increase its potentiality. (One should know in detail the economic links within the different companies and towns, the commuting flows, the mobility, etc.).

GVA should become gradually one of the leading city regions in Spain and one of the European second level capitals. The required ingredients for a successful story are present in the GVA but the mixture has not been made yet between entrepreneurship and knowledge.

We have a business tradition of hard work entrepreneurs that have reached the world markets in very precarious circumstances. And we have scientific and technological institutes that have developed knowledge that has reached the world forums but that has not received any attention from local companies. In some instances, a midway would be desirable so that more local return could be obtained from public R&D investment. It is simply not possible to keep such a low level of business participation in regional R&D. The distance has grown a lot over the last few years.

CHAPTER 3

MAXIMISING HIGH VALUE-ADDED KNOWLEDGE-INTENSIVE FOREIGN DIRECT INVESTMENT

by David Brown
Director of McInvest Economic Development, Czech Republic

Context

Strategic Themes

This chapter assesses the potential for the City of Valencia to create and sustain an innovative economy by developing an investment climate conducive to competitively meeting the needs of technologically advanced knowledge-based foreign investors.

The strategic themes linked to the over-arching goal comprise:

- Anticipating and responding to the needs of the target audience;
- Re-branding the image of the city away from its historic sectors;
- Product development in strengthening the factor conditions required to attract the necessary investment, including supply base and linkages with institutions; and
- Enhance investor servicing to move from reactive to proactive activities that are highly focused on targeted campaigns.

The assessment, based on the fact-finding mission of September 2006, a review of Valencia's FDI attraction track record, the changing demand dynamics of FDI, best practice investment promotion models and techniques and the ongoing strategic planning process of the city, culminates in a series of concrete action recommendations which the city and respective partners may wish to take to unlock Valencia's full potential as a knowledge based innovative economy.

Given, however, that Valencia's share of FDI in Spain is disproportionately low and that few of the foreign investments to date reflects the type of investment needed to stimulate growth in innovation and technological entrepreneurship, the city faces a considerable challenge. Moreover, the competition for this type of investment has increased dramatically in recent years with, for example, Central European cities like, Prague, Budapest, Warsaw, Bratislava and, more recently, St. Petersburg, already establishing an impressive track record in attracting ICT, technology centres and, indeed, global design activities.

What is needed is a strategy and operational plan that will enable the city of Valencia to leapfrog into the position of competitively meeting the needs of the new industries the city requires as opposed

to incrementally attempting tocatch up with the competition. This approach, in turn, places even more pressure on the institutions in the GVA with a role to play in investment promotion and investor servicing in that product development, policy advocacy and investment promotion, including re-branding, must be undertaken more or less simultaneously rather than the 'traditional' sequential approach.

Anticipating and Responding to the needs of the Target Audience

Given the ongoing de-compartmentalisation of the value chain across a broad range of technologically advanced sectors, with each element now being located, in principle, wherever it is most effective, there is an opportunity for Valencia to capitalise on this phenomenon and thereby enhance the prospects of creating and sustaining an innovative economy.

Valencia needs to stimulate an increase in the flow of 'asset-augmenting' FDI for which the strongest performers include Ireland, the Netherlands, Sweden and Finland which share common factor conditions including:

- Strong framework for education and research;
- Accelerated structural reform to create optimal business climate;
- Realigned promotional strategies; and
- Effective support for domestic companies.

While the OECD panel is focusing on assessing the City of Valencia's attributes in terms of creating a dynamic economy built on technological entrepreneurship and innovation, perception, as far a potential foreign investors are concerned, is reality and there are several factors impacting on perception which are less than positive.

Valencia can not promote itself in a vacuum. The majority of foreign investors with proximity non-sensitive projects like technology centres and higher value added business support services tend to, first, shortlist a particular country and then consider the best options therein.

Why Spain?

Consequently, it is worth reflecting on the 'why Spain?' question prior to more closely examining the extent to which Valencia can competitively meet the needs of the type of investors the city and region need to attract and to assess how cohesive and compelling current promotional activities are.

For potential investors considering the Eurostat European Innovation Scoreboard, not only does Spain rank a poor 16th on the summary innovation index for the EU 25 members states, its peer group, based on performance, includes Lithuania and Slovenia. Moreover, Spain is categorised as 'losing ground' while the peer group countries mentioned are slotted in the 'catching up' segment.

More specifically, Spain only ranks 22nd out of 23 countries when it comes to the key issues of innovation and entrepreneurship. This poor showing is due to the low percentage of SMEs involved in innovation cooperation, below average rates of total expenditure on innovation and insufficient flows of venture capital.

The main point to take from data sets, like those presented within the European Innovation Scoreboard, is that they may influence the views of the target audience and hence Spain's brand awareness as a recipient of technologically advanced innovative FDI.

Box 3.1: European Innovation Scoreboard 2005 - Spain's performance

According to the European Innovation Scoreboard 2005, Sweden, Finland and Switzerland are the European innovation leaders, followed by Germany and Denmark. While Spain scores poorly in terms of its overall ranking, it performs better in important areas, like knowledge creation, with a ranking of 14 on account of an above average percentage of firms receiving government support for innovation. The business sector, however, lags behind, as shown by business R&D expenditures that are 45% of the EU average.

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Spain is a mid-range performer on both innovation demand and governance with, in the latter case, poorer than expected performance on e-government by failing to take advantage of a broadband penetration rate that is close to the EU average. An above average share of Spanish firms innovate (45%) but innovative capabilities are strongest for technology adoption – in terms of firms with creative innovative activities, the ranking is poor.

While Spain has the foundation in place to strengthen both innovation diffusion and creative innovation, as a consequence of relatively good performance for innovation drivers and applications, the main challenges include improving lifelong learning (52% of EU average), increasing percentage of SMEs in innovation collaboration (38% of EU average) and increasing total innovation expenditures (69% of EU average).

That only 2% of Spanish companies are strategic innovators and 6% are intermittent innovators allied to the fact that the youth educational attainment indicators have been falling steadily from 66.2% in 2000 to 61.8% in 2004, represent indicator quality concerns.

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FDI Demand Characteristic and Spain's FDI Track Records

The UNDP prognosis for FDI flow trends up to 2008 is cautiously optimistic. While this may be the case, FDI flows into Spain have been steadily declining in recent years. Moreover, much of this investment has been in the more traditional manufacturing sectors, like automotive, rather than in higher added value business support services, ICT and life sciences.

Table 3.1: Spain - FDI Inflows per annum $ million

2002	2003	2004	2005
43,696	25,926	24,761	22,987

Source: World Investment Report 2006. UNCTAD

Recent studies[33] indicate that FDI in China tends to elbow-out FDI in OECD countries rather than in developing countries which, in turn, raises pressure for further reforms in supporting knowledge-intensive operations as a prerequisite for FDI. Moreover, China is one of the few countries in the world were the high technology exports, as a percentage of manufacturing exports, 1999 – 2003 – has increased considerably – almost 60%[34].

From 3% in 1980, China's percentage of world GDP is already 15% and is on a trajectory to overtake the United States in six or seven years. In fact, while the share of world GDP by all the major

[33] Prospects for Foreign Direct Investments and the Strategies of Transnational Corporations 2005-2008 UNCTAD. World Investment Prospects to 2010 – The Economist Intelligence Unit / The Columbia Program on International Investment

[34] Source WDI (2005)

countries stagnate or decline (US; Japan; Germany, UK; France and Italy), China is forging ahead with India set to overtake Japan.

Within Central and Eastern Europe there are now two distinct trends of differing dimensions which underscore why investment promotion agencies like CzechInvest and ITD, the Hungarian Investment and Trade Development agency, are more vigorously attracting knowledge based investments.

On the one hand there is a migration towards new host countries – Romania and Bulgaria along with a resurgence in Poland in 2006 – by rather labour-intensive manufacturing investment. On the other hand, as a consequence of the increase in services and tertiary sectors, there is now a structural convergence of the Czech and, indeed, Hungarian economies with those in Western Europe. Essentially, the increasing pressures on the manufacturing labour market are being compensated by the upgrading of the Czech and Hungarian economies towards more service-based higher value added activities.

This, in turn, increases the competition Spain faces to attract higher value-added FDI which manifests itself in increased competitive pressure on Valencia, not only from Prague and Budapest but from regional capitals and, indeed, from Belgrade and St Petersburg which increasingly make it to the shortlist of ICT companies account of extensive ICT skills combined with excellent English linguistic skills.

That CzechInvest realigned its investment promotion strategy in 2000, to attract software development, research & development, business support services, technology centres and life sciences operations, underscores the fact that Valencia is a comparatively late entrant necessitating, as stated, a strategy aimed at leapfrogging the competition. The impact of the Czech realigned strategy is impressive:

- FDI accelerated both the economic transition to a market economy and European Union accession and on January 28th 2006 in Prague, President Paul Wolfowitz of the World Bank, officially announce the shift in World Bank classification from a 'developing' to a 'developed' country;

- The Czech Republic was ranked #1 in Europe and #4 in the world within A.T. Kearney's Offshore Location Attractiveness Index[35];

- The Czech Republic was ranked ahead of India for outsourcing[36];

- Securing of Europe's largest ICT project in recent years – DHL;

- Highest FDI stock per capita in Central and Eastern Europe;

- Record increase in FDI flows to $12.5 billion in 2005 (population 10 million) – 6th largest increase globally;

- Between 2002 and 2004, the Czech Republic secured more automotive R&D projects than any other country in Europe[37];

[35] On the basis of skills availability; business environment; financial structures

[36] Ernst & Young Europe – The Opportunity of Diversity, 2004

According to The Economist[38], the average annual FDI flow into Spain between 2006 and 2010 will be $28.8 billion which ranks the country as 10th largest recipient of FDI globally and 6th largest in Europe. That is encouraging. The challenge Valencia faces is to increase its share of the national flow and, most importantly, to ensure that the FDI secured is entirely consistent with the operation goals suggested within this report.

Valencia's FDI Track Record

Stripping out the Ford investments in the Almussafes facility, Valencia Region only secured around 2% of the national flow of FDI. However, the situation is more positive than the statistics suggest. The region plays host to over 500 foreign investors while around 300 are based in and around the city of Valencia[39]. Many of the foreign investors are also registered through their Madrid-based subsidiary which also slightly distorts the real picture.

[37] Financial Times – FDI Magazine

[38] World Investment Prospects to 2010

[39] Source – Valencian Community Investments

Table 3.2: Investment Project Decisions by Sector – Western Europe v Central and Eastern Europe

Number of Projects / Sector	Central & Eastern Europe 2005 (ranking)	Central & Eastern Europe 1997 – Q1 2006 (ranking)	Western Europe 2005 (ranking top 10)**	Western Europe 1997 – Q1 2006 (ranking top 10)*
Auto components	86 (1)	513 (1)	115 (4)	930 (5)
Electronics	48 (2)	286 (2)	161 (3)	1,326 (2)
Machinery / equip	37 (5)	190 (3)	98 (6)	745 (7)
Food	20 (11)	183 (4)	89 (9)	667 (8)
Auto assembly	7 (18)	167 (5)	-	-
Plastic & rubber	32 (6)	159 (6)	-	-
Mineral products	24 (8)	147 (7)	-	-
Electrical	23 (9)	140 (8)	-	-
Chemical	18 (12)	137 (9)	91 (8)	1,171 (4)
Business Services	39 (4)	119 (10)	255 (2)	1,279 (3)
Software	21 (10)	110 (12)	329 (1)	2,591 (1)
Pharmaceutical	12	98	95 (7)	894 (6)
Total	587	3,449	2,169	16,274

Source World Bank July 2006

Already Spain has lost automotive production to Central Europe and Bratislava in particular, which is now one of the most profitable facilities within the Volkswagen group. Moreover, between the period 2005 – 2007 the number of units produced per annum in the Czech Republic and Slovak Republic will increase by one million.

Table 3.3: Automotive Industry Labour Costs per Hour

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Ford Valencia, which produces circa 57 vehicles per employee per annum, will find it increasingly difficult to compete with the new wave of Central European plants which consistently match the high productivity of around 100 vehicles per employee/per annum first set in Europe by Nissan in Sunderland several years earlier.

Unlike the Czech Republic, there have been very low levels of proactive promotion aimed at encouraging Ford and the first and second tier suppliers in and around Valencia to engage in R& D activity to support the respective companies' international operations.

Valencia has also missed out on opportunities to fully capitalise on the sectors demonstrating the highest demand characteristics for investment locations in Western Europe – namely:

- Software;
- Business Support Services; and
- Electronics.

The City and Region have yet to prominently feature on the radar screens of companies looking for new capacities and sources of intellectual capital from another sector demonstrating strong innovative characteristics, life sciences. Many factor conditions for successful life sciences cluster development are in place and this topic will be revisited within the section on SWOT.

Policy Implications

In summary, Valencia's stock of foreign investors reflects the more traditional manufacturing, food processing, logistics and tourism infrastructure types of activities which are not necessarily conducive to upgrading towards higher value added technologically advanced output through greater innovation.

The absence of a sufficiently strong and consistent FDI policy, at both a national and regional level, specifically aimed at fostering and maximising linkages between foreign investors and indigenous companies has manifested itself in the more traditional type of asset exploiting FDI which, while generating employment, export and productivity enhancement benefits, falls short of stimulating and facilitating technology spillovers and innovation.

A well designed enterprise policy constitutes a necessary element in any coherent strategy for economic development and particularly in Valencia's case, an enterprise strategy reflecting Lisbon Agreement goals must strike the right balance between attracting foreign direct investment and developing indigenous companies.

Between those two pillars of economic growth lies a series of linkages, the most important of which relates , in the first instance, to the development of supply chains in which local companies improve business practices and enhance capabilities to meet foreign investor needs and secondly, to knowledge transfer between the international and local companies.

To that end, Valencia's economic development policy should focus on enhancing the business climate and developing the skills and capacities to sustain the growth in R&D activities and innovative knowledge-based industries. Given that all the factor conditions needed to stimulate and sustain growth in knowledge based industries can not be provided by domestic means and resources alone, the City of Valencia and Valencian Community Investments should sharpen the focus of a targeting strategy on companies with mobile R&D and technologically advanced innovative projects while, simultaneously, encouraging the international companies to foster robust linkages with local companies and academic institutions.

One of the main challenges Valencia faces is from the increased international competition for the very highest levels of competence creating / advanced R&D investments. Moreover, technological spillovers from foreign investment will only be maximised if the activities share some common ground with local firms. In other words, the more competitive local industry is, the more prone the international companies are to network thereby increasing the accessibility of domestic companies to wider international networks.

Consequently, it is both the 'receiving capacity' of Valencian firms – i.e. their ability to absorb and utilise the technology / knowledge that enters Spain, combined with their capacity to generate returns from technology on their own, that really makes the difference and which, in turn, underscores the importance of the role of IMPIVA, IVEX, CEyD, FIVEC and REDIT.

The provision of R&D related skills is finite and among the factor conditions, it is the accessibility to this intellectual talent that the foreign investor primarily seeks. Where, however, the indigenous companies lack the capability to exploit technological strengths, as is primarily the case in Valencia, there could be over-exploitation by the foreign investors thereby weakening local industry and creating greater risks in terms of losing out from FDI overall.

This need to strike the right balance between meeting the needs of foreign investors while helping to increase the number of Valencian companies either engaged in or are ready to engage in relatively intensive R&D activities, represents a core policy issue. The other involves the needs to maximise the value added spill-over effects from R&D. The key determinant here is the extent to which linkages are established between the international affiliate and the Valencian economy regarding the strategies on both sides and on the capabilities of the local companies.

Arguably, backward linkages (when a foreign-owned R&D operation acquires goods and services from a Valencian firm) generate the most significant spill-overs from FDI. Unlike the case in the UK and Germany where well established forward linkages exist (i.e. foreign R&D operation sells goods or services to local companies) this is not widespread in the Valencia region.

The point being stressed is that linkages, particularly backward, are essential to generate genuine net economic gain from R&D. Also, attracting R&D operations will continue to be a significant challenge given that of all segments of their business, companies are more reluctant to expand or relocate their R&D operations as opposed to other value added activities.

Increasingly, innovation / R&D related FDI (i.e. competence creating investment) and what it gives rise to, will depend on how the Valencian economy is able to adjust to changing circumstances reflecting the fact that the greater the vertical and horizontal linkages with domestic firms and institutions, the higher the probability of securing the type of asset-augmenting investment that Valencia needs.

If a brand is to be the source of value for an organisation, country or city, its positioning in the market and the minds of the consumer will be critical to the actual value created.

"Positioning" means owning a credible and profitable position in the investor's mind by:

- Getting there first; or
- Adopting a position relative to the competition; or
- Repositioning the competition.

Of the three scenarios, the first one can be ruled out has Valencia has some 'leapfrogging' to undertake. Repositioning the competition is easier to do from a position of strength. To give an example of this from a national perspective, IDA Ireland, having acknowledged the threat from Central Europe, introduced campaigns which seek to reposition the competition.

Re-Branding Valencia: Four Key Components

Box 3.2: Brand opportunity modelling

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Four Key Components in Brand Re-positioning

Relevance

First, it is important to appreciate that strong brands meet investor's functional needs and also satisfy emotional needs. And this can be achieved by anticipating, understanding and responding to how existing or potential investors define ideal experiences.

Differentiation

Strong brands add value which makes them stand out from the competition. To demonstrate this, it is essential to evaluate the current and future competitive landscape in Valencia along with calibrating the strengths and weaknesses of the city and region as an investment location. Within this context, it is also important to benchmark the quality of service the investors receive against best international practice.

Credibility

Strong brands keep their promises and deliver. This aspect relates to the Communications Strategy Core which is examined within the next section. The key marketing message must be coherent and compelling. It must answer the question why Valencia and not Madrid, Barcelona, Vienna, Prague etc. Above all, it must be substantiated, otherwise credibility will be lost. Consequently, there is a need to identify and bridge the gaps between real and perceived competencies.

Stretch

The final component is of particular relevance to the investment promotion business in that strong brands continue to be successful and pertinent in a changing world. This is achieved by sharpening customer focus on the target audience; anticipating the changing demand characteristics in the market for investment locations; and realigning investment promotion strategies to suit government and regional policy preferences, organisational priorities, resources and aspirations.

Source: McInvest Economic Development s.r.o.

The second option is of the greatest relevance within the Valencia context which leads, naturally into the key question- namely, that of defining the competition. While the nature of the competition will depend, to differing degrees, on site selection characteristics of specific sectors and sub-sectors, Valencia competes with cities across Europe. Most importantly, however, it competes head to head with Madrid and Barcelona for the type of FDI needed to help diversity the economy and to become a key European centre for innovation and technological entrepreneurship.

Competition from Madrid and Barcelona

Valencia's promotional material, reviewed by the OECD panellist[40], does not address the question – 'why invest in Valencia as opposed to Madrid or Barcelona'. This is a weakness which is, essentially, compounded by the fact both Madrid and Barcelona are professionally promoted, are

[40] Material from Valencia Chamber of Commerce, Valencia City, and VCI notably the "Doing Business" publication.

developing an extensive track record in attracting the type of FDI that Valencia needs and have robust selling propositions based on key factor conditions like intellectual capital and comparative data vis-à-vis other European cities.

In Madrid's case, the interest of ICT investors will be drawn by 5,500 computer science graduates and telecommunications engineers who qualify every year from a student population of a quarter of a million – of whom 87.7% study English. €50 million has been allocated to promote the aerospace sector and playing host to 140 biotech companies, the city has a good chance of being shortlisted by life sciences companies.

Barcelona, too, has a student population of almost a quarter of a million and given that Catalonia hosts 3,000 foreign investors (out of the Spanish total of 5,500) along with 11 technology centres linked to the universities, the city is in a strong position to attract new technologies from new investors and from encouraging the considerable stock of existing investors to upgrade their activities through effective strategic aftercare. Arguably, Barcelona could join Madrid to be ranked as a 'global city'.

Core components of a re-branding strategy

The successful re-branding of Valencia will not happen by accident. A coherent strategy is needed and which, in turn, can be implemented by a sufficiently robust and competent institution(s). Within the context of this report there is logic in setting a joint goal in terms of:

- Valencia achieving first tier European city status and becoming a major European centre of innovation and technological entrepreneurship within (say) 10 years.

Excellent as the America's Cup has and is being in relation to raising the international profile of the city, this, frankly, will only have a marginal impact on the way international ICT and life sciences companies view Valencia. Essentially, they need to know and be convinced that their needs can be more competitively satisfied by Valencia than by any other city in Europe.

The flow chart in Box 3.3 below identifies the core elements of the type of marketing and communications strategy needed to assist re-brand Valencia. More specifically, it:

- Maps out the marketing and communications process by flagging the key elements
- Sets a clear goal(s);
- Helps define target audience;
- Defines what, how and with whom to communicate;
- It serves as a self-assessment tool enabling the of identification the areas of weakness in the process which have to be strengthened;
- It clarified who plays lead role and explains other key stakeholders; and
- It covers image building but can also feature a lead generation component of the investment promotion process.

The biggest challenge facing Valencia is to define and substantiate the answers to section 6 and 7 in the flow chart within Box 3.3. What are the factors that genuinely differentiate Valencia and the

region as a competitive investment location? Promotional material on Valencia to date has concentrated more on presenting regional macro economic data, features of the economy and general profiles of the main sectors, than on quantifying benefits and effectively answering the question 'why invest in Valencia and not elsewhere?'.

Granted, Valencia has an excellent reputation as a logistics hub and it is also acknowledged that companies operating within core manufacturing sectors, like ceramics, textiles, forest products and food processing, are among the most innovative within the region. Interesting though this is, this falls far short of substantiating the reasons needed to stimulate an increase in the type of FDI needed to underpin increased innovation.

Box 3.3: Key elements in marketing and communications strategy

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Source: McInvest Economic Development s.r.o.

Section six, as stated, embodies the critical component in the business of selling – the unique selling proposition (USP) – i.e. - those features that are superior to Valencia's competitors (at this point in time or which could be superior in the short-to-mid-term given further investment / product development) and which are likely to be highly attractive to certain types of businesses which directly impact on innovation and technology transfer.

While it is possible to define a regional and city specific USP this can be difficult. Consequently, especially in the case of Valencia, it is best practice to define the USP at a sectoral level, specifically in relation to the priority target sectors.

It is also important to consider how the marketing message can influence brand awareness of Valencia. Most of city's / region's customers invest, or will invest, because they can more profitably serve existing and new customers from Valencia than from other locations while tapping into new sources of intellectual capital. This may be an over-simplification, but, nevertheless, sustaining competitive advantage, according to Harvard's Professor Michael Porter, is achieved through a strategy of either low cost or product differentiation. Regions that go down the low cost route find it difficult to sustain competitiveness and run the risk of being branded as a region of cheap labour which should be avoided.

Strengths, Weaknesses, Opportunities and Threats (SWOT)

Historically, the FDI flow into Valencia had been more traditional asset seeking – market driven FDI which positively impacts on the national balance of payments and at a regional level creates employment, helps boost productivity and provides supplier development opportunities for SMEs.

The needs of the city and region, from FDI, have changed, as have the needs of foreign investors within several segments. Increasingly for Valencia, the benefits from FDI should focus more on technology transfer, vertical linkages between the foreign investor's innovative activities and local institutions and firms, the creation of high quality / skilled employment opportunities and the internationalisation of indigenous companies courtesy of the global networks of the foreign investor.

Attracting innovative companies to Valencia which utilise the outputs of research and development in practice to enhance competitiveness, only represents one of the three pillars needed to sustain the transition to a high value added / knowledge based economy. The other two pillars are:

- The creation of innovative companies which fully utilise the results of R&D in practice and which, in turn, relates to the chapter on the internationalisation of SMEs in this report; and

- Transforming existing companies in the region into highly innovative firms by engaging in higher levels of R&D and utilising the results in practice. An element of this involves implementing an aftercare strategy aimed at motivating existing investors to not only further embed their operations in the Valencia region, but to upgrade their activities.

SWOT Analysis

Insufficient time and lack of dialogue with senior Regional strategists and with the national investment promotion agency precluded an in-depth SWOT. However, within the context of assisting Valencia strengthen its economic base through technology and innovation, the assessment of the FDI panellist is presented within Table 3.4.

Table 3.4: SWOT Matrix

Weaknesses	Strengths
Over dependency on traditional sectors exposed to the rigours of global competition – wood, textiles, ceramics fall within highly labour cost sensitivity categories and hence the shift of production to Asia and Eastern Europe	Strong and extensive network of technological institutions – 6,700 businesses associated with REDIT's Technological Institutes accounting for almost 13,000 business customers
Very low profile as recipient of knowledge-based / innovative FDI – the electronics investment by companies like Celestica did not, unlike in Ireland, Scotland, Hungary and the Czech Republic, trigger the development of an electronics / ICT cluster	Strategic direction set for further developing the knowledge-based economy – including Avantic, the strategy to consolidate the advanced telecommunications and the Technological Knowledge Society in the Valencian Community (2004-2010)
Disproportionately low share of national FDI flow – FDI stock primarily manufacturing related	Excellent progress made in R&D and diffusion thereof within the sector specific institutions covering electrical technology, energy, electronics & automation, communications technology and life sciences including the Instituto de Biomecanica de Valencia comprising 150 professionals
Comparatively low use of ICT	Creation of four or five venture capital funds – ranging from €6 million up to €60 million
Poor linguistic skills – particularly business English	16,000 life sciences related student population
Universities operate in a vacuum with poor links with industry and other international centres of excellence – most linkages focus on traditional connection with Latin American institutions	Universities, including the University of Valencia with 45,000 students, with excellent scientific knowledge and highly qualified human resources
Flawed incentives for academics to collaborate with other institutions and companies	Commendable initiative in play to promote ICT and Innovation including FIVEC which has identified the technological demands of the city
Insufficient labour mobility	IVEX proactive in terms of seeking to identify technology partners for indigenous companies
Lack of land within City of Valencia	Excellent telecoms network
Lack of coordination between various initiatives and strategies aimed at fostering greater innovation	Foundations in place to support R&D sectoral clusters
Skilled labour shortages	Well diversified economic base
Insufficient labour flexibility	Recognition by City that steps are needed now to

	stimulate growth of innovative enterprises
Too many small companies below the threshold for conducting their own R&D	EU Structural Funds still available – 2007 / 2103
Lack of governance in higher education	Generally positive perception of city
Lack of focus within economic policy on skills; productivity and innovation (the airport, port and railway network are important but do not represents major influencers for most potential investors)	Exceptional quality of life and strong social cohesion
Lack of proactivity in promoting Valencia as a destination for knowledge-based FDI and no clear responsibility assigned to a particular promotional institution to implement strategy to create knowledge-based innovative economy – for example, Valencian Community Investment is principally a reactive organisation	Commitment of both City and Region to ensuring Valencia develops into a leading European centre for innovation and technological entrepreneurship
Lack of unified strategy on innovation and growth of knowledge-based industries	

Table 3.4: SWOT Matrix (continued)

Threats	Opportunities
The gap may widen between Valencia and Madrid and Barcelona in terms of successful branding as European centres of innovation	Valencia's number one asset is intellectual capital – this needs to be more prominently promoted and benchmarked
Reduction in EU Structural Funds for 2007-2013 v increases into new Member States	The true potential of Valencia's universities and technical institutions has yet to be fully unlocked
Automotive and electronic foreign investors may not have deep roots in the regional economy	High degree of public consciousness on the issue of innovation
Poor performance in attracting 'first wave' investors has restricted the stock of foreign investors in the best position to respond to aftercare in terms of embedding and upgrading operations in Valencia	Undertake thorough cluster mapping audits to identify gaps – assess if gaps can be bridged regionally – if not target international companies to do so – ideally in partnership with local company
Brain drain flow could increase through shortage of quality employment opportunities	Improve joint venture and venture capital readiness of indigenous companies
Notion that solving communication problems will be sufficient to stimulate flow in the type of FDI needed to sustain increase in innovative enterprises	Direct EU Structural Funds in line with activities of best practice technology agencies – i.e. those of Sweden and Finland
Bureaucratic layers regarding administering programmes not getting thinner	Start branding Valencia as a European centre of innovation and technological entrepreneurship
Continued overemphasis of University cooperation with Latin America	Valencia does not feature within the biotechnology download from the national IPA, INTERES – moreover, the Valencia section within the national site starts by highlighting logistics and audio visual investment opportunities – this, in turn, is an opportunity to ensure that Valencia is more effectively promoted at the national level as many investors will first shortlist counties prior to shortlisting cities.
Insufficient university studies taught in English	Attracting design, R&D, technology centre and high value added business support services from existing and new foreign investors
Lack of commitment and resources at the national level to re-position Spain as a highly competitive location to support innovation and technological entrepreneurship	Make labour market more open and competitive – increase life-long-learning initiatives
Fragmentation of investment promotion efforts – VCI not universally acknowledged as 'focal point' for investment promotion	Dramatically increase proactivity in terms of identifying and sustaining meaningful dialogue with the international target audience in the strongest position to impact on the city / region innovation goals
Valencian Community Investments mandate too narrow – reflecting the characteristics of a second generation investment promotion institution (refer to box 4) when both the region and the city need a forth generation institution	Current promotional material comprises features associated with investing in Valencia – benefits are not presented benchmarked against the competition – this represents a significant opportunity to enhance investment promotion
Risk that fragmentation of strategic development between local institutions and the fact that those responsible for developing strategy need not be held responsible for implementation, can seriously undermine effort to achieve innovation goals	Implement an effective aftercare strategy

First, it is pertinent to reflect on the typical factor conditions needed stimulate and sustain the growth of clusters that are of increasing importance to Valencia – i.e. life sciences and ICT. The key factor conditions include:

- Strong Science base;
- Entrepreneurial culture;

- Growing company base;
- Ability to attract key staff;
- Availability of finance – especially venture capital for the start-up phase;
- Premises & infrastructure;
- Business support services & large companies in related industries;
- Skilled workforce;
- Effective networks; and
- Supportive policy environment.

As presented within Box 3.1, nationally, Spain ranked particularly poorly on the European Innovation Scoreboard when it came to:

- Business R&D expenditures;
- The percentage of SMEs collaborating on innovation;
- Early stage venture capital provision;
- High technology exports; and
- Patent registration.

Partly, as a consequence of this, Valencia lacks a tradition in creating companies which exploit innovation and technology. Moreover, the universities have not matched their counterparts in Barcelona and Madrid in terms of interfacing with world class private companies and offering a high percentage of courses in English language. Nevertheless, Valencia has very considerable attributes which can be exploited further and which are 'flagged' within the SWOT matrix.

Recommendations

Based on the fact finding mission, the desk research and influenced by the SWOT presented above, the main recommendations are summarised below.

The City of Valencia can not operate within a promotional vacuum – the promotional activities of the City and Region are interdependent. Moreover, if the national investment promotion agency, INTERES, is not drawing the comparative benefits of Valencia to potential foreign investors, then a significant marketing opportunity is being lost.

The dynamics of the investment promotion business have changed substantially in recent years – as, indeed, have the needs of Valencia from FDI. As a consequence, there is a limit to what a traditionally structured IPA, like Valencia Community Investment (VCI) can do. Referring to Box 3.4, VCI rests between the second and third generation institution while the needs of Valencia necessitate an approach consistent with an alignment towards the fourth generation model.

Box 3.4: Traditional approach to investment promotion

In terms of policy framework there tends to be four generations of investment promotion institutions:

- First Generation – FDI liberalisation and access to protected sectors by foreign investors;
- Second Generation – Establishing IPA and marketing the country / region;
- Third Generation – strategic direction aimed at specific investors; sectors; clusters and / or regions – highly proactive;
- Fourth Generation – Full service economic development agency encompassing the activities of a technology agency.

Source: FIAS – member of World Bank Group

To create a dynamic economy built on science, innovation and technological entrepreneurship calls for a coherent strategy and crystal clear responsibility defined in terms of implementation and particularly in relation to servicing the needs of indigenous SMEs, existing international investors and potential investors. Currently, there is a lack of effective communication between the agencies involved in promotion and there is also a gap or weak link between the actual strategists and implementers – for example, VCI lacks its own strategy to attract innovative activities.

In detail, the recommendations include:

Location Audit

Complete an in-depth location audit of Valencia and the region as a host for ICT, life sciences and high valued added business support services (e.g. head quarter operations, shared service centres, technology centres) – benchmarked against Barcelona and Madrid at the national level and a selection of European cities including Milan, Frankfurt, Munich, Prague, Budapest and Belgrade.

The audit should focus on quantifying skills availability; profiling the respective clusters; elaborating on technical university and technological institution competencies; calibrating extend to which sector is contributing to Valencia's GDP; preparing cases studies on most successful / innovative companies; benchmarking operational cost overheads – particularly labour, real estate and telecoms related, clarifying incentive and taxation regime; benchmarking linguistic skills; and assessing the percentage of international customers served from Valencia.

Additional information and guidance on conducting location audits can be sourced from the website of MIGA – the Multilateral Investment Guarantee Agency of the Work Bank Group. This portal consolidates three of MIGA's on-line services[41] and is aimed at investment promotion agencies (refer to MIGA Toolkit) and foreign investors.

Action takers: City of Valencia / CEyD, VCI, FIVEC, REDIT and IMPIVA.

[41] MIGA portal: www.fdi.net IPA net; PrivatizationLink; and FDIXchange

Re-branding Strategy

Develop re-branding strategy positioning Valencia as European centre of innovation and technological entrepreneurship.

Box 3 highlights one of re-branding goals which is to bridge the gap between how the target audience perceives Valencia now and how City and Regional officials would like the city to be viewed in the future.

To ensure that the Valencia brand is to be the source of value for the types of investors the city needs, its positioning in the market and their minds will be critical to the actual value created. Consequently, it is important to undertake a perception testing exercise focusing on the target audience to ensure that the key marketing message and themes help strengthen the brand.

Action takers: the City of Valencia/ CEyD should fulfil the lead role given the progress made in promotion the city to date.

Aftercare Strategy

Develop and implement an aftercare strategy aimed at encouraging existing investor to upgrade activities in Valencia – this topic is further elaborated in the second chapter of this report.

Action takers: VCI.

Fortifying the linkage between FDI and indigenous SMEs

Capitalise on EU Structural Funds to introduce supplier development programme aimed at providing access to international companies' innovative techniques and technologies by local SMEs.

A key goal would be to enable Valencian companies to develop the supply chain expertise and capabilities to become preferred suppliers to international companies, not necessarily restricted to those operating within the Valencia Region, seeking competitive and innovative manufacturing and services solutions.

Focusing on ICT and life sciences initially, the first step would involve identifying the products and services for which international companies (operating in Europe), seek competitive suppliers and then concentrate on enhancing the supplier readiness of Valencian companies – partly through existing innovation, training, design and technical cooperation programmes administered by IMPIVA and possible through a twining arrangement with a well established supplier development programme – for example, in Ireland.

Action takers: IMPIVA, IVEX capitalising on its international network, FIVEC, REDIT, VCI and City of Valencia.

Enhancing linguistic skills

The very low levels of English language at a governmental, entrepreneurial and individual level, represents a significant constraint to attracting internationally mobile investment.

As stated in this report, almost 90% of the student population in Madrid study English while competing cities (e.g. for ICT and shared services projects), like Prague can already support centres operating in around 10 different languages[42].

It is worth considering introducing English lessons in classes from seven years of age and for the Valencian Universities to match Madrid and Barcelona on term of courses delivered in English. The training programmes IMPIVA provides local companies should also significantly increase the provision for English language training – especially for middle and upper management.

Action takers: Ministry of Education; Universities; Schools; IMPIVA

Condense City and Regional innovation-related growth strategies into one coherent document

This suggested cohesive growth strategy should aim at:

- Creating new innovative companies which exploit R&D in practice;
- Accelerating transformation of existing companies – directly and through identification of international partners – which engage in and utilise the results of R&D in practice; and
- Proactively attracting innovative international companies (particularly within ICT, life sciences, environmental technologies / renewable energy; and advanced composite materials) which engage in R&D, are keen to establish robust linkages with academic and research institutions and which utilise the results of the R&D in practice

Action takers: IMPIVA, City/CEyD, VCI and FIVEC

Create a 'virtual technology agency[43]'

There is merit in considering the establishment of a 'virtual technology agency by articulating how the existing institutions could more cohesively work to the common goals of streamlining the provision of financing for applied and industrial R&D while orchestrating effective cooperation between local companies; research institutions, universities; international companies and international academic institutions – the aim of which being to:

> Diversify Valencia's industries and services by technological means and through innovations to boost productivity, competitiveness, added-value and enhance export – thereby substantiating the proposition that Valencia is a European centre of innovation and technological entrepreneurship.

Moreover, the breakdown of recommended action takers within this section underscores the need for effective cooperation and cohesion. The detailed breakdown of responsibilities and actions should be the topic of a roundtable session with all constituents but with the city leading on re-branding the city and IMPIVA, FIVEC and REDIT leading on product and enterprise development, VCI would have a more competitive product offering to, in partnership with IVEX and the City, draw to the attention of the target audience.

[42] The Accenture Shared Services Centre in Prague operates in 12 languages

[43] At the national level, the Finnish Technology Agency www.tekes.fi is a recognized European Leader

International Approach: The Lisbon Context

In terms of SME development, aftercare and university linkages, most of those economic development related issues can be addressed at a city and / or regional level. Capitalising on FDI to foster innovation and technological entrepreneurship is, however, a broader issue representing a national challenge. Consequently, the learning models, while focusing on city initiatives and respective roles, all have one common denominator – activities are intrinsically linked to national promotional campaigns and policies. Likewise, in Valencia's case, to be a successful recipient of innovative FDI, the city can't operate in a vacuum which it turn underscores the need for robust linkages with national promotion and sector development initiatives.

Within the Lisbon agreement context, Spain's very low level of business expenditure on R&D as a percentage of GDP, as illustrated within table 5, represents a very significant challenge and therefore it is important for Valencia to map out initiatives and measures that will positively impact on delivering solutions to the national challenge.

