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EVOLUTION APPLIES TO SCIENCE PARKS TOO

David Rowe is the Director of the University of Warwick Science Park, which he joined at its inception in 1982. Under his direction the Park has developed to become one of the leading initiatives of its type in Europe involving the participation of the University of Warwick and three Local Authorities. He has published papers on many aspects of Science Park development and management over the last decade. He has also consulted widely both in the UK and overseas on the subject of setting up self sustaining Science/ Technology Park initiatives to achieve economic development and technology transfer objectives.

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The aim of this paper is to establish, as a reasonable working hypothesis, that Science Parks which evolve, adopting relevant imperatives from the economic and social environment will survive better and become more significant instruments for change than those which remain fixed within a framework established at the time their concrete and glass walls were first laid down.

DEVELOPING SCIENCE PARK STRATEGIES IN EUROPE

Other authors have previously noted that, in general, the more successful older Science Parks are those whose strategy has changed over time. Many of the European Science Parks started in the 1980s spent their early years creating infrastructure and buildings, virtually to the exclusion of any other aspect of their mission. Business creation, spin-out support and technology transfer generally were very much secondary activities to getting the property component right.

This emphasis on property is hardly surprising. In the early years Science Parks had to establish what built environments worked well for the high tech sector and then huge energies were required to raise the substantial capital required for what was seen as a highly speculative and risky activity.

But, by the early 1990s the leading Science Parks across Europe had sorted out a strategy for developing their sites, marketing them and attracting the client base they wanted. It was time for the more adventurous to move on. The next step was to start taking more seriously the ways in which a Park could stimulate technology transfer between their associated University(ies) or centres of research and businesses on their Park, or perhaps develop ways assisting the development of start up and young high tech businesses in and around the Park or even stimulate the creation of new business support or research centres.

It was the exploration of these new avenues that once and for all killed the simplistic concept of the early 1980s that just establishing a Science Park close to a University would lead to enhanced spin-out rates and greater University – Industry interaction. The adopters of early pro-active and animation programmes showed just how significant direct action was to getting results. Those early into the game also realised that academics who start a company will often give up and go back to being an academic once serious demands on their time for management of their company become apparent. Only intervention to move the game forward would stop good intellectual property from being grossly under utilised.

With the combined skills of property development plus business development / technology transfer, leading Parks found that they were now able to make a case within their region to deliver true economic development programmes based on growing indigenous technology based companies. By this time many Local Authorities and Regional Development agencies in some of the more economically difficult areas within otherwise highly developed states in Europe had discovered the weakness of a strategy based on inward investment. Inward investment, rigorously applied often created many jobs quickly, but the jobs often turned out to be remunerated at below the national average for that country. This was not true for the few R&D investments but most inward investment was for assembly operations, even where the company was an international technology based business. So, when a Science Park was able to tell a Local Authority that it knew how to create and develop high growth technology businesses which create high value added jobs based on local entrepreneurs – they were listened to. And, as more and more development agencies felt the consequences of an over reliance on inward investment, the message from innovative Science Parks with strong business creation and support programmes became increasingly of interest. This gave Science Parks a significant role as a serious economic development actor for the first time and several leading Parks have thrown themselves strongly behind this role.

The above evolutionary path is typical of many of the more successful Science Parks in Europe.

THE DEVELOPING SCIENCE PARK AGENDA

However, the move into local, regional and national economic development has exposed Science Parks to a burgeoning range or directly and indirectly related issues or agendas. These include:

- The Enterprise Agenda, with its many sub-agendas such as:
  - Entrepreneurship.
  - Access to risk finance such as venture capital, seed and pre-seed funds, business angel networks and corporate venturing.
  - Spin outs from the University and local research base.
  - Incubators and incubation processes.
  - The internet and e-commerce phenomenon.
  - Spin outs from the Corporate sectors and “intrapreneurship”.
- University / Industry links and Technology Transfer Agenda, including:
  - Identification and exploitation of University intellectual property.
  - University spin-out creation.
  - Licensing.
- The Economic Development Agenda with:
  - Value added employment creation.
  - Inward investment.
  - Economic diversification and regeneration.
  - Incubator programmes.
  - Development of technology entrepreneurs.

