

Knowledge Parks: Hype or Hope for the Developing World?



International Conference and Exhibition on Knowledge Parks

*Doha, Qatar
March 30, 2008*

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I would like to begin by thanking UNESCO and the Qatar Foundation for inviting me. I bring to you greetings from my President and co-author, Sir John Daniel, whom many of you know as a former ADG/ED, UNESCO.

In this paper, we first situate Knowledge Parks within the knowledge economy and identify how the second generation of Knowledge Parks in the global 'south' differ quite substantially from their early precursors. We look at whether the great expectations generated by the establishment of Knowledge Parks were met and the implications for developing countries. This will then lead us to questions of whether the growing phenomenon of the open source movement will shape the Knowledge Park of the future. Finally, we will look at how international organisations such as COL and UNESCO can contribute meaningfully to harnessing technological innovation for the development of all.

I. Knowledge Parks: offspring of the knowledge economy?

The world of knowledge (academia) and the world of work (industry and commerce) had for centuries existed at opposite ends of a spectrum: academia was the world of lofty ideals that barely concealed its contempt for the world of commerce. How would the twain ever meet, and where?

It was not until the latter half of the 20th century, that university-industry partnerships began to dominate the discourse on tertiary education. The crux of the matter lay in bridging the gap between theory and practice. With large numbers of universities across the globe facing a resource crunch and cuts in research funding, it became necessary for multiple agencies to come together with innovative initiatives to respond to this situation.

What we call 'Knowledge Parks' today have their origin in the Science Parks of the early fifties which includes the Stanford Research Park (1951) followed twenty years later by Cambridge (1972).

Features of this first generation of Knowledge Parks would include a focus on:

- the design and development of knowledge-based enterprise
- technology transfer
- capacity building and services for the onsite companies
- linkages with higher education and research institutions.

ICT-led Science Parks in the developing world emerged in the closing decades of the twentieth century. Perhaps one of the most striking examples is the development of China's Science Parks, which began in the mid-eighties. Launched in 1990, Technopark Kerala was the first of its kind in India, supported by the state government.

The Middle East boasts a number of Knowledge Parks: the Knowledge Oasis in Muscat, and Education City, situated on the outskirts of Doha, which are variations of the Knowledge Park concept.

How are these second generation Knowledge Parks different?

First, while prestigious universities such as Stanford and Cambridge attracted industry to the campus, in the developing world we see Knowledge Parks established on neutral grounds offering attractive incentives to both industry and academy.

Second, the Knowledge Parks of the sixties and seventies in the developed world still maintained the centre/periphery gap evident in the traditional concept of the university's role in a society. The parks of the nineties in developing countries changed the approach by trying to link global knowledge to local development needs.

Third, while all Knowledge Parks aim to tap into capital flows, the developing world is particularly interested in attracting foreign investment.

Fourth, the second generation of KPs are a variation of the earlier model.

II. Does the Hype match the Hope?

Traditionally, Knowledge Parks are expected to provide a) increased employment, b) better support to new small firms; c) closer links between academic institutions and industry and d) a seed-bed for innovation.

Increased Employment?

Employment in UK parks grew from 3,317 in 1985 to 58,171 in 2004. This is substantial growth, but, as Massey et al. point out, many of the firms entering science parks were not new but were simply relocations of existing companies.

How do the parks contribute to local employment? Of the 158 parks surveyed in the UK, 40% of the employees were qualified scientists and engineers, 17% other professional and managerial categories.¹ Most of the local populations outside the parks are employed in low-level service jobs, such as construction workers, janitorial staff, etc. This inequity in job opportunities can become a major irritant to the local population. Digiport, Jamaica, offers programmes to help local people develop skills so that they are ultimately qualified to apply for park jobs.

Support to new firms?

A survey of 20 UK parks found that two-thirds of the firms (119 out of 185) had previously been located elsewhere and only 49 out of 185 were new start-ups. Similarly, a UKSPA Tenants Directory (1987) indicates that of 200 establishments, two thirds were relocations (126) and 29 % (58) were start-ups.² How can this change? The Kerala Technopark matches young local businesses with larger corporate partners and finds that this approach has been successful. Since young firms do not have the required seed capital, the ICICI Knowledge Park in India, has set up an innovation fund.

Better links between academy and industry?

The Cambridge Science Park has a comparatively low percentage of enterprises started by academics. In a 1997 study, it was found that while formal links were not strengthened, 'informal and human resource links were enhanced by the geographical proximity offered in science parks'.³

Seed-beds for innovation?

If we look at the share of patents lodged by science park establishments in two years, the Science Parks account for 28% compared to the 18% in off-park establishments.⁴ This seems to be modest innovation as opposed any major breakthroughs.

III. Knowledge Parks in the Developing World

Let us look at some of the ways in which Knowledge Parks can benefit the developing world.

Can Knowledge Parks arrest Brain Drain?

Knowledge Parks, by providing state-of-the-art research facilities and a world-class environment can

actually staunch brain drain in developing countries. If adequate research facilities and employment opportunities are available within home countries, qualified professionals would stay and contribute to national development. The return of IT diaspora from the US to technology hubs within India is an example of this. This is the motivation behind the move to create some prestigious new universities in Africa based on the models of the Indian institutes of science and technology. The African University of Science and technology based in Abuja will be one such entity.

All under one roof

By bringing together all the elements of wealth creation in one campus, developing countries can avoid duplication and wastage that they can ill afford. Some of the key success factors in Knowledge Parks are shared facilities, public-private partnerships, financial stability and the space for networking and fostering relationships.⁵

Is the World really 'Flat'?

Within the Knowledge Parks, the world would indeed seem 'flat' and it would be difficult to distinguish between Denver and Doha. But development has a certain context and each country has specific goals that need specific attention. Dr. Nachiket Mor, President ICICI Foundation, says: "Technology will play a key role in addressing many if not all of India's pressing social problems in healthcare, education, unemployment