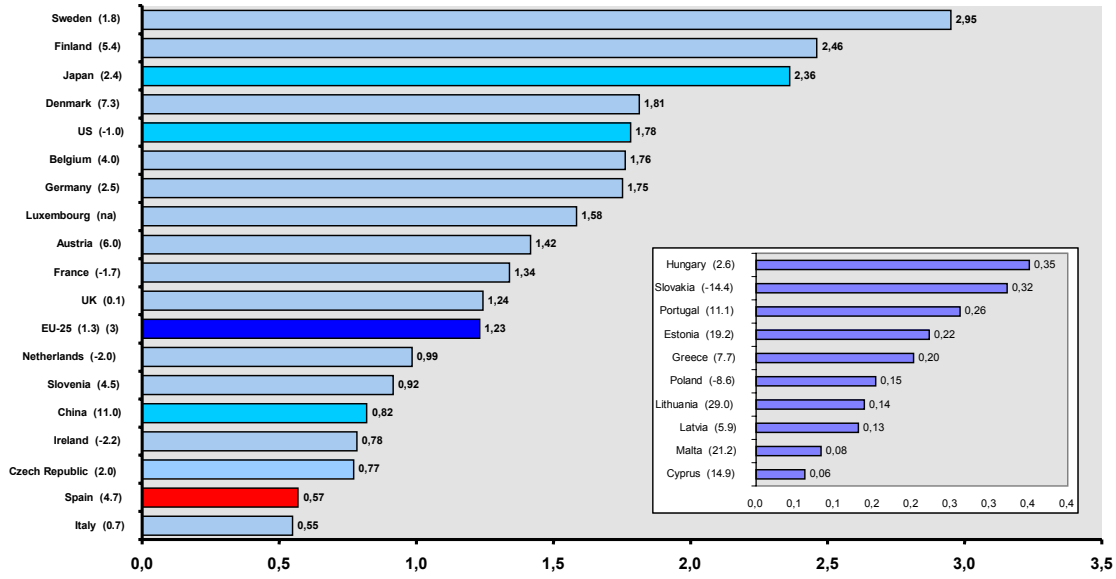
There are two pressing issues:

- The very low levels of expenditure as a percentage of GDP; and
- Very considerable gap to bridge between the current status and the "Barcelona objectives" (target agreed upon in 2000 – i.e. R&D investment reaching 3% of GDP and that two-thirds of the R&D expenditure should by financed by the business sector).

The magnitude of the gap underlines the need to significantly increase the number of international companies undertaking R&D in the Valencia Region and, ideally, fully commercialising the results of the R&D in the city and / or region. The Brno learning model presented below is a particularly innovative approach to that end.

In 2002, the business enterprise sector financed 55.6% of domestic R&D expenditure in the EU, compared to 63.1% in the US and 73.9% in Japan. The share of R&D financed by the business enterprise sector grew at the rate of 1.2% per year from 1997 to 2000, but decreased by 0.6% per year between 2000 and 2003. The overall target of two-thirds of R&D expenditure financed by the business sector will not be reached by 2010 if current trends remain unchanged which highlights the fact that the challenges faced are not unique to Spain.

Table 3.5: Business enterprise expenditure on R&D (as % of GDP), 2003 (1); in brackets: average annual growth rates



Source: DG Research Key Figures 2005
Data: Eurostat, OECD
Notes: (1) LU : 2000; AT : 2002; BE, IE, IT : 2004.
(2) ES : 1997-2001; BE, IE, IT : 1997-2004; EE, AT : 1998-2002; CY : 1998-2003; CN : 2000-2003; FR, UK : 2001-2003; MT : 2002-2003.
(3) EU-25 was estimated by DG Research and does not include LU and MT.

Considering that the level and intensity of overall expenditure on R&D are key determinants of the future competitiveness of an economy, it is also important to look at the sectors in which this R&D is performed. The business sector is probably most important in this regard. It is closest to consumers and best positioned to significantly improve or develop new products based upon new combinations of existing knowledge or knowledge newly developed through research in-house or elsewhere and to exploit this commercially.

Business R&D expenditure is market-driven and accounts for an important share of innovation expenditure. In a direct way and through stimulating other sectors this, in turn, leads to employment and economic growth. The level and intensity of business R&D expenditure, as well as the structure of its funding, is therefore a key determinant of an economy's future competitiveness, and a key concern for policy-makers.

When promoting Valencia, the focus needs to be on the sources of demand for additional R&D related capacities. The Unites States represents a priority market. For a start, EU-based firms tend to invest less than US firms in R&D in the services sector and in high-tech manufacturing. In the US, nearly 40% of all business R&D is performed in the services sector whereas in the EU this share is only 15%. The share of high-tech manufacturing industries in total manufacturing R&D is also lower in the EU (41.4%) than in the US (44.3%).[44]

[44] EUROPEAN COMMISSION - Key Figures 2005 on Science, Technology and Innovation Towards a European Knowledge Area

Learning Models

There are many cities accorss the OECD region, particularly in Europe, which have managed to move out from the shadows of the capital city and/or leading national commercial centre, to establish brand recognition – particularly related to an advanced technology or sub-sector.

Dresden, for example, has moved on from the traditional engineering, porcelain and textiles businesses to be a globally recognised centre for microelectronics and through the creation of a Nanotechnology Competence Centre, aims to repeat this success in other segments.

In Scotland, the fourth city, Dundee matches and occasionally surpasses Edinburgh and Glasgow at competitively meeting the needs of ICT and life sciences companies. Initial success was founded on attracting international companies. Today, the emphasis is on strengthening the linkages between the foreign investors and local SMEs and universities. To that end, the Prospect Business Centre was established within the city's main technology park and comprises three units:

- The Interactive Tayside Software Centre, as the name suggests, is aimed at small/new software type companies;

- Another unit is fitted out with laboratories to provide access to the technical facilities small and start-up life sciences companies lack; and

- The third unit supports various value added business services.

Within the Czech Republic, the second city, Brno, is now competing head-head with the capital city Prague for technology centre and innovation related projects from international investors. Moreover, Brno now hosts an innovative public / private 'vehicle' (ChipInvest) to foster innovation which, in many respects has broken new ground within a European context.

This section describes some models adopted in three OECD countries that might be of inspiration for Valencia and could provide some useful insights to respond to some of the challenges faced to attract knowledge intensive FDI to the region.

Development of New 'Vehicles' to Foster Innovation – Brno Model (Czech Republic)

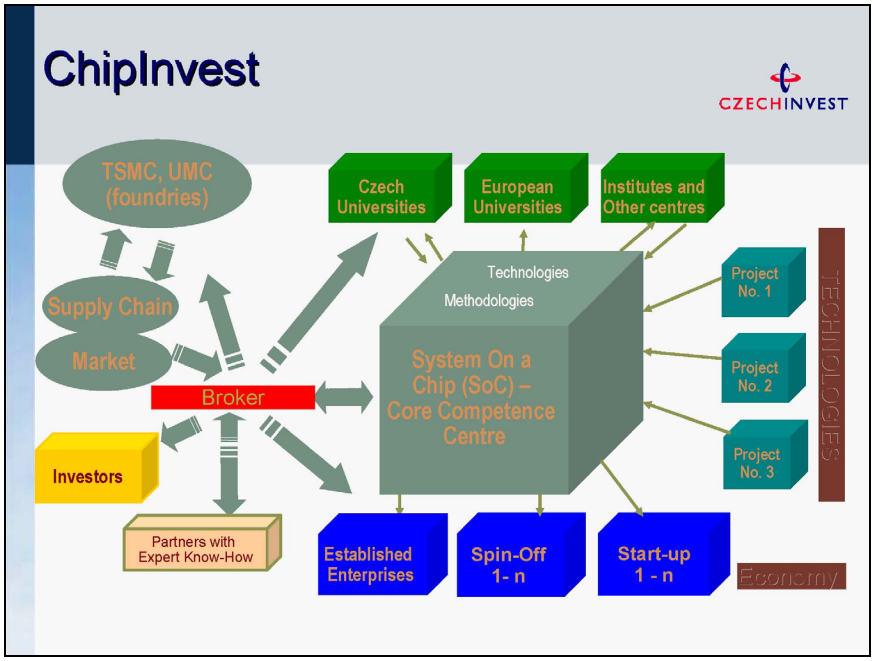
Description of the model

The aim of ChipInvest was to create a new European Centre of Excellence for Microelectronics in Brno. The centre provides support to both international and SME-sized technology companies by serving as a resource for semiconductor-related specialists. The goal of the project is to support good ideas from the field of microelectronics development in which small companies, university spin-offs and individuals do not have enough funding to develop themselves. The first step has been taken with the opening of an integrated circuit development laboratory at the Faculty of Electrical Engineering and Communication Technologies at the Brno University of Technology.

Unlike the neighbouring region of Saxony in Germany, the Czech Republic, although it has a deep-rooted tradition in integrated circuit design, lacked the image of Saxony, or more specifically, Dresden, as a centre of excellence in micro-electronics.

The "core competence centre" of ChipInvest, illustrated below, is based within Brno University of Technology.

Figure 3.1: ChipInvest Model



In order to regain competitiveness within the dynamic semiconductor segment, the Czech Investment and Business Development Agency, CzechInvest, had to break new ground to meet the needs of investors while maximising spin-off benefits for both the Czech economy and local companies. The 'ChipInvest' model is in many ways unique within a European context, in terms of fostering optimal partnering arrangements between industry, the city authority, universities and local companies.

Relevance to Valencia

ChipInvest is joint project featuring leading global microelectronics firms ON Semiconductor and Cadence. Through this lab these investors support microelectronics research and development and in return gain an effective incubator environment for their further development. Essentially, this is a cluster consisting of the capital, expertise and international networks from large companies on the one hand, and the innovative potential of small firms and science institutions on the other.

With CzechInvest helping the particular entity to prepare the entire concept, from business plan to feasibility study to making contacts with potential investors and customers, local companies benefited while the international partners tapped into new sources of intellectual capital.

The approach could be adopted in Valencia to increase private sector R&D in areas like ICT and lifesciences, thereby representing a key measure aimed at establishing Valencia as a European centre of excellence.

Impact of the approach

The model works and several global microelectronic companies are now conducting R&D activities in Brno with robust linkages established with the Brno University of Technology and with

Czech SMEs. The companies undertaking R&D include Motorola, S3, AMI Semiconductor, ON Semiconductor, ST Microelectronics, Flextronics Design and Cadence.

The City of Brno hosts a genuine centre of excellence which raised the profile of the Czech Republic, as a whole, as a centre of innovation and technological entrepreneurship.

Reasons for success

In this case, it was the national investment promotion agency, CzechInvest, that initiated the proposal and acted as the catalyst for drawing the international microelectronic companies, the City Authority, the Technical University, the initial funding (€100,000) and local SMEs together, thereby creating ChipInvest. Working in tandem with the Region, it should be possible for the City of Valencia to initiate a similar model.

Considerations for adoption in Valencia

Both CzechInvest, in particular, and the Brno University of Technology had established extensive dialog with the leading international semiconductor companies and, accordingly, were in a strong position to anticipate and respond to their R&D needs. During the fact finding mission of September 2006, there was little evidence that VCI had developed such linkages and therefore this increases the challenge Valencia faces to drive such an initiative. In the first instance, Valencia needs to establish dialog with the top 50 lifesciences and ICT companies by drawing the city's academic institutional strengths and provision of intellectual capital, to their attention.

Further information

Website: www.czechinvest.org and www.brno.cz

Centre of Biotechnology – Dundee Model (Scotland, UK)

Description of the model

The lessons Valencia can draw from the Dundee approach is the successful way in which the city, which in the past was overshadowed by the country capital and prominent second city, emerged, in a relatively short time frame (five or six years) as a national and indeed international centre of excellence within specific technologically driven sectors.

Relevance to Valencia

Situated on the east coast of Scotland with a background in the textile business, Dundee has undergone a renaissance over the last 10 years, triggered by the City Council's economic development plan on 1996 which included the aim to establish the city as a centre of innovation and enterprise development within the biotechnology sector.

In particular, the strategy acknowledged that most of the key factors needed to support biotechnology cluster development were in place, including the strong scientific research base courtesy of the two leading universities and the Scottish Crop Research Institute which the city hosted.

The City then created the 'BioDundee' initiative in partnership with Scottish Enterprise, the city's universities and the private sector to ensure that biotechnology in Dundee developed an international profile.

Impact of the approach

To facilitate the development of the cluster, the City felt it necessary to establish a 'medipark' within which the specialist premises and support infrastructure provided the optimal environment for biotechnology research and production processes. The 5 hectare Medipark was established adjacent to Ninewells Hospital and Medical School and plays host to around 20 major biotechnology companies. Moreover, within a radius of 4 km of the Medipark, there are in excess of 1,500 biomedical researchers working.

Reasons for success

The City Authority provided the catalyst for biotechnology cluster development through the provision of the Medipark and the strong interface the Dundee universities had developed with the private sectors accelerate the creation of the 'spin-off' companies from research.

Considerations for adoption in Valencia

Valencia has a nucleus of indigenous biotechnology companies and certainly in terms of academic and biotechnology institutional strengths, this represents a very strong pillar to support a biotechnology cluster. Unlike the Dundee model, however, a more robust and effective linkage needs to be forged with the top global biotechnology companies as private sector R&D is a pillar that needs to be fortified, in Valencia's case. That the GECOBIO (Cooperation Network for Biomedical Knowledge Management) project is now running in Valencia represents a major step in the right direction as it brings together all actors developing healthcare technologies, fosters innovation, stimulates cluster development and underpins the city's competitiveness within the sector.

Further information

Website: www.biodundee.org and www.scottish-enterprise.com

Global Centre for Microelectronics and Biotechnology – Dresden (Germany)

Description of the model

Less than 10 years ago, the City of Dresden set the goal of becoming "the biggest microelectronics cluster in Europe" – not only was this goal realised, the city also plays host to a biotechnology cluster. Consequently Dresden, once famed for its porcelain and living under the shadow of the leading business centres in the western part of Germany, is now attracting world class companies and spinning off the benefits of innovative FDI into the local economy by establishing the linkages with the universities and local SMEs.

Relevance to Valencia

The outstanding competencies in the field of microelectronics and biotechnology now represent the integral core of the Dresden brand. Ultimately, the aim should be to brand Valencia likewise starting with a similar goal to the one set by the city of Dresden. At the heart of Dresden's success lies the city's ability to maximise the productive cooperating between enterprises and the technical universities.

To that end, numerous sponsored Chairs have been established within the universities by world class ICT and integrated circuit companies, thereby keeping the universities at the leading edge and enhancing the marketability of the respective graduates.

During the fact finding mission of September 2006, such productive cooperation between industry and the universities was not nearly so prevalent. Dresden University of Technology has a student population in excess of 28,000 and underlining the linkages with the private sector, the ICT faculty Chair is sponsored by SAP, the world's third largest software provider.

Impact of the approach

Collectively, AMD, Infineon and Motorola have invested over €6 billion in their semiconductor plants and in the case of AMD it is their most up-to-date wafer plant in the world. AMD also commented that their latest €1.8 billion expansion on a 30 hectare site represented a start-up record for the company prompting the AMD to accelerate their R&D plans for Dresden.

More than 760 companies and about 20,000 employees are working in this field in the region. With semi-conductor and component manufacturers, chip designers, suppliers and cooperation partners, research institutes and other service providers including software services, all elements of the value-added chain are represented. Dresden's "Silicon Saxony" network is the biggest industrial association of microelectronics in Germany and represents a case where the city also enhanced the national (German) brand as a globally successful microelectronics centre.

The biotechnology sector is also booming in Dresden as a consequent of the business / university linkages and through the provision of unique development programs, such as the biotechnology initiative of the Free State of Saxony or the INNOREGIO project of the Federal Ministry for Research and Education, which have had a great influence in the development of the state capital into the sector.

In the Biotechnological Centre of the Dresden University of Technology (TU Dresden), which was opened in 2004, staff of five chairs and several groups of young researchers are engaged in working on interdisciplinary questions of molecular bioengineering. The Max Bergmann Centre for Biomaterials is also active in the field of interdisciplinary biomaterials research. Up to now, this facility is unique in Germany, it is affiliated with the Institute for Polymer Research and unites under its roof specialists from the Leibniz Institute, the Institute for Material Sciences as well as the Medical Faculty of the TU Dresden.

Reasons for success

Once again, the three main common denominators for success included a very broad spectrum of research and training, productive partnerships between leading international companies and the technical universities and a dynamic city authority with a clear strategic goal and ability to fully capitalise on national (Industrial Development Council, IIC) and regional promotional initiatives by positioning Dresden as the optimal location.

Considerations for adoption in Valencia

The funding of foundation professorships at the Dresden Technical University and the institutions of higher education and technical colleges are further examples of productive cooperation between economy and science and should be replicated in Valencia. Granted, the wafer plants did benefit from incentives approaching the maximum EU threshold and may be difficult to match. However, the main lesson for Valencia is that the City's strategy of 1996, build on academic strengths and an anticipation

of the future production and R&D needs of ICT, microelectronic and biotechnology companies, has achieved exceptional results.

Further information

Website of the City of Dresden www.dresden.de

Website of the Development Council at regional www.invest-in-saxony.net and national www.iic.de levels to promote the city

In conclusion, the lessons Valencia can draw from the Dundee and Dresden approach is, as stated, the successful way in which those cities, which in the past were overshadowed by country capitals and prominent second cities, emerged as leading international centres of excellence in their own right.

The Czech ChipInvest model, within a Valencian context, could enable the city to 'leapfrog' the competition within the ICT and life sciences sectors by capitalising on existing strengths (particularly in terms of the Councils of Scientific Research, the Business and Innovation Centres and Technology Institutes) while plugging a major gap which is the interface with world class companies. Moreover, such a model enhances the ability of local firms and university spin-offs to be more innovative and thus internationally competitive.

CHAPTER 4

STRENGTHENING AFTERCARE AND EMBEDDING OF FOREIGN DIRECT INVESTMENT

by Rod Brown
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Overview

Foreign Direct Investment (FDI) Aftercare involves the provision of services to foreign investors after their initial investment. It increasingly includes embedding activities - that is, embedding the foreign investor within the local economy or region - to secure the existing investment, generate greater local spin-offs, and influence the company to make further investments.

FDI Aftercare in the GVA context

The Greater Valencia Area (GVA) wants to attract more FDI, and to develop a strong aftercare programme to generate the maximum possible benefits from existing investments.

These are very relevant objectives given that the wider Valencia Community (four times the size of the GVA) generally accounts for only 2-3 per cent of the Spanish total.[45] Moreover, while 260 multinationals have invested in the region since 1995 - principally in car assembly, ICT, steel, aluminium, glass, transport and power - the spin-offs have been less than anticipated. There is a consensus that both the quantum and quality of FDI activity has been sub-optimal.

Professor Quesada[46] notes that the problem is of national scope. He summed it up as follows - 'apparently, either FDI attracting factors have changed or Spain has lost them. Probably, both elements are true…Spain has gradually become a service economy, and manufacturing industries have moved abroad where much lower labour costs compensate for the ever-decreasing transportation costs. Something similar has taken place in the Valencia Community.'

Notwithstanding this, Valencia Community Investments (the body responsible for attracting investment into the VC) is currently very busy, having facilitated 480 million euros of investment in the last year.[47] It is also active in providing ad hoc support for select investments, as well as organising funding for infrastructure projects to improve the returns of investments. It has also indicated that FDI Aftercare will receive greater emphasis in the future.

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[45] The proportions jumped to 18% and 20% respectively in 2001 and 2004 due to substantial investments by Ford at Almussafes.

[46] Review on Foreign Direct Investment, Internationalisation and Innovation, City-Region of Valencia, Diagnostic Report (2006).

[47] VCI acknowledges that an investment by BP accounted for 400 million euros.

Summary of Recommendations

Suggested recommendations in respect of FDI aftercare are described in detail towards the end of this section. While they mostly involve initiatives to deliver industry-wide benefits, several of them have the potential to improve the competitiveness of foreign companies in the region.

Accordingly, it is suggested that the Valencia authorities should invite certain foreign companies to become members of action teams to implement specific initiatives.

For example, one of the recommendations is for market research to identify international investment and export opportunities for Valencia, as well as participation in international hubs. Such a project may be of particular value for companies such as Ford España, British Petroleum, Alcoa, Celestica/IBM or UBE in which case they should be invited to contribute towards its cost.

Similarly, the possibility of a Free Trade Zone at Valencia Port should interest a number of foreign companies operating in the region. Projects such as these could thus become part of the aftercare programme for these foreign companies.

The recommendations in summary form are as follows.

Aftercare Programme

- Encourage companies to talk frankly about their plans. This provides the basis for the structuring of an effective aftercare programme for the company but requires a strong commitment from the government to build trust between the local authorities and the foreign investors.

- Develop formal agreements where possible, involving commitments by the parties. This also needs a close communication between the local entrepreneurs and the public sector, as well as between the local entrepreneurs and the foreign companies. The local authorities, through the investment promotion agency, must play an active role in launching and activating the flows of exchange and trust.

- Pay attention to the delivery mechanism for aftercare, the account managers and site selection team. To deliver an efficient aftercare and embedding service, the managers must provide local solutions for the investors anticipating their needs. Therefore, the delivery efficiency relies in the capacity of the government to choose the best account managers team to deliver efficiently.

- Embedding investors in local connectivity systems is important. To achieve this, the government must know its assets and capabilities in order to make the best use out of them and exploit them in benefit of the local and foreign enterprises. The local connectivity system must take into consideration the city's overall economic strategy so that the different actors of the key economic sectors (health sciences, nanotechnologies, logistics, etc) are involved in the dynamic of the system.

- Consider the development of a Rating System. With such a tool, the investment promotion agency could define a proactive strategy and work towards attracting and embedding the leading players in the key economic sectors for the city. If the leading companies invest in Valencia, the others will follow.

International engagement

- Promote joint ventures between innovative local SMEs and high-performing foreign companies. Priority industries are food; ceramic tiles; healthcare; logistics; film; alternative fuels; environmental monitoring; health sciences.

- Consider the science park and business incubator at UV and UPV as a focal point. The science park at the UV could also play an important role in this.

- Consider the feasibility of a MIT-type Business School to progress the formation of global alliances.

- Commission a multicultural team of academics to develop a model for improved commercial and social interface between Spain, Asia and the Muslim world.

- Commission market research to identify international investment and export opportunities for Valencia, as well as participation in international hubs.

- Join the UNESCO Creative Cities programme and work towards identifying a strong label for the city of Valencia in line with the city overall strategy.

University engagement

- Pursue the preparation of a 'City Knowledge Map' with FIVEC and the involvement of the universities.

- Investigate the worth of a collaboration agreement with the technology entities with the support of REDIT.

- IVEX could extend and strengthen alumni and sister-city arrangements through its offices abroad.

Brand and Image

- Continue the development of a suite of 'international image drivers' - such as the Jaime I Awards, the America's Cup, the Astronautics World Congress, Feria Valencia, Valencia Port. Integrate this within the Aftercare programme.

- Implement a 'Thinkers in Residence' programme as the one implemented in Adelaide.

- Consider the possibility of a Free Trade Zone, initially confined to the Valencia Port mainly on logistics.

Cluster programme

- Establish a cluster programme, with a budget commitment of 100,000 euros per annum, for a minimum 3 years to run long-term projects. Either IMPIVA or the ALITEC fund could be asked to finance the cluster programme.

- Focus initially on those sectors where collaboration is already reasonably good and where early outcomes are achievable. Possibilities are logistics; nanotechnology; health sciences; transport equipment; food processing and related equipment.

Key issues and trends in FDI Aftercare in OECD member countries

The logical starting point for the identification of key elements of a FDI Aftercare programme for the Greater Valencia Area is to understand developments in other regions within the OECD area.

FDI Aftercare is becoming very important across the OECD area for a number of reasons.

Firstly, nowadays, the majority of FDI flows are accounted for by existing investors rather than new investors. While the proportion varies across regions and sectors, it is estimated that reinvestment expenditure is between 50 and 70 percent of the total. It supports marketing adage that 'it is five times easier to sell to an existing client than a new one.'

Secondly, there are growing concerns about the increasingly footloose nature of FDI, and the economic and social dislocation that results from plant closures. It thus makes sense to give greater prominence to FDI Aftercare.

Finally, there is now greater scrutiny of subsidies paid to foreign investors. There is an expectation that agencies providing these subsidies will monitor these investments to ensure they deliver what was promised. Effective aftercare programmes can perform this function.

Branch Plant syndrome

The rise of FDI Aftercare is associated with the 'branch plant' syndrome[48]. The nub of the problem is that a significant number of foreign investments have minimal spin-off benefits for local businesses and communities due to their branch plant nature and an associated lack of autonomy from the company's headquarters. The GVA is no exception. The concern relates to investment performance, technology, linkages and vulnerability to closure.

In respect of investment performance, foreign investment is commonly criticised for financial leakage out of the host region due to the remittance of profits back to the parent company. It can also involve transfer pricing to reduce taxes payable in the host region, although this is thought to be less of a problem than a decade ago due to the tightening of corporate governance and tax arrangements.

In respect of technology, the concern is that foreign investors are disinclined to make their technology available to users outside the firm. Moreover, even when technology is transferred, it may be inferior to that used in the company's leading plants. This can further increase the vulnerability of foreign affiliates to closure decisions by the parent company.

In respect of linkages, the problem is manifested by the reluctance of foreign investors to move away from its traditional suppliers, particularly where technology-intensive inputs are involved. This is more evident in industries such as ITC, aerospace, biotechnology etc. This means limited opportunity for spin-offs and strategic alliances for local suppliers.

In respect of vulnerability to closure, plants that are technical replicas of others are at risk. In an increasingly globalised market, different plants within the same parent company are often in direct

[48] This section draws on earlier work by Jon Potter (OECD).

competition, with the most cost-efficient plants surviving. This can put extreme pressure on plants whose financial viability may not have been strong at the outset. There are many examples where investment incentives provided to foreign investors created only a temporary advantage – inefficiencies in one or more of the main cost items (e.g. labour, energy, materials, transport) eventually led to plant closure.

Good aftercare practices can ameliorate this problem.

Aftercare emphasis

Aftercare activity in the OECD area can be classified according to five main areas.

1. Building Connectivity

- Identification of local suppliers.
- Identification of local partners for joint ventures/strategic alliances.
- Development of local supplier development programmes.
- Cluster and network building initiatives.

2. Training

- Recruitment and training assistance.
- Provision of customised training programmes.

3. Investment capacity

- Presenting case for new investment to corporate headquarters.
- Information, incentives and support to adapt and expand premises.
- Minimisation of adverse effects of rationalisation.

4. Support for joint ventures

- Joint ventures with local universities or firms e.g. business plans, equity, loans.
- Corporate spin-outs.

5. Infrastructure & operating environment

- Addressing education issues.
- Upgrades of broadband, mobile phone coverage.
- Contributions to common-user infrastructure.

Key success factors

The majority of aftercare programmes are at a basic stage, and not well-resourced. The better examples are to be found in the UK, the USA, Singapore, Ireland, and parts of continental Europe and Australia. Some relevant examples to Valencia are provided in the section on learning models.

The key factors in successful aftercare programmes are:

- A proactive approach that provides solutions for both the foreign investor and local stakeholders (win-win).
- A clearly articulated strategy and an action programme that involves regular formal contact with the foreign investor – at least every six months.
- Ministerial and mayoral championing of the best performing foreign investors.
- Integration of FDI aftercare initiatives with broader regional development initiatives.
- Good working relationships between the lead aftercare agency, other development agencies, and key managers and executives within the foreign company.
- Mechanisms that promote easy contact with foreign investors e.g. network and cluster groups, reference groups, one-stop shops.
- Use of high quality account managers.
- Seamless delivery of aftercare services.
- Regular evaluation of the costs and benefits of the aftercare programme.

SWOT analysis

This section provides a SWOT analysis of issues relevant to the delivery of FDI aftercare initiatives in Valencia. The analysis draws on comments made by interviewees, as well as subsequent assessments. Where local agencies provided a broadly supporting opinion, the agency's name is indicated.

Strengths

FDI is appreciated

The Valencia community's appreciation of the importance of FDI in building local capacity has strengthened in line with the intensification of international competition over the last 4-5 years. There is no apparent evidence of hostility to foreign firms.

The majority of biotechnology firms are foreign – they provide international capability that can be harnessed over the medium term.

Good institutional framework

REDIT indicated that Valencia is 'special because of its networks'. This view was endorsed by other organisations interviewed that explained that the reasons for this successful network were the mercantile and university traditions as well as the compactness of the city.

The fourteen Technological Institutes provide a good framework for embedding initiatives with foreign companies.

The Valencia Community Investment (VCI) Board provides a vehicle for stronger inter-agency coordination i.e. Minister for Economy (Valencia), Vice-Minister for Culture, Vice-Minister for Industry. It also has a sufficiently large budget (4 million euros in 2006) and staff (15 professionals) to consolidate its role as the lead investment attraction agency. It has a sensible methodology and performance indicators to determine the worthiness of potential investments (Dun & Bradstreet assessments, employment and output data etc.)

VCI mirrors the majority of the region's key manufacturing sectors (textiles, footwear, wood and furniture, plastics, construction) and horizontal technologies (information, energy, optics, transport and logistics, biomechanics).

In summary, VCI is strategically important – it has ministerial involvement, and significant funding from the EU, and the national and provincial governments. It also has good relations with IVEX, underpinned by a Memorandum of Understanding.

Good infrastructure and skills

Regional infrastructure is relatively good – telecommunications, significant amount of serviced land, imminent fast rail connection to Madrid (VCI).

The science park at the Technical University of Valencia (UPV) is one of the first in Spain to be linked to a university, as well as a large-scale incubator. Its charter is to create university spin-offs and attract national and international companies. It has an emerging track record with significant multinationals such as Analog Devices, Motorola, Intel and IBM.

There is a reasonable supply of skilled labour to underpin plant expansion, and longstanding capability in the metals, automotive, ceramics and textiles industries.

Attractive lifestyle

Valencia is an attractive and vibrant place to live, and this is appreciated by executives of foreign companies. Valencia is also widely known as a student city, which has a positive effect in its image as one of the main human capital nucleus in Spain.

Weaknesses

Connectivity systems

While Valencia has networks within the universities, research institutes, companies and support agencies, ETICA nevertheless feels that 'everyone is working separately'. Similarly, VCI noted that the links between the universities and the local companies are spasmodic, and CEGES sees the universities as not bridging the gap with industry. Interviewees raised the obstacle due to the

propensity for academics to focus on writing papers, to the exclusion of practical industry-based solutions. However, the national education framework has a strong influence on this trend. To reverse this, more flexibility and incentives would be needed for researchers and academics to dedicate more time to develop applied research.

The relatively weak connectivity of local academics with foreign researchers was flagged on more than one occasion. This is reflected in the very high proportion of Spanish academics within the region's university system (in excess of 90 per cent). This could be addressed through aftercare initiatives.

Another aspect of connectivity is that much of the international engagement is with Latin America and to a lesser extent, northern Africa. While there are obvious historical and cultural reasons for this, the fact remains that they are not dynamic growth regions compared with Asia.[49]

The Chamber of Commerce observed that the proliferation of small firms adds to the difficulty of fostering industry collaboration.

A number of agencies highlighted that the lack of direct airline connections to other major European cities is a further dimension of the connectivity issue. Despite the relatively high number of destinations, the key economic sectors in Valencia have difficulties in reaching providers, partners or clients. Some local institutions see the national government ownership of Valencia airport as an impediment in this regard.

Lack of consensus on the way forward

Despite Valencia's very significant assets, it lacks a strong brand and an agreed understanding of which industries should be its future economic drivers. The Foundation of Stock Market Studies noted that 'the community has closed, inward-thinking mentality' while another agency said that 'people in the Valencia region tend to think too small'.

Also, the OECD team detected a sense that the creative talent of the city and the wider region is not being harnessed. The bulk of the foreign investment seems to be driven by the harbour and Valencia's location, rather than a desire to locate in an innovative city.

Foreign company and SME indifference

The bigger foreign companies are not inclined to deal with the local development agencies, preferring to deal with Ministers. While this is a common problem throughout the OECD area, strategies need to be developed to address this.

The majority of foreign companies are branch offices, which makes it difficult to access the top decision-makers. The Chamber of Commerce commented that a big problem was the tendency for the big automotive and textile multinationals to say 'they know it all'.

The SMEs are wary of joint ventures with foreign companies, especially China. Being mostly small family-owned businesses, they do not generally look for equity finance from outsiders. This was confirmed by the Chamber of Commerce.

[49] A view shared by Professor Quesada.

The proliferation of SMEs with limited discretionary funds is a problem. It limits the ability of local industry to finance joint R&D and market research with multinational enterprises.

Investment facilitation

It is generally acknowledged that Valencia has played a secondary role vis-a-vis Madrid and Barcelona in terms of investment attraction, and that Barcelona has outsmarted Valencia in terms of international positioning. As Professor Quesada commented, there has been no strong lobbying effort by Valencia authorities on investment issues at the national level.

A further weakness is the minimal presence of international investment banks in the Valencia region. Additionally, as ETICA observed, there is not a strong tradition of Spanish bank involvement in financing international projects. When these factors are overlaid with a general lack of English language skills among local businesspeople, entrepreneurs, ministers and officials (as noted by the Stock Exchange), a significant weakness is exposed.

While Valencia Community Investments is working hard to attract new investments, it does not have a well-developed aftercare programme. VCI also admits that investment approvals processes are still too long.

Trade skills and marketing

There are significant skill shortages in some areas of manufacturing, and hence a big training effort is required. The Chamber of Commerce noted that addressing these shortages via labour from northern Africa and South America is not a viable option because of the time delays.

Two groups flagged the problem of trade skills not being sufficiently recognised within the Valencia education and training community. In this regard, the view was put that the universities have been of little use because their education and training programmes are too general and insufficiently geared to industry needs. Another identified weakness is the lack of marketing skills within traditional manufacturing companies.

Opportunities

Strong aftercare programme

Valencia Community Investments has the opportunity to play centre stage by developing a strong aftercare programme. This would complement its investment attraction responsibilities.

The seniority of the VCI's Board suggests that it could be pivotal in energising foreign investors to think more strategically about their role in the region and how they can collaborate with the Technology Institutes, the universities and other agencies for mutual benefit.

The aftercare programme should be complemented with a strong cluster programme. The GECOBIO project is a good example of a cluster programme on health sciences currently being developed in Valencia under the responsibility of FIVEC.

Box 4.1: GECOBIO Project

The Gecobio project was created in 2006 with the support of the Valencia City Council and the Foundation for the Innovation and the Knowledge Society in Valencia (FIVEC). The Gecobio aims to promote the health science and technology sectors in Valencia, to enhance the social wealth and quality of life, and to foster the business-science cooperation. To achieve this, the Gecobio carries out economic and science promotion activities by supporting the development of new products and services, by promoting the Valencia enterprises, products and services inside and outside Spain, by disseminating the research outcomes, and by carrying out cooperation activities with other regions.

Gecobio makes use of the **Gecobio.com** portal to facilitate the online networking of technology actors, as well as other classic tools such as newsletters, conferences, working lunch, and tailored events. Gecobio provides financial assistance on innovative sectors (notably nanotechnology, life sciences and ITC) through **ALITEC I**, its venture capital fund with 30 million euros budget. This is a mixed fund, financed by the Valencia Stock Exchange and some private investors, that seeks to offer seed capital and other financial aid to projects ranging between 300K and 3 million euros.

Source: FIVEC

International engagement

Valencia has the opportunity to be a region in Europe that has systematically engaged with the dynamic Asian economies. In this regard, China and South Korea are looking for a doorway to the European Community, and Valencia Port and Feria Valencia are strong infrastructural assets.

However, the most substantial opportunity arguably lies in utilising the Technological Institutes to underpin the future commercial relationship with the Asian tigers. The scope to involve the TIs in aftercare and embedding strategies for Asian investors is a very interesting possibility.

University engagement

There appears to be an important opportunity to increase the level of interaction between local and foreign university academics. It was not possible to fully explore options on this topic.

However, given Valencia's history of engagement with the Muslim world, it should be well placed to build a stronger bridge to Muslim nations. The universities should be charged with developing ideas in this field (refer to the Tucson Learning Model).

Brand & image

The regional strategy currently in preparation provides the opportunity to enunciate a vision that embraces innovation, vibrant enterprise and partnerships. As ETICA mentioned, Valencia needs an identifiable brand that projects it as one of the most innovative and progressive cities in Europe, and provides a rally point for stakeholders.

Connectivity mechanisms

There is an opportunity to address connectivity at a number of levels.

At a broad level, a strong cluster programme could align the parties and drive many of the collaborative projects raised in this report. Once the local clusters are sufficiently robust they could be linked to clusters in other countries to form international value chains. These clusters should ensure that private sector executives are well represented.

At a programme delivery level, the Chamber of Commerce has a timely opportunity to establish a one-stop-shop to provide export and business services for the benefit of foreign companies.

At the university level, the universities have substantial scope to seize the initiative and create more mechanisms for international collaboration. FIVEC and a host of other agencies recognised the need for action in this area.

VCI might also provide a vehicle for connecting MNEs with SMEs. Confederation Enterprise Valencia made the interesting suggestion that VCI has the opportunity to become more active in EU and Spanish government machinery as part of a strategy to win funding for significant projects and to drive agendas. VCI has to establish its credentials and generate external funding – hence it should thus be interested in being a party to aftercare initiatives.

IMPIVA as a funding vehicle

IMPIVA has significant funding for R&D and associated investment-related expenditure. A greater proportion of its budget (90 million euros annually) could be used to assist local companies, universities or industry associations in respect of FDI aftercare initiatives.

For example, IMPIVA could be asked to commission a study to identify how the Port of Valencia and the Feria Valencia can be built into aftercare initiatives.

Threats

Import competition

The risk is that increasing competition from Asia and Eastern Europe will induce foreign companies, as well as SMEs, to move production activities to lower-cost countries. This may weaken Valencia's industrial base, and dampen the prospects for re-investment activity.