- Stimulating e-business (e-commerce and internet based business) through e-cubators.

- Social inclusion in relation to technology.

- Increasing IT and other scarce skills in the local economy.

- Building self sustaining technology clusters.

- Regionalism.

Few, if any Science Parks can hope to cover this full spectrum of activity meaningfully, but increasingly leading Parks in Europe are starting to become key players in some of these agenda areas.

Another interesting trend has also emerged in the last few years, as Science Parks have developed skills well beyond their property activities. Realising that they have acquired valuable skills, a minority have privatised themselves. Zernike was amongst the first with its seed fund activities, international marketing programme and exploitation of its University's IPR as an arm's length trading activity. In the UK, Oxford Innovation has spun its incubator management activity away from its founding charity, the Oxford Trust. It now has seven incubators, mostly in and around Oxford, but they have aspirations for a far broader National or even International incubator management activity. In both of these example cases, the privatised organisations form alliances with Universities, Local Authorities and regional development authorities, but mostly on a contract led rather than equity participation basis i.e. they see themselves as independent private organisations trading on a set of unique skills of value to the economic development community at large.

However, the majority of Science Parks that have embarked on a strategy of economic development do so either with local and regional partners on a joint venture basis or decide to work almost exclusively within their own region for whatever reason. Warwick, Twente and St John's Innovation Centre are a few of the examples of this strategic approach.

We may surmise that those Parks which decide to follow an increasingly privatised route will develop highly specialised skills which they can deliver in regions who lack the skills entirely or they can provide those activities far more efficiently than local actors. If they cannot do this their future will be short lived. However, given the relatively few Parks in Europe that are at the leading edge of technology business creation and development, they may well find that they have a growing market and they may come to reduce or even eliminate the potential of the more slowly evolving Science Parks to take up this role if they have not already done so in some significant way.

The highly evolved Parks firmly embedded in regional partnerships are at less risk from being over-run in this way but they face the prospect of keeping up with fast changing agendas. Indeed, unless they stay ahead of the game, Regional Development agencies will certainly turn to other organisations in order to achieve meaningful results on the short political timescales over which most of them are accountable. Being geographically and organisationally oriented these Parks face a series of problems that a privatised Park can avoid by going to where the their message and skills are appreciated. These problems include:

1. The intrinsic problems of working within a public / private joint venture or partnership which on the public front is driven by political imperatives. These are usually short term imperatives and therefore the only way that a Science Park can contribute is by already being ahead of the game. For example, in March 2001, the UK Government announced that it wanted to run some pilot programmes on "investment readiness". On the basis of Warwick's business angel activity it had been one of the organisations that the government had consulted on this subject. So while most people in our region were still working out what "investment readiness" meant, Warwick

Science Park had outlined a £2.5 million proposal and submitted it to the regional authority who are responsible for establishing the pilot. In other words Warwick was already covering part of this new agenda already and could deliver the rest very quickly.

2. The motivations and policies of the key partners. For example at Warwick, it was not until 1999 that the University decided at the top level that it would take the enterprise agenda seriously, by seeking to positively encourage spin outs through pro-active measures. Once the University did adopt the enterprise agenda the result was an increase by a factor of five in the spin-out rate within one year. This in turn opened up a series of possibilities for the Science Park and University to work more constructively together using the business creation skills and programmes developed at the Science Park.

3. Being constantly aware of shifting details in relevant public policy and staying in a position to capitalise on them. In 1999 Warwick missed out on an opportunity to play a leading role in a new regional high growth start up programme. However, the organisation given the remit to run the activity was not experienced in the field and soon discovered that it was rather more difficult than they imagined to secure the required outputs of new high growth businesses. By 2000, Warwick was able to assemble a regional consortium of eight Science Parks and Innovation Centres to join the original organisation in a partnership that has a far greater range of relevant skills, experience and contacts in the right industry sectors. Budgets and programmes have now been approved and later this year we expect the consortium to become operational.