On the other hand, structural adjustment of this sort might lead to a shakeout of uncompetitive production capacity and the strengthening of the market position of the remaining producers. In turn, these producers may be receptive to reinvesting in the region. There is a precedent for this in the automotive sector in Australia, among others.

Failure to internationalise

There is a risk that Valencia's major trade and investment links will continue to be concentrated on a slow growth European economy. This will retard the effectiveness of aftercare initiatives.

A failure to internationalise will mean that the region's capacity to absorb new technology will be further diminished. This will reduce the scope for aftercare strategies to provide access to technology held by foreign companies.

EU funding cuts

The possibility of a significant reduction in European Structural Funds for Spain from 2007-2013 was raised quite a few times. This could threaten the ability of the region to fund new infrastructure works and aftercare activity.

Recommendations

Recommendations for aftercare initiatives

This section provides recommendations for aftercare initiatives. They draw on the opportunities identified in the SWOT analysis.

Definition of an Aftercare Programme

Valencia Community Investments indicated that it will be moving into a proactive mode with multinationals, once its current workload around the America's Cup eases. When that occurs, it can be a good moment to define an aftercare programme in line with the local authorities' strategy.

The suggested start point is to understand the foreign companies' needs and mission. The most popular technique is to ask them to explain their plans and the constraints they face in achieving these plans. This can be sometimes problematic due to confidentiality issues and hesitancy in discussing commercial matters with quasi-government officials. However, it can build a foundation for an aftercare programme once the company realises that the officials can be of assistance.

There is no single initiative to identify the companies' needs and mission. However, through the VCI, the government should adopt a proactive mode by approaching the foreign companies and exchange information. Simple options such as (i) a simple questionnaire, followed by an interview with senior company executives, (ii) an informal discussion over lunch - off the company premises, (iii) formal discussions with senior company executive on company premises, or (iv) a power-point presentation to local management team could have very positive effects.

Information dissemination

One of the strongest rationales for aftercare programs is information failure, specifically the gap in prospective investor's knowledge. The approach taken by Invest Australia is instructive in this regard, in that it noted the international evidence that successful aftercare programs are built around regular exchanges of quality information and practical advice to the foreign investor. It also recognized the real need to address the lack of awareness and the outdated perceptions in overseas market of Australia's capabilities in the high technology sectors, particularly ICT, biotechnology, pharmaceuticals and advanced manufacturing sector.

Accordingly, Invest Australia places considerable emphasis on Market Intelligence Reports in respect of these sectors, as well as business environment fact sheets[50]. The reinvestment team targets companies with established operations in Australia, and which exhibit good prospects of additional investment or re-investment. The emphasis is on maintaining strong relationships with these companies. It involves a joint approach with the state agencies, and there are protocols governing interaction between them on reinvestment to ensure such coordination.

Another aspect of the Australian approach relevant to Valencia's circumstances is the emphasis on building collaborative agendas with foreign companies and research institutes, notably in Asia.

[50] These fact sheets are available on the website : www.investaustralia.gov.au

Global partnerships

A significant challenge is to identify mechanisms to bring together the foreign investors and the smaller, local companies. There seems to be a perception that the foreign companies will be difficult to get on side. Therefore, an initiative that should interest the Valencia authorities is the Global Partnerships Programme, developed by the UK Department of Trade & Industry around three years ago. It aims to assist innovative, technology-led foreign companies to build strategic relationships with UK companies.

The main mechanism is a group of brokers or intermediaries who identify and then work with foreign companies willing to share new technology with a UK partner. This justification for this programme would be based around the market failure argument. It is understood that the programme forms part of the reinvestment programs of quite a few UK investment agencies.

Development of formal agreements

The team did not have the opportunity to consider what arrangements are currently in place. However, the Valencia authorities might consider the suitability of a comprehensive system of agreements between individual foreign companies and the aftercare delivery agency.

The soft option is an exchange of letters outlining the state-of-play with the investment, and issues relevant to it. This option may be appropriate if there are no investments on the horizon.

The middle option is a document setting out the company's and region's needs over a designated period (say 5 years), followed by a description of what each party endeavours to do to address the others' needs. This is the 'best endeavours approach'.

The strong option is a legally binding arrangement where commitments from both sides are made within a specified period.

The documentation to support the latter two options might list commitments under the following types of headings. For example:

Commitments by Regional Agency

- Provision of competitively priced material and services.
- Upgraded competencies of suppliers.
- Quality local infrastructure.
- Improved labour skills.
- Opportunity to tender (or preferred supplier status).
- Reduction in red tape.

Commitments by Investor

- Local purchasing of materials and services.

- Local spending of wages and salaries.
- Commitment to further investment or technology transfer.
- Upgraded competencies of suppliers, competitors and customers.
- Financial contributions towards certain local infrastructure.
- Improved labour skills.

Delivery Structures

In regions with well-developed administrative structures, responsibility for FDI aftercare is usually vested in one agency that has the authority to coordinate inputs from other agencies. The alternatives are:

- Hub and spoke arrangement i.e. a lead agency, with supporting groups. The respective roles and reporting procedures are set out in a Memorandum of Understanding.
- Shared arrangement between agencies, where responsibility is determined by agency function (e.g. agriculture, manufacturing, services).
- A one-stop shop, with a nominated contact person for each client. See recommendation below.

Whichever delivery structure is used, it should have a site selection team capable of providing accurate and timely advice on different site configurations and cost options. This service should be free and made available to both existing and prospective investors. Much of Europe is well behind the USA in this field – hence Valencia may be able to steal a march on its EC rivals.

One-Stop Shop

These are now quite common. They are designed to improve the ease-of-doing-business for existing and potential investors, and to improve the delivery of support services. The co-location of the relevant agencies can take some years due to the various building lease arrangements. However, this should be considered as an option.

Embedding investors in local connectivity systems

Despite the shift towards the knowledge economy, companies rarely see themselves as being part of a local innovation system. However there are examples emerging of development agencies embedding foreign investors in local connectivity systems (i.e. business networks and clusters) to stimulate innovation.

The Tucson revitalisation programme was specifically designed to connect multinationals with local companies. The mechanisms were collective learning processes, industry-research collaboration, the diffusion of best practice production processes, as well as technology joint ventures and supply chain partnerships.

Development of a Rating System

Most national agencies in the OECD area undertake a basic level of due diligence on the prospective investor, which can include an assessment of its managerial and geographical autonomy from the parent group, and its general track record. Some development agencies at a state and regional level are also taking this path.

The main reason for these ratings systems is to ensure the benefits of the investment match the incentives being offered. In this regard, APD Consulting Ltd., with alliance partners in the USA and Europe, has been undertaking research to develop a set of criteria to rate FDI performance. The checklist of criteria is as follows:

- Long-term commitment to the region.
- Preparedness and/or ability to consider non-cost factors in future investment decisions.
- Degree of autonomy from head office decisions.
- Absence of transfer pricing.
- International orientation – supply chain and export development.
- Investment performance.
- R&D performance.
- Environmental credentials.
- Preparedness to engage and support local business e.g. 'buy local' programmes.
- Sensitivity to local political and social circumstances.

It is suggested that VCI consider the above criteria as part of an FDI Rating System.

Recommendations on international engagement

Promotion of joint ventures

Promoting joint ventures between innovative local SMEs and high-performing foreign companies should be a core part of efforts to embed foreign companies.

In this regard, our interviews with local agencies identified joint venture opportunities in ceramic tiles (Chamber of Commerce); healthcare, logistics (Valencia Port), film industry (VCI); alternative fuels, environmental monitoring, health sciences (Gecobio) and food (UPV).

The science park and business incubator at UV and UPV provides a possible focal point for such activity. Interestingly, both CEGES and CEV mentioned the possibility of a Business School being established to progress the formation of global alliances. We see particular merit in this. A possible model is the MIT Business School, which would also help address the English language issue.

Another model is the School of Public Policy and Management in Adelaide, Australia – under the auspices of Carnegie Mellon University (USA) and the South Australian Government. The aim is for this School to have a significant impact on societies and economies in the Asia-Pacific region by training the next generation of leaders in public policy and information technology. Joint ventures between Australian and Asian organisations are proposed. Preliminary talks with the local universities, the Spanish Government and European Commission would seem worthwhile. Further information can be provided.

Valencia as part of international hubs

Economic success in a global economy is increasingly linked with the capacity of particular localities to achieve international competitiveness. This has coincided with growing awareness of the potential for cross-locality networks of enterprises as loci for such competitiveness[51].

While SME networks focus on knowledge and expertise within a local setting, these networks cannot be closed entities. A crucial factor for their sustainable development is their openness to competencies and resources that are absent locally.

This points to various forms of cross-locality networking, including international networking and 'multinational webs' of SMEs. Such webs can be underpinned by creating linkages between local firms in different nations that would enable individual localities to be competitive hubs in a network of global production activities.

These international linkages are relevant to networks that have focused around multinationals. For example, MNEs can catalyse the competitiveness of localities through investments that stimulate the incorporation of local 'clusters' into transnational networks. There may be foreign companies in Valencia with an interest in funding activities in this field.

Engagement with Asia and/or the Muslim world

Universities have traditionally been the vehicles for cross-cultural understanding. The idea of building a multicultural team of academics trained in Valencia to develop a model for improved commercial and social interface with Asia and/or the Muslim world could enhance Valencia's presence abroad. This might include market research to identify international investment and export opportunities for Valencia, as well as participation in international hubs.

This field should be of particular interest to the Technical University of Valencia (UPV), which expressed an interest in becoming more involved in industry-related research. However, both universities expressed an interest in working more with at international level. In addition, IVEX internships might be part of such an initiative. VCI and FEBV should also have an interest, and funding might be available from IMPIVA, given its charter.

UNESCO Creative Cities

An initiative that might be used as a vehicle to link Valencia with other regions is the UNESCO Creative Cities programme.[52] It enables cities with like strengths in particular areas - cuisine, design,

[51] This phenomenon was recently highlighted in the *International Journal of Entrepreneurship & Regional Development.* Lisa De Propris and Roger Sugden - University of Birmingham, UK.

[52] The OECD's LEED Group is of course another important mechanism for linking networks and clusters, and a special project involving Valencia and like cities could be established.

literature, cinema, music, folk art, IT & media arts - to share opportunity, expertise and resources. The programme refers to a Creative City as 'a designation that a city has to sustain by providing evidence of collaboration. The goal is for the developed and developing worlds to connect in different ways.'

Cities appointed to the Creative Cities Network to date are Aswan, Egypt (UNESCO City of Folk Art), Berlin (UNESCO City of Design), Bologna (UNESCO City of Music), Buenos Aires (UNESCO City of Design), Edinburgh (UNESCO City of Literature), Montreal (UNESCO City of Design), Popayan, Colombia (UNESCO City of Gastronomy), Santa Fe, USA (UNESCO City of Folk Art) and Seville (UNESCO City of Music).

If Valencia was to join this programme, a label that represents the city economy should be identified and the local authorities should do their most to justify that choice – might it be Valencia (UNESCO City of Learning)[53].

Recommendations on university engagement

Some options for involving the universities have been mentioned above. The interviews carried out during the study visit helped to identify other opportunities for the universities to make themselves relevant at city, country and international levels.

'City Knowledge Map'

In Valencia, there many players in the knowledge game (universities, research centres, schools, companies, government officials) but there are few opportunities for them to understand their respective roles and activities. The preparation of a knowledge map is being carried out by FIVEC through the Gecobio.com platform. The aim of this map is to assist the networking of technology players in the knowledge scene and to facilitate them a better understanding of the profile and needs of the final users.

The concept involves an actual map and a website, plus a summary of the agency's work, names and addresses. The material should be in hard copy and electronic versions.

Collaboration Agreement

The negotiation of a Collaboration Agreement between universities and technology entities may be timely given the impetus for the university sector to become more relevant to the needs of industry. With the support of REDIT, the Valencian universities should seek to establish formal agreements to promote the exchange of PhD students, to encourage applied research and to identify collaborative programmes or projects between the enterprises and universities. There are almost 20 technology entities whose views should be canvassed.

Extension and strengthening alumni and sister city arrangements

Alumni arrangements are now an important means of driving international collaboration and of building strong networks and partnerships. A reappraisal of the worth of Sister City relationships is also suggested. The offices of IVEX abroad could build the networks as they are already making good use of the expatriate Valencian community to explore new business opportunities in foreign countries. Foreign companies operating in the Valencia region should also be asked to facilitate this process.

[53] Further information on the UNESCO programme can be found at: http://portal.unesco.org/en/ev.php

Recommendations on Brand and Image

International image drivers

A suite of 'international image drivers' - such as the Jaime I Awards, the America's Cup, the Astronautics World Congress, Feria Valencia, Valencia Port - was suggested as part of the investment attraction agenda. This could also form part of the Aftercare activity.

'Thinkers in Residence' programme

As discussed earlier, various Valencia stakeholders have commented on the closed mindset and 'comfort' of the region. The city of Adelaide in Australia has extraordinary parallels with Valencia in this sense. It has a similar population (1.2 million), a Mediterranean climate, a strong tradition in manufacturing and it has been facing-down competition from Asia for a least a decade. Adelaide is also the most conservative city in Australia.

Adelaide City Council had decided it must change the mindset of its citizens, especially given that it was losing investments to Sydney, Melbourne and Brisbane. To achieve this, the Council set up a programme that funds an invitation to respected world experts to undertake a mini-sabbatical in Adelaide. The visit is generally between 2-3 months. The experts' task is to energise civic leaders, run workshops and provide media interviews on a topic relevant to Adelaide's economic and community future. Such a programme should be of particular benefit to Valencia[54].

The outcomes of this programme have been very positive in challenging and changing the mindset of Adelaide's population. As an example, Charles Landry, the UK urban planning guru certainly got Adelaide thinking. At a recent conference, he stressed that Adelaide is defensive about its positives, and passionate about its negatives. It is drained of confidence, because it is watching someone else - in this case, Sydney and Melbourne. It is a game of catch-up.

He told Adelaide citizens that critical mass is important for people to bounce ideas off. Adelaide is slightly too small in this respect, and collaboration is therefore vital. He added that Adelaide's dilemma is four-fold: lack of critical mass and density; lack of urgency (life is too pleasant); a crisis is difficult to feel; talent leakage.

Another quirk that he identified was the Adelaide mentality of having to ask permission to do things. He said the State Government has to open out more by making it a 'yes' place, rather than a 'no' place. The new language of competitive tools are network capacity; cultural depth and richness; governance; design awareness. The governance system in Adelaide is too structured – it should become wilder. Landry's insights generated front-page news and callback radio about being wild.

Other thinkers to date include Herbert Girardet (Germany) – urban ecology; Peter Cullen (Australia) – water conservation and global warming; Maire Smith (UK) – biosciences; Peter Wintonick (Canada) – digital media; Baroness Susan Greenfield (UK) – science and society; Stephen Schneider (USA) – climate change.

Free Trade Zone

We have included this as a 'brand and image' recommendation because such zones can project a powerful image to investors. However, the possibility of Valencia as Free Trade Zone should be

[54] More information on this programme can be found at : www.thinkers.sa.gov.au

carefully considered as some zones have worked very well, but others have failed to deliver. Also, attracting the support of the EC and the Spanish Government might be a lengthy process.

Should this initiative be taken into consideration, it might initially be confined to Valencia Port and have a logistics and customs focus. Of possible relevance are the two new terminals scheduled to be built at Valencia Port in the next 10 years – foreign equity in these investments could conceivably be progressed through reinvestment initiatives. Additional features could be added over time, such as fast-tracked investment approvals.

Recommendations on a Cluster Programme

FDI Aftercare increasingly involves cluster-building policies. In the Valencia context, a strong cluster programme would provide the mechanism for connecting researchers with industry. The mechanism could also identify industry and community champions to organise the other players, drive the agendas and undertake lobbying work. It is also a proven means of getting foreign companies involved in local initiatives. A cluster programme is an organisational device to achieve these outcomes.

Box 4.2: The cluster concept

"Clustering" refers to local concentrations of horizontally or vertically linked firms that specialise in related lines of business together with supporting organisations, though definitions as to what exactly constitutes a cluster vary greatly. Clusters allow enterprises to thrive under conditions of increasingly global competition. By clustering together, firms can achieve economies of scale and scope and lower their transaction costs due to geographical proximity and increased interaction often based on trust. Industry concentrations can lead to the appearance of localisation economies reducing costs through the availability of specialised labour and business services, public sector investments aimed at satisfying particular industry needs, as well as financial markets geared towards satisfying cluster firms' demands. Clusters have also been identified as motors for innovation, as companies co-operating and competing at close geographic proximity can learn from each other, developing unique local knowledge and creating knowledge spill-overs in the process.

Source: Business Clusters: Promoting Enterprise in Central and Eastern Europe, OECD 2005

A cluster programme would provide a framework for across-sector activities such as the 'Thinkers in Residence' programme, UNESCO Creative Cities, the Free Trade Zone concept, and the proposed international market research. A cluster programme should also be used to progress collaborative activities within specific sectors. Those that appear to have some merit are:

- Logistics
- Nanotechnology
- Health sciences (GECOBIO project)
- Transport equipment
- Food processing, including equipment

Other cities and regions across the OECD have developed cluster programmes to enhance their competitiveness. Some good practices on cluster programmes are described in the learning models below.

Learning Models

This section provides examples of some initiatives carried out across the OECD region that could be applicable to investment aftercare and embedding in the GVA.

Advanced Manufacturing in Northern Adelaide (Australia)

Description of the model

The City of Playford in northern Adelaide has received national and international recognition for its innovative work on investor aftercare and industry clusters.

In 2003, the City of Playford released its *Innovation and the Knowledge Economy* describing Playford's objectives of an integrated, whole of government approach to regional development. The document explored the new global challenges facing local economies and how it has tailored the use of cluster approaches in order to assist local companies to collaborate in building critical mass and access global supply chains.

The City of Playford methodology is as follows.

1. Audit the industry/region to determine:
   - Competitive pressures in the industry/region.
   - Scope and scale of products provided by the industry/region.
   - Extent of supply chain and networking activities.
   - Impediments, gaps and barriers that need to be addressed.
   - Champions to drive the collaborative process.
2. Survey the extent of existing collaborative activities and how they may be leveraged to further expand collaboration in the industry/region.
3. Survey supply chain activities to identify "Leader" firms around which collaborative activities can be developed, and how other firms may be integrated into the supply chain.
4. Identify the steps necessary to support collaborative development, namely:
   - Formation of a structured organisation with proper governance systems.
   - Development of processes that tie the regional strengths to the proposed cluster.
   - Identification of potential markets, and how local capabilities can match them.
   - Identification of collaborative ventures to fill the identified gaps.
5. Develop linkages within the local industry to enable the sharing of knowledge and ideas, and improve the uptake of technology.

6. Continually raise awareness among the industry stakeholders of the benefits of collaboration, e.g. conferences, success stories.

This methodology has been employed to create networking and cluster teams in the region. New market and export development opportunities are in train, along with the prospect of facilitating technology diffusion among companies in the food processing, electronics and engineering sectors. Results of this work over the past 3-4 years have begun to yield important commercial breakthroughs.

Relevance to Valencia

Northern Adelaide is a traditional manufacturing region, with an industry structure quite similar to that of Valencia. Considerable emphasis is placed on the integration of advanced manufacturing techniques into the traditional manufacturing industries such as automotive, engineering and food processing. This should have resonance with Valencia authorities.

The key feature of this model is the networking and confidence-building initiatives, which have won acclaim at the national level. It has also placed heavy emphasis on working with existing local companies to find joint venture partners in Asia.

Impact of the approach

The major outcomes over the past three to four years have resulted from aftercare agendas pursued with local companies. They include:

- Creation of Produce Direct Australia Pty Ltd – a network of existing companies employing 350 people, exporting horticultural products to Asia. This is a true global network, with combined turnover of $230 million.

- Formation of an alliance between engineering companies, which now tenders for export contracts for materials movement, storage and handling in South America, China etc.

- Fast tracking the $90 million Innovation Network – a high tech hub comprising 14 local and global companies and spinning off new investment opportunities.

- Creation of Beyond Automation - a global automation and robotics company located at the Innovation Network - bringing together leading automation, software, robotics and engineering companies.

- Establishment of a $1 million Advanced Manufacturing Design Centre, including a CAD CAM bureau with a membership of 30 engineering companies.

- A $100 million automotive investment as part of GM Holden's expansion.

- The formation of a grape grower and wine producer association of 40 companies - 20 of these have since formed an export network. A new grape growing region has been registered.

Reasons for success

A key success factor has been the ability of the City of Playford to negotiate funding cocktails between companies and government agencies in respect of specific infrastructure and investment projects. This has been aided by a very good knowledge of government programmes, and positioning

the region as an exemplar of best practice in reinvestment and industry regeneration. This has involved the commissioning of extensive economic research and the dissemination of its outcomes in the local, national and international press and economic journals. The City of Playford also hosts an annual Manufacturing Prosperity conference that attracts 400-500 registrants. The keynote speaker at these conferences is invariably a federal Minister who uses the event to announce an industrial investment in the region. The Prime Minister in fact spoke at three functions within the region within the space of twelve months.

These public relations activities have raised awareness and pride among the local population of its manufacturing capabilities. It has also served to improve access to federal support programmes.

The City of Playford's Economic Development Unit has been particularly active in working closely with local companies and in utilising intermediaries - industry associations, federal and state agencies, consultants - to find partners and government funding. The Unit, comprising Rodin Genoff, Hari Argiro and Pat Brooks, has been a strong supporter of Clusters Asia Pacific Inc., a network of cluster practitioners. This has served to raise the Unit's profile and strengthen its own international and national networks.

Another success factor is the emphasis placed on monitoring and benchmarking its progress, and regular briefings to federal and state agencies with such information. These actions have kept the government agencies comfortable and facilitate further funding.

Obstacles

The most significant obstacle faced in the initial stages was the 'rust belt' reputation of Adelaide, the impact this was having on investor confidence, and the reluctance of local stakeholders to collaborate on what they saw as risky agendas. Improvements on these fronts can be observed.

Another obstacle has been the relatively greater difficulty in making connections to potential investors in Asia, USA and Europe, compared with regions in the eastern states. The Economic Development Unit, with the support of state and federal agencies is currently planning a series of inwards investment missions to address this problem.

Considerations for adoption in Valencia

The northern Adelaide region is pursing a robust agenda to link its companies into global supply chains. It would therefore welcome a dialogue and sharing of experience with Valencia. The possibility of three-way alliances between northern Adelaide, Valencia and Asian regions would also be welcomed.

Further information

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Galway County, Ireland

Description of the model

The County Galway, in the west of Ireland, is at the forefront of an industry revitalisation agenda.

The Irish Development Agency (IDA) has a network of business & technology parks in the region. These parks are fully serviced with the necessary telecommunications and utilities infrastructure. The IDA has set out to systematically attract international firms in the life sciences industry (mainly medical technologies) – they account for 63% of IDA client company employment. The other main sectors are information & communication technologies (17%) engineering (13%) and international services (7%).

Relevance to Valencia

The Galway model, and the broader Irish model, is instructive at a number of levels. The defining feature of this model is the very strong investment outcomes that have been achieved in a relatively short space of time. The region has sold itself as an English-speaking gateway to Europe, but considerably cheaper than the UK.

A second factor behind the success of this model has been the willingness to provide very significant subsidies (supported with EC grants) to potential investors. This may no longer be a real option for Valencia due to changed EC funding arrangements.

Impact of the approach

Over 70 overseas companies have established in the region in the last 15 years, and the IDA assisted most of these. These new investments employ about 13,000 people.

Now, Galway is known as one of Europe's leading industrial clusters and home of the world's two largest makers of cardiovascular stents. The tiny metal device, invented in the 1980s, revolutionised the treatment of coronary heart disease. The companies are Boston Scientific and Medtronic.

The latest arrival is Abbott, which inherited a stent plant as part of its 1995 takeover of Bio-Compatibles, a UK company. There are now 28 medical devices companies in Galway, employing more than 5,000 people - 350 in leading-edge research and development. Cluster theory, which was first described by Michael Porter in his book *The Competitive Advantage of Nations*, holds that when similar companies locate in the same place, they can achieve economies of scale without losing the flexibilities enjoyed by smaller organisations.

In 1990, Digital, the US computer company, was Galway's biggest employer. It closed in 1993, moving to Scotland. However, many of the Digital's former engineers are now working for US medical device companies in Galway. For example, Creganna was originally set up to supply the local electronics industry. In 1997, it was persuaded by Boston Scientific to start making catheters. It is now the world's largest catheter manufacturer (sales of €26m), employs 270 people in Galway and has a new design/development centre in Boston.

A recent IDA success story (November 2006) is the decision by Cisco, the worldwide leader in networking products and services, to establish an excellent R&D centre in Galway. The centre will initially employ 50 graduates and is projected to grow to 200 positions over the next three years, with a number of positions requiring Master and PhD qualifications.

The Galway centre is an important addition to Cisco's Voice Technology Group and will be involved in the development of new applications and services for its Unified Communications business. Cisco's vision of Unified Communications is to help reduce communication chaos that disrupts business processes and slows decision making by using the intelligence in the network to

connect to the right person the first time, using the most available, accessible communication medium. Cisco had been a major target company for IDA Ireland for quite some time.

Ireland-wide results

Ireland has established itself as a high performance, high value location, as evidenced by recent announcements by Google and Wyeth Research, and financial firms such as BISYS (in Waterford), IFS (Drogheda), AXA (Athlone) and PFPC (Wexford and Navan).

During 2005, 71 new business projects were negotiated with new and existing clients, involving a total investment of more than €760 million, with 46 of these locating outside Dublin. The IDA has played a very active role in part-funding R&D projects with these companies – 50 such projects worth around €275 million were funded in 2005. Details on the size of the subsidies involved are confidential. However, they are generally a mix of national government and EU funding.

Over 50% of the jobs supported in 2005 required third level or higher qualifications in a wide range of disciplines. Total employment in IDA supported companies has increased to 132,728. The number of new jobs created during the year was 12,623. In 2005, IDA spent over €69 million on its business parks, advanced facilities and related infrastructure.

Reasons for success

The Galway experience has two interesting success factors of relevance to Valencia.

The first is the importance of having an appropriate regional business support structure. Without such a structure, skilled personnel would have been unemployed or underemployed, or alternatively would have emigrated. The traditional concept of 'regional aid' has been superseded by more cost-effective approaches to the promotion of long-term growth and jobs, including business start-up assistance, industry network brokering and incubator facilities and collaborative approaches to new technology, R&D, training and project management. A key role was played by Enterprise Ireland, in association with WESTBIC and the Technology Centre, in developing new enterprises with ideas, products and technologies that contribute to critical mass in the ICT cluster.

The second factor is the policy framework for regional business support and innovation, which are settled at national and, increasingly, EU level. There is wide recognition in Ireland of the need for inward investment but, given the success of the Irish Development Agency in attracting MNEs, especially in global growth sectors, the emphasis has now shifted to the quality and location of investment. This approach has been complemented by Enterprise Ireland developing an indigenous, entrepreneur-driven technology sector, with a commitment to clusters of new knowledge-intensive enterprises.

National University of Ireland Galway (NUIG) in Galway City and the Galway Mayo Institute of Technology (GMIT) in Galway City and Castlebar, cater for a combined student population of 23,000. NUIG has a series of world-renowned research Centres of Excellence in regenerative medicine, biomedical engineering, bioprocessing, applied optics, laser applications, diagnostics, web technology and power electronics.

Obstacles

In the early days, one of the missing ingredients was the lack of R&D facilities. However, in 2004, Boston Scientifics' Galway facility launched the company's latest innovation - a drug-coated

stent that reduces unwanted patient reactions and inhibits the return of plaque to the arteries. Galway University works closely with the companies in areas such as materials testing. In 2005 it received a €19m government grant to set up a regenerative medicine institute, which is part funded by Medtronic and is looking to develop a new generation of devices that can deliver stem cells to rebuild damaged organs inside the body.

Considerations for adoption in Valencia

Roy Green, Dean of Galway University's Commerce Faculty until 2006, studied the Galway medical devices cluster. He suggests that the Galway phenomenon is likely to continue. This is because the R&D operations of multinational companies need to be closer to their customers than to their corporate headquarters. "The days when you had one centre for R&D are over," he says. "With the life cycles of medical devices products so short, it is vital to be close to your customers to keep ahead of competitors."

Recent data suggests that the Galway clusters continue to perform.

Further information

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Professor Roy Green, Dean of Macquarie Graduate School of Management, Macquarie University, Sydney.

Tucson, Arizona (USA)

Description of the model

The Tucson model is one of the strongest examples of a middle-sized city (900,000 population) reinventing itself through cluster-based economic development, and then using the clusters as the centrepiece of a reinvestment strategy.

The cluster programme adopted by Tucson ran for around 12 years. It had its genesis in the economic downturn of the late 1980s. The economy had faltered with the collapse of the real estate market and slowdowns in other sectors. A consortium of leaders, led by the private sector and University of Arizona staff, developed a cluster strategy to strengthen and diversify the economy. This initiative, known as the Greater Tucson Strategic Partnership for Economic Development (GTSPED), involved three phases:

- Strategic assessment - to better understand the regional mechanics of the high tech economy and how it generates quality jobs.
- Strategic economic development plan - involved the identification of the clusters and their foundations. The initial activities were a product of this phase.
- Implementation - this process began in 1992.

The cluster selection process involved three tests that differentiated them from lesser industrial aggregations:

- Must be export driven i.e. outputs must be primarily marketed and sold outside the region.

- Must have a value-chain functioning locally i.e. interdependence between the industry, its suppliers, customers and collaborators.

- Must have a concentration in the state relative to population i.e. it is greater than the national average, or growing faster than the national average.

The Tucson cluster programme involved about a dozen clusters at one stage, but it was later consolidated around six high technology industries:

- Aerospace.

- Life Sciences.

- Environmental Technology.

- Optics.

- Advanced Materials.

- Information Technology.

GTSPED provided the framework for overall economic development, reinvestment activities the cluster activities. A core part of its mission is to 'create a climate favourable to creation, expansion, retention, attraction and recruitment of higher paying jobs and/or companies'. The tactics and specific activities spelt out in the GTSPED strategy document highlight the emphasis on investor aftercare. For example:

Tactic 1 – improve the business investment environment

- Develop an inventory and/or create a matrix of existing programmes to gain an understanding of gaps. Utilise information to work towards creating and implementing new business incentive programmes.

- Promote and market the existing business incentive programmes to local businesses e.g. Empowerment Zone, Enterprise Zone, Supply Chain Development, Foreign Trade Zone, Job Training Programme, and IT Tax Credits.

- Conduct a formal assessment of Tucson's business climate to gain a clear understanding of costs of doing business for various sizes/types of businesses.

- Work to improve local tax structure and business cost environment, making the Tucson area competitive with other Arizona regions and primary competitor locations.

Tactic 2 - Maintain a superior support system for venture creation and entrepreneurial development.

- Identify and define the roles of the critical entities, including Arizona Council for Economic Conversion, Tucson Metropolitan Chamber of Commerce, Pima Community College Small Business Development Centre etc.

- Support system entities and industry cluster groups for collaboration.

- Provide training programmes for business support system personnel.

Tactic 3 - Maintain a strong retention support system for existing businesses in the community.

- Identify and define the key economic development agencies most involved with helping existing businesses continue to be profitable.

- Develop an early warning/rapid response system that will allow those agencies to quickly identify businesses at risk of moving from the area or closing.

- Develop and implement a structured plan of action that can best deal with systemic problems that plague local companies, causing them to lose business or profits.

- Create and aggressively pursue a political and legislative agenda regarding existing businesses and their challenges.

- Ensure business and political leadership buy-in to the retention agenda.

- Implement an ongoing public relations campaign regarding the promotion of retention goals and programmes.

- Ensure that the support system for business retention is cohesive and provides a consistent message into the marketplace.

Tactic 4 - Pursue recruitment opportunities of businesses that meet or exceed pay rate and employment standards.

- Coordinate trips to headquarter facilities to meet with management. Use economic development partners to visit local companies sites while on business trips etc.

- Lead the creation of an externally focused marketing campaign that focuses on branding Tucson as the location of choice for global businesses.

- Aggressively establish a cluster-oriented, electronic advertising campaign.

- Expand Greater Tucson's long-term business relationships with Mexico, Europe, Canada and other international target markets.

- Develop and host knowledge exchange events, bringing key CEOs to Tucson to progress future relocations, business-to-business exchanges and trade, university exposure, R&D collaborations, etc.

- Expand recruitment activities to include key suppliers to existing companies in Greater Tucson e.g. Honeywell, Raytheon, Texas Instruments, Bombardier.

- Develop a comprehensive intelligence operation to track developments in targeted competitor cities.

Relevance to Valencia

The Tucson model is relevant at a number of levels:

- Its concentration on moving from a traditional manufacturing and services base to high technology manufacturing is relevant to Valencia's aspirations.
- It was successful in attracting very significant global companies that now provide the foundations for future growth. Reinvestment initiatives can now work from this foundation.
- The University of Arizona provided a strong industry-academic interface. This has parallels with Valencia.
- Leadership by a group of interested stakeholders was a cornerstone. The process by which the Tucson leadership group was co-opted should provide valuable insights for Valencia.
- Tucson has a significant Spanish-speaking population, which should facilitate the development of linkages with Valencia.
- Tucson has built a strong brand.

Impact of the approach

The major outcome was to shift the economy from a construction, tourism and retirement economy to one built around technology-intensive manufacturing, with consequently higher personal incomes. Some of the specific outcomes in the 1992-2000 period were:

- More than 120 companies recruited.
- 32,000 jobs created and $980m in new wages in the local economy.
- City, county and state tax revenue rose from $8 million to $32 million.
- Job Training Fund increased from $3 million to $18 million.
- By year 2000, Tucson and Arizona were ranking very highly in terms of jobs growth. Other economic indicators were also very positive. A decade before, Arizona was ranking in the 40s among the states.

Arguably, the strongest outcomes were the attraction of significant global companies such as Texas Instruments, IBM, America Online, LearJet, Slim-Fast Foods, Misys Healthcare Systems and a range of defence contractors such as Raytheon Missile Systems, Universal Avionics and Bombardier.

Reasons for success

A key success factor was the Tucson stakeholders' ability to nurture alliances and to strengthen networking agendas with the private sector. Particular emphasis was placed on building buyer/supplier linkages with the major companies.

The cluster programme also provided a common voice on public policy issues. Tucson is internationally recognised as having raised the level of debate and effecting attitudinal change among

stakeholders. The joint ventures, pooled acquisition of industrial inputs, technology partnering and other aspects of cooperation were critically important aspects.

The programme's role in workforce development and talent recruitment put Tucson on the map as a high technology centre. The high tech clusters were used as a fast growth market on which Tucson could focus its initiatives. The adoption of manufacturing as a target area created the opportunity for a range of technician jobs, providing a more stable employment base for the region. The University of Arizona's Technology Park and Davis-Monthan Air Force Base provided physical points of reference for high technology and defence firms.

The University, particularly its President[55], played a pivotal role in championing the cluster programme and generating voluntary inputs from industry leaders. In this regard, there was a strong expectation that the private sector members of the clusters lead the economic development effort. The rationale was that the private sector knew the barriers and opportunities. The programme had a system of co-chairs for each cluster, and the monthly open forums tapped private sector interest.

Bob Breault, a local businessman and Board member of The Competitiveness Institute, was also a tireless advocate of both the city and its cluster programme. Robert Gonzales was heavily involved in the conceptualisation and delivery of the programme. They continue to speak widely and undertake consultancy work in the clustering field.

The results were largely a product of increased cooperation between firms realising regional complementarities, and the use of the clusters to prioritise public and private infrastructure expenditure and attract investment. Cluster mapping and management of the cluster value chains provided a vehicle for recruiting stakeholders and guiding reinvestment initiatives.

Obstacles

The Arizona approach was much focused but, as some locals said at the time, 'not all boats are rising with this slow tide'. This proved to be true.

Stakeholders have since identified political instability, and the related uncertainty about future public funding, as the biggest obstacle to the Tucson model. As with most clusters that focus on SMEs, accessing subscriptions were a continual problem unless the firms could see the cluster directly improving their bottom-line. Part of the problem was that the programme's outcomes were usually oriented to industry-wide benefits. A related constraint was that most of the clusters lacked paid staff, and burnout among key cluster leaders resulted.

Another difficulty lay in identifying common agendas around which firms could rally. This appears to have been the case in the stillbirth of three clusters - Minerals & Mining, Transportation & Distribution, and Tourism.

[55] The University President had been exposed to Michael Porter's cluster concepts through their membership of President Reagan's Council on Competitiveness.

Table 4.6: Key foreign companies in the Valencia region

Company	Headquarters
Automobile	
Autoliv	USA Sweden
Bosal	Belgium
Schefenacker Vision Systems	Germany
ESPAÑA	UK
Comp. Plastic Omnium	France
Schneider	Germany
Ford Espana	USA
Galmed	France, Luxembourg
Iberica De Suspensiones S.A	France & Japan
Johnson Controls	USA
Pilkington Automotive	UK
Metaldyne	USA
Chemicals and petroleum	
British Petroleum	UK
Colorobbia España	Italy
Johnson Matthey	UK
IFF	USA
UBE Corporation Europe	Japan
Metals	
Alcoa Transformation	USA
Galmed Thyssen Krupp	France/Luxembourg
Thyssen-Ros Casares S.A	Germany
Solmed & Sidmed (Acerlor)	France/Luxembourg
ITC	
Voslogh (formerly GEC Alsthom)	UK/France
Celestica (formerly IBM)	Canada

Source: Derived from data supplied by Valencia Community Investments and others.

Considerations for adoption in Valencia

The Tucson model is instructive because of the way in which the local stakeholders created a workable governance structure, and captured the interest of a diverse group of agencies at both the local and national level. The US Government was well aware of the programme, and this helped to give Tucson the front running on various investment and infrastructure projects. This model therefore has direct parallels with Valencia's needs.

While the Tucson cluster programme was scaled down in 2004, cluster concepts continue to be promoted in GTSPED's programmes. Cluster programmes are not, in any case, intended to run forever.

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CHAPTER 5

SUPPORTING MORE EFFECTIVE SME INTERNATIONALISATION

by David Irwin
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Introduction

The Community of Valencia has an open economy and an export tradition that started at the end of the 19th century with the agricultural sector. It has always had the best ratio in Spain between exports and imports with, traditionally, a balance in favour of exports. Over the last five years, this balance has reduced and has now become slightly negative. The Community of Valencia has annual exports of €16bn, accounting for almost 24 per cent of GDP (compared to 20 per cent for Spain as a whole). Industry accounts for 24 per cent of the economy, construction for 10 per cent and services for 63 per cent.

Some sectors, such as ceramics, furniture, textiles, toys, lighting and home accessories, have felt under particular threat from foreign competition. One way to protect access to customers is to contract some manufacturing (usually the less high tech) and retain the production of the more sophisticated. The local companies let the foreign manufacturer export the joint product to new markets or to areas that do not compete with the local firm. As a result, Valencian companies have bought or built manufacturing plants in Morocco, Egypt, China or India.[56] Some companies have been successful. Fermax, for example, is successfully manufacturing in China; tile manufacturers have been unable to build a reliable plant in India. Many furniture companies manufacture abroad and retain local production for more differentiated goods to be marketed in first rate markets like the USA.

Cámara Valencia believes that the environment is favourable for international trade, but expresses some concern that key export sectors are under threat. These include shoes (with good quality, but too fragmented and uncompetitive and under threat from China); furniture (flexible and conscientious but too fragmented, uncompetitive and with poor supply chains); lights (high quality but too fragmented and lacking investment in research and development); ceramics (flexible and with high levels of investment in research and development, but under threat from emergent export countries); and textiles (flexible and with high levels of know-how, but under threat from emergent export countries).[57]

The City of Valencia is promoting itself as a knowledge city and wants to do more to encourage FDI. It believes that efforts to promote SME internationalisation should be part of an FDI strategy.

[56] Prof. Javier Quesada, "Review on foreign direct investment, internationalisation and innovation: City-region of Valencia", Diagnostic report prepared as background, August 2006

[57] "SME Internationalisation", a note from Cámara Valencia

As everywhere else in the world, almost every business iin the Community of Valencia is small, though it is the medium and large businesses that account for most of the exports. The OECD Bologna Charter emphasised the role of international co-operation and cross-border partnerships involving SMEs as a strategy for enhancing competitiveness.[58]

The review team undertook a large number of meetings during its week in Valencia, though we were also acutely conscious that we only scratched the surface. It is believed, however, that we learnt enough to reach some fair conclusions.

This paper reports on what was learnt about small business development and support during the week, identifies strengths and weaknesses and makes some suggestions for possible initiatives to overcome the weaknesses. It argues that developing SMEs should be a key part of any strategy to promote internationalisation. Valencia has a wide range of initiatives that might be regarded as meeting recommendations of OECD and others for providing effective support to SMEs. However, taking a broader view of the role of business support might lead to a more comprehensive and more integrated support service.

The report includes brief examples of how others have addressed specific issues; the appendices provide more detailed examples of how city regions have taken a collaborative approach to economic development. The review team is conscious that it is all but impossible to go into an area and say 'this is what you need to do'. It is actually far better for people from a region to look at what is happening elsewhere and engage in what Tom Peters calls 'creative swiping'. The examples are intended to provide a step in that direction.

Small firms and internationalisation

Policy makers in many parts of the world have decided that it is important that small firms should become more 'internationalised' – it seems that it is no longer enough simply to allow SMEs to get on with what they do best and for governments to do their best to create an enabling environment in which small firms can flourish. Instead, governments feel that they need to intervene to encourage specific behaviour.

The traditional interpretation of 'internationalisation' has been that it equalled exporting – and that exporting simply provided a way for firms to sell more of their product or service by opening bigger markets. A by-product, of course, and an important one for governments was that it generated foreign earnings to offset the cost of imports.

Increasingly, however, internationalisation is embracing a wide range of activities including foreign investments, developing cross-border partnerships, cross-border clustering, technology transfer, knowledge transfer etc. For many firms, internationalisation is simply a way of improving their competitiveness. And modern communications make it far easier than it once was to develop and maintain such relationships.

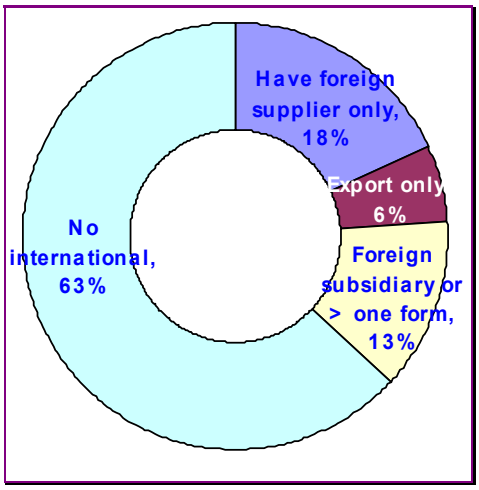
A survey for the EU (2003) by the European Network for SME Research (ENSR) shows that foreign supply relationships are the most common form of internationalisation, involving 18 per cent of all SMEs, though it is quite possible that many more firms do not realise that they are ultimately dependent on foreign suppliers. Exporting accounts for 6 per cent of companies responding. Just three

[58] Prof. David Smallbone, "Foreign direct investment and SME development: Policy issues", OECD, Dec 2003

per cent have collaborative relationships with foreign firms and another three per cent have established foreign subsidiaries or branches.[59]

The survey shows that the second most frequent motive for SMEs to internationalise is to access know-how, technology or labour. Sales are no longer the all-dominating motive for international activity. Indeed, with a third of the SMEs with foreign subsidiaries not exporting, clearly establishing a subsidiary is not simply intended to establish a local sales base.

Figure 5.1: Types of SME internationalisation



Source: ENSR survey, EU Observatory of European SMEs, 2003

There are a considerable number of barriers to SMEs wanting to access international markets. A report prepared for the OECD by Lester Lloyd-Reason[60] surveyed perceptions of almost 1,000 SMEs and concluded that the top ten barriers are:

- Shortage of working capital to finance exports;
- Identifying foreign business opportunities;
- Limited information to locate and analyse markets;
- Inability to contact potential overseas customers;
- Obtaining reliable foreign representation;
- Lack of managerial time to deal with internationalisation;
- Inadequate number of trained personnel for internationalisation;

[59] ENSR, "Internationalisation of SMEs", 2003, EU, Observatory of European SMEs, 2003, No. 4

[60] Prof Lester Lloyd-Reason et al, OECD-APEC joint project on "Removing barriers to SME access to International markets", draft final background report, 2006

- Difficulty in matching competitors' prices;
- Lack of home government assistance/incentives;
- Excessive transport and insurance costs.

David Smallbone, writing for the OECD,[61] notes that there are potential benefits of FDI as a tool for SME development:

- Improved linkages with suppliers;
- Improved linkages with customers, especially through out-sourcing;
- Linkages with competitors, since foreign investors may set new standards, with which local firms may need to compete;
- Linkages with technology partners, since investors may seek partnerships with local SMEs, including joint ventures, licensing agreements and strategic alliances;
- Other spillover effects, including demonstration effects, as inward investors demonstrate new and better ways of doing things.

[61] Smallbone, op. cit.

Box 5.1: The impact of supply chains on innovation

A Swedish study of forestry demonstrates the increasing tendency of large businesses to assign important roles to subcontractors both quantitatively as a share of turnover and qualitatively by giving responsibility for new product areas. The buyers demand that their key suppliers have a broad net of contacts for improving technological and market knowledge. This can contribute to positive business dynamics with the subcontractors actively developing new ideas and products that are complementary to existing products.

Source: Karlsson, S. Niedomysl and Nordström, "More than a lot of paper! - Innovations and development within Värmlands' Forest industry cluster", Verket för innovationssystem (Swedish Agency for Innovation System), Sweden, 2001 reported in ENSR, "Internationalisation of SMEs", EU, 2003

The ENSR survey, along with national studies, supports the theory that internationalisation has a positive impact on competitiveness. However, co-operation and networking, irrespective of the location of the partner, is perceived by SMEs to have a greater impact on competitiveness.

The ENSR report points to three elements as crucial for developing policy measures with regard to internationalisation:

- SME managers often have limited time and management skills. A policy measure should consider providing some practical tasks to support the manager, especially in the case of SMEs with low international experience.

- Studies indicate that SMEs often need specific, targeted support. Such 'customised' support comprises, for instance, assistance in identifying an appropriate foreign business partner for a joint venture or collaboration. The studies suggest that policy measures, in order to be effective, need to focus on the experience of the entrepreneur and on developing his/her qualifications in a broad sense.

- Internationalisation is more than just exporting. Policy measures, whether general or company-specific, need to encompass all the different approaches to internationalisation and the support to include a wide range of international activities.

The Smallbone and Lloyd-Reason papers make more detailed policy recommendations to promote co-operation between SMEs and inward investors and to encourage SME internationalisation:

- Remember that not all firms need themselves to internationalise to become internationally competitive – they can often achieve the same benefits simply by engaging in appropriate supply chains

- Ensure that programmes intended to support internalisation integrate with other that promote growth, competitiveness and innovation

- Improve the flow of information about potential suppliers to potential purchasers and about supply opportunities to potential suppliers;

- Establish a linkage programme to build the capacity of selected SMEs on the 'fit-to-supply' principle, using the experience from countries such as Ireland and Singapore:

  - Target suppliers based on ability and commitment to future improvements
  - Work closely with investors by inviting them to ensure potential suppliers understand their requirements and to draw attention to their weaknesses
  - Identify or create an agency to intermediate between suppliers and providers of credit, training or technology
  - Offer monetary incentives to participate, for example, contributing to the salary costs of engineers and managers in investors who devote time to supplier upgrading (as in Singapore); offering grants to promising suppliers to help with initial investment (as in Ireland); and offering subsidised training and consultancy to enhance supplier capability (as in Chinese Taipei)
  - Develop capacity building programmes that include supply chain and cluster initiatives
  - Recognise that linkage programmes have a pump-priming role and modify as local suppliers increase their capacity.

- Develop a national strategy for export development and promotion, with the objective of increasing the volume and value of exports and the number of exporting companies and addressing the needs of firms at different stages of development.
- Set up a single export promotion agency, which could be combined with an FDI function
- Based on good practice in mature market economies, the establishment of such an agency will separate policy making from policy implementation.
- Develop an export support 'offer', which includes:
  - Provision of ‘how-to’ guides, case studies and links to experienced international SMEs to support firms new to internationalisation
  - Provision of information about specific markets and potential customers;
  - Support to make contact with potential customers or appropriate intermediaries;
  - Assistance with market visits.
- Strengthen the business support system;
- Produce a register of potential suppliers;
- Take a lead with capacity building initiatives;
- Set up business incubators and industrial parks to provide an appropriate infrastructure for SME suppliers to develop alongside foreign investors.
- Improve the capacity of financial institutions to construct profitable SME lending programmes;

- Prioritise the development of innovative solutions to security, such as using more flexible forms of collateral, particularly for SMEs with few fixed assets and more emphasis on cash flow than balance sheets in assessment of borrowing capacity;

- Develop alternative forms of financing such as venture capital and leasing and introduce an SME loan guarantee scheme

- Raise awareness of the potential for cross border partnerships and improve information flows to potential SME partners concerning government and local regulations, and other aspects of the business environment, in the partner country;

- Promote cross border co-operation between business support organisations and other intermediaries, in order to provide a facilitating environment within which cross border enterprise partnerships can develop.

Cities as a focus for economic development

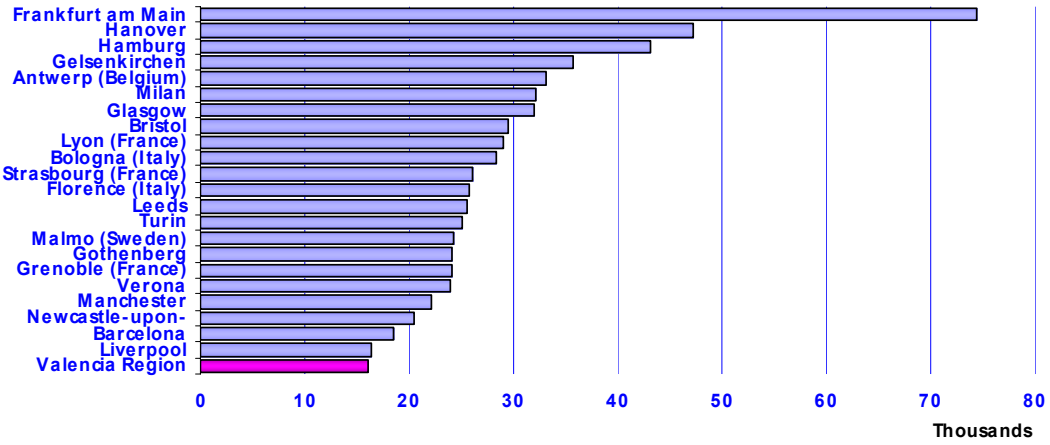
As long ago as 1985, Canadian Economist, Jane Jacobs, was writing about the importance of cities as contributors to the wealth of nations. In particular she noted that economic activity in cities comes from a network of a network of interlocking dependences, which may be capable of adapting to change in order to exploit new opportunities and to fend off external threats.[62]

Professor Michael Porter, of the Harvard Business School, created his Initiative for a Competitive Inner City (ICIC) arguing that inner cities could be helped to regenerate if they focused on their competitive economic advantages, rather than on their social disadvantages. This was to some extent emulated in the UK with the launch of City Growth Strategies.

Tony Blair's favourite think tank, the Institute for Public Policy Research, created the Centre for Cities in 2005 as an independent urban policy research unit to take a fresh look at how UK cities function. In August 2006, they publicised a discussion paper attempting to learn some lessons from European cities, which makes interesting reading, despite being unable to find the holy grail.

[62] Jacobs, J, "Cities and the wealth of nations", Random House, 1985

Figure 5.2: GDP per capita (selected European cities)



Sources: Barclays Bank 2002 in "Competitive European Cities: Where do the Core Cities Stand?", Office of Deputy Prime Minister, 2004 (nb data for 2001); Valencia data from Cámara Valencia

Research by Barclays Bank, reported in 'Competitive European Cities', shows city GDP per capita for the top 50 cities in Europe. A selection of these is shown in the chart together with the figure for Valencia. As can be seen, Valencia faces quite a challenge.

The Centre for Cities, however, makes the valid point that it is not a position in a league table that is important, but rather that the priority must be for cities to improve their economic, social and environmental performance. It stresses that whilst many firms are tied to location, many more are free to go to wherever the environment is most conducive to doing business, so cities need to ensure that they are attractive as places 'to do business'. The Centre recognises that cities are complex and that it is difficult to understand the key drivers. However, it reinforces the view of other commentators by suggesting that one of the drivers is innovation, though it is not clear whether they mean that cities with a high level of innovation within business is important, or that it is more important to have universities and research institutes that are providing high levels of support to businesses that would like to innovate (as Stuttgart and Helsinki are doing for example in their efforts to support research intensive businesses).

The importance of small businesses

Entrepreneurship is seen as one of the most important drivers of local economic development, essential in creating jobs and distributing wealth. The World Bank asserts that a vibrant private sector – with firms making investments, improving productivity and creating jobs – promotes economic growth and increases opportunities.[63] According to the World Bank website, its pro-SME policy "is based on the argument that, relative to larger firms, SMEs enhance competition, entrepreneurship, job growth and spur economy-wide efficiency, innovation, growth and poverty alleviation".[64] Indeed, SMEs are central to the EU strategy, adopted in Lisbon in 2000, of becoming "the most competitive and dynamic knowledge-based economy in the world".

[63] World Bank, "Doing business in 2004" IBRD/World Bank

[64] See http://rru.worldbank.org/PapersLinks/GlobalResults.aspx

This support for SMEs is reflected in Valencia's economic development policy as articulated by the Valencian Institute of Economic Research: create a business friendly environment, grow companies, then distribute the wealth.

SMEs are flexible, innovative and responsive. Since World War II, 50 per cent of all innovations, and 95 per cent of all radical innovations, have come from new and smaller firms[65]. Smaller firms tend to be more productive. They are a crucial part of the supply chain – providing materials, sub-assemblies and services to larger businesses and distributing goods to customers. And as economies increasingly come to rely on "knowledge workers", and large firms increasingly "stick to the knitting" rather than pursue vertical integration, then small firms will become more important. Economies with a high proportion of SMEs will be more resilient to external shocks and will be more likely to have more firms which grow into larger businesses.

Carl Schramm, CEO of the US based Kauffman Foundation, argues that SMEs make a significant difference to economies.[66] He notes that the US breeds a steady flow of new, high impact businesses, which "create value and stimulate growth". They do not appear automatically, but because the US nurtures and encourages entrepreneurs. He suggests that, on more than one occasion, new businesses, and the new jobs that they create, have pulled the US out of economic slump. In particular, he argues that small businesses can lead to economic growth – he cites the companies spun out of MIT which, taken together, would now constitute the world's 24th largest GDP.

Increasing levels of indigenous entrepreneurship make places more attractive for other investors to want to do business. Research by Fortune and Andersen[67] on what makes cities good places to do business shows that the key factors are pro-business attitudes, entrepreneurial activity and good supply of managers – so increasing levels of local enterprise are likely to lead to increasing attractiveness for inward investment as well.

A diverse economic base not only makes economies more resilient to external shocks, but also means that there is likely to be a ready source of suppliers for inward investors.

SMEs are unlikely to prosper without access to effective financial and business development services. All commentators seem to agree that one of the most important barriers to entrepreneurship is access to finance. Ayyagari et al (2003) found that lack of access to finance was both "negatively and robustly" correlated to restraining the growth of the SME sector.[68]

Too often though, SME support is neatly segmented into access to finance and business development. Both are needed – and also providing incubator workspace offers prospective entrepreneurs a really powerful combination of business support, raising success rates to as high as 87 per cent after five years.

World class business support

A report by the Institute of Welsh Affairs, "Competing with the World: world best practice in regional economic development", sponsored by ONE NorthEast, the Welsh Development Agency and

[65] See, for example: Timmons, J, "New Venture Creation", Irwin

[66] Schramm, CJ, (2004), "Building entrepreneurial economies", Foreign Affairs, Jul-Aug

[67] Report originally seen at www.arthuranderson.com; see Fortune 27 Nov 2000 for summary

[68] Ayyagari, M. T Beck and A Demirgüç-Kunt (2003), "Small & Medium Enterprises across the Globe: a new database", World Bank working paper

Barclays Bank (2002) reviewed a number of different locations, mostly but not exclusively in Europe.[69] They identified 20 fundamental characteristics of successful cities and regions:

- A strategic or central location;
- Transport infrastructure is well developed and modern;
- Telecommunications infrastructure is up-to-date;
- Businesses are innovating;
- Entrepreneurial culture;
- A small number of 'driver' industries or clusters;
- A polycentric urban structure with specialisation in individual settlements;
- Long-established industries with continuing product demand;
- Productivity and competitive advantage seen by businesses as moving targets essential to success;
- SME support systems are highly developed and comprehensive;
- Workforce is highly skilled/ educated;
- World class educational institutions with a long tradition;
- Quality of life is high;
- External image is positive, profile high;
- Local pride/well developed sense of belonging/ contributing and self-image;
- A local culture that combines self-confident self-interest with mutual support and co-operation;
- Networking within the region is well developed;
- International outlook and networks;
- High quality analysis of their situation and clear thinking with regard to conclusions; and
- Locally appropriate levels of autonomy and effective leadership, with significant input from the business sector.

[69] Competing with the World, ONE, WDA, Barclays, 2002

It is interesting to compare Valencia against this list. In particular, SME support systems are weak and anything but comprehensive. It is also questionable how entrepreneurial is the culture; whilst the level of small businesses is high, the rate of formation appears to be fairly low.

The IWA report goes on to talk about the need for effective and comprehensive small business support. It recalls an EC commissioned study of 1979, "The Mobilisation of Indigenous Potential", that questioned the cost effectiveness of regional inward investment strategies and identified a small number of key factors relevant to increasing business start-ups and growth. A number of academic studies in the US (notably by David Birch at MIT) and UK pointed to the importance of the small business sector as a driver of net job creation.

Successful regions have learned from this, recognising the importance of helping SMEs start up, survive and grow. The IWA research suggests that the most successful regions do so more extensively, in more depth, over more sustained periods.

The IWA report summarises the key factors recognised as relevant to developing the SME sector. These include:

- promotion of a culture of entrepreneurship;
- education and training for entrepreneurship, starting in schools;
- specific support for start-ups;
- support for growth businesses;
- good access to risk capital;
- access to continuing advice and training for entrepreneurs;
- access to management training, marketing, sales skills and financial management;
- workforce training, especially in use of new technologies and development of skills appropriate to high quality markets and innovative markets;
- help with product and process development (not least because research suggests that the propensity to innovate in SMEs in less successful regions is lower than in successful regions), including use of new and advanced technologies;
- help with improved access to wider markets including e-business;
- support for research and development, co-operative research and technology transfer;
- initiatives to facilitate 'hi-tech' company development in areas with high global market potential;
- network development including the development of good linkages between firms and local institutions;
- combinations of the above, including the benefits of clusters of companies in similar business sectors; and

- a supply of advanced and targeted business services for both general company development and niche market groups such as 'hi-tech' companies.

IWA found that many prosperous regions sustained their efforts and that seems to be effective in accelerating the development of start-ups and improving business survival and growth. It pointed, for example, to Atlanta, which increased its focus on diversifying the economy and the development of SMEs. This helped accelerate employment growth particularly in smaller companies, which increased by 113,600 net jobs in 1999.

Box 5.2: Encouraging entrepreneurship in Limburg

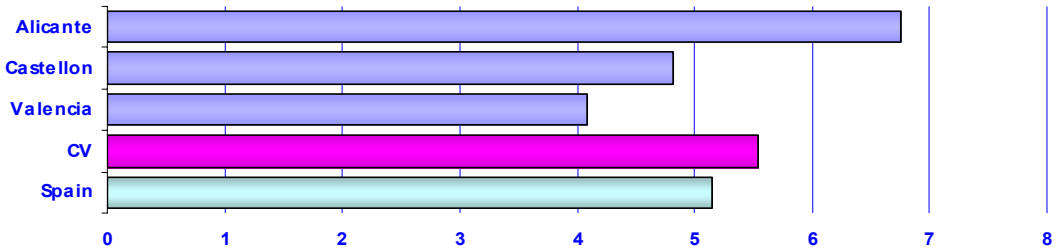
Dutch Limburg gives great emphasis to encouraging entrepreneurship, SME development and the establishment of new industrial clusters. It has embarked on a long term, knowledge based development strategy with greater emphasis on SME support, use of knowledge/technology transfer throughout small, medium and large companies, endogenous growth, co-operative working towards agreed ends and less reliance on foreign direct investment.

Source: Competing with the World, ONE, WDA, Barclays, 2002

Entrepreneurship in Valencia

The Global Entrepreneurship Monitor is a worldwide research project which explores entrepreneurial activity. A regional report for Valencia[70] was published in 2004.

Figure .53: Total entrepreneurial activity index



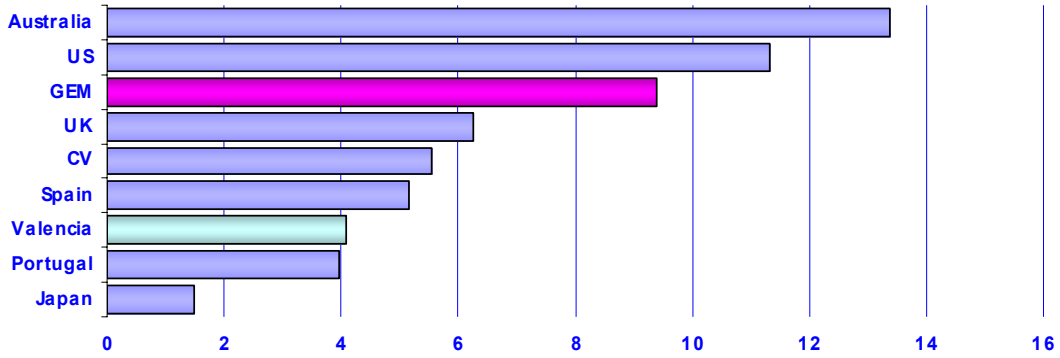
Source: Global Entrepreneurship Monitor, Valencia report, 2005

The key indicator is GEM's so-called Total Entrepreneurship Activity (TEA) Index which shows the number of people thinking about starting in business and those who have recently started in business per 100 population. The region has an index of 5.54 compared to Spain's index of 5.15, so entrepreneurial activity is higher in the region than in the country as a whole. However, this masks considerable variation within the region: Alicante has an index of 6.75 but Valencia's is low at just 4.09.

For comparison, as can been seen in the next chart showing some other developed countries, Australia has an index of more than 13. The US has an index of more than 11, and the GEM overall figure is more than 9.

[70] Global Entrepreneurship Monitor, "Informe GEM Comunidad Valenciana", 2004

Figure 5.4: Total entrepreneurship activity index



Source: Global Entrepreneurship Monitor, Valencia report, 2005

What is perhaps more encouraging is the split between opportunity entrepreneurship and necessity entrepreneurship. In Australia, for example, the index for opportunity entrepreneurship is 10.65 and for necessity entrepreneurship is 2.48. For the region of Valencia, the index for opportunity entrepreneurship is 4.96 and for necessity entrepreneurship is just 0.58, indicating that most people who start their own business are doing it for positive reasons.

Whilst companies in Valencia represent 52 per cent of the total business population in CV, they account for 55 per cent of the region's GDP.[71]

Arguably, there is a need for more local research to understand the small business sector in Valencia and to provide information to policy makers. Furthermore, given the worldwide interest in entrepreneurship, university researchers could easily place papers in refereed journals and so achieve the research paper scores that they need.

[71] figures from Camara Valencia

Box 5.3: Business competitions

Shell *Live*WIRE is a recognised and respected support service for all 16 to 30 year-olds considering starting, or already running a small business. Shell *Live*WIRE gives young people access to free information tailored to them, both online and through materials such as the Start a Business Toolkit. Using the Shell *Live*WIRE website they can network with other aspiring entrepreneurs, and discover where they can get more business advice in their local area. They can also put questions to a panel of online mentors who draw on their own experiences of launching and running businesses. Recent start-ups also have the opportunity to enter the national Shell *Live*WIRE 'Young Entrepreneur of the Year Awards', where the overall winner receives £10,000 (see www.shell-livewire.org). Recent research by *Live*WIRE suggests that 30 per cent of those starting in business through *Live*WIRE cite a lack of advice at school or university and ignorance about where to go for help as one of the biggest barriers to starting up.

Ernst & Young sponsor a number of entrepreneurship competitions of which the best known is the Entrepreneur the Year, which operates in more than 125 cities in 40 countries, including Spain. However, in the US, E&Y also sponsors business plan competitions aimed at university undergraduates to encourage them to think about starting in business.

Sources: www.shell-livewire.org, www.shell-livewire.com, www.ey.com/eoy/

Promoting entrepreneurship

It seems that little effort is made generally to promote entrepreneurship amongst any section of the population. Much more could be done to promote entrepreneurship and to encourage people to think about starting their own business – in schools, at universities and amongst people who have already joined the work force.

Box 5.4: Kauffman Foundation

For years, the US based Kauffman Foundation has supported entrepreneurship programmes at universities. Through the **Kauffman Campuses Initiative**, it is willing to provide large grants over an extended period to selected colleges and universities that have the best plans for bringing entrepreneurship out of their business schools and encouraging other departments, and particularly the liberal arts, to introduce concepts of entrepreneurship to their students.

The **Kauffman Entrepreneurial Faculty Scholars' Programme** is intended to infuse entrepreneurship education into local college classrooms. Kauffman supports 'faculty scholars', from a variety of disciplines, who then integrate what they've learned into the subjects they teach. The aim is to equip students with the skills that lead to greater opportunities. The programme supports a small group of Scholars each year (who each receive a $15,000 grant to develop entrepreneurial skills and offset expenses like travel and materials), the development of new university-wide curricula and educational materials, and opportunities to transfer the knowledge gained to faculty at other colleges and universities. The scholars study entrepreneurship, develop entrepreneurial initiatives and share ideas with colleagues as well as benchmarking "Best Practices in Entrepreneurship" and developing and teaching an entrepreneurship course for at least two semesters to students in all academic disciplines. The expectation is that this will not only provide a model for entrepreneurship education but also a committed network of entrepreneurial scholars who work with each other to unleash the best thinking about entrepreneurship.

Source: Kauffman Foundation

University students can be introduced to small business in more than one way – and they can be encouraged to consider going to work in a small business even if they have decided that they do not want to start one of their own. Undertaking placements and providing consultancy support for SMEs provide two routes though there are many others.

Box 5.5: Junior Empresa

Junior Empresa (JE) was started in France in 1967 as an activity intended to engage university students in solving business problems and in learning about small business. The objective is to encourage entrepreneurial behaviour amongst students through providing students, usually in teams, to undertake consultancy projects in SMEs. There is an international network of Junior Empresa, known as JADE, which is a network of 300 Junior Enterprises with 20,000 "young entrepreneurs" mainly in Europe including CEJE in Spain. In addition to consulting in local businesses, the international confederation of Junior Enterprises (JADE) has an established an Exchange Programme that offers JE members the opportunity to work in JEs outside their own country.

Source: Local Economic Development Information Service (www.ledis.co.uk)

Innovation

The Technical University of Valencia heads the Spanish league table for patent registration, though it seems that this is not being replicated through similar levels of innovation in local businesses.

It appears that a relatively small number of firms are engaging in innovation, though it is recognised that it is hard to identify innovation if firms are not reporting expenditure on innovation. Innovative companies in the region of Valencia account for 12.3 per cent of all innovative companies in Spain, some 1.6 percentage points higher than the proportion of Valencian companies in the Spanish total. However, expenditure is low, estimated at just 5.8 per cent of the total for Spain. The figures are more depressing when seen as a percentage of GDP - in Valencia R&D expenditure is estimated to be just 0.8 per cent compared with one per cent for Spain and 1.3 per cent for China. More encouragingly, however, firms innovating firms in Valencia estimate that 19 per cent of their turnover comes from new products (compared to 16 per cent in Spain as a whole).[72]

REDIT reports that it works with some 8,000 associated firms and has 15,000 SME clients of which 40 per cent are based in Valencia. Given that there are 168,000 businesses in the province and 329,000 businesses in the region, this is not very many. More disappointingly, it seems that the universities are not succeeding in stimulating spin-outs or in encouraging students and graduates to consider starting their own business.

Whilst recruiting graduates will not specifically address the problem of lack of innovation, it seems that SMEs need some encouragement to recruit graduates. In this regard, it is noted that Valencia does have programmes specifically designed to place graduates in companies to undertake projects of interest to both parties whilst the graduate completes their final thesis. The Valencia stakeholders might usefully review these programmes to determine how they might be made more effective.

[72] National Institute of Statistics, 2003 Technological Innovation Survey reported in "Supporting the contribution of Higher Education Institutes to Regional Development", Region of Valencia, March 2006

Box 5.6: Product and process extension programme

The Product & Process Extension Programme, managed by enterprise agencies 'Entrust' and 'Project North East' in the north east of England, placed unemployed graduates and professionals in small businesses to undertake an agreed project either to develop a new product or to review and improve a manufacturing process. The individual was given an initial one week orientation programme to ensure that they understood, at least to some extent, small businesses. The University of Northumbria was available to provide technical support as required, so that the individual and the business were not entirely on their own. The cost of the programme was split between the business and the Government. Around 80 per cent of the people found jobs as a result of the programme, though not necessarily in the placement company and around 80 per cent of the businesses created a new position, though did not necessarily offer it to the placement.

Parallel programmes offered support in other areas, notably marketing.

Box 5.7: Prince of Wales Innovation Award

The Prince of Wales Innovation Award was a TV competition run with BBC TV's Tomorrow's World which aimed to encourage businesses, academics and individuals to think about how they could commercialise technological innovation, with the stimulus of possibly appearing on television and possibly being recognised as particularly innovative and receiving an award.

The judging panel included both successful business people and venture capitalists so really promising business ideas could be given support way beyond the award and publicity.

The programme ran for 16 years and attracted several hundred entries each year, with a mix of inventors, big business, university departments and small businesses, but overall it had a positive impact on encouraging small businesses to think about novel approaches to product development.

Some 25 per cent of EU firms work in a cluster-like environment, according to an Innobarometer report focusing on the role of clusters in facilitating innovation in Europe.[73] At first glance, few differences exist between cluster-based and non-cluster based firms. It seems, however, that cluster-based firms are slightly larger and more stable. Nonetheless, firms do attribute important benefits to cluster participation. These include better access to skilled workers, nurturing entrepreneurship and access to better market information. The survey indicates the cluster-based firms may be slightly more innovative (78 per cent of firms in a cluster recently introduced a new or significantly improved product, compared to 74 per cent for all firms; some 24 per cent of cluster firms applied for a patent compared to just 12 per cent for all firms) and are more likely to introduce new products, processes and services than are other European-based firms.

Technology transfer

The Polytechnic University of Valencia states that it wants to transfer knowledge out from the university so that it can be used by business and industry. It has developed a Science City which, they argue, brings together the best research assets of the university with industry. They are aiming to encourage spin-outs and to attract local and international businesses that want to locate in the science city to establish stronger links with academic research. However, the incubator workspace that is planned is still not available (a 2,000 m² incubator will be available by the third quarter of 2007). They say that it will provide 30,000m^2 for external companies' corporate R&D labs, but it seems that they

[73] European Commission 2006 Innobarometer on Cluster's Role in Facilitating Innovation in Europe: Analytical Report: cordis.europa.eu/innovation/en/policy/innobarometer2006.htm

are struggling to raise the capital required. In the last couple of years, they have assisted five spin-outs, which are currently housed in temporary accommodation. They have also attracted one foreign company, Analog Devices, also housed in temporary accommodation.

Box 5.8: Incubator workspace

The first business incubators were established in the late 1970s. Worldwide, there are now at least 3,500 business incubators of which approximately 300 are 'for-profit', venture capital funded 'new economy' incubators. The majority of business incubators are publicly funded and focus on regional development and job creation objectives. The core characteristic is the provision of a supportive environment enabling businesses to start and grow.

Successful incubators seek to integrate the incubator support and activities into the broader economic development goals and strategies of the local community. The overall goal is to support businesses that will be successful and prosperous generating wealth and employment. Incubator clients create jobs, innovate, commercialise new technologies, revitalise communities and strengthen local economies.

Incubators reduce the risk and lower the costs for tenants, important at key stages of development and when "doing things for the first time". Simply providing workspace is an important part of the mix but is not sufficient by itself. Incubators need to create an environment which can nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable. Incubators provide management assistance, access to training and expertise, access to finance and other support services. They also offer shared office services, flexible licences, expandable space, and sometimes access to equipment, all under one roof.

For many firms the intangible benefits of incubation, including networking, a prestige address, conferring credibility, a supportive peer group, access to markets and specialist advisers, are as important as the provision of the basic services.

There is little doubt that businesses that start in an incubator are more likely to grow and prosper. Evidence suggests that, in general, about two thirds of businesses cease trading within five years. Businesses which receive support – advice and training during their crucial start up phase do rather better – typically, two thirds are still in business after five years. The evidence[74] also suggests that the process of incubation is a powerful one in overcoming the stresses of starting and growing a business. It seems that about 80 per cent are still in business after five years.

In the US, NBIA member incubators say that 30 per cent of firms move out each year and now report a survival rate of 87 per cent[75], though it is not clear how much of this is due to more selective letting policies of incubators. Start-up firms in NBIA incubators increased sales in 2002 by $240,000 each and created an average of 3.7 jobs.

NBIA has commissioned research in the US. They estimate that for every $1 of annual public operating subsidy to the incubator, clients and graduates generate approximately $45 in local tax revenue alone. They also claim that 84 per cent of incubator graduates stay in their communities and continue to provide a return to their investors.

The Centre has a complicated rental system designed to influence firms' behaviour. Everyone pays a service charge designed to cover the costs of servicing the building. Tenants also pay a rent, set at a commercial level, but then discounted depending on whether the firm hires university graduates, whether it offers student bursaries etc. The Centre explains that it does not aim to make a profit on the rent, but to add value in other ways. Making a profit, however, might make it somewhat easier to raise the money required to build the incubator.

[74] The UK Impact Assessment Study, 1999/2000. Commissioned by UKBI and sponsored by DTI and HSBC www.ukbi.co.uk

[75] See www.nbia.org

The Technical University of Valencia (UPV) makes available technologies that it has developed through a public database and through meetings organised by sector business associations. Positively they have created a business club of around 330 businesses. They are offered a range of services at preferential rates, such as technology breakfasts. It is disappointing, therefore, that in 2004 they managed to agree just six licensing agreements.

The University of Valencia (UV) stated that it, too, has a science park which aims to encourage spin outs. The science park includes an incubator, with seven enterprises already established and two more in the process of starting up. This incubator will be part of one of the three central buildings of the PCUV. The priority fields of research are biotechnology, nanotechnology, ICTs and applied physics. It explained that it was less concerned about the commercialisation of innovation and rather more focused on the innovation itself – which seems to have the objectives the wrong way round.

Box 5.9: Massachusetts Institute of Technology

MIT is proactive in licensing technology and encouraging spin outs. It typically issues around 80 licences each year of which 20 result in new businesses. Whilst they do make money from this (up to $20m per annum), their main motivation is local economic development – which they see as being ultimately good for the university. Greater collaboration between faculty and business, and a more relaxed approach to intellectual property rights, encourage this.