EVOLVING SUCCESSFULLY – THE UNIVERSITY OF WARWICK SCIENCE PARK EXAMPLE

The University of Warwick Science Park has evolved substantially over the years since it was founded in 1984. For the first five to six years' development of the property was the dominant activity, but the site was limited and bounded by roads and the University so that physical expansion was impossible.

The fact that Warwick could not develop its main site caused the management to consider how it could stimulate the growth of its existing occupiers so that a higher throughput of companies could be achieved from the existing premises. Gradually, the management team developed its ability to provide its occupiers with professional business planning, marketing and access to finance. The team became sufficiently large and well recognised that the Park was motivated to provide its services to any technology-based business in the region. This expansion of the Science Park's role led it into becoming a key player in business support within the region. Today the main components of this programme are:

a. One of the UK's most successful Business Angel networks,

b. A business creation programme which brings people and ideas together and starts some 5 – 10 new technology businesses a year and:

c. A marketing programme that takes companies into international markets.

d. An integrated University – Science Park spin out programme.

As these skills evolved they became of increasing interest to local and regional business development organisations that have encouraged the Science Park to steadily increase these programmes over the years by providing additional funding.

Some 5 years ago the Science Park became convinced that it could stimulate and support even more technology based businesses if it opened more incubators linked to its businesses support programmes. Another three incubators have been opened on "satellite" sites within the region. In each case the prospect of stimulating the growth of more technology-based businesses has motivated the regional

and even national economic development authorities to assist this expansion.

Thus, over the last 5 years the Science Park has been seen increasingly as a component part of regional economic development that has specialised in the development of high technology business activity.

Today, it appears that our region may be less than 10 years away from creating a critical mass of technology-based companies who will naturally form a cluster of some national significance. Regional authorities are recognising this fact and are keen to ensure that the necessary programmes are implemented to develop a critical mass as quickly as possible. The Warwick Science Park Board has put itself forward as the most obvious vehicle for driving forward this agenda locally and is widening its partnership base to include all the local actors with skills and resources to contribute to the programme. If Warwick is successful this will be the third substantial shift in its strategy as it has moved along its evolutionary path from a property driven project to technology business creation and development organisation and now to masterminding the creation of a regional technology cluster.

The key to this success has been a management driven to explore all the agendas that could be relevant to the Science Park's mission and the development of key skills that have placed it in a position to speak and act with authority in its chosen niche.

LOOKING EVEN FURTHER INTO THE FUTURE

The evolutionary process will not end here. If it does Warwick will start to die as an organisation. Its partners will get bored with it and probably it will be broken up and sold. Its balance sheet is strong – so it would be worth selling!!

However, we are convinced that now that our University has decided to enter the enterprise agenda there will be no turning back. In 10 years or so the wealth created from the investments in successful new spin outs will have become a valuable component of the University's income. Getting there will require some of the skills developed in the Science Park. Creating the wealth from equity in start ups may lead the Science Park be able to run its business development activity without public subsidy. In this way it may follow a privatisation path. The University is itself going this way. Today less than 40% of its funding comes from Government grants for education and in five years it will be less than 30%. So, at last, the Science Park and University have a true community of interest for the longer term.

Another trend that is certain to emerge is economies of sale and productivity gains in any area of Science Park activity which becomes embedded as a standard process within a national economy. This will be true of managing and marketing the property, incubator programme management, business start up and early stage development, seed financing, University spin out activity etc. A Science Park will either have to be efficient in these areas or sooner or later its Board or its Governors will hire in the most cost effective resources and the existing management will be dismissed. The message is clear, a Science Park management must perpetually evolve providing skills to lead new programmes or it must become highly efficient in delivering standard operations.

My personal belief is that those Science Park managements who evolve fastest will be the first to identify and develop the most efficient standard processes and operations and a few of these Parks, through a privatisation route, will end up by taking over the management activity of an increasing number of other Science Parks throughout Europe and possibly throughout the world.