Source: MIT Technology Licensing Office

Box 5.10: Science Enterprise Centres

The Science Enterprise Challenge was launched in 1999 as part of the UK Government's strategy to introduce a "third mission" for Higher Education, alongside teaching and research, to encourage transfer of science and technology innovation to the business sector. The Government provided a total of £44m which has led to the creation of a network of 13 science enterprise centres (SECs) representing over 60 higher education institutions intended to be "catalysts of cultural change in UK universities to make them more relevant to business and to enhance the universities' contribution to growth in the economy, employment and productivity".

SECs aim to embed a spirit of enterprise, aiming both to raise awareness of the importance of business enterprise at all levels within universities, including both students and faculty, and to legitimise commercial activity as a valid aspect of academic life. It also aims to foster understanding and co-operation between academics and the business world to ensure the commercial exploitation of technological innovation.

The Centres contribute to business creation by:

- Enterprise teaching: equipping students and staff with the skills to innovate and the commercial awareness to succeed
- Industry links: encouraging technology transfer by supporting academics in dealings with industry
- Business creation: providing advice and routes to support for spin-out business

The economic impact of the SECs will take time to show. Early measures of activity are encouraging with 5,900 science and technology graduates exposed to new enterprise teaching in the first two years, and over 850 at postgraduate and professional level. The centres have also helped to generate 400 new business ideas, over 80 of which have led to early stage businesses.

Source: www.enterprise.ac.uk

Box 5.11: Newcastle Science City

Newcastle upon Tyne has a heritage of industrial pioneers. It has a population of about 250,000 though is part of a conurbation of about 1.25 million people.

Newcastle Science City is a partnership between Newcastle City Council, Newcastle University and ONE NorthEast (the regional development agency). Its vision is to establish Newcastle as one of the world's premier locations for the integration of science, business and economic development. Its immediate aim is to turn the research discoveries of the region's universities into world class products and services. It is converting an old industrial site into workspace; it has invested in the Institute of Stem Cell Biology and Regenerative Medicine and has secured finance for new research laboratories for the Institute for Ageing and Health. It also has in its sights molecular engineering and energy & environment.

The board is chaired by Paul Walker, CEO of the Sage Group, a world leader in financial software. Interestingly, Newcastle is in part taking its lead from Valencia (but also Singapore and Finland) which they perceive also to be developing their science base. A substantial financial contribution is coming from central government after the Chancellor designated six science cities in the UK.

There is recognition of the need for an effective communications strategy to keep everyone in the region abreast of progress.

Source: ONE NorthEast (www.onenortheast.co.uk)

Access to finance

The OECD Brasilia Action Statement for SME and Entrepreneurship Finance[76] notes that "lack of appropriate finance represents a hindrance to the creation and expansion of innovative SMEs, putting a drag on job creation and hurting economy-wide competitiveness". It argues that comprehensive efforts are required to bolster the early stages (i.e. pre-seed, seed and start-up) of innovative SMEs, particularly through ensuring the provision of equity capital. The statement suggests that business incubators, clusters of innovative SMEs, science and technology parks and development agencies all play an important role in facilitating access to finance. It goes on to suggest that cities can underpin this role through partnerships with private financial institutions and universities.

The statement stresses that each stage of firm development requires an appropriate financing mechanism, so public policy must recognise the need for flexibility. It notes that guarantee schemes are among the most effective instruments governments can use to ease SMEs' access to credit, but also notes the importance of micro-credit and micro-finance institutions (MFIs).

There are a range of finance mechanisms available in the Community of Valencia, though they are not comprehensive and take up is relatively low. The Chamber suggested that access to finance was not a problem. The Confederation of Valencian Enterprises, however, took a different view, believing that access to finance is a problem, particularly for start up businesses. This view was shared by businesses themselves who did perceive access to finance to be more of a problem. It appears that there are still a number of gaps.

The Foundation for Stock Market Studies suggested that there is an equity gap. Despite encouragement for smaller businesses from the stockmarket, just one small business listed last year. Indeed, there are only about 20 small firms listed in total. Whilst listing can be expensive and is not

[76] OECD Global Conference on Better Financing for Entrepreneurship and SME Growth, March 2006

for all businesses, it is one way that private venture capital can realise their investments, so a steady stream of listings is likely to encourage more private equity investments.

Etica is a very interesting private business started by a former CEO of the Valencian Stock Exchange. To support businesses with growth potential, and that need equity, it has established an investors' forum. They now have 60 members willing to invest. These include both high net worth individuals and financial institutions. They meet every two months and receive two to three presentations at each. Etica identifies the potential investee companies and works with them on their business plan. To date, they have organised 8 sessions with a total of 24 presentations. So far, just three have resulted in investments, though several more are still under discussion. The investments range from €400,000 to €20m.

The Valencian Institute of Finance is aiming to provide finance for SMEs through three programmes:

- Loans: from €300,000 upwards and averaging €1m, with a term of 7-10 years, and at an interest rate of EURIBOR +1, often with a repayment holiday of up to two years, provided directly to businesses. The loan cannot exceed 75 per cent of the total investment. Last year, this fund provided around 75 loans. The total portfolio is €300m. The default rate is about 8 per cent. Given the size of these loans, it is hard to argue that these are essential loans for fast growing businesses that cannot raise the money commercially. Rather they appear to be subsidised loans. And the number of businesses supported is low.

- Guarantee scheme: delivered through the local banks and providing a guarantee for up to 60 per cent of the loan. Last year, the fund provided guarantees for €30m borrowed by just 20 businesses. Borrowers pay a premium of 1-2 per cent on the guaranteed part of the loan. The default rate is better than 8 per cent.

- Risk capital: IVF created a fund in July and is in the process of creating a second. The first fund has €6m and aims to raise matching investments from private investors. It has not yet made any investments. It intended to invest in new businesses but will not invest in 'pre-revenue' businesses, so businesses without a ready customer base will not be able to benefit. The second fund is still being designed, but will be a more generalised fund. It too hopes to attract public and private money including €60m from the European Investment Fund.

In addition, the City of Valencia is working with the Institute of Finance to create an equity fund, with capital of €25m, to invest in firms in the biotechnology and nanotechnology sectors.

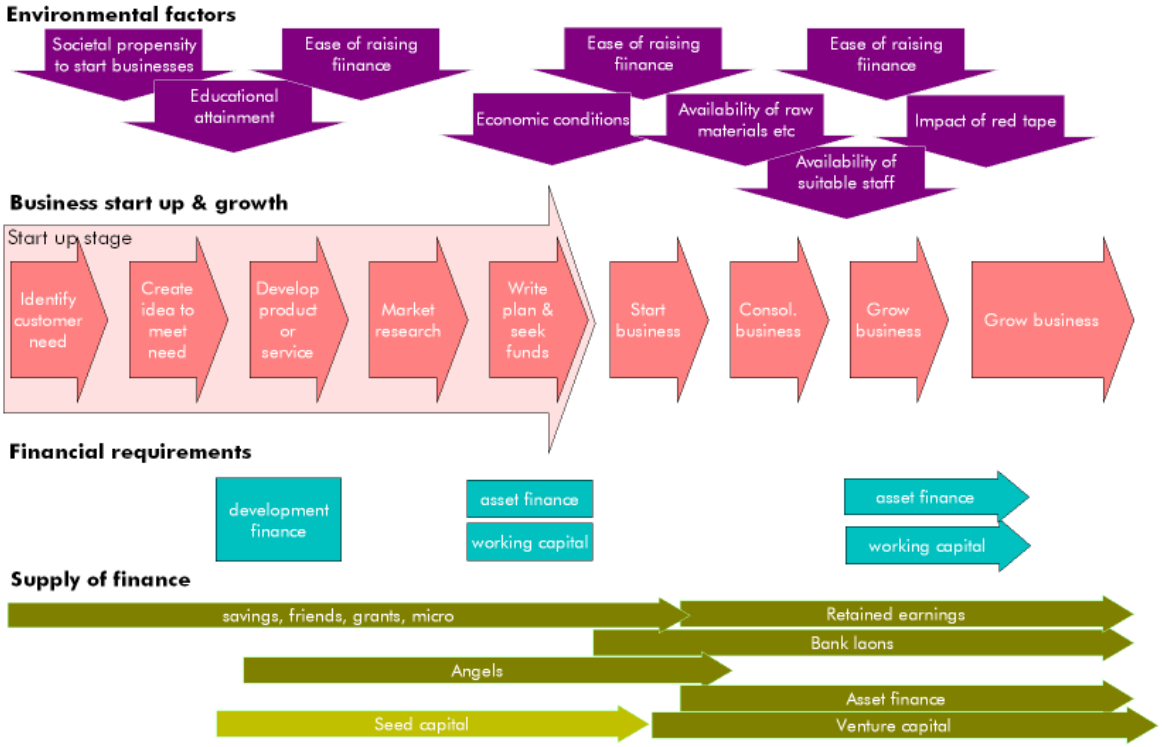
IMPIVA, the regional development agency for SMEs, aims both to provide finance to SMEs and to develop the infrastructure to support innovation. It will provide grants to businesses to help them improve their competitiveness, contributing to the costs of innovation, promotion, introducing quality management systems, introducing environmental management systems, etc. They will provide up to 50 per cent of the cost of a project, up to a maximum of €20,000, though actually average 36 per cent. Grants are reasonably easy to get, especially if the business is already planning to work with a university. IMPIVA's budget for grants is €60m. Their target audience is the 25,000 businesses in the region which are engaged in manufacturing or industrial services.

As a business starts and grows it has different financial requirements as illustrated below. Most businesses go through a number of stages before they actually start in business, whilst they conceive an idea, consider whether there is likely to be a market and, in some cases, spend time and money developing the product or service. For technology based businesses, this can require considerable

effort and significant finance. If the market research is positive and they succeed in raising the money, the entrepreneur then needs finance to acquire assets and working capital. Both of these needs will grow as the business grows.

The figure shows some of the generic sources of finance that might be available, though raising development and pre-revenue finance is generally the hardest – indeed, for many potential businesses it is impossible – but even once a business has started, raising sufficient finance to expand can be challenging.

Figure 5.5: Business growth & financial requirements



Source: Irwin Grayson Associates

There are a number of other factors that may inhibit business start up and growth, as shown in the environmental factors, but there is little doubt that finance is a key factor.

Businesses funded by equity are more likely to be successful. Research by Baring Venture Partners amongst companies in which it has invested suggests[77] that the most successful businesses finance themselves largely by equity or retained earnings - certainly until the point at which the business generates enough cash to cover any loan interest with plenty to spare. Their research indicates that entrepreneurs with high debt and low equity under perform entrepreneurs with a high proportion of equity.

This is well understood in the US - where there are many more venture capitalists. One, John Doerr, whose firm concentrates on technology businesses, has invested in a string of what have

[77] Richard Onians, "Making small fortunes: success factors in starting a business", RSA Journal May 1995.

become household names - including Compaq, Lotus, Sun Microsystems, Netscape and Amazon.com.[78]

Using equity finance means that businesses can take a longer term view - they are not battling from day one just to meet the cost of their finance. They do not need to produce instant results. Furthermore third party equity will probably bring with it a non-executive director - and all their contacts and expertise. Doerr attributes his own success to networking on behalf of his investee companies – bringing in managers or technological expertise.

[78] The New Yorker, Aug 1997

Box 5.12: NStar

The £10m North East Proof of Concept Fund offers loans of up to £60,000 to technology and science-based SMEs in the North East. Nstar's definition of science and technology is very broad, but they are particularly looking for proprietary IP. They will invest in businesses, including pre-start businesses, but are also willing to invest in projects, usually on a non-recourse basis. Investments are normally on the basis of convertible loans. As well as supporting SMEs, individuals and university scientists intending to form a SME if their project is successful can apply.

The fund will favour businesses that address its key criteria:

- Technology – higher priority will be given to technologies that can have a disruptive impact on new or existing markets, rather than those that have an incremental improvement to the state of the art;
- Markets – the potential size, geography, segmentation and competitive environment of the target market will be taken into account;
- People – the personal attributes of the applicant will be considered;
- Intellectual property (IP) – the potential for a secure proprietary IP position is important;
- Access to finance – priority will be given to businesses that are unable to access traditional sources of finance;
- Contribution to regional development – the fund will actively select businesses that have potential to contribute to regional development.

The £23m North East Co-investment Fund can invest between £100,000 and £1 million in early stage technology businesses in the North East. It is designed to tackle the funding gap often faced by technology businesses during the start up period. The fund supports technology focused SMEs. Funds must be matched by public and/or private sector investors with at least 30 per cent from private sector investors, to create deals or investment syndicates of around £2 million. Nstar will invest a maximum of 45 per cent.

Source: NStar (www.northstarei.com)

Box 5.13: Micro-finance

Micro-finance is typically small scale finance (typically <€25,000) provided to new and growing entrepreneurs. Often, though not always, it is provided by not for profit loan funds who have raised their capital from charitable and public sources in order to provide loan finance to entrepreneurs who would not otherwise be able to raise the finance that they need to start in business. Usually, micro-finance is lent at a modest rate of interest, with a limited collateral requirement and, sometimes, a capital repayment period. There is usually a requirement to continue receiving business advice, sometimes directly from the fund but sometimes from an acceptable business support organisation.

International trade

Valencia is the second highest exporting region after Catalonia, though most of that is contributed by Ford. Indeed, just four companies comprise more than 50 per cent of Valencia's exports.

One way in which smaller firms can benefit from international trade is through supplying firms that are exporting without necessarily exporting themselves. However, it seems that little effort is made to analyse supply chains and to encourage businesses to fill the gaps.

IVEX is the public agency in charge of SME internationalisation though it is primarily an export agency. It has 28 foreign based offices (and is about to open one more); 11 of these also house a business centre which provides additional support to exporters including workspace and gathering market intelligence. Currently the business centres are providing space to 40 businesses.

Box 5.14 STAR

A joint initiative of Scottish Enterprise and the State of Virginia has resulted in the establishment of the Scottish Technology and Research (STAR) Centre. This provides incubator workspace for Scottish business wanting a US presence. At modest cost, they can take advantage of a rapidly expanding, technology led economy, with good access to university and research support if required, with availability of highly skilled staff and, importantly, an American address which helps when selling into American markets.

The STAR Centre's objective is to assist Scottish businesses to enter the US technology market and increase economic growth in Scotland. It is located in the same building as Virginia's Centre for Innovative Technology, and is ideally placed in the heart of one of the fastest growing communities of software, internet and biotechnology businesses.

The STAR Centre can assist Scottish businesses:

- by undertaking market research and gathering market intelligence;
- by providing a virtual presence (address, telephone answering, mail forwarding); and
- by providing workspace on a permanent basis, or meeting rooms and office etc when visiting.

Source: Irwin, D, "Small Business Support: Lessons from the United States", Small Business Service, 2000

Box 5.15: International trade

UK based enterprise agency, Project North East, has experimented with several programmes to promote international trade.

The Export Challenge was intended to support first time exporters. Businesses that wanted to start exporting were invited to send a participant on a three day training programme, usually over a weekend. At the end of the weekend, participants were invited to submit a proposal explaining why they should be selected to benefit from a subsidised mission to a town of their choice in Europe for which they paid a contribution of around £200. This was supported by Air UK (eventually taken over by KLM), Holiday Inns and Bass. Hotel managers provided additional support by linking participants to local networks such as Rotary. The best proposals were supported, though in practice the sponsorship was such that everyone with a decent idea could be assisted; all were invited to come back to a dinner during the next programme and an award of £500 was provided for the business that had made the best progress (in reality, the chance of the award was an incentive to get them back to the dinner and influence the next cohort on the benefits). In its first four years, Export Challenge supported more than 350 businesses to become successful exporters, generating £4m of business and creating 100 jobs.

The Anglo-Indian joint venture programme, supported by the EU and the UK government, undertaken in partnership with North India technical Consultancy in Chandigarh, sought to identify viable projects and suitable partners for a number of collaborative ventures. Projects included technology transfer agreements for the production of gears for tractors and light commercial vehicles, manufacture under licence of welding equipment, provision of document imaging services and technology transfer to upgrade copper wire production facilities.

Sources: Project North east annual reports, 1993, 1995, 1997

Some of their offices also host interns – who spend three months learning about SME internationalisation, then spend 9 months in an agency devoted to internationalisation and then a year working in a private company, ideally in a foreign office. IVEX can also provide subsidies to firms wanting to establish a foreign presence.

When IVEX identifies potential opportunities, including joint venture opportunities, it seems that it simply makes these available generally through sector trade associations and through their own database (which only includes firms who have expressed an interest in exporting), rather than proactively seeking out firms who could be interested in the opportunity, irrespective of whether they have previously expressed interest in trading internationally. Given that one of IVEX's parents is Cámara Valencia, and given that they have a database of all the businesses in Valencia, this seems a little short sighted.

As well as providing a range of information services to SMEs, Cámara Valencia offers three programmes specifically intended to support businesses wanting to export.

- Pipe 2000 is a programme for businesses just beginning to export and with little exporting experience. This programme was launched in 1996. It provides support for up to two years with consultancy support and grants to help firms break into new markets. It has assisted about 300 companies.

- Diapex is a programme for businesses that already have some experience of exporting but who have run into problems, such as an export market drying up. It includes self-diagnosis together with the support of an external consultant who can provide 40 hours support over a period of up to two months. This programme has been running since 2001 and has supported 50 businesses.

- Cámara Valencia also assists groups of exporters through its Export Consortium programme. Since 1992, it has created around 135 consortia totalling some 600 businesses.

Given the importance that Valencia attaches to its small firms sector and exporting, there would appear to be considerable benefit for the Chamber to work with many more businesses.

As firms start to export, or to trade internationally, there is a likelihood that they will need more finance, both as working capital and to develop new products to satisfy new markets.

It should be noted that the statistics for exports focus almost exclusively on manufactured products. It is recognised that it is difficult to estimate exports of services but research in this area may point to ways in which service businesses (including inter alia finance, software and consultancy) can be supported to internationalise as well.

Management development and training for SMEs

As the knowledge economy becomes more prevalent, and the intellectual capital of more businesses is locked up in the heads of their employees, the way in which companies attract, retain and develop staff becomes ever more important. Preparing people to participate in the knowledge economy requires that we educate them to track down and use information, to develop effective networks, to create new economic opportunities, to meet the needs of others in innovative ways and to learn how to learn.

Thomas Friedman, foreign affairs editor of the New York Times and author of new best-seller, "The World is Flat" writing in New York Times in May 2005 makes the point that "the most important thing you can learn in this era of heightened global competition is how to learn. Being really good at 'learning how to learn' as President Bill Brody of Johns Hopkins University put it, will be an enormous asset in an era of rapid change and innovation, when new jobs will be phased in and old ones phased out faster than ever."

Cámara Valencia runs a wide range of training programmes, many in partnership with one of the Universities, from a Master's programme downwards. It was not clear however how relevant the training is to the specific needs of entrepreneurs. Experience in the UK suggests that entrepreneurs are looking for 'just in time' training rather than 'just in case' training, so the move is away from formal course towards far more practical, shorter modules intended to support the entrepreneurs achieve very specific objectives.

Recruiting skilled labour

All the public agencies reported that people were well educated and that businesses had no problems in recruiting skilled labour. However, this was not the view of the Chamber's foreign trade committee. They suggested that it was relatively easy to recruit graduates and 'professional' people, but that finding technician level people (for example, with tool making skills, or able to use machine tools) was extremely difficult. Essentially, the problem seems to be that there are insufficient people receiving vocational or technical skills training.

Summary of strengths and weaknesses

It will be apparent from the earlier descriptions that there are a number of strengths and weaknesses. This section provides a summary of the more important strengths and weaknesses

identifying strengths that can support an SME development and internationalisation strategy and weaknesses that need to be addressed.

Strengths

- Large number of small firms (and so opportunities to promote clusters and supply chains)
- Businesses open to co-operation with inward investors and foreign businesses
- Flexible, open economy and long-standing tradition of exporting
- Good location
- Good transport links, logistics and communications
- Universities with good knowledge and people willing to work with SMEs

Weaknesses

- The impression gained was that SME support policies are piece-meal rather than there being one overall policy for SME development and support; certainly the support for new and growing businesses is not comprehensive and there is scope for more collaboration amongst the agencies providing support;
- Lack of understanding of the SME sector and, probably, a lack of recognition that effective research of the SME sector could provide data that would assist public agencies (so they may be willing to pay for the research) as well as providing material for good papers for refereed journals;
- Agencies working with small firms repeatedly stated that size of firm was a weakness, though it wasn't entirely clear why this should be the case. It is true that the smallest firms cannot employ the administrative staff that might be needed if they start to export in a major way, but many functions can be sub-contracted;
- It was suggested that firms don't know how to innovate and do not understand technology;
- It was suggested that firms are not very competitive;
- Management skill levels are regarded as low
- Firms have difficulty accessing skilled labour at technician level
- Marketing skills in SMEs are weak
- Low level of formation of technology based firms
- Low level of expenditure on research, development and innovation
- Lack of equity and finance, particularly to support innovation

Recommendations

Based on the meetings and materials that we were able to review, we believe that the City of Valencia would benefit from preparing and implementing a small business development strategy, ideally as part of a larger economic development strategy. It is important for the City to take the lead on this and to ensure that all agencies supporting SMEs work together – both to implement the strategy and also, on a day to day basis, to ensure that SMEs seeking support get quickly to the agency most suited to providing them with support.

Promotion of entrepreneurship

It is recommended that more is done to encourage people to think about starting a business, ideally one that is based in manufacturing or industrial service sectors rather than in local services. This could be achieved through a combination of the following:

- More effort in schools to raise awareness of business;
- More effort amongst undergraduates and graduates to encourage them to consider starting a business either immediately or after a period of working for others and gaining some appropriate experience;
- Effort to encourage bored and stifled researchers with good ideas to spin out and start a business, recognising that some of these people may need to be paired with experienced business managers if their business idea is to impact on the market.

Growth counselling

It is often difficult to identify the businesses that have real growth potential and the owners are often embarrassed to admit that they might benefit from effective external advice. This can be overcome by setting up exclusive business clubs and by offering peer group mentoring.

The objective should be to assist businesses to think about their strategic development and then, as appropriate, to provide support with preparing them for external investment, to assist with financial packaging, to raise the quality of their offer and ensure that they are able to offer a clearly differentiated product or service for which customers will pay a premium.

Supply chain development

The relatively high level of manufacturing in Valencia and the continuing efforts to attract FDI almost certainly mean that there are many opportunities to develop supply chains, identifying products or service being bought by larger businesses but which are not supplied locally. These opportunities could then be proactively introduced to local businesses, or even perhaps to potential inward investors, so that they could start to supply those larger businesses.

It is likely that effective supply chain development will lead to greater needs by businesses not only for access to research and development facilities to develop new products or new processes but also for improved access to finance to develop those opportunities.

Access to finance

Whilst there are a number of schemes that can provide finance, they are not reaching many businesses. Other than budget constraints, it is not clear why this should be the case. It was not possible to determine whether the businesses receiving the support are the ones that need it the most or whether they could have raised it commercially. It may be appropriate, therefore, to commission research to investigate and understand this more comprehensively. It does appear, however, that there are two clear gaps in the finance available.

The first gap is for micro-finance – relatively small amounts of finance to assist people with a viable idea but who do not have sufficient resources themselves and who are unable to raise the finance that they need from commercial sources. A relatively modest budget, say around €5m, would provide enough to launch a micro-loan fund. It is unlikely that many borrowers from such a fund would grow into major businesses, but it would ensure that many of the people coming forward as a result of increased promotion can be assisted, rather than having their expectations dashed, and it is all part of promoting the idea of Valencia as a City of Enterprise.

The second gap is for seed capital. There have been a number of small initiatives to increase the amount of equity capital available and there is some feeling that entrepreneurs do not want equity finance. That requires some education of businesses, but knowledge based businesses often have little by way of tangible assets, and so cannot raise debt finance. If Valencia is serious about promoting more knowledge based businesses, then it will be essential to have the tools to help them – and one of the tools is an equity fund. Ideally, this needs to be willing not only to invest in businesses that are looking for second round financing, but also be willing to consider investments as early stage and seed capital, when the risk is higher, and when it is particularly hard to raise equity finance (entirely) from the private sector, perhaps as proof of concept funds and co-investment funds.

There is scope for further collaboration, for example, between IMPIVA, the Valencian Institute of Finance and the City of Valencia, to fill some of the gaps.

Incubator workspace

Despite much talk about science cities and incubator workspace, it seems that there is still no real incubator workspace in Valencia. This is a major shortcoming which should be addressed urgently.

Technology transfer

It is always difficult to build links between small businesses and research institutes. Here it seems that Valencia is doing well, for example, with the breakfast club. It is believed, however, that many more businesses could potentially benefit from this sort of activity and effort should be made to expand it to more businesses.

It may also be appropriate to look at mechanisms for placing students in manufacturing businesses to look generally at ways of improving products or processes, initially as more of an ‘academic’ exercise, but with the ultimate objective of encouraging the businesses to take up good ideas.

Building international links

Some good work is being undertaken to promote exporting. The IVES business centres, for example, are a great asset. But it appears that there is scope to do more to assist businesses to build

international links. In particular, where IVEX identifies through its market intelligence gathering interesting opportunities, it should be more proactive in seeking Valencian businesses that could benefit from the links.

There is scope for collaboration, for example, between IVEX, Cámara Valencia and the City of Valencia.

Promoting innovation

More could be done generally to promote innovation amongst small firms, for example, through programmes such as the Prince of Wales Innovation Awards which are deliberately designed to give a high profile to innovating companies.

Technical skills training strategy

A strategy should be developed jointly between business and the City of Valencia to ensure that people are trained in the vocational and technical skills required by business. This is not to say that business should abrogate its responsibility to train people in the specific skills needed by the business, but they should be able to recruit people who have the basic skills required.

Communications strategy

There needs to be a communications strategy, to ensure that businesses are aware of the City's strategy, to ensure that they are aware of the support that is potentially available, to ensure that all the agencies perceive themselves to be part of a collaborative effort rather than competing – and to ensure that everyone knows about the difference the strategy is making to the region's economic performance.

Learning models

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Economic Development Board (EDB), Singapore

Description of the model

The EDB is the longest established and most powerful of Singapore's development agencies. Through a range of investment incentives, a network of international offices and co-ordination of other public agency activity, the EDB has been central to Singapore's economic growth. It offers corporate investors individual solutions for their business needs, and keeps Singapore's long-term strategic plans in line with changing business and industry environments.

The EDB's vision is to make Singapore "a compelling global hub for business and investment". The mission is to "create sustainable GDP growth for Singapore, with good jobs and business opportunities for its people".

Four core competences provide the basis for delivering this vision and identifying areas of strength that the EDB will continue to seek to enhance.

- Connectivity: through free trade agreements, avoidance of double taxation agreements and investment guarantee agreements, as well as transport and IT infrastructure.

- Openness: through the acceptance of globalisation and a willingness to accommodate foreign cultural and economic diversity, including a foreigner-local ratio of 1:4.

- Reliability: through maintaining a safe, pro-business environment supported by a well-respected Government with transparent and consistent policies that protect businesses' physical and intellectual property investments.

- Enterprise: being a sustainable enterprise eco-system comprising a diverse range of international enterprises, headquarters operations and new ventures.

The EDB seeks to grow all value-adding parts of the economy, but retains a particular emphasis on manufacturing as this sector continues to expand its GDP contribution. In 2003, specific targets set for the manufacturing sector to be achieved by 2018 were to:

- Double manufacturing output to S$300 billion (£100 billion).

- Double manufacturing value-added to S$80 billion (£26.7 billion).

- Raise the share of highly skilled manufacturing employees from 32% to 50%.

- Create about 15,000 new manufacturing jobs every year.

- Create about 6,500 spin-off jobs in the services sector every year from the growth in manufacturing.

The EDB is involved in a range of activities focused around strengthening existing industry clusters, identifying and growing new clusters, and developing new geographies.

New geographies refers to efforts to build a 'fourth pillar' of inward investment led by China, India, southeast Asia and Australasia, as a complement to the longer-established flows from the US, Europe and Japan.

The economy’s existing strengths are seen to lie in 11 clusters, each of which comprises a critical mass of businesses complemented by supporting industries, training, education and innovation agencies.

The existing 11 clusters comprise: biomedical sciences, chemicals, electronics, precision engineering, transport engineering, engineering and environmental services, logistics, info-communications and media, education services, headquarters and professional services, and healthcare services.

New clusters are being encouraged partly by nurturing new specialisations within the existing clusters, such as the growth of medical devices, utilising a combination of expertise in the biomedical and electronics clusters.

The EDB's investment arm (EDB Investments Pte Ltd) is one of the agency's most important tools. It was established in 1991 to make equity investments in companies that would strengthen

industry clusters, and promote emerging technologies and innovations.
Investment activity is now divided across specialised funds:

- The Cluster Development Fund maintains the original objective of supporting new projects of strategic significance to a cluster.

- The Start up Enterprise Development Scheme (SEEDS) was established to foster entrepreneurship and innovation activities through the provision of matching finance. Using the fund, the EDB matches third-party investment raised by start up businesses from outside investors.

- Bio*One Capital is a fund established specifically for biomedical activities. The fund currently manages in excess of US$650 million (£360 million) and has strategic investments in over 80 companies worldwide.

- The Technopreneurship Investment Fund has a current value of around US$1.3 billion (£725 million) and acts as a 'fund-of-funds' to stimulate venture capital investment. It has invested in more than 50 venture capital partnerships worldwide.

These funds combine with other initiatives to target specific goals, such as the Enterprise Greenhouse project focused on encouraging local innovative enterprise. Under the programme, as well as access to SEEDS funding, enterprises also have access to incubators, business accelerators, and research and development and test-bedding facilities.

An island-wide network of HOTspots, or locations and facilities for technopreneurs, are being built based around the Enterprise Greenhouse facilities. The 'HOT' ('Hub Of Technopreneurs') sites bring together technopreneurs and technology-related businesses in surroundings that aim to encourage the exchange of ideas and raise the motivation of entrepreneurs.

Relevance to Valencia

There are obvious parallels with the City of Valencia. The Board was created to build a flourishing economy in an independent city state, through the attraction of inward investment and the development and internationalisation of SMEs. Whilst some of their initiatives can only be taken by national governments, it nevertheless provides a model of integrated support for all businesses. It has recognised the importance of identifying and supporting clusters and particularly recognised the importance of ensuring access to equity and finance for research and development.

Impact of the approach

Since the late 1990s, Singapore has had to face more challenging economic conditions, particularly with the shift of manufacturing investment to China. Nonetheless, by supporting expansion into new areas of economic activity, such as life sciences and specialist chemicals, the EDB has continued to perform strongly.

One performance indicator is the number of new high-tech businesses being established annually. From 1995 to 1999, this averaged 2,600; since 2000, the average has grown to 3,600 and was over 3,900 in 2005.

The target of diversifying investment sources has made significant progress. In 2001, there were slightly over 3,000 firms from Asia-Pacific countries other than Japan in Singapore, compared with over 5,000 in 2005.

On a smaller scale, the success of the Global Entrepolis@Singapore event is another indicator of the way in which the EDB is helping to maintain Singapore's economic dynamism. Launched in 2003 as an international forum for connecting enterprises to funds, markets, partners and technology, a record 14,000 participants from 60 countries took part in 2005, announcing 46 projects of more than S$900 million (£300 million).

Reasons for success

The EDB was established in 1961 when Singapore was still a trading centre with little modern industry. It was set up to help build an economy capable of supporting an independent city state, which at that time had a population of around 1.5 million, compared with the present population of 4.3 million.

Singapore was among the first countries to realise the potential for attracting overseas businesses that wanted to use Asia as a base for exporting back to Europe and North America. Capitalising on this opportunity, the EDB helped the island become one of the original tiger economies.

After 1986, when Singapore experienced a short-lived recession, the EDB's responsibilities expanded to include the promotion of services, and the development of local small and medium-sized enterprises.

By 1990, EDB had 16 investment promotion centres located around the world. This network was used to seek out innovative firms that could be encouraged to invest in Singapore through strategic planning partnerships.

Rather than simply being attracted by investment incentives or the availability of factory space, the EDB sought to give investors a business environment tailored to their long-term growth needs. Greater attention was also given to Singapore's potential as a location for regional headquarters as well as manufacturing operations.

Under a 'Singapore Unlimited' initiative, more attention was paid to linking foreign investments with the domestic economy. This partly involved a focus on the local support industry, as well as efforts to build Singapore's own multinationals.

The concept of creating economic space beyond Singapore was shaped during the 1990s. The EDB co-ordinated the development of industrial parks in China, India, Vietnam and Indonesia. These were to become 'mini Singapores' in terms of the quality of their infrastructure and management efficiency.

The idea was to get Singapore-based multinationals, and Singapore's own businesses, to take advantage of the opportunities in other Asian economies while upgrading their activities in Singapore. Firms that invested in the overseas parks benefited from their proximity to Singapore, from where they still controlled their operations, as well as by operating in an environment with similar standards to Singapore.

Through the various stages in Singapore's economic development, the EDB has strengthened its position as the lead economic development agency. Specialist agencies have been formed to manage

innovation support, land development, international trade and other aspects of economic development, with the EDB providing strategic oversight.

The EDB is overseen by a 12-member board and an International Advisory Council. Board members include heads of other Government agencies and multinational companies with a significant presence in Singapore.

The International Advisory Council was established in January 1995 to advise the EDB on its international and regional strategies. It is used as another mechanism for keeping the agency in touch with the international business community.

Members of the council include the deputy prime minister and a senior Government agency chief executive officer, but principally comprise leaders of some of the world's largest business corporations.

Consideration for adoption in Valencia

Success has been brought about by persuading all the agencies to 'buy-in' to a single strategy which they all support through complementary aims and activities.

The Board's 'Hub of Technopreneurs' (HOT) initiative is an interesting model for Valencia.

Further information

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Detroit Regional Economic Partnership, USA

Description of the model

The Detroit Regional Economic Partnership is a public/private sector organisation representing the interests of the ten counties of south-east Michigan and the city of Detroit, along with 100 private sector investors.

DREP provides a regional approach to economic development in south-east Michigan. It builds regional co-operation, enhances the region's image around the world, helps to attract new business to the area, and assists regional firms to expand their markets. The main aim of DREP is to enhance the south-east Michigan regional economic marketplace by attracting new investment and creating global trade opportunities. Within a year of being established it had exceeded its original five-year funding goal of raising $12 million (£6.5 million).

It works closely with local economic development agencies in the region to position the Detroit area in the global marketplace. In addition to bringing new business to the region, DREP, now in its second five-year phase, is dedicated to helping businesses expand their customer bases, increase their product lines and market themselves in the global marketplace.

The key to the success of DREP is its ability to provide a single point of contact for firms considering doing business in south-east Michigan. The Partnership's business development teams work closely with potential investors, providing the information they need to prosper and grow.

The Partnership aims to market the Detroit region as a centre for technology and as an excellent entry point for business into the North American market. Its investing partners assist clients in the creation of deals and provide relocation assistance, helping to retain businesses for the long-term future of the region. The collaboration of key economic development organisations and the private sector from across the region ensures that organisations interested in investing in south-east Michigan receive the best and most appropriate information about all aspects of the region, including valuable business contacts. This helps clients to select sites and partners that best suit their needs.

DREP provides business development services designed to help businesses to grow and compete in the worldwide marketplace. Its Global Business Development Unit is responsible for the attraction of businesses from around the world and the general business development of the Detroit region. The unit comprises regional marketing programmes that target businesses in Asia, North and South America, Europe and south-east Michigan itself.

A key strategy for the European Business Development Programme's activities is to target European businesses trying to break into the North American market. This strategy is supported by a range of partnerships with European business development organisations in Austria, Germany, Italy and the UK. DREP also attends key European trade shows to encourage links between south-east Michigan and European firms.

The New Markets and Asia Programme is aimed at developing links with businesses in Mexico, South and Central America, the Middle East, Africa, Eastern Europe, Australia/New Zealand and Asia. Its goal is to market south-east Michigan as a location for business expansion and to attract investment into the region.

Development efforts with the above countries are focused on:

- Strategic alliances, partnerships and joint ventures.
- Establishing sales offices, research and development centres, technical centres and warehouses.
- Locating sales support in the form of manufacturers' representatives, dealers and distributors.

The North American Business Development Program is aimed at businesses in North America, and promotes the Detroit region across the US and Canada as the number one place for business activities including attendance at industry-specific trade shows, facilitating educational seminars and direct mail campaigns. DREP's Regional Business Development Programme covers all aspects of international business development for businesses in the Detroit region, including exports, strategic alliances with international firms and outbound international investment. The Regional Business Development Program is part of the Partnership's Global Business Development Program and its efforts to take a wider view of economic development opportunities. In addition to providing export contacts and services, this programme focuses on manufacturers and other business in the Detroit region that want to expand globally.

DREP's Research and Information Centre has a staff of six researchers who answer inquiries from businesses and residents in the area, deal with media requests for information, and supply business

climate and cost information for business development prospects. As well as its stock publications, the research department also relies on its Internet expertise, mapping capabilities as well as CD-ROM products to locate information for clients.

The Support Services Team provides support for all the programmes run by DREP. Support Services is responsible for hosting events and exhibitions in the US with the purpose of marketing south-east Michigan. It is also responsible for playing host to overseas delegations visiting south-east Michigan.

Relevance to Valencia

The Detroit Regional Economic Partnership is interesting because of its close link to the Detroit Regional Chamber – which has effectively been given authority by all the other agencies to take a lead. Its focus is on attracting inward investment, but it works closely with other agencies, and sees the development of existing businesses as of critical importance to the local economy.

Impact of the approach

In the four-year period to 2004, DREP was responsible for helping 175 businesses expand or relocate in south-east Michigan, creating almost 3,300 jobs and bringing in more than $665 million (£355.6 million) in new development to the region. In 2004, DREP continued that work, opening a Small Business Assistance Centre, including temporary office space for international businesses investing in south-east Michigan. It also provided customised research for numerous businesses, served more than 170,000 people looking at the prospect of regional workforce training programmes and added 17 new investors dedicated to improving the economy of the region.

Also during 2004, DREP continued its promotion of the region at more than 41 trade shows, both in the US and overseas. Venues included shows in Canada, Germany, France, Korea, China, Japan and Taiwan. Marketing missions were also held in Canada, Belgium, France, Austria, Germany, Switzerland, the UK, Korea, China, Japan and Taiwan. Such missions involved visiting individual businesses to find out about their expansion plans and offering them the services of DREP.

Since its formation, DREP has gradually increased its collaborations, especially with the Michigan Economic Development Corporation, having hosted several conferences to promote the region. Relationships with industry associations and foreign economic development agencies have also been developed. The organisation's Research and Information Centre has gradually moved from formally printed publications to customised information.

Reasons for success

The Detroit Regional Economic Partnership (DREP) began life in 1996 as a public/private sector partnership representing the interests of its members and more than 100 private sector investors, in the ten counties of south-east Michigan and the city of Detroit. It was established as the Detroit Regional Chamber's economic development arm.

DREP is the Detroit Regional Chamber of Commerce's business development arm. Its staff of 14, including business development directors and the Research and Information Centre, is led by Executive Director John Carroll. Each director has specific responsibility for a particular programme and is an employee of the Detroit Regional Chamber of Commerce. Partnership directors and staff work hand in hand with public and private sector investors in marketing the Detroit region globally, bringing new businesses in, and assisting Detroit area firms to expand.

The Partnership includes representatives from the city of Detroit; Genesee, Lapeer, Lenawee, Monroe, Oakland, St Clair and Wayne counties; and more than 100 private sector investors.

Major investors in DREP include financial institutions Commercia and Standard Federal Bank; car manufacturers Daimler Chrysler, the Ford Motor Company and General Motors; and electricity and gas business Detroit Edison. Other major partners include: global management and outsourcing firm Accenture; Business Advisers Acumen Group; cable communications firm Comcast; audit, tax and advisory services firms Deloitte & Touche, KPMG and PriceWaterhouseCoopers; and NorthWest Airlines.

All the revenue raised by investors, and DREP's programmes, including global and regional business development, research, branding and marketing, is ploughed back into its services. For instance, in the year ended June 2004, DREP's total revenue was $2.03 million (£1.08 million), all of which was invested into its services. Of this, $1.94 million (£1.03 million) was provided by its major investors, with $94,160 (£50,352) raised from programme revenue.

Consideration for adoption in Valencia

Whilst there are some interesting lessons here, the key success factor has been the willingness of all the players to pass the lead, and the authority, to the Regional Chamber. Agencies in Valencia may be less willing to do this, though there is no reason why they should not be persuaded at least to adopt a common vision and a common strategy – and to be more willing to refer businesses to each other as the need arises.

Further information

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The Dundee Partnership

Description of the model

The Dundee Partnership co-ordinates public and private sector activity directed towards economic development and regeneration.

The aims and objectives of the Partnership are set out within its five year strategy - "A Vision for Dundee". Its core objectives are to reinforce Dundee's role as a major regional centre, and to strengthen the city's position as one of Scotland's four main cities. In practice the Partnership has adopted a series of short term action plans which it has set within a longer term perspective for achieving these objectives. The action plans are broadly based and directed towards generating employment and promoting investment and business opportunities within the city.

The Partnership has four key aims, to strengthen the city's position as:

- a major location for employment and investment;
- a thriving regional shopping and service centre;

- a city of knowledge, innovation and enterprise; and,
- a vibrant cultural, leisure and visitor economy.

The Partnership strategy outlines four enabling activities for meeting these aims:

- to realise the potential of all sectors of the community;
- to improve the environment, transportation and communications;
- to maximise external financial resources; and,
- to improve the city's image and reputation.

Through a Working Group the Dundee Partnership has undertaken a Community Regeneration Strategy, which promotes "the creation of stable, sustainable, empowered communities throughout Dundee in which people wish to live and can prosper". The Partnership has also secured two Priority Partnership Area (PPA) awards for the city, through submissions to the government's Partnership Initiative programme. The first PPA covers the areas of Ardler, Kirkton, Mid-Craigiekinlathen and Hilltown/Maxwelltown and involves major community regeneration initiatives in each of these areas. The second supports a range of smaller-scale initiatives across the city.

As part of its integrated economic development strategy the Partnership has led various projects to enhance the city's physical environment and its transportation and communication infrastructure. This includes the recently completed pedestrianisation and physical improvement of Dundee's central shopping district. Various shop front improvement and floodlighting schemes are also underway within the city centre.

The Partnership has developed a long-term programme for city-wide environmental improvements. On a broader basis the Partnership offers assistance for new and existing businesses through property provision, business advice, skills training and education. Marketing and promotional activities centre on the City of Discovery Campaign, relaunched in 1996 with a new five-year strategy. Its 'vision' is to lead the way for the transformation of the city's image locally, nationally and internationally.

Main objectives of the Campaign include to raise external awareness of the city; to increase the number of tourists and visitors to the city; to make young people living in Dundee aware of the opportunities in the City and to encourage them to develop careers locally. It also seeks to harness the energy and enthusiasm of individuals, groups and organisations throughout Dundee and encourage their support and participation within the Campaign.

Relevance to Valencia

This initiative is interesting since Dundee is Scotland’s fourth city – and it feels overshadowed by its larger neighbours. It has four key objectives which broadly emulate the objectives chosen by the City of Valencia. It has pulled together a number of fora and committees in an effort to encourage collaboration and co-operation.

Impact of the approach

The Partnership has been awarded the UK Town Centre Environmental Award by the British Council of Shopping Centres. It has attracted various inward investors into the area over the years (such as HSP Ltd and R&M Engineering) and has contributed to the city's success in the area of biotechnology where, for example, the Wellcome Trust has invested £12m in a new research centre. The Partnership has enticed Tesco, BT and the Bank of Scotland to establish major call centres in Dundee. Other achievements include attracting major investment into the city centre where Lend Lease is undertaking one of the UK's largest retail developments.

Although its operational structure has been criticised by outside organisations in the past, the Partnership has been commended for its operational practices and success rate by the Scottish Office in its review of Scottish PPAs. Like all area based partnerships, the Dundee Partnership does have problems, mainly relating to its broadly based operational structure and the inherent difficulties of promoting broad ownership given the natural reluctance of partners to become involved in issues outwith their own spheres of interest. Nevertheless, there is a view that the long history of partnership in Dundee has helped to break down some of these barriers and to promote a feeling of common purpose.

Reasons for success

Since its launch in 1981 the Dundee Partnership (formerly known as the Dundee Project) has co-ordinated public sector activity with complementary private sector action on a variety of economic development and regeneration initiatives throughout the city. Early initiatives were jointly co-ordinated by the Scottish Development Agency, Dundee City Council and Tayside Regional Council. Following local government reorganisation in 1996 the Partnership took its present fonn and expanded its activities through the involvement and introduction of new members, most notably Scottish Homes, the Chamber of Commerce, the voluntary sector and the community.

Today the Partnership consists of public, private, academic, voluntary and community representatives. It works on the principle of being inclusive and providing a voice for all at every level - in practice encouraging partner involvement throughout the Partnership's organisational structure and activities.

There are no dedicated staff as such – for example the part-time co-ordinator of the Partnership is a Scottish Enterprise Tayside employee. The one exception is for PPA work where the dedicated staff involved in running partnership PPA projects and activities are paid through Scottish Office funding. The Partnership operates through various groups, with each of the members taking part on a voluntary basis. The groups are structured as follows:

- Dundee Partnership Forum

The Forum is chaired by Dundee City Council's Convenor of Economic Development and contains high-level representatives from Scottish Enterprise Tayside, Scottish Homes, the Chamber of Commerce, the city's higher academic institutions, Dundee Trades Council, the voluntary and community representatives, MPs, and the private sector, as well as the City Council.

- Dundee Partnership Senior Officers' Committee

The Senior Officers' Committee, chaired by the Chief Executive of Dundee City Council, has members from Scottish Enterprise Tayside (Director of Physical Development) and Scottish Homes

(Managing Director, North-East Region) as well as the City Council's Director of Economic Development, Planning & Transportation.

- Dundee Partnership Executive

The Executive includes senior level representation from each of the partners involved in the Senior Officers' Committee. Its five members play a central role in the Partnership, establishing the agendas and strategies for Partnership activities at every level.

- Dundee Partnership Working Groups

These Groups, normally chaired by a senior manager from either Dundee City Council, Scottish Enterprise Tayside or Scottish Homes, comprise of Partnership representatives with relevant specialist backgrounds.

- Dundee Partnership Task Groups

The Task Groups have the same structure as the Working Groups, but are put together for a limited life span to deliver a defined task or project.

Consideration for adoption in Valencia

As with the other other case studies, this partnership illustrated the advantages to be gained from encouraging different agencies and organisations to work closely together in pursuit if a common purpose. Arguably, this initiative has too many committees and working groups but this is a way of ensuring that all the organisations have a chance to have their say and to feel that they are being involved rather than being side-lined. It is important that any approach is all inclusive since otherwise there is a danger that one or two organisations will carp from the sidelines.

Further information

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CHAPTER 6

INCREASING THE ROLE OF RESEARCH ORGANISATIONS

by Thomas Andersson and Daniel Friberg
International Organisation for Knowledge Economy and Enterprise Development (IKED), Sweden

Introduction[79]

The region of Valencia is still utterly dependent on its traditional sectors, such as ceramics, textiles, toys, agriculture, etc. These sectors are subjected to rapidly intensifying competition notably from increasingly sophisticated countries with notably lower labour costs, such as China and India, while also squeezed at the other end by European and US competitors that excel in high-value added production. While a few industry clusters can be identified (Quesada, 2005), no proper "knowledge clusters" exist today.[80] Given low R&D-intensity, high dependency on SMEs (especially small companies), and apparent lack of innovativeness, Valencia needs to instil or manage restructuring towards more high-value added activities.

It should be emphasised that "knowledge clusters" are critically different from mere agglomerations of industrial activities or universities within a specific disciplinary field. A knowledge cluster is a critical mass of processes that are functioning in ways that put knowledge into action: from education and research to business innovation, and from the latter to new venture creation (new businesses and new companies). In those processes, pools of knowledge-driven professionals from both the academic and business are able to interact in constructive ways. For this to work, they must generally be engaged in tight and synchronic collaboration relating to new ideas, inventions, or innovations evolving into a new product or service. Such clusters, and interactions, are hardly found in GVA. Rather, the regional set-up is marked by a divide between companies (mostly family-owned small firms), which give birth to some formation (not yet consolidated) of industry clusters, and universities and research centres, which have few and weak links with the business counterpart (endogenous enterprises or branches of MNEs). Moreover, there continues to be a divide between research fields developed by academia & research centres and sectoral specialisation patterns in Valencia. This situation is strongly present and visible in the mechanisms and outputs that characterise the internationalisation of research organisations.

In order to increase knowledge intensity, tapping into and benefiting from foreign know-how and technology is vital. GVA has a strong presence of research organisations, whose internationalisation can make important contributions. Further, there is a fear that established foreign plants (Ford, HP, IMB) might leave in the near future, whereas research linkages can serve to enhance industrial

[79] The insightful advice of Piero Formica is gratefully acknowledged.

[80] Few companies are involved in R&D, or are even active in knowledge-intensive sectors, such as pharmaceutical industry, electronics, ICT, etc. High-tech companies only generate some 8 % of industrial net added value in GVA, whereas low-technology companies generate 65 % (OECD/IMHE, March 2006)

embeddedness in the region. Several driving forces may push internationalisation at different stages, however, such as: gaining access to *technologies, markets, capital, skilled workers or* channels for *commercialisation and exploitation of developed technologies, attracting FDI and researchers,* sharing *research platforms* with universities abroad, etc. In the present case, we observe that the mix of driving forces for the internationalisation of research organisations does not appear to reflect well what represents an appropriate articulation of the needs and opportunities of GVA.

Nowadays, each and every community is trying hard to attract talents. Local communities are turning attention towards brain circulation and brain waves rather than striving for one-sided brain gains. In this respect, Valencia needs to be seen as a latecomer, which thus has to play not the same but a different game. Meanwhile, innovation is increasingly transformed from a game played by a few into a range of activities that engage a broad set of actors. Customers play a prominent role as creator of innovative products and services, for instance.[81] Mobility of experts, or "brain circulation", serves as an important source of inspiration fuelling new impulses and also new forms of innovation and entrepreneurship.[82] Notably, there is a need for a borderless "space" encompassing research and education, which is able to enhance interactions among personal development, government interests and enterprise needs. MNEs, which work on a global scale, hold great power in their experience and diversity, also because the customers whom they are selling to are heterogeneous, but for the potential benefits to materialise there needs to be constructive interface with dynamic cross-border pools of exerts, entrepreneurs and domestic innovators in a particular region.

Against this background, the present chapter addresses the issues that arise with respect to the internationalisation of research organisations. It presents good practices, lessons and recommendations in this area. Following the introduction, the next section presents the structure of research organisations in GVA and their ongoing internationalisation. In the following section, we address some of the issues connected to the Regional Innovation System of Valencia, then we examine relevant examples in other countries, present learning programmes and draw a number of lessons. Finally, conclusions and recommendations for policy are presented.

Research Organisations in Valencia and their Internationalisation

On several fronts, GVA experiences a strengthening of research and its internationalisation. Previous processes of marked brain drain appear to have dwindled, for instance. The research capacity of GVA expanded significantly in recent years. As of 1995, expenditure on R&D represented 0.5 % of GDP which, by 2003, had increased to 0.87 %, well above the national average. The distribution across sectors is indicated in Table 6.1. In the following we take a closer look at some of the main performing actors among research organisations, and offer some observations of their activities related to internationalisation.

[81] Examples are iPod Podcasting or Youtube.

[82] The Chinese speak of "sea turtle", referring to skilled Chinese nationals who go abroad and return home to "lay eggs" (start new ventures). The Chinese government now provides incentives to spur this process, and is pursuing a host of initiatives to increase entrepreneurship among overseas Chinese as well as current residents. (Knowledge@Wharton special report "Selling in China", October 2006). India, Chinese Taipei and many other countries are developing similar strategies.

Table 6.1: Investment in R&D in the Region of Valencia and in Spain (% of GDP)

		1995		2003	Growth (95-03)	
	Region of Valencia	Spain	Region of Valencia	Spain	Region of Valencia	Spain
Business Sector	0.15	0.40	0.30	0.60	98 %	50 %
Higher Education	0.27	0.26	0.47	0.33	71 %	29 %
Public Administration	0.08	0.15	0.11	0.17	32 %	12 %
Total R&D expenditure	**0.50**	**0.81**	**0.87**	**1.10**	**73 %**	**36 %**

Source: OECD/IMHE March 2006

Universities

In 1983, universities became more autonomous and able to, e.g., introduce their own qualification systems. The teaching staff, who used to be part of a national body merely assigned to the various universities, began to belong to each university. The responsibility for universities was transferred from national to regional government, although coordinated by the Council of Universities, and the establishment of private universities was allowed. The parameters shaping career opportunities for professors and scientists have continued to be partly streamlined at national level however, and private universities still face conditions that weaken them relative to the public universities. Meanwhile there are regional differences, e.g., the universities in Alicante are more directed towards applied research whereas the Universities in Valencia are primarily focused on basic research. University structure is further commented on at the end of this section.

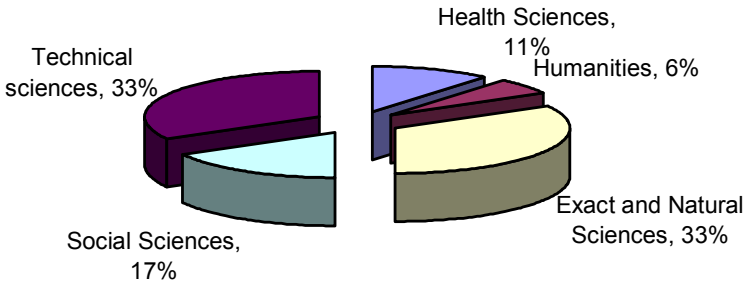
Again, universities undertake the bulk of R&D in the region, corresponding to 53 % of the total.[83] As for expenditures on higher education, currently at a level close to the average for the EU, most is spent on staffing. Small resources are allocated to offering students viable conditions, as only some 0.08 % of GDP is used for student grants and no orderly student loan system is in place. This commonly inhibits the participation of students in international exchange programmes.

The research budget of higher education institutions increased by almost 80 % over the last five years, partly due to increased external funding but also because of own investment.[84] The division of the research budget by area is illustrated in Figure 6. In 2000-2004, 70 % of the external resources obtained by universities came from the public sector and 30 % from the private sector. Meanwhile, between 40 and 47 % came from regional sources, showing a slight upward trend. There was also an increase in funds from international sources, which as of 2004 provided 26 % of total external funding.

[83] . This spending structure contrasts with Spain as a whole, where 54 % of total expenditure on R&D is undertaken by business and 30 % by higher education institutions. OECD/IMHE project, March 2006.

[84]. As of 2003, expenditure in this sector represented 0.47 % of the region's GDP, compared to 0.33 % for Spanish universities in general and 0.41 % for the OECD.

Figure 6.1: Distribution of research budget of Valencian universities by scientific area



Source: OECD/IMHE, 2006

Table 6.2: Changes in the number of R&D projects contracted by public and private entities by geographic area of origin

	Businesses and Private Entities					Public Administration
Year	Regional	National	International	Regional	National	International
2000	2,824	961	81	411	154	20
2001	2,731	958	64	500	115	21
2002	2,162	1,767	87	302	266	31
2003	3,151	1,079	151	456	256	23
2004	3,648	1,172	187	569	213	38

Source: OECD/IMHE, 2006

The structure of external funding provided by the private sector was relatively stable, with regional sources providing some 60 % of the total. Approximately 30 % of private sector funding was from national sources whereas 10 % was from international. At the same time, Table 6.2 illustrates the number and development of R&D deals on different levels in the region, which indicates that research organisations would benefit from cooperating more with the private sector in internationalisation.

Similar to Spanish universities in general, most in GVA have moved far from their previous total lack of interest in internationalisation. Today, there is political awareness and willingness to internationalise. There is also a desire to develop links to industry, in part of a fear of being left behind unless tangible progress is made in this respect. In practice, however, developments in this direction are far from clear-cut.

The University of Valencia is extensively internationalised in some respects. English as well as Spanish and International degrees are offered. International contacts include the Erasmus programme and there are more than 100 general agreements with other institutes in the EU, Latin America and North America, as well as an office paid by the Chinese Government. No researchers work with

foreign MNEs, however. The university downplays formal links are less attractive and that structures should remain open. At present, individual researchers go into programmes and joint research teams solely on an ad hoc basis. The perception is furthermore that the whole university should be internationally oriented and that the improvement needs to be more cultural than quantitative.

The university advocates the following steps as means to gain from internationalisation:

- Increase the number of international students
- Internationalise basic research
- Enhance social benefit through cultural changes and more open attitudes

The second largest university, the Technical University of Valencia (UPV), has a technology transfer office employing 50-60 staff and funded by the regional government. The main goal is to commercialise the technology, primarily at home but also abroad through the *National Association of Technological Parks* (APTE) which is in turn a member of the *International Association of Science Parks* encompassing some 300 parks world wide. Through this mechanism the UPV has e.g. direct contact with Latin America through a tech institute in the Brazil and with Asia through an institute in China. The Technical University of Valencia offers and collects demands from these regions and through the international network in general. However, there is no tapping in to the National Innovation System in other countries on any further level through the network, such as reaching international companies that might be able to match technology developed at the UPV or at another science park in Spain through the APTE. It would be highly useful to have/install a kind of mechanism for tapping in to foreign companies working with science parks in other countries, as an example there is a lack of high tech. firms in Valencia which could be complemented through linkages to other countries matching technology developed at the Technical University of Valencia, helping the polytechnic to commercialise its technology. However that would require a commercial incentives plan as well which allows the university to become more commercially oriented.

The method for spreading licenses and finding a match is comprised by a public data base online where customers can come and apply. There is also a business club of the best firms comprised of some 250 regional companies, however very few of these are international such as Ford and Siemens. They have breakfast meetings with discussions concerning problems etc. which is a way of trying to link business with academic research. Examples of beneficial spillovers to the local economy, which have been observed to date, include the learning of production quality control from Ford, on the one hand, and cultural benefits, such as improved management practices, on the other.

Private industry

In contrast to universities, private companies in GVA invest relatively little in R&D. In 2003, their share was 35 %, up slightly from 35 % in 1995. On the whole, GVA can be characterised as a small and open economy, a small and medium-sized firm structure, and owners lacking modern business education or research traditions. In terms of industry, traditional ones such as toys, plastics, textile, metal, furniture, ceramics and so on, dominate. Telecommunications, biotechnology or other similar industries which typically are science-based, are largely lacking. Naturally, these characteristics have an important influence on the performance of industry-university collaboration and R&D activities as well.

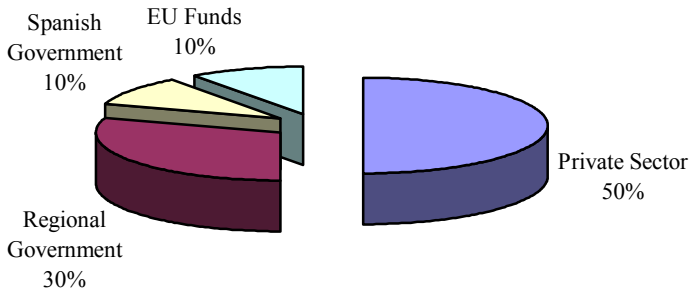
Research institutes and science parks

In between university and industry, substantive research institutes and science parks form potential bridges. Most important is REDIT, a network comprised of 16 technological research institutes (Table 6.3) which offer a range of umbrella services to different sectors. Founded in 2001 as private, self-governing non-profit association financed equally by business and the public sector (Figure 6.2), REDIT aims to strengthen links between innovation and local industry (Box 20). Some 6,700 businesses are presently associated with REDIT's Technological Institutes, which now account for nearly 13,000 business customers, 30 % of which are located outside the Valencian Community.

The Valencian Community managed a total of 58.2 million euros within the 5th Framework Programme of the European Union, of which REDIT directed 14.7 million euros in 83 projects. Further, the National System of Innovation includes 75 Centres of Innovation and Technology (CITs).

REDIT is active in various countries, including Chile, Japan and Germany. It has business intelligence services and market attendance services e.g. in construction and the wood sector, which is more value chain focused. As apart from the textile sector which is more end consumer focused.

Figure 6.2: Financing of REDIT in percentage according to origin



Source: REDIT

The science park at the Technical University of Valencia was promoted by the University itself in 2002 with the aim to move knowledge from the "shelves" to industry. Few private companies, reportedly six (five spin-offs and one foreign company) at present, have been created or are hosted in the park, which is primarily directed towards hosting academics and researchers. It has a large administrative work force. The companies currently held use provisional offices. It is said that, by spring 2007, there will be the possibility to host 17 companies in a business incubator within a total area of 2000 m^2 building. According to the plan, by 2009 there will be a 30.000 m^2 building devoted entirely to company hosting.

Likewise, the University of Valencia (UV) recently established the Parc Científic de la Universitat de València (science park of the University of Valencia) with five research institutes on its

own. It will include a particular Centre for Medical Physics with a building for central services, a business innovation building and a business incubator building for *spin offs* of the University of Valencia.

Table 6.3: Technological Institutes Comprising REDIT

Technological Institute	Sector
AICE	Ceramics
AIDIMA	Wood, Furniture, Packaging, and related technologies
AIJU	Toys
AIMPLAS	Plastic goods
AITEX	Textiles
IBV	Biomechanics
ITE	Electronics
ITENE	Containers, Packaging and Transportation
AIDICO	Construction
AIDO	Optics, Colour, and Images
AIMME	Metal mechanics
AINIA	Farming and Foodstuffs
INESCOP	Footwear
ITC	Ceramic
ITI	Computer Programming

Source: www.redit.es

The benefits obtained from commercialization from technology are invested in innovation policies at the University. The University has seen a decline in licensing deals over the last years (Figure 6.1). The number of licensing deals to foreign companies is extremely modest, or only about 3 per year. There are currently 15 engineers working for Analog Devices at the science park, which is planned to grow to 40 in two years time. More than 2000 researchers are currently working at the science park.

Box 6.1: Main objectives of REDIT

- To integrate the Technological Institutes, both individually and collectively, within the National System of Science-Technology-Business, by projecting a united image in the social and scientific spheres in which they develop their activities.
- To act as a spokesperson, thereby promoting cooperation with the other members of the I+D+I System, especially with Public Administrations, Universities, and Businesses
- To promote Technological Development and Innovation, managing and extending the latter as an indispensable instrument for ensuring competition among small and medium-sized businesses.
- To offer high quality services to all associates and to develop economies suitable for each budget.
- To promote the Technological Institutes' participation in renowned projects, thereby generating the necessary critical support to place the Network in national and international scientific-technical spheres
- To carry out activities dealing with development and innovation.
- To create a prominent forum to analyse and reflect upon the status of Technological Development and Innovation in the Valencian Community.
- To form synergies among the related Technological Institutes in order to improve and increase benefits of and for the businesses.

Source: www.redit.es

Similar to the Technical University of Valencia (UPV), the University of Valencia (UV) recently established a science park which obtained its first research and science premises aimed to host companies and conduct research mainly within biotechnology, nanotechnology, ICTs and applied physics. This new park has 200.000 square meters of space in the city of Paterna.

Box 6.2: ITENE - an internationally active institute in REDIT

Out of the 16 research institutes that form REDIT, a few detailed observations can be made on ITENE which is dedicated to transports and logistics. Employing 70 staff in quality control, supply chain analysis, transportation of dangerous goods, etc., ITENE offers private companies assistance for transport of goods to final consumers. ITENE collaborates with the Technical University of Valencia on a Masters degree programme, within which students write their masters thesis at ITENE. They also give out Diplomas in packaging as part of university programmes. In the case of the master's degree, the institute pays for everything. There are also doctoral programmes, for which the Technical University of Valencia pays 50 % and teaching is divided between the two. Currently, 6 doctoral students are engaged.

ITENE has rich contacts with the *Chamber of Commerce* and the *Confederation of Valencian Enterprises*. Sometimes they are involved in projects together. Few international companies have anything to do with ITENE, however. The organisation is politically created although private companies provide support and are represented on the board. Knowledge is diffused to the NIS and internationally through pamphlets, websites, magazines etc. Scanty technology is diffused to the Regional or Local Innovation System, however.

ITENE is involved in a number of projects on the EU level such as Financing, Formación, Discrimination, within the nano-technological division, and how to freeze fish in the Leonardo Project. They currently have collaboration with 31 other organisations in the EU. Foreign firms are not collaborating a lot with ITENE, however. It rarely happens that foreign companies ask for assistance and cooperation, nor is there much presence of internationally oriented researchers at ITENE.

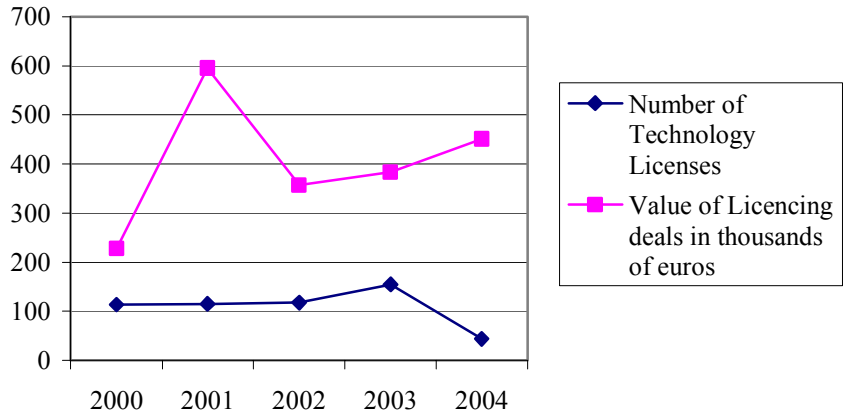
Finally, various other institutes have been created for several purposes, often to bridge between actors in industry and academia. One example is the Institute of International Economy (IEI), which is a first rate university institution that receives a steady flow of visits from the EU as well as from the United States. The IEI is engaged in international as well as national projects, but is especially active in EU projects. There is a considerable degree of openness considering that 30-40 % of all research is initiated by others than those within the university, which could be further capitalised on.

An institution such as IEI does consider private firms as important and relevant to their area of expertise, at least in some degree. Their approach is nevertheless squarely academic; they demonstrate a positive attitude to the private sector but they still a lack active involvement, as they share the single-minded sentiment of other academic actors as for what performances ultimately matter. Among their stated acute problems, they experience difficulties in:

- financing visits by foreign researchers
- competing with consultancy firms, especially foreign ones, which are viewed as stealing their ideas
- applying for tenders, which are bureaucratic, and motive greater administrative resources

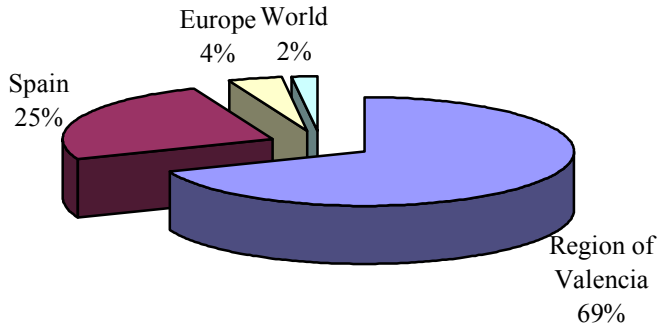
The staff also expresses a sense of lacking appreciation from the rest of society, which fails to understand the value of the skills of IEI.

Figure 6.3: Licensing according to number of deals and value



Source: Memoria del curso académico 2004-2005, Universidad Politécnica de Valencia, Valencia

Figure 6.4: Client companies to the Technical University of Valencia, by origin



Source: Memoria del curso académico 2004-2005, Universidad Politécnica de Valencia, Valencia 2006

IVEX

Finally, as the last actor, consider the Valencian Institute for Exports, *IVEX*. This organisation performs a number of important functions in internationalisation and represents a significant resource as well as partner in the internationalisation process of various research organisations. IVEX is, for

instance, running an internship programme in the form of a 3 months course at the Technical University of Valencia, followed by 9 months training in an international institution such as IVEX, the OECD, etc. IVEX also collaborates with private companies, e.g., by providing an expert working for one year in the foreign office of a company or in international local companies. IVEX further provides feedback on internationalisation to the region through research activities. They currently engage 69 students in internships.

The IVEX network overseas could, however, be better tapped into by universities. IVEX does pay strong attention to establishing a presence in foreign research intensive locations. An increased awareness of the opportunities accompanying such a strategy, coupled with cross-border research institute collaboration by other research organisations, could greatly diversify and enhance the knowledge flows to and from the region. As for synergies, if universities could tap in to the network of the IVEX, various benefits could be derived. The University of Valencia might, for instance, assist with market research commissioned by IVEX, maybe in part sponsored by the city or the region.

A overview of the Valencian Higher Education system

The Valencian Higher Education System is made up of seven universities, five of which are public and two private.

Public Universities:

- University of Valencia (1499),
- Technical University of Valencia (1971),
- University of Alicante (1979),
- Jaume I University of Castellon (1991),
- Miguel Hernández University de Elche (1997)

Private Universities:

- Cardenal Herrera University (2000),
- Catholic University of Valencia (2004)

Four of these are located in the city of Valencia, one in Castellon, one in Alicante, and the last one in Elche. Some have campuses located in other towns. All undertake research activities although the intensity and quality varies between departments, subjects and institutions. Approximately 146,000 students are enrolled in the Valencian university system and, of these, 13,000 are in the private sector (7,000 in private universities and 6,000 in private centres attached to public universities). The number of students has remained stable in recent years.

The University of Valencia and the Technical University of Valencia are both located in the City of Valencia. Together they hold 60 percent of the university students in the GVA region and 59 percent of the researchers. The Generalitat Valenciana (Autonomous Government of the Region of Valencia) is responsible for funding the public universities. The Generalitat Valenciana was the first regional government to introduce a funding model for public universities in 1994. The model was renewed in 1999 and set the Valencian system apart from other regional systems in Spain, because the

model represented a means of clearly stating the objectives of Valencian universities, and of linking part of their funding to measurable objectives and performances. As a result of greater rationality, in comparison with the systems in other autonomous regions, the Valencian Public University System is now one of the best funded in Spain. Valencian universities are more efficient than the Spanish average, according to education indicators (fewer students drop out and courses are completed more quickly).

As for individual institutions, the University of Valencia is one of the oldest and largest in Spain. Ranked Nr.3 out of 60 universities in the country, it has some 45.000 Students, 3000 staff members and 90 departments divided on the following three campuses, for the humanities, social sciences, and experimental Natural Sciences. The second largest university is the Technical University of Valencia with 36.600 students, 2.600 teachers, 1700 staff members and 44 departments.

A Combination of Strengths and Weaknesses

The above overview of institutions and their internationalisation indicates a number of strengths and weaknesses for the research organisations in GVA and their performance. Before summing up these points, it is worth discussing in detail a few specific cross-cutting themes of fundamental importance in this respect. In the following, we reflect on aspects related to governance and strategy, on the one hand, and to those associated with human resource management on the other hand. We then sum up strengths and weaknesses, and what they signal in terms of opportunities and threats.

Governance and strategies

The widespread consensus among key stakeholders in GVA to promote internationalisation provides a distinct advantage and provides an opportunity for concerted action and improvement. Unfortunately, GDP-measures are not available at city level and the leverage factors that could be used by the authorities to transform their visions into concrete options are somewhat vague. To a large extent, there is little doubt that the capacity of the authorities to launch and manoeuvre a tangible reform process is much dependent upon the active voice and charisma of the Mayor. That the city budget is not a limiting factor opens for possibilities and enables the Town Hall to improve infrastructure, take steps to strengthen science parks, sponsor trainee programmes, subsidise foreign experts, etc. At present though, constraints are not primarily about money, but rather an apparent lack of ideas.

As seen above, there are few linkages between traditional and emerging sectors in Valencia, on the one hand, and the research organisations on the other. The international knowledge flows of the latter include first-rate academic activities, as well as technology co-operation established by resourceful science parks. There are few connections, however, between the processes of research internationalisation and the issues confronting market actors in the regional innovation system in Valencia. This in part shows up as weak articulation of needs to source technology from abroad. Industrial links are generally connected to export or production interests in less developed regions. Technology institutes further face difficulties to innovate, package and utilise their skills and technological advances so as to foster a dynamic, responsive environment. As an example, there are few high-tech companies in Valencia although institutes perform high-tech research, e.g., in nano-technology (Quesada 2005). There is a lack of existing businesses operating in areas that could have made use of much first-rate technology, while mechanisms are also lacking to foster new such actors. Weak linkages between research and industry thus show up in the absence of spin-offs and incubation of new firms. Conversely, in relation to the research institutes, mechanisms are lacking, especially for SMEs, to identify and articulate their specific needs.

As for the international co-operation of REDIT, explicitly organised with a view to fulfilling its goal of achieving industrial relevance, international links show signs of an aim to acquire technology in Japan and the EU, but again with little connection to private sector development in Valencia. There is then more of such a linkage where relations aim to commercialise technologies in MAGREB countries, such as Tunisia and Egypt. The focus of internationalisation seems to be weakly motivated by knowledge-intensive industry needs, but more by demands to lower production costs. Another factor is the fear among many actors of "losing" technology to foreign firms at the expense of Valencian ones. As seen from Figure 9, the information on client companies of the Technical University of Valencia displays a lack of collaboration with companies outside of Spain.

There is a general lack of connections between needs to raise the competitiveness of industry and incentives for universities or research institutes to prioritise and underpin synergies with international partners. Part of the problem is the lack of strategy or organisational direction on the part of research organisations in general, and in regard to internationalisation in particular. Linkages to foreign institutions are developed primarily as a consequence of the initiatives taken by private researchers. This inhibits the possibility for developing the kinds of relationships that could combine and capture synergies between coherent relationships developed by different actors.

In part, weaknesses in strategic direction reflect the state of governance mechanisms, which basically leave it up to individual researchers or divisions how to engage in international partnerships. There is no doubt a "culture" in Valencia - as well as in Spain more broadly – favouring the individual researchers follow their own priorities. Whereas this is common in the academic world and no doubt is good for "bottom-up initiative", it inevitably leads to overlap and that potential opportunities are foregone because of lack of synergy. This makes it important to identify and implement governance mechanisms that can help pull constructive collaboration and underpin prioritised international partnerships.

It is, in fact, a common feature that even though most actors – organisations as well as individuals - are anxious to take part in the process of internationalisation, and to exploit the benefits of it, there is really no elaborate strategy for how to actually implement it. In reality, many efforts to create linkages are inhibited by opposing interests among relevant actors, such as the dominant strive for pure academic achievement by the pool of researchers, the focus on cost-cutting in industry, and the fear of loosing local roots, not just in individual departments but also for whole universities and institutes as such.

An aspect of the present situation is that the internationalisation of the technological institutes or consultancy firms is seen as competing with the aspirations of the universities in research. There is a fundamental need of incentives that are able to generate more coherent driving forces for international networking that are able to underpin strong synergies interwoven with processes of research specialisation while also fuelling complementary functions and matching technologies with relevant competitive sectors. Connected to this, it is important to reconcile, or align, the driving forces of individual researchers, of universities, of technology centres, and of the private sector.

There is a recent wave of decentralisation in Spain, as can be exemplified by Madrid and Barcelona asking to overtake the management of the airports. There may be further delegation of decision-making power to individual provinces in Spain, opening up for more manoeuvring possibilities for the Region as well as the Local City Government of Valencia. Nevertheless, national regulations and practices currently present several constraints for the region of GVA as well as for the City. These need to be kept in mind, as they limit what instruments and action points are available for the authorities at these levels. Any viable scheme for strengthening the internationalisation process of

research organisations and its relevance to the performance of the region, needs to bear those limitations in mind.

Human resources

Human resources affect university-industry linkages in multiple ways. Managers' qualifications and Industry-University collaboration are, as seen in other countries, positively correlated in GVA.[85] Firms classified as informative-intensive are more likely to co-operate with universities, as are larger firms. The performance of joint R&D activities also matters. As part of the picture, the Spanish government has instituted a reward system for researchers squarely focused on publications in internationally referred journals. This single performance measure exerts a decisive influence on career opportunities for researchers and also influence salaries, although less radically. This system accounts for streamlining of incentives, and few avenues for researchers to acquire professional prestige.

Firms in GVA commonly face problems to attract qualified personnel from abroad. Obtaining permits from South American experts to engage in recycling, which nobody wants to do in Valencia, can take up to 18 months, for instance. Beside the legal barriers, attitudes are a factor. According to the Chamber of Commerce, weak mechanisms support matchmaking between the supply of competences and the demand of the market place. In universities, decisions to employ foreign staff are made at departmental level where a territorial mentality creates resistance against competition from first rate foreign teachers/professors. Although the law is open to hiring foreign researchers at the technological institutes and universities, permanent hiring of foreign staff is also perceived as more "risky". Hence, foreigners tend not to be voted in, although the technical universities are more open in this regard.[86] The City Government has provided an important counterweight by subsidising the engagement of foreign researchers through a scheme that is presently phasing out.

Other sentiments related to human resources influence the nature of internationalisation. These include the historical and cultural bondage to most of Latin America, which takes on a disproportionate role in international relations. Many Spanish firms in Latin America employ graduates from their "home" universities or research institutes, e.g. electricity companies in Chile that engage students from the Technical University of Valencia. Meanwhile, there are scanty incentives to develop linkages with firms as well as research organisations in the United States, Europe and Asia. Many of the best researchers in Valencia have actually studied in the US but have often lost their contacts when back home. There is also a perceived growing split between the US and the EU, possibly pushing the former aside. The Technical University of Valencia has virtually no relations with the United States. Links with the EU in research has strengthened with the 6th framework programme, but industrial and other linkages continue to be relatively underdeveloped.

Further, there are indications that openings for international companies to cooperate with research institutes are hampered by attitudes favouring incumbents. This affects especially highly competitive outsiders, such as IKEA. Although the furniture industry might be under severe strain upon the entry of a company like IKE, which puts up intense demands on supplier costs, suppliers and contractors

[85] *Espacios. Vol. 24 (2) 2003* (http://www.revistaespacios.com/a03v24n02/03240223.html#Anchor-Conclusions-45656) Adela García-Aracil, Ignacio Fernández de Lucio, Antonio Gutiérrez Gracia y Elena de Castro Martínez

[86] In Valencia, 99 % of teachers are locals and, according to José Mora, director of CEGES, attracting more international teachers and professors is difficult even though there is a consensus that it ought to be done. Legislative changes are needed in order to enable changes in this respect.

could learn in the process, logistics technological institutes such as ITENES could benefit and expand their already successful industry, profiling and specialising the city-region of Valencia even more towards logistics and transports. There could also be increased market access for the institute as well as for the many SME suppliers. If only less productive or competitive firms are allowed to enter the region, inward FDI will make questionable and sub-optimal contribution.

Attitudes to risk represent an additional consideration which, coupled with the lack of policies and institutions conducive to risk-taking and private equity, are holding back the development of any real seed and venture capital industry. As things stand, despite certain private sector initiatives to amend the situation, GVA is still dominated by public money as the only major source of risk funding in early stages. Together with the hostile attitudes of universities and research institutes to entrepreneurship and business incubation, this presents formidable barriers to spin-offs and high growth new firms.

Summary of strengths and weaknesses

Summing up strengths and weaknesses, we conclude as follows:

Strengths:

- The region and the city display a willingness to internationalise at all levels. It appears that the authorities have managed to create a sense of consensus that the knowledge economy is real and desirable, and that internationalisation can contribute constructively to its development.

- R&D-intensity has risen fast over the last decade. Strong research organisations have been established within both universities and technology institutes. Together they represent a rather complete institutional fabric and also hold an impressive collection of highly capable individual researchers and experts.

- An elaborate and interrelated network has been established encompassing Valencia's technological institutes, possessing the capacity to support local industry development as well as providing channels to technological institutes in other parts of the world.

- Important infrastructure has been provided or is to be put in place. The impressive exhibition centre *Feria Valenciana* is one of Europes biggest and best equipped, as well as the envisaged science park expansion to 30.000m ^{2} for company hosting by 2009 provide examples.

Weaknesses:

- Governance structures are strongly dominated by public and academic credentials; private sector and entrepreneurship experiences evoke little influence on the overall institutional framework embedding research organisations.

- R&D-intensity is still low, notably in the private sector. There are poorly elaborated industry clusters and basically a lack of proper knowledge clusters.

- Weak linkages in internationalisation processes of the different main spheres in research and the economy, i.e. notably among universities, technology institutes, and industry.

- Foreign firms are weakly present and display scanty local R&D and few local research connections.

- A uniform strive among the community of researchers for academic advance leaving scanty attention to considerations to what is relevant in other respects.

- Poor study grants and loans which will also inhibit exchange programmes.

- Seed and venture capital institutions are lacking, internationalisation processes display hardly any connections to the generation of spin-offs and creation of new high-growth firms.

- Few dynamic relationships and linkages have developed to support industrially relevant knowledge exchange with strategically important regions, such as the United States or China.

- There is an excessive focus in internationalisation of research on Latin America and the Mahgreb region, reflecting a tilt towards exploiting existing technology at the expense of processes of developing and/or sourcing new technologies from developed countries.

- A lack of governance and strategic direction in research organisations and their internationalisation

- Rigidities, and deferral to defensive strategies, account for slow processes of adjustment to new threats, such as adapting to competition from increasingly sophisticated low-cost countries.

- Cultural rigidity when it comes to opening up to internationalisation and in taking steps to spur circulation of competencies, including to motivate the presence of foreign researchers and experts to promote the development of new areas or linkages.

These strengths and weaknesses present a combination of opportunities and threats. Valencia may be in the process of building new dynamic research linkages that could change present attitudes, but there is also a risk that the region will remain focused on the kinds of linkages that do not ignite impulses for needed change. Well-developed structures for internationalisation already exist although they need to be properly cultivated and exploited. Companies and science parks show signs of movement towards collaboration in support of higher value-added production, but unless progress is fast enough the present industrial basis may be destroyed without any sufficient diversification emerging in its place. Valencia has an experience of inviting foreign researchers and its very attractive local environment offers strong opportunities to display further success in this, yet foreign experts need to be engaged in more productive and all-encompassing processes of generating dynamic process of knowledge exchange and creation.

Learning Models

In order to cast further light on how the Local City Government could act to engineer or, rather, inspire more successful and beneficial internationalisation of its research organisations, it is important to examine relevant experience of what has been achieved elsewhere. For this purpose, we next address a number of specific other cases of internationalisation of research organisations across the OECD region.

From the outset we note that a myriad of different kinds of experiences could have been examined and discussed in this context. Here, we have chosen to address experience from science parks, with emphasis put on the extent to which, and how, they have been able to bring together different kinds of players for the sake of successful interactions and internationalisation of research organisations. The reason for this choice has to do with the fact that science parks represent an institutional construct through which – if appropriately organised, research organisations, connected to or embedded within them, gain improved chances to succeed in terms of both gaining access to relevant networks and skills, cash flow management and internationalisation. This is typically true, though, under the condition that science parks are managed in ways that enable them to bridge between research, on the one hand, and marketing activities and the commercialisation of research results on the other hand.

As will se seen, we have selected cases that, from different yet complementary perspectives, fit with the fore mentioned requirement so as to help further deepen and also illustrate our main conclusions and recommendations for Valencia.

Examples chosen and criteria for the model approach

Our model approach to the case studies is a based on three-fold criteria:

- Orientation of the innovation system: entrepreneurial or a mix of entrepreneurial and institutional, under the condition that private firms can play an active role in governance processes.

- The range of key players: from the private to the public sector, where the latter represented by public authorities and academia does not hinder the dynamic interface with the marketplace.

- The type of leverage: cross-fertilisation between demand-pull and supply-push.

Under the guidance of these three criteria we have selected:

- Two science parks in Italy: Centuria in Emilia-Romagna Region and KilometroRosso in Lombardy. The two initiatives show how, even in a context where public administrations are the main drivers of innovation processes – which is very common in the Mediterranean countries – entrepreneurs and owners of small-to-medium sized firms can play a leading role in shaping the conditions for successful implementation of science parks, thereby helping to bridge the gap between knowledge generation and knowledge utilisation, so as to open the door to the creation of internationally relevant knowledge-led new businesses and start-ups.

- The Hermia Science Park in Tampere, Finland, which demonstrate the potential effectiveness of a partnership between the public sector and the business community in selecting and implementing processes that accelerate the creation of internationally oriented entrepreneurial growth companies.

- The Zernike Group in the Netherlands. This is a case of a globally integrated company specialised in research commercialisation and management of science parks worldwide. The case shows how critical is the role of a science park company in cross-fertilising demand-pull (from the business side) and supply-push (from academia and research labs) actions for the purpose of rendering viable the combination of the different elements in the work of a

science park aiming at do have a significant population (both tenants and clients) of companies performing at higher levels of innovation.

From the outset, it should be stressed that the business success of science parks depends on a number of factors, including the quality of the science-park company's (SPC) operations (that is, on management), and how SPCs' executives are performing their tasks (that is, governance issues). The matter includes motivating their staff, what incentives they create for the various actors connected to the park, etc. This also applies to progress in internationalisation which, in addition, raises special demands in coordination and abilities to capture synergies between various actors.

A SPC typically needs independent-minded boards that are prepared to incite entrepreneurial attitudes, and inflict changes on managers stuck in old thinking and working practices. Only in that way can new demands be met and opportunities in the marketplace be grasped. The most effective way to lock in stakeholders is by allowing them to harvest business opportunities bred by the SPC and to benefit from the positive feedback effects of markets. For this to happen, it is important to deal with professional board mechanisms, with the appropriate presence of relevant stakeholders on board, and processes of information sharing that occur horizontally rather than vertically through the moulding of knowledge communities of practice. Without going into detail, each of the presented learning models includes aspects of such sound governance mechanisms.

Based on the considerations above, and the noted lack of linkages among the main actors in Valencia, we now turn to the experiences of the selected specific cases in the chosen countries, in order to help cast light on ways to improve performances in the Valencian case.

Centuria Science Park, Cesena-Faenza (Emilia-Romagna Region, Italy)

Description of the model

This science park is specialised in the agro-food industry and mechanical engineering. It is marked by an approach where entrepreneurs drive links between knowledge generation and knowledge exploitation. The majority of shareholders is represented by co-operative and family-owned small-to-medium sized companies rather than local authorities, industrial associations and university.

The aim of Centuria-RIT is to favour innovation, by encouraging the exchange of ideas, technology transfer and relations at local level, as well as by being a focal point for institutions, businesses and research centres willing to co-operate.

In a context of globalisation characterised by fierce competition and a large number of products manufactured in areas where labour is low-cost, innovation is extremely important in order to increase the added value of the products manufactured by the Italian firms and is key to maintain their competitiveness. Centuria-RIT therefore tries to identify the innovation needs of its members and of its local area in order to satisfy them by promoting applied research projects and providing business services.

Impact of the approach

- Good governance in the form of decision-making processes engaging both public institutions and the private sector.

- Good examples of technology transfer to SMEs, which has been a leverage for enlarging their markets.

- New business ideas from collaboration between firms of different cultures and sectoral activity.

- A very extensive international network with international institutions on behalf of the agro-business companies.

In the box below there are few more observations, and notably how the sectoral specialisation in the agro-food industry and mechanical engineering industries work out in this specific case.

Box 6.3: Sectoral specialisation of Centuria-RIT

Centuria-RIT is a Science and Technology Park working in Emilia-Romagna region and constituted by nearly 60 enterprises with a total turnover of about 3 billions of euro. It is active in an area whose main characteristics are the sound economy, a high gross domestic product, a low unemployment rate and a strong entrepreneurship.

Over a century, the agricultural tradition of this land has given rise to a leading agri-food industry that stands out both at national and international level. Later on, other sectors have grown alongside the agri-food sector, such as mechanics, automation, electronics, industrial ceramics, environmental, new materials, advanced services, etc. These enterprises, mainly SMEs, which had initially been set up to meet the local demand, have increasingly opened to new markets by working as a close business network.

Source: www.centuria-rit.com

Reasons for Success

In the case of Centuria-RIT, the driving force and vision of what was to be achieved through the Science Park emanated from a high political level and was clearly and consistently communicated. The Major of Faenza was personally champion of the initiative. Well respected in the business community and strongly supported by outside experts' view that the science park should be guided by market mechanisms, the Major was in a position to lead a process that managed to focus on the task of linking the newly established academic research centres with the research requirements of the local SMEs.

An additional factor for success was the chosen avenue to leverage the business competences in the agro-food industry and related sectors both upstream and downstream. In pursuing this design, the Major faced obstacles in getting the approval of both the local and regional institutional players, which traditionally used to create business services through subsidies manoeuvred by the public hand.

Consideration for adoption in Valencia

In the case of Centuria, the science park company is under the strategic guidance of co-operatives and family-owned small firms, which have given birth to the formation of industry clusters in the agro-food sector.

That company has established links between departments of the University of Bologna and research centres and the endogenous enterprises. A demand-pull mode of interaction between those players in collaboration with the local industrialist associations aims at both enhancing patents and license capacity of local firms and supporting their internationalisation processes.

Further information

Website: www.centuria-rit.com

KilometroRosso Science and Technology Park, Bergamo (Lombardia Region, Italy)

Description of the model

This science park is marked by an approach where a leading company drives links between knowledge generation and knowledge exploitation. Brembo, world leader in braking systems for racing, has originated the Science Park.

In the case of Kilometro Rosso, the leadership of a company well tapped into a global niche market brings to the forefront the objective of innovative research driven by business outcomes. The knowledge value chain is governed by the behaviour and needs of the recipient business actors.

Impact of the approach

- An intense iterative process between the business and the research communities produces new commercially exploitable knowledge at every stage.
- One of the most original and advanced initiatives in South Europe regarding services and facilities dedicated to R&D.
- A demand-driven initiative around which players from research labs and value-added services have successfully triggered processes of technology transfer and new venture creation.

Reasons for success

By far, the most relevant factor behind the success has been the strategy and determination of a leading company, exposed to international competition, to congregate a knowledge pool of researchers, technologists, business strategists, business lawyers, and market and sales experts motivated by powerful incentives to work together in constructive and internationally connected knowledge exchanges. This collective networked intelligence of knowledge workers has been instrumental in forging local as well as international relationships to leverage the power of their research-to-business ideas and to multiply their capabilities.

Consideration for adoption in Valencia

Maintaining that "applied goals also tackle the basics", researchers are accustomed to work with industry for applied research from which they generate new ideas.

KilometroRosso Science and Technology Park has designed a knowledge transfer process in a demand-led way. This is a coupling type of relationship that holds two properties.

One property makes the relationship dependent on the needs of business and, therefore, its primarily objective is that of fitting the cognitive characteristics of the recipient actors.

A second property is that the relationship is driven by the interplay between the supplier and the receiver of knowledge. The better the interchange, the higher the value of KT, and the more intense the iterative process, that by trial and error produces new knowledge at every stage.

Further information

Website: www.kilometrorosso.com

Tampere-located Hermia Science Park and Incubator/Accelerator (Finland)

Description of the model

Hermia is characterised by an institutional regional innovation system. A broad range of players, both public and private, are involved in governing the science park. In terms of sectors there is a strong emphasis on telecommunications and high-tech.

Hermia feeds processes of new venture incubation ventures across intellectual and business borders. By doing so, the science park supports ventures that originate from scientific research.

Impact of the approach

- New venture creation is the outcome of pools of knowledge-rich scientific and technical personnel, and talented students, backed by the incubator infrastructure and its support staff.

- Nokia's research centres located in Tampere "spin in" creative ideas into the academic community – sustaining the process of new venture creation with partners from both the research institutions and the private sector.

Reasons for success

A critical factor for success for the location in Tampere is obviously the presence of Nokia's research facilities. In addition, the government policy in regard to Nokia, including the provision of substantive grants motivated by a combination of research and innovation-related activities, combined with Nokia's constructive approach to encouraging spin-offs (the two in part being interrelated), has also critically contributed to putting in place spin-off mechanisms for unlocking commercial and social benefits from their research activities.

Hurdles in terms of stakeholder resistance to such strategies were overcome in the early 1990s at the time of the national economic crisis, in the wake of the breakdown of the Soviet economy which led to a temporary collapse of Finnish exports. Again, a clear vision and leadership from the highest level led the way at that time, as the Prime Minister was personally involved in establishing and getting wide support for a strategy that put innovation and commercialisation of research results at the centre. Still, Finland continues to suffer from certain lack of flexibility in labour markets, high taxes and also the presence of cultural factors which mean that consistent efforts are needed to create an environment that is conducive to cross-border flows of researchers and experts.

Within the particular framework of Hermia, however, in consistency - and coupled - with the clear objectives and contributions of the public sector, Nokia's spin-off strategy and international connections have triggered constructive processes of new venture incubation beyond the company's borders – which has allowed the science park to achieve an internationally renowed foothold in the

spin-off industry. A wealth of international exchanges, including frequent visits of leading international experts, has thus been achieved.

Consideration for adoption in Valencia

Within the Hernia environment, the accelerator model works as a method of business development in the area of new technology based firms.

Would-be entrepreneurs – including students, graduates, people at research and education agencies, and inventors – with a feasible business idea area subjected to a learning process that helps them to acquire the tools and skills needed to transform their idea into a successful start-up.

The provision of an array of e-services helps them to refine their venture models and transit seamlessly from the pre-incubation phase to the incubation one.

Further information

Website: www.tampereescienceparks.fi/in_english

The Zernike Group: Management of Science Parks (The Netherlands)

Description of the model

A private company (the Zernike Group) specialised in commercialisation of know how and innovation has given birth to, and manages, a network a science parks in different part of the world including Germany and Australia.

The strive for generating commercially relevant knowledge creation and use, which can constitute a business opportunity, has been accepted as part of the objective for an increasing number of academic institutions. In the case of Zernike, governance and overarching strategies and incentives guide faculty inventions and scientific research through the commercialisation process.

Impact of the approach

Zernike operates like a one-stop centre focused on:

- How to assess the commercial applications of the results of a research project
- How to effectively formalise them into a business plan
- How to identify the best way (product, service, technology) to employ to the commercialisation of the results of a research project
- How to establish early stage funds and business angel programmes

Reasons for success

Based upon the founders' strong competence in the science park industry, the Zernike Group has been successful in launching several science parks worldwide, by focusing on the valorisation of research outcomes in the marketplace.

A major obstacle has been encountered in dealing with research institutes entrenched in practices of "finding new ideas and giving them away", which is an inherently loss-making activity. The search for more diversified sources of finance, needed to move research toward commercialisation, has been another critical impediment.

Consideration for adoption in Valencia

Managing research toward commercialisation in a science park context by leveraging on the experience of a globally integrated private science park enterprise skilled in both research commercialisation ad the science park industry

The business success of science parks depends significantly on the quality of the governing body. The Zernike's case brings to the forefront of research organisations in a science park environment the challenge of properly designing and managing the science park company, identifying and hiring people with the appropriate skills, motivating staff, and putting in place appropriate incentives for the various actors connected to the park.

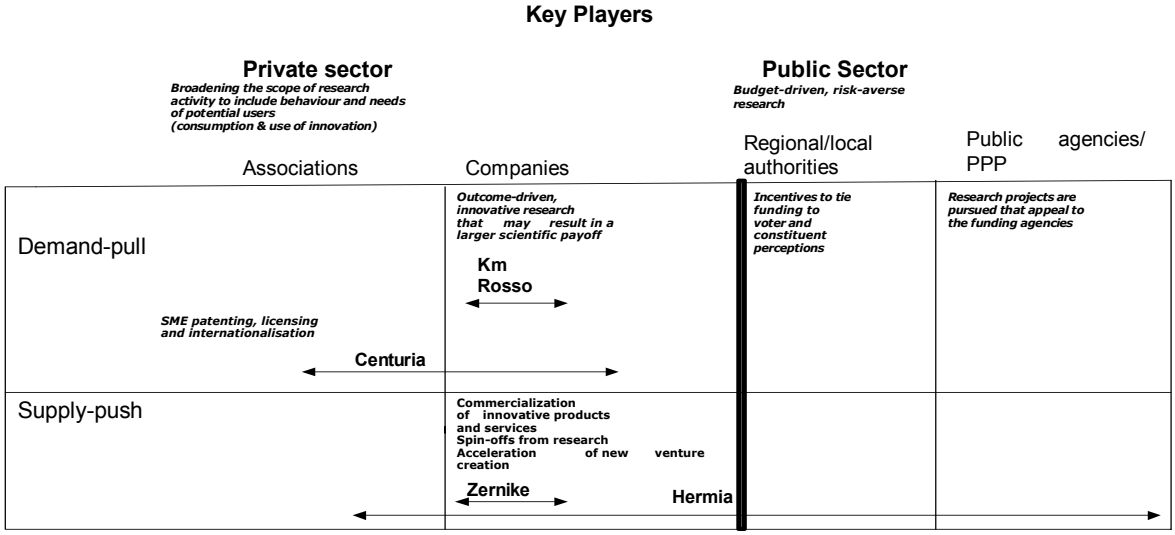
Further information

Website: www.tampereescienceparks.fi/in_english/

Application of lessons to Valencia

From the case studies mentioned, there are lessons to be learned that can successfully be integrated into the Valencian context, such as:

Figure 6.5: Comparison of key players and kinds of leverage in learning model programmes



i) Undergoing a process of transformation of research organisations from their traditional roles, and from escaping impeding influences from stakeholders that manoeuvre so as to remain within their

traditional realms, commonly requires active leadership and a driving force capable of making change happen. Success will often require that there is enough influence both to initiate and uphold the transformation over time, including through influences and incentives that can help direct and speed the process.

ii) In order to upgrade the existing fabric of Valencian SMEs, the latter must be active parties in the knowledge value chains. Measures should be put in place to spur both local research institutions and science parks to take into account the behaviour and needs of the recipient business actors.

iii) The number of private sector representatives on the boards of science parks, university and research institutions should be increased so as to underpin and help exercise the requirement of a better understanding of the private sector's needs and so as to allow that to be incorporated in governance.

iv) The conversion of knowledge creation into economic knowledge and hence into new products, new services and new venture creation, calls for the support of globally integrated enterprises which are in the business of commercial applications of research results.

v) The incubation process needs to be accelerated through the support of value-added services, which strengthen the formation and development of knowledge pools that encompass both academics and business people.

vi) The most innovative companies in GVA should contribute to "spin-in" of creative ideas into the research community, for the purpose of generating outcome-driven research.

vii) The establishment of "collaboratories", which are lab type infrastructures that link up teams of people from university and companies with disparate cultures, different cognitive systems and skills, would allow academic researchers to work alongside company employees for the purpose of creating, developing and testing a prototype based on their reciprocal ideas – which could serve as the platform for the development of new products or services possibly leading to new venture creation that is focused on application fields far from the original application of the knowledge transferred.

Recommendations

Only the national level can alter certain important factors, such as the present policy-induced incentives for individual researchers, funding mechanisms for national research programmes, the provision of student grants and loans, etc. Prevailing conditions in those areas need to be taken into account regionally. Incentives for mobility, apprentice arrangements, exchange mechanisms, programmes for attracting foreign researchers, etc. are more prone to local action. Even though some desirable policies might not be within the scope of the City Government, various avenues may be open and creativity should be exercised in implementing the most effective measures at various levels in supporting the achievement of critical objectives. It is then obviously also important to provide leadership and direction, and facilitate coordination, among relevant stakeholders whose behavior and joint efforts matter for critical activities.

From supply-focus towards match-making

Research organisations in GVA are strongly oriented towards a "supply push" driven model. While this generates impressive results in many respects, there is a distinct need of a strategy for boosting the demand side so that new skills and technologies are "pulled" more effectively by market

actors, and so that knowledge is diffused and generated in networks allowing for matching between the two sides.

At present, firms are not sufficiently prioritised by science parks, and there is a vague sense of fulfilling collective goals or pursuing joint interests in universities and research institutes. In a sense, the prevailing approach is too squarely dominated by a traditionally "pure" academic orientation, which is perfectly logical given the nature of the prevailing incentives. For such reasons, shared institutional objectives in creating relationships with other academic institutions, or with private firms – ranging from letting companies have space in the science park to having them come to universities to inform students of the workplace – count for little. In the same vein, except for the Technical University of Valencia, applied research is generally lacking in social status, as culture at the universities prioritise publications.

Although some incentives and connecting intermediary actors are in the process of strengthening links between universities, institutes and firms, additional measures should be introduced to improve two-way communication and mutual adaption needed to capture opportunities for deepened collaboration. Financial incentives can help create win-win situations and stimulate entrepreneurship as well as risk-sharing in support of new ventures. Important contributions can be made by supporting greater relevant competences, in governing structures as well as among researchers, experts and businesses. Exchange of experience and greater mobility of managers and experts between the key societal spheres are important elements. Schemes arranging with training of researchers within firms, as well as engaging researchers in training programmes designed to meet with the special needs of firms, can serve several purposes. Programmes similar to that of US SBIR, which enhance the capabilities of SMEs to compete and innovate, should be considered.

Further, authorities should apply both measures that bring closer ties between research and the domestic/regional private sector, and those that invite the engagement of foreign MNEs. The presence of actors in the latter category that fit the development prospects of new technology generation, is important for opening up multiple opportunities as regards input factors as well as commercialisation channels. Problems with liquidity shortage inhibiting small enterprises to develop and commercialise new technologies will not be solved that way, but growth prospects for local SMEs are countered rather than helped by structures that limit exchanges with international business. The latter serve as leverage for local technology or businesses to access international markets, especially if enabling connections are developed to the research platforms offered by internationally established firms. This is important to recognise, due to the presence of a certain cultural reluctance in GVA towards diffusing technology abroad that could have been utilised locally.

Strategies for internationalising research organisations

In order to increase international linkages, certain dynamics are needed as regards cross-border flows of researchers and experts. The presence of foreign researchers matters for tapping into international technology networks and platforms, and thus for enhancing knowledge flows and strengthening access to cutting-edge technology. As universities are financed mainly by the region, the City Government has limited instruments to direct these things. Still, it does possess various leverage factors, such as the capacity to open special funds, distributing land, organising events, or by offering various carrots (or sticks) to promote certain kinds of behaviour.

Whereas the incumbent scheme, offered by the City Government in the past years to support hiring of foreign researchers, is now in the process of phasing out, there is an opportunity to consider alternative ways of achieving objectives in this area. The purpose should not merely be to keep up, but to further strengthen, the contribution of foreign researchers. It is recommended that the conditions for

financing of foreign researchers should be revisited and, e.g., be linked to integrated research projects engaging academia and the private sector. Such a scheme could be designed in tandem with a programme to sharpen governance mechanisms for the internationalisation of research organisations. The City Government could take steps to recognise and implicitly reward prominent and socially important sets of international research partnerships.

These points illustrate the presence of opportunities to reinvigorate or upgrade present policies, as well as to take new initiatives. Other ways may be to communicate the importance of hosting international companies in science parks, for instance by publishing information, listing or taking note of the presence of such firms as a precondition for institutional partaking in various activities, or by linking it to making other contributions (possibly in kind) to the support of shared research laboratories in science parks or at universities, etc.

Strategies to enhance benefits from the internationalisation of research organisations need to be conducive to the sharpening of unique skills and assets. An example is provided by IEI, which presents a range of high-calibre competencies but does not appear to offer a close profile of practical relevance in competition with, e.g., consultancy firms such as Pricewaterhouse or Mckinsey. It is plausible that IEI has a clear-cut comparative advantage in knowing the Valencian Economy, which again at present is of limited interest to the individual researchers given their natural preoccupation with referee journal publications. However, institutional strategies need to complement those of individual researchers and could serve to underpin kinds of expertise that allow for exchanges that are both financially rewarding and scientifically useful. IEI might be well placed to initiate a review of regional growth factors, innovation bottlenecks, cluster programmes, etc. Many researchers now work with local institutes but publishing on generic topics tend to remain their preoccupation, whereas the institutes offer weak backing of the accumulation of complementary capabilities into high-profiled niches of unique expertise that are able to communicate with, draw upon, and be relevant to, local firms and the regional society.

Finally, on specific accounts, we recommend that the City policymakers pay attention to addressing the following issues, which will matter for raising the benefits of the internationalisation of research organisations for Valencia itself:

- Existing research networks need to be induced to reach research organisations abroad that are relevant for Valencia's industrial and economic development, tap into national innovation systems abroad and channel information, knowledge and technology back to the Valencian regional innovation system.

- Key governance mechanisms influencing research internationalisation and linkages should be adjusted to embrace a better balance between the various actors that are relevant to the innovation processes; the experience and concerns of private enterprise particularly needs to be better represented.

- The incentives for applied research should be improved, implying that scientific publications must not always come in the first room nor dominate all ranking and remuneration criteria.

- Appropriate physical space should be made available for private firms in the science parks, on terms that allow for full transparency, respectability and flexibility, as a basis for creating linkages between firms and research organisations.

- Evaluations and assessments of research internationalisation should be arranged with the participation of domestic as well as foreign firms and researchers, who are willing and able to identify the commercialisation potential.

- While the programme "Ramony Cajal" has made an important contribution in allowing the incorporation of foreign researchers in the local universities, rejuvenised mechanisms are needed for attracting foreign researchers and professors, including in ways that could adjust current practices of election within departments.

- The provision of grants and loans needs to be strengthened in ways that can help increase cross-border flows of students; this will lead to increased competition between universities and raise the quality of students both destined to go out and those attracted from abroad.

- Programmes are needed to raise skills within firms so as to make business managers better equipped to develop constructive linkages with academia.

- Initiatives need to be developed to help spur the establishment of joint R&D activities as a means to combine innovation and the diffusion of knowledge and technology

CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

In order to successfully put in place the detailed recommendations made in the substantive chapters of this report it is also necessary to develop an conducive global framework for FDI and internationalisation activities in Valencia. The following overarching issues should be addressed:

Focus on promoting innovation as the key to city economic success

The experience of similar cities and regions to Valencia in OECD Member countries demonstrates that innovation is central to the prosperity and competitiveness of this type of place in the context of globalisation and the shift to the knowledge economy. This message needs to be fully understood and promoted by all local stakeholders in Valencia.

Valencia has many strengths in promoting an economic development approach based on innovation, not least its very strong science and technology base. However it is still in a process of restructuring away from traditional economic activities and has more to do in order to become one of the most strongly innovative places in OECD countries, capable of competing internationally across a range of high value-added activities. To reach this position will require strengthening of the capacity of the city's company base and research organisations, and the linkages and collaborations amongst them, to bring forward innovative projects that will lead to the exploitation of new products and services.

Support innovation through internationalisation activities

Internationalisation is one of the most important factors in securing and exploiting knowledge. Key methods for public authorities to promote the types of internationalisation that will underpin local innovation are the attraction of foreign direct investment, embedding foreign direct investment in the local economy, promoting exporting and international technology partnerships by small and medium-sized firms and encouraging international flows of ideas, students and researchers through local research organisations.

Launch an innovation and economic development strategy

There is a risk that fragmentation of economic development activities between various different local organisations may undermine efforts to achieve the innovation and economic development goal. There is therefore a need to build a clear and shared strategy and implementation arrangements.

Key pillars of the strategy should be the attraction and embedding of knowledge-intensive inward investment, the development of innovative new and small firms and the research and commercialisation activities of research organisations. The strategy should also develop measures to increase the linkages between these components of the strategy and to strengthen the common factor conditions that will support the development of each.

The content of the strategy needs to be discussed and communicated with local businesses and research organisations and local people in general.

Further build the brand and image of Valencia

Perceptions of Valencia need to change in the minds of people locally and externally to make economic adjustment a success. Important steps have already been taken in this respect with hosting of the Americas Cup and current work on enhancing the Valencia brand. As part of these efforts, it is recommended that a key vision statement is developed, focused on promoting Valencia as a city of innovation and internationalisation. This should be in line with key messages of the innovation and economic development strategy and can be used to help change the image of Valencia to potential investors, highly-skilled migrants and technology partners overseas and to local people, businesses and research institutions.

Support the CEyD to work as a city development agency

Many of Valencia's competitor cities have well supported city development agencies with responsibilities for delivering integrated economic development strategies. CEyD is best placed to play this role in Valencia, but needs the resources and support from partners to enable it to provide the same level of service as other major European city development agencies. The role of CEyD within the existing economic development structures at city and regional level should include the creation and delivery of an economic development strategy tailored to the specific needs of the city. CEyD should promote a broad range of activities to support innovation and internationalisation in the city and ensure that programmes developed with its partners reflect as best possible the particular challenges and opportunities in the city.

Learn from other cities and regions

The challenge for Valencia is not so much one of financing appropriate infrastructure and initiatives, but more one of changing attitudes and introducing new ideas. It is usually very helpful in this respect to examine how other cities and regions are promoting their own economic development in the face of similar challenges. Participation in the policy development forums of the OECD Local Economic and Employment Development Programme will assist in this respect.

APPENDIX ADDITIONAL LEARNING MODELS

The Alba Centre, Scotland

by David Crichton

Description of the approach

The Alba Centre project was designed during 1996-1997 and became fully operational in 1998. It comprised a number of inter-related components:

- A collaboration between Scottish Enterprise, Scotland's main public sector economic development agency, and a major US company, Cadence Design Systems.
- The attraction of FDI, targeted very specifically at electronic design companies seeking to establish design centres overseas.
- The creation of the Institute for System Level Integration (ISLI), a collaboration of four Scottish Universities. The ISLI offers graduate and postgraduate degree programmes in semiconductor design, as well as short courses for qualified design engineers.
- The Virtual Components Exchange (VCX), a trading platform for intellectual property in semiconductor design. The VCX aimed to reduce the costs, risks and timescales involved in trading semiconductor designs between companies, by providing a system of standard legal contracts.
- The development of a high quality site and premises, the Alba Campus, in Livingston (near Edinburgh). The Campus is a 36 hectare site, developed to a very high standard of physical and environmental utility and including the advance build of office and design premises.
- Related activities, such as talent attraction, a test centre, and SME development.

Scottish Enterprise ultimately committed a budget of £50mn to the Alba Centre. It also dedicated a multi-disciplinary project team to deliver the initiative. Cadence collaborated with Scottish Enterprise in designing the project, as well as opening their own design centre on the Alba Campus. Four universities came together in an unprecedented collaboration to create the ISLI, providing postgraduate and graduate level training in electronic design to domestic and overseas students. The project was recognised internationally as a bold attempt to promote knowledge-based FDI, innovation and internationalisation.

Rationale for the approach

Through the 1970s and 80s, Scotland had considerable success in attracting FDI, primarily from the USA and Japan and primarily in the electronic manufacturing and assembly sectors. The central belt of Scotland, branded as 'Silicon Glen', became a significant global player in the electronics industry. By the mid-1990's however, it was evident that the Scotland, in common with much of Western Europe, was losing competitiveness as a manufacturing base. New FDI was choosing Asia and East Europe, and existing FDI operations were closing.

The Alba Centre was Scottish Enterprise's principal response to this trend. It aimed at building a 'diversely inhabited semiconductor design and technology corridor within Silicon Glen where some of the most advanced design in the world is taking place'. The rationale was that design activity would create higher value and more stable investment and employment than was possible from manufacturing. The employment involved would be less, but its value and longevity would be greater.

It was also believed that this new design community would create a virtuous cycle of FDI, local innovation, SME growth, skills development, research activity, exporting and internationalization, in the following ways:

- Knowledge-intensive FDI would be attracted by a supportive research, education and legal infrastructure, by the presence of similar companies, and by the growth of a highly skilled talent pool.

- Internationally mobile skilled labour would be attracted by the availability of a range of companies offering employment, the long term career benefit of working in a globally recognized centre of expertise, and the quality of life benefits of living in Scotland.

- Local SMEs would have greater opportunity to trade and partner with international businesses, would have access to a growing pool of talent and would be able to compete in an increasingly global supply chain.

Scotland would therefore 'leapfrog' competing locations by transforming itself into a global centre of semiconductor design and innovation.

In addition, despite the loss of many of Silicon Glen's electronics manufacturing and assembly plants, there was still a credible economic base on which to build the Alba Centre. Scotland's leading universities provided education and research facilities in all of the relevant technical disciplines, and produced a steady stream of qualified graduates. There was an underlying skills base within the labour force that was still relevant to the technical and production needs of the electronics sector. The region was well accustomed to attracting and accommodating US, Japanese and European FDI in electronics-related activities, and a local supply chain had developed. The Alba concept was not therefore being 'parachuted' into an inappropriate environment: a supportive infrastructure and attitude was already in place.

Why the approach is relevant to Valencia

The overall context of Valencia is similar to the Edinburgh city region at the time the Alba Centre was implemented, in terms of population and economic base. There are similar strengths: a large number of universities and research institutions, open-ness to FDI, a tradition of exporting, attractiveness to visitors and knowledge workers. There are also similar constraints: traditional

academic cultures, under-developed university links to industry, skilled labour shortages, limited connections between FDI and local supply chains.

An initiative like Alba might help overcome these constraints by:

- Providing academic institutions with increased potential for both income and reputation through delivering education, training and research to a larger and more accessible 'critical mass' of knowledge intensive businesses.

- Offering an employment 'magnet', attracting mobile talent from other locations and encouraging local students to train and stay in the region.

- Providing local SMEs with an opportunity to develop new products and services to meet the needs of the incoming knowledge-based companies, and then in turn to market these new services on a wider international basis.

The specific objectives of the Alba Centre are also similar to the three channels of development proposed in the draft LEED report on Valencia: attracting FDI with a strong technology transfer component; supporting SME's to export and build international alliances; encouraging universities and research bodies to collaborate internationally and increase overseas student and researcher flows.

A fully successful Alba Centre would have increased skill and income levels in the local economy. This would in turn have had a beneficial impact on the local services and housing markets, and the local tax base. It would also have had a positive impact on the area's reputation and image, which could be exploited to attract similar types of knowledge-intensive business.

Reasons for the success and failure of the approach

The Alba Centre has had a mixed track record since it was established. Its early years were marked by significant progress in FDI attraction, the establishment of the ISLI, and the development of the campus. Over 1999-2001, however, a global downturn in the electronics and IT sectors severely constrained its success. The Cadence investment did not grow to the extent anticipated. The flow of other FDI projects diminished, and development on the campus ceased. The ISLI remained in place, however, as did a number of other elements of the project and previously unanticipated spin-offs. Overall, it is fair to say that Alba has not delivered the transformational impact that was hoped for. It has however had a positive impact on Scotland's international presence in the design sector, on university/industry collaboration, and on technology transfer.

Key factors in its successes were:

- The strategic vision and ambition displayed by Scottish Enterprise and its industry partners, including the personal commitment of SE's then Chief Executive, Crawford Beveridge.

- Political willingness to accept the risk of public funding being committed to a highly innovative project with a very long term return.

- Formation of a well funded project management team to drive the initiative.

- The credibility of collaborating with a major US industry partner, Cadence.

- The commitment to a multi-faceted but well integrated series of individual projects within the overall initiative.

- The willingness of four independent universities to collaborate on a single project.

- The link to wider economic development activities through Scottish Enterprise: FDI attraction, SME support, skills development.

Key factors in its weaknesses were:

- Inability to withstand a global market downturn at an early stage in its history.

- Over optimism regarding the scale and speed of impacts.

- Over-dependence on a single industry partner, whose investment commitments did not materialise in full and whose presence may have inhibited other partners.

- Insufficient risk assessment and option appraisal both before and during implementation.

- Unclear exit routes for public funding from some elements of the project.

- Discontinuity within the project team as personnel changed regularly.

Obstacles faced in implementation and quality of response

The main obstacles faced were as follows:

- Making the case for public funding for an innovative, high risk project: A compelling vision was promoted with enthusiasm and the personal commitment of senior staff.

- Identifying and managing the project risks: Insufficient risk assessment and option appraisal exacerbated exposure to market downturn.

- Dependence on a single industry partner: Helped create initial momentum and credibility, but left project exposed to performance and commitment of one company.

- Difficulty of securing university collaboration: Traditional academic cultures evident, but overcome through persistent communication of benefits and personal commitment of individual academic staff.

- Challenge of linking to local entrepreneurship, SME's and supply chains: Project did not achieve 'critical mass' necessary to make impact on local innovation and business base.

- Identifying exit routes for public funding: Some elements of project, e.g. ISLI and VCX, became over-dependent on Scottish Enterprise funding, with no clear exit routes identified for long-term sustainability. The VCX and the campus site and property have however since been sold to the private sector.

- Need for intensive project leadership and management: Project team was well resourced and motivated, but vulnerable to personnel changes and difficult to establish appropriate skills mix.

Conditions for successful adoption in Valencia

The successful adoption of a similar model in Valencia, learning from the Alba Centre experience, would require:

- A clear and well integrated strategy for FDI and internationalisation that provided the correct policy rationale, and levered in the commitment of all the key players.
- A willingness on behalf of public funders to accept that such a project is high risk and must be accepted as long term in its returns.
- A larger number of initial FDI partners than was the case in Alba, to build critical mass earlier and avoid dependence on a single company.
- A robust and systematic approach to risk assessment, scenario planning, option appraisal and exit planning.
- A dedicated project management team with the right mix of business, technical and economic development expertise, and a strong degree of continuity.
- A culture in university and research institutions that enables cooperation across local institutions, with the commercial sector, and with international partners.
- Early and detailed attention to how the project can be integrated with local supply chains and innovative SMEs.
- An ability to attract and retain sufficient numbers of mobile, skilled workers to enable growth in the longer term.
- A significant branding and promotion campaign to raise the project's visibility and credibility in international markets.

The model would of course have to be applied to a particular sector in which Valencia had a sufficiently strong base. The principles and rationale underlying Alba need not be specific only to semiconductor design. They can be applicable to any industry where design content is increasingly the driver of competitiveness, where a supportive research and education base is essential, and where a pool of mobile talent and skills can be created.

Contact details and website for further information

www.scottish-enterprise.com
www.sli-institute.ac.uk
www.cadence.com

The Portuguese Investment Agency, Portugal

by Ana Teresa Tavares-Lehmann

Description of the approach

The Portuguese Investment Agency (API) was set up in November 2002 and became fully operational in 2003. API is the body empowered by the Portuguese state to negotiate and draw up contractual agreements for large-scale investment projects and to propose incentives and benefits according to the merits and specific needs of each project. Large-scale investments are defined as projects involving an investment of more than €25 million, as well as investments below that amount made by companies with annual consolidated sales of more than €75 million, or by non-business organisations with annual budgets of more than €40 million. API aims to promote investment of foreign and domestic origin from all sectors, providing the investment is perceived to bring value to the Portuguese economy.

API is a public entity of a special status ("E.P.E. - entrepreneurial public entity"), meaning that it is formally more independent than a traditional public company and it is managed according to private sector principles. API operates under the aegis of the Ministry for the Economy and Innovation. The Agency was set up with an endowment f 110 million euro. It has at the moment 55 employees. Its two subsidiaries employ, together, the same number of staff. AIB has a Board of Directors (composed by 4 people at the moment) and an Executive Commission (3 people).

API runs two subsidiary companies: API Capital, which operates in the area of venture capital; and API Parques, which manages business parks. API also benefits, in its overseas operations, from the economic diplomacy that Portugal pursues through its network of embassies and consulates.

API-Capital is a private equity and venture capital company. Its mission is to invest venture or private equity capital in projects that meet API's requirements. One of the key activities of API Capital is to support projects of high technological merit, particularly knowledge-intensive small and medium firms (KI SMEs). In the pursuit of its mission, API Capital also cooperates with private and state owned venture capital companies, namely by establishing partnerships and syndication, and by managing third party venture capital money. API Capital, with a share capital of 25 million euros, currently manages 5 Investment Funds for Qualified Investors (FIQ) with a total capital of 127.6 million euros. The Investment Funds managed by API Capital are owned by several entities, such as API - Invest in Portugal Agency, API Capital, DGT (The Portuguese General Treasury), ICEP (Foreign Trade Institute), FLAD (Luso-American Foundation for Development) and CGD (the main public-owned Portuguese Bank). In late 2006, the amount available to invest reached 50 million euros, while the portfolio of API Capital and the funds under management comprised 32 companies.

API Parques runs business location areas that offer top level conditions for investors within API's scope; it promotes the availability in those areas of logistical capabilities, integrated services and a base of technical/technological knowledge and infrastructure. API Parques holds 7.5 million square

meters in four different industrial parks. API Parques manages information about the supply of business location space for investors supported by API, be this space within or outside these directly administered parks. It also cooperates with private and public entities that are instrumental towards achieving its corporate mission, by establishing partnerships with companies relevant to creating top quality location areas. API Parques is a shareholder of several other business location related companies, some of which are technological parks aiming to attract knowledge-intensive investors. It offers these services to both corporate and non-corporate entities – for instance, making space available, or providing information about the best options, for laboratories, for technological campuses, etc.

API's operations cover the following areas: (i) Commercial Operations (aimed at promoting and attracting productive investment and at developing, supporting and maintaining investment projects already established in Portugal); (ii) "Contextual Cost" Operations (aimed at creating an attractive business climate for investors by unblocking or accelerating investment processes and by making proposals to revise existing laws or introduce new legislation to facilitate investment); and (iii) Procedural and Incentive Operations (which help investors prepare applications and administer the payment of financial incentives).

In order to attract and embed knowledge-intensive (KI) FDI, API offers specific services and programmes. For instance, it developed some "Commercial Dossiers" that consist in organising a dossier and a proposal around a theme or investment opportunity, compiling the relevant information on resources available, market trends/competition, potential benefits for the investor, and other aspects, the content being tailored to each dossier. At least two of the dossiers promoted were related to KI operations, notably trying to develop a technological campus including a leading international university and relevant companies, and a medical cluster around a state-of-the-art clinic/hospital.

In terms of its Commercial Operations Area, API develops a proactive approach, going after investments of a technological content as high as possible. However, not all its operations end up in attracting high tech FDI, some end up in attracting large projects of medium-tech content. It must also be remembered that the workforce is not very highly educated, so KI operations are emphasised but not all the projects qualify as such.

Another example of how API helps to attract and embed KI FDI relates t its "contextual costs" department: for instance, helping to remove bottlenecks in the supply of skills, by establishing protocols with universities, professional schools, etc, to train staff to work in projects being negotiated. One of the 'Contextual costs' identified was lack of qualified human resources/skill shortages in some areas. For that API conceived a 'Human capital deficit programme', an initiative that aimed to establish protocols with universities and other schools in order to offer courses in areas perceive by important investors as lacking human capital. Firstly, API sent a questionnaire to all universities trying to assess whether they were willing to cooperate. Unfortunately the programme did not yield much, as the education system and the traditional governance structure of universities proved too rigid to respond rapidly, and there was no national (country-level) effective support, so the programme died down, even though API continued to press for that, and continued to raise awareness at that theme.

Through its Procedural and Incentives area, API also helps investors in general, but KI FDI has priority in contractual terms, and also in negotiating better incentive terms. This is done on a case-by-case basis like in most other countries/regions - there is no exact formula for a correspondence incentives/merit in terms of knowledge intensity. However, there is a priority to KI projects, across all three areas of operation of API.

Rationale for the approach

Even though FDI inflows to Portugal increased considerably since EU accession in 1986, in the late 1990s and early 2000s the situation was not so bright. Growth was sluggish and Portugal even started to diverge from the EU average in terms of per capita income. The prospect of EU enlargement to Central and Eastern European Countries, together with the growing pressure of globalisation and competition for FDI projects, were relevant external factors. Portugal's competitiveness as a low cost FDI destination in Europe was eroding, and a new strategy to relaunch growth and change the traditional, low-cost based, model of development was needed. Portugal started implementing a 'Technological Plan', involving dozens of measures, in 2004.

One of the elements of this new strategy was the attraction of more and higher value investment (foreign or from Portuguese investors). API was the institutional response to this quantitative and qualitative challenge, and was set up with a mandate to implement a proactive approach. Regarding FDI, it aimed not only to attract, but also to accompany current investors, offering services at all points of the investment process (from pre-investment to aftercare), aiming to respond to perceived needs in a more agile and effective way.

The approach (structure and services) was chosen because of the circumstances in the early 2000s. A proactive Commercial department was deemed necessary as there was a lack of dynamism in the attraction and embedding of FDI. It was thought that there were many projects in perspective (worldwide) at that time, and Portugal should go after them proactively, with an experienced and trained staff, more used to private sector approaches. In terms of after-care, it was done until then very modestly, and the Government was observing a great degree of divestment and wanted to act upon that also using this Commercial department, with regular visits to investors (treated as clients), also with a personalized approach (a Key Account Manager assigned to each client).

Important and diverse "contextual costs" (a term coined by API's first President) were identified: very constraining bureaucracy/red tape, skill shortages - including thus some aspects identified earlier when describing the approach. Passivity would not be an answer. Hence, the "contextual costs" are was formed, with a clear mandate to expose n a transparent way the situation, pressing also the Government to act, and cooperating with the Government (at central and regional/local level) and other relevant entities to remove these bottlenecks.

A Procedures and Incentives area was also created due to a perceived need to improve the management and confer greater agility to such processes – as before many investors complained about lack of organisation and ineffective time consuming procedural routines.

API inherited the role of promoting inward investment attraction from the Foreign Trade and Investment Institute (ICEP), which was not accepted pacifically by all. The latter continued to exist, yet focused on the promotion of exports and tourism. API was also supposed to promote the internationalisation of Portuguese firms, and for that it absorbed the resources of the former FIEP – Fund for the Internationalisation of Portuguese Companies, then extinguished. Nevertheless, outward internationalisation was never a priority of API, and the division of labour between API and ICEP in this theme was never clear. At the moment, the approach is changing and API and ICEP are merging, this originating a new institution – AICEP – Portuguese Agency for the Promotion of Investment and Trade, that will aim at promoting both inward and outward internationalisation.

The decision to form AICEP was taken as it was thought more productive to be under the aegis of a single institution, for trade and FDI are complementary, and there would be some synergies in promoting inward and outward FDI (even if different staff would be responsible for each area). This

approach was also deemed more efficient, by permitting to pool resources, know-how, information, to develop a closer/richer cooperation, greater agility, and avoidance of duplication in tasks and resources.

Why the approach is relevant to Valencia

The approach is relevant to Valencia as there are marked similarities between the two territories, and also regarding their recent strategic priorities. Furthermore, Portugal started to implement a proactive approach that now Valencia is seeking to develop, thus the lessons from the recent experience of API and Portuguese policy *vis-à-vis* FDI may help identifying the best practices to adopt, and also what should be explicitly avoided. In terms of similarities, Portugal and Valencia are Southern European territories, latecomers in the process of internationalisation via FDI that show a willingness to attract foreign investors in a proactive manner. Both have similar strengths in terms of attracting high quality FDI: a respectable industrial background (local firms and including also some major foreign investments), rooted local competencies in relevant industries, an exporting tradition, a considerable number of research centres and universities, the fact that they are attractive places to work and live. Both territories share also similar constraints and difficulties, especially in terms of attracting high tech/high value-added FDI: the fact that they are not particularly known for high tech tradition and managerial excellence – associated with the prevalence of traditional manufacturing activities without great sophistication makes it more difficult to persuade more sophisticated investors; low inter-institutional cooperation, reduced level of linkages between major foreign investors and the local industrial fabric, low university-industry linkages, traditional academic culture (that is changing gradually), skilled labour shortages, quite rigid labour markets and not so favourable costs compared to competing FDI locations in the EU and elsewhere.

The specific aims of API are consistent with key recommendations/channels of development proposed in the draft LEED report on Valencia:

- Focus in attracting and embedding knowledge-intensive inward investment
- Increase the linkages between foreign investors and the local industrial fabric
- Further build the brand of the territory (image building)
- Provide effective aftercare services to investors already present in the territory
- Promote linkages and cooperate with higher education and research institutions
- Stimulate cluster building policies

Specific activities and programmes of API that may be relevant to Valencia:

- Acting as a single point of contact in order to avoid hassle to the investors, and to show an effective service
- Emphasising a proactive commercial approach – with highly trained and experienced Key Account Managers dealing with the investors; treating the investors as clients; constantly assessing their needs and satisfaction levels. This is critical to differentiate the services and to give an impression of high care and professionalism to investors

- Creating an institutional coordination area – like the one trying to remove "contextual costs", i.e. bottlenecks that surely exist (too much bureaucracy, skill shortages, etc), that would interact with Government and entities such as universities, etc

- Having a highly effective Procedures and Incentives Area – a dissatisfied investor never comes back – and showing ability to be fast and responsive in this regard helps considerably in attracting and embedding FDI (all FDI, and even more so the more demanding and sophisticated KI FDI type)

- Commercial dossiers: formatting business opportunities, compiling relevant data (thus helping to make known aspects that the investor was maybe even not aware, helping to bridge asymmetry of information, and to capture the investor's attention to the potential of the location, especially as regards KI FDI opportunities

The fact that Portugal has a centralised, country-focused approach and that Valencia needs a city-region based framework does not harm the applicability and the effectiveness of these activities/programmes and the fact that they are best practices – applied by agencies throughout the word at country, region or city level alike. Portugal is a small country (about the double of the size in terms of population as Valencia), hence it is not divided in regions as these would be quite small. Portugal is not as diverse as Spain as well, so it followed a different administrative strategy. Valencia, like Portugal, is a quite homogeneous area, and it would be even easier, it is thought, to implement a coordinated approach in Valencia, so these practices could be implemented, provided there is political willingness, and institutional capacity to do so.

Reasons for the success and/or failure of the approach

API had a mixed track record from the beginning, though the balance of its activity appears positive. On the one hand, it had some interesting achievements: in the three years since it began (2003-2005), API concluded a total of 214 investment contracts for projects with a total value of €2,7 billion. Investors were quite satisfied with the Agency's services, as shown by an independent customer survey. On the other hand, FDI flows continued to slow down and divestments happened frequently (which was not the Agency's fault, but led to quite negative press). Projects were often not characterised by the desired quality, notably in terms of high value-added and technological content. Still, API won some awards for its activity, in benchmark surveys of Investment Promotion Agencies. For instance, it was considered the 6th best inward investment attraction agency and second best national agency worldwide by the GDP Development Report 2005/2006.

Key factors in its ***successes*** were:

- Proactivity in dealing with both extant and potential investors - visiting them and presenting the services of the Agency and the advantages of either investing *de novo* in Portugal, or reinforcing investments

- Being small, agile and flexible – not having the rigidity of older and larger, more bureaucratic institutions

- Private sector management approach ("entrepreneurial public entity") – more professionally managed, and customer-oriented

- Personalised relationship – treating investors as treasured customers: the Agency set Key Account Managers in charge of interacting with each investor. Each Key Account Manager

was the sole interlocutor with the investor, and was always ready to answer his queries and address his needs

- Readiness to help the investor overcoming any problem encountered – acting as an effective facilitator, and offering to intermediate contacts with any governmental body or other institutions

- Presenting solutions to investors – e.g. the 'commercial dossiers', a formatted opportunity to invest in an area where the country had resources or competitive potential as destination for FDI

Key factors in its ***weaknesses*** were:

- Its strategy was not very clear and well communicated; targeting was diffuse, and so were merit criteria to assess quality of investments

- Commercial dossiers did not have expected impact; promotion was not always supported by enough hard evidence

- Industrial parks and venture capital subsidiary's roles and strategy were not clear and did not seem effectively complementary to main activity

- Key Account Managers were not specialists and often had difficulties in supplying relevant information in a timely manner; some difficulties in communication between Key Account Managers, other technicians (e.g. incentives' managers) , and investors

- Difficulties in managing by objectives and rewarding personnel

- Human resources not enough to address in a quick way the flurry of needs of many investors, new and extant – particularly as aftercare was concerned

- Incentives were not distributed in a very selective way, losing their instrumentality in channeling funds to the most desired types of investment

- Excessive focus on large projects rather than on knowledge-intensive/high quality ones

Obstacles faced in implementation and quality of response

The main obstacles faced were as follows:

- Failing to act as a Single Point of Contact/One-Stop-Shop: lack of cooperation with other relevant institutions; red tape and bureaucracy still pervasive - for instance, environmental and commercial/industrial licenses proved very hard and slow to obtain, hence response was not as quick as desired

- Government did not transfer in a timely manner the 'management fee' (a percentage of the investment attracted) agreed so financial resources were not always as expected

- At times, lack of effective articulation with economic diplomacy and lack of articulation with ICEP's international offices

- Lack of protagonism as often members of Government announced all its successes; independence from the Government more reduced than expected

- Inexistence of a linkage programme in order to increase cooperation between foreign subsidiaries' and local companies

- Lack of suitable qualifications from the workforce, in many cases – inability of the education sector to adjust to new needs quickly

Conditions for successful adoption in Valencia

The successful adoption of a similar model in Valencia, learning from the API experience, would require:

- Ability to clarify institutional leadership issues and to ensure inter-institutional articulation and very active cooperation; ability to develop strong partnerships with other relevant actors, at distinct levels

- Pay due attention to strategic planning, and preparation of the materials to support promotion

- Train staff very well, ensure KAMs have some degree of specialisation, and interact in a very agile way with other technical experts in other departments

- Communicate results – never be ashamed of good press; supply regular press releases announcing the successes

- Endow inward promoting agency with a clear mandate and autonomy, financial resources (partly conditional on performance), and the best possible staff (preferably with international experience)

Contact details and website for further information

www.apinvest.pt

The Industrial Development Agency in Dublin, Ireland

by Richard Ryan

Introduction

Ireland – and Dublin in Ireland – has been very successful at attracting foreign direct investment (FDI) over a sustained period. While there are significant differences between the situations of Dublin and Valencia, there are, nonetheless, lessons that may be learned from the experience of Dublin.

The purpose of this learning model is to describe the approach taken in the case of Dublin and to draw out any conclusions that might be applicable to the Valencia situation.

The Institutions Involved in Economic Development

The principal institutions involved at a national level are

- Department of Enterprise, Trade and Employment: Government ministry which makes the policy decisions.
- Forfás: Parastatal organisation – policy research and advice.
- IDA Ireland: Parastatal organisation – attraction and embedding of FDI.
- Enterprise Ireland: Parastatal organisation – development of Irish-owned industry.

The principal institutions involved at a local level in Dublin are the four local governments:

- Dublin City Council
- Fingal County Council
- South Dublin County Council
- Dun Laoghaire-Rathdown County Council

Each council is a member of a Development Board, established by national legislation, which is responsible for drawing up a strategy for the social, cultural and economic development of its part of the city and the community. Each Development Board is representative of a wide range of interests including the Industrial Development Agency (IDA) Ireland. The Development Boards are the formal fora at which IDA Ireland interacts with the four local governments (and with partner agencies such as Enterprise Ireland). In its most basic form, this interaction involves IDA Ireland working with the local councils to deliver the infrastructure required to meet the needs of FDI investors who want to locate in Dublin, while the councils, on the other hand, lobby IDA Ireland to ensure that at least some of IDA's clients are shown locations in the Dublin area.

Examples of this infrastructure are the 220 hectare Grange Castle International Business Park which has been developed by South Dublin County Council as a world-class biotechnology campus, to which IDA has attracted the world's largest integrated biopharmaceutical investment (Wyeth); and

Damastown Industrial Park which is set in landscaped surroundings and to which IDA has attracted companies such as IBM and Yamanouchi.

The councils are not permitted to market directly to foreign companies.

Description of the Approach

IDA Ireland is a parastatal organisation with a staff of 275 and an operating budget of about €63 million (excluding grant payments to companies, but including real estate activities). In 2006, about 34% of IDA's business was in the Dublin area. The organisation does not break down its budget by region, so it is not possible to say precisely how much of its budget is applicable to the Dublin region.

On an ongoing basis, IDA Ireland identifies the target sectors which it believes are suitable for Ireland. It does this by taking into account factors such as the small home market, the fact that it is an island, the low corporate tax rate, the skills of the workforce, the fact that it is environmentally clean (and wants to stay that way) and the physical infrastructure (either immediately available or which could be made available) and so on. The current target sectors are in knowledge-intensive areas such as medical devices, pharmaceuticals, information and communications technologies (ICT), financial services etc. This analysis is continually re-examined because Ireland itself is constantly changing, as is global business, which throws up new opportunities and threats.

Within the target sectors, not every company will have the desire or capability to establish a project overseas. Hence, IDA carries out research in these sectors and identifies target companies in the sectors. These will usually be the leading companies in each sector, very profitable, growing (especially internationally) and ideally with a track record of successful foreign investments. By applying criteria such as these, IDA focuses in on its targets and, through its network of twelve overseas offices, directly markets Ireland to them.

When a target company identifies a project, IDA Ireland encourages the company to visit the country and, in accordance with best practice in any marketing-oriented organisation, assigns a named project executive (account manager) who plans the itinerary and arranges visits to a number of locations which meet the company's search criteria. (This project executive will also be responsible for a portfolio of other client companies in the sector). Should the company decide on a location in Ireland, the project executive assists with the project start-up and provides a comprehensive aftercare service. This service involves the provision of advice and introductions and help in sorting out the inevitable problems that occur when a foreign company is starting up in a new country.

In any investment promotion agency (IPA), the project executive (account manager) is the key interface between the agency and the client. They are usually people who have worked for a time in the private business sector before joining the IPA and therefore understand the thinking of business people. They must also be extremely well-motivated and committed to making things happen on behalf of their clients. They work both reactively in sorting out client problems and pro-actively in seeking new investment opportunities from their clients.

Aftercare forms the start of the embedding of the new company in the local economy. To ensure that the company becomes properly embedded, the IDA encourages linking up with local suppliers of products and services and especially encourages interaction with local training, education and research facilities. This might involve a local Institute of Technology establishing a special training course for employees of the new company, or a new Masters Degree programme in a university to meet the longer-term needs of the new company and of other firms in the same sector, or a joint research programme between the new company and a university. The IDA also tries to identify other parts of

the multinational company's value chain, e.g. shared services, R&D etc., which might also be attracted to Ireland.

When the aftercare and embedding process is carried out effectively, the foreign company can be used as a reference seller to persuade other foreign companies to locate in the same area

Arising from its interaction with client companies, IDA is in a particularly good position to identify any deficiencies in the Ireland 'product' or any areas which could be improved. It uses its influence with other agencies and with Government to seek to have the area addressed – see section 5, for example.

Rationale for the Approach

Ireland has always seen the attraction of FDI as marketing task, like any other. It therefore puts a strong emphasis on developing a good 'product' (relevant skills in the workforce, low corporate taxes, good infrastructure, positive business environment, along with the English language etc.) and then marketing it strongly to the companies which it would like to have in the country. Using this pro-active approach, it controls the FDI agenda to a great extent.

Why the Approach is Relevant to Valencia

Valencia is a city, approximately the same size as Dublin with a critical mass of 1 million people, a strategically-located port, good universities and research institutes and is an attractive place in which to live. Assuming that the availability of skills is suitable for knowledge-intensive industry, there is every possibility that Valencia could replicate the success of Dublin.

Although both cities have populations of about 1 million people (which is the critical mass desired by many foreign investors in knowledge-intensive industries), Dublin is by far the largest city in a country of 4 million people, while Valencia is the third largest city in a country of 40 million. Within Ireland, therefore, Dublin is automatically the key magnet for attracting FDI and did not require any particular branding activity.

Valencia, on the other hand, is not, at present, a key magnet of attraction in Spain. Foreign investors tend to be attracted to Madrid and Barcelona, which have higher profiles outside of Spain.

The consequence of Dublin's natural attractiveness (because of relative size within the country) is that it is Government policy not to encourage new FDI to locate in Dublin, but to locate elsewhere in the country. There are some exceptions to this policy and, for that reason, the Dublin 'product' needs to be kept as attractive as possible.

There is a further difference between Ireland and Spain that is relevant to this paper: Ireland has very strong national institutions and relatively weak regional structures, whereas the regional structures in Spain are very strong (and becoming stronger). This difference is particularly true for the attraction of FDI, where there is in Ireland a single national organisation with responsibility for this function. Because Ireland is a small country, it would make no sense for multinational companies like IBM or Dell to be approached by a myriad of promotional agencies, each representing a very small part of a very small country. A single national agency, operating professionally, makes more sense.

Despite these differences, it is our belief that many of the policies and practices implemented at a national level in Ireland could be successfully applied at a city level in the case of Valencia.

Reasons for Success of Approach

The result of the approach outlined above, which has been consistently applied for almost forty years, is that the level of FDI in Ireland, relative to the size of the economy, is one of the highest in the world. Today, over 1,000 overseas companies have substantial international operations in Ireland. These include many of the leading companies in information and communications technologies, life sciences, international services, engineering and financial services.

Most of the world's major pharmaceutical and medical technology companies have substantial manufacturing activities in Ireland, such as Pfizer, Johnson & Johnson and Wyeth, as do many electronics companies – for example, Dell, HP, IBM and Intel.

Ireland has a strong track record in capturing FDI in service activities, from the 1980's when the potential of software and financial services was identified, the 1990's when IDA led the way in Europe in shared service centres, and 2000 when e-business was targeted.

Within Ireland, Dublin has attracted more than its fair share of FDI for the reasons mentioned previously and this has led to the Government policy described in section 3.

The reasons for the success of the approach are:

- Consistent Government policy for almost forty years.
- A general welcome for FDI by business, trade unions, Government and the population generally.
- A good 'product' – the correct skills for knowledge-intensive industry, low corporate taxes (12.5%), English-speaking and, in Dublin, a critical mass of 1 million people and an enjoyable place for young people to live in.
- Single national marketing agency which proactively markets to identified companies.

Obstacles Faced and Quality of Response

IDA Ireland is responsible for about 1,000 foreign companies located in Ireland. Each year it carries out a survey of 100 of these companies chosen at random. This confidential survey asks for the companies' views about Ireland and about IDA itself. In the mid-1990's, the companies, through these surveys, alerted IDA Ireland to an increasing difficulty in recruiting people with certain skills, particularly in knowledge-intensive sectors.

In 1997, the Government established the Expert Group on Future Skills Needs within the Forfás agency. The Group is composed of representatives from foreign and Irish businesses, Government departments, the educational sector and trade unions. It carries out studies into the supply and demand for skills in different sectors and puts forward recommendations for averting any anticipated mismatch. This system has worked well in ensuring the provision of appropriate courses in the third level sector.

Later again, it was noted that there was a falling off of interest by school-leavers in taking university courses in science and technology – the very areas on which knowledge-intensive industry relies. Accordingly, Forfás started a national campaign within the school system to encourage interest

in science and technology with a view to influencing school leavers' career choices in this direction. This has had some success so far.

IDA Ireland believes that it is this heavy emphasis on the availability of skills that is one of the main reasons for its success in attracting knowledge-intensive FDI to locate in Ireland.

Considerations for Successful Adoption in Valencia

- All relevant organisations (including the educational institutions) must agree to work together over a sustained period to attract knowledge-intensive FDI.
- A mechanism should be established to measure the current availability of skills suitable for knowledge-intensive industry, to establish future requirements and to secure a commitment by the educational sector to bridge the gap (if there is one).
- A lead agency responsible for the attraction and embedding of FDI should be designated and should be given the necessary resources.
- Suitable property to meet the needs of knowledge-intensive industry should be provided in the city and on the outskirts of the city.

Further Information

IDA Ireland: www.idaireland.com
Forfás : www.forfas.ie
Expert Group on Future Skills Needs : www.skillsireland.ie
Science Foundation Ireland: www.sfi.ie
Dublin City Council: www.dublincity.ie
Dublin City Development Board: www.dublin.ie/cdb

Translational Medicine Research Collaboration, Scotland

by David Crichton

Description of the approach

Translational medicine involves converting drug research into safe, effective, commercial application as rapidly as possible. New medicines are becoming increasingly targeted towards specific diseases and symptoms, to achieve maximum effect. However there are long time scales and high costs in taking new compounds through the testing and regulatory environment. The Translational Medicine Research Collaboration (TMRC) brings together international R&D and commercial strength with the local research and clinical infrastructure into an integrated initiative designed to accelerate the pipeline from research through to patient care. TMRC was launched in April 2006.

TMRC is a joint venture company between Wyeth Pharmaceuticals (a US based multinational), Scottish Enterprise (Scotland's public sector funded economic development agency), the medical schools of Aberdeen, Dundee, Edinburgh and Glasgow Universities in Scotland, and the National

Health Service boards of Grampian, Tayside, Lothian and Borders in Scotland. The participation from each partner is as follows:

- Wyeth provide a contribution to start-up funding and to annual operating costs, place around 10 skilled researchers in the participating universities, and preferentially place translational research programmes into Scotland through the TMRC.
- Scottish Enterprise provides funding up to £17.5mn over 5 years.
- The Universities provide staff and facilities, and agree to share IPR rights.
- The Health Boards provide clinical governance, research and testing facilities.

Each partner is seeking their own individual benefits from the collaboration: more rapid commercialisation of research for Wyeth; increased research funding and expertise for the Universities; improved patient care for the health service; and an economic development return for Scottish Enterprise. These aspirations are however being accommodated within a single, integrated project.

Rationale for the approach

The project is intended to increase the level of research and development into new medicines in Scotland, in turn creating a pipeline of new product and business opportunities in the health care sector. The chosen method of achieving this is to create a collaboration between a multinational pharmaceuticals company, medical schools and the health service. The rationale is that the combination of international commercial expertise with the local knowledge infrastructure will more rapidly establish a world class, sustainable, high value industry: more so than a single focus on FDI, local SME growth or research commercialisation in isolation.

The rationale for using a joint venture company rather than a more direct grant or tax credit is primarily to provide a vehicle for the partners to share in the commercial returns from successfully developed medicines. The company model provides a more transparent means of accounting for income and costs and for calculating returns. It also provides a simpler method of accommodating and protecting the diverse interests of the range of partners involved. Finally, good principles of corporate governance can be applied when all partners are operating within a shared legal framework and constitution.

The Scottish Enterprise financial contribution was put in place because a research collaboration of this nature will not generate income for a considerable period. Significant costs in terms of staff, materials and facilities will however be incurred from day one, resulting in a substantial deficit in the early years. Scottish Enterprise therefore took the view that it was an appropriate intervention for them to cover the initial deficit, reducing the direct costs and risks for their University and health service partners and providing a financial incentive to Wyeth. In exchange for providing this deficit funding, Scottish Enterprise retain rights to a share in the commercial returns from the joint venture company.

The Scottish Enterprise financial contribution is also of course justified on the basis of the economic development returns that the collaboration is expected to generate: increased numbers of highly skilled jobs, new product development, opportunities for local SME's to participate in the supply chain, improved international linkages for the universities, and local suppliers.

The rationale for the health service's involvement is primarily in terms of the potential for improved patient care as new medicines are developed more quickly and effectively. In addition, the health boards believe that they have a great deal of commercially-relevant skills "locked up" in their current structures. Exposure of their clinical staff, facilities and techniques to the commercial environment of TMRC will, it is hoped, improve their capabilities and generate additional income.

Some of the specific economic development benefits expected from TMRC include:

- *The attraction and retention of knowledge-intensive FDI:* The participation of Wyeth already contributes to this objective. However, it is hoped that the experience gained from Scotland's medical schools and health service working effectively with a global business will provide an attractive proposition for *additional* FDI in future. This would not necessarily involve participation in the same joint venture, and new forms of collaboration could be developed as appropriate.

- *Encouragement of SME internationalization:* As TMRC develops, it will create a range of supply opportunities for local SME's, for example in laboratory equipment and services. By adapting to the demands and purchasing procedures of a major global player such as Wyeth within their domestic market, their ability to target international opportunities should be improved. This will however require considerable effort and investment on their part. Continuing support by Scottish Enterprise and others may be required to help build their capacity.

- *Attraction of talent:* It is hoped that this will happen in a number of ways. TMRC itself requires a significant pool of research and clinical staff, and this is already being recruited. The research capacity and reputation of the medical schools will be enhanced by the initiative, thereby making it easier for them to attract additional research funds and talent. The health boards' ability to attract highly skilled clinicians will be enhanced by the opportunity TMRC provides for them to work in a more challenging and creative environment.

Why the approach is relevant to Valencia

The approach is consistent with Valencia's overall aim to encourage innovation through internationalisation. It involves FDI in a way that creates technology transfer and opens up access to global value chains. It also enables the local university and research sector to enter into international collaboration with a globally significant commercial company.

The project is also based on certain strengths in Scotland that are also evident in Valencia: existing capability and priority in the life sciences sector; a strong, extensive research and technical infrastructure; an open-ness to FDI and international collaboration.

Finally, its characteristics are capable of addressing specific weaknesses already identified in Valencia: lack of collaboration across the research infrastructure; limited links between industry and universities; lack of connection between the local research base and global companies; limited track record in knowledge-intensive FDI; limited contact with other growth regions such as the US; and weaknesses in strategic integration and clustering.

Reasons for the success and failure of the approach

The TMRC was launched less than a year ago, and it would be premature at this stage to make any judgment on its success or failure in operational terms. It is encouraging however that as recently as this month (January 2007), it announced its first round of 28 research projects which will create over 40 new jobs in the universities, with a further 50 in the project's central laboratory facility in Dundee.

Being able to establish a project of this kind is however a success in itself, and the critical factors in achieving this have been:

- Successful identification and targeting by Scottish Enterprise of Wyeth as a credible international partner.
- Effective promotion internationally of Scotland's strengths in medical research.
- A willingness by both Scottish Enterprise and Wyeth to commit significant resources to a high risk, innovative project with long term benefits.
- The willingness of the four universities involved to engage with a multinational company, to make their facilities available and to cooperate with one another.
- The willingness of the health service in Scotland to open up its clinical research and testing facilities to a commercial operator.
- The commitment to a fully integrated project, recognising the different aspirations of the participants but bringing them together into a single initiative with a shared vision and a joint legal agreement.

Obstacles faced in implementation and quality of response

The principal obstacles in such a complex partnership arise from the different objectives and responsibilities of the organisations involved. In the case of TMRC, there is a commercially driven global company, a public sector economic development agency, four separate universities and four parts of the Scottish health service. Creating a collaboration which accommodates and respects the very different aspirations, accountabilities and governance requirements of each is extremely challenging.

Specific obstacles included:

- Assuring Wyeth Pharmaceuticals that their commercial interests would be protected.
- Assuring the universities that their research and teaching independence would not be inhibited.
- Assuring the health boards that their principal responsibilities in patient care would be enhanced, not prejudiced.
- Reaching agreement on the appropriate share in commercial returns from the collaboration.

There were two key responses to these challenges. One was to acknowledge the need to assess costs, benefits and risks from the perspectives of all the partners, allowing each to go through their particular processes of due diligence, and respecting the different obligations that they faced. It is essential in a project like this that none of the partners feel "junior" to the others or pressured into participation.

The second was to create a separate joint venture company to operate the collaboration. This allowed a clear legal framework to be developed, shared objectives, operating procedures and management structures to be agreed, and the procedures for sharing returns to be identified.

Conditions for successful adoption in Valencia

There are some specific characteristics of TMRC that are unique to Scotland and which would not translate easily to a different context. But it does provide a model for innovation through international collaboration which may be applicable in other regions and industries. For this to happen, a number of conditions would need to be met:

- A well researched, targeted and credible FDI marketing campaign to identify the appropriate international commercial partner.
- An ability and willingness to commit significant public funds to meet the initial costs of a project which is inherently risky and will generate financial and economic returns only in the long term.
- A willingness on behalf of universities and research bodies to collaborate with one another for the greater good, and to engage with a multinational commercial partner.
- The ability to mobilise local public infrastructure and supply chains in support of the project.

Contact details and website for further information

www.tmri.co.uk
www.wyeth.com
www.scottish-enterprise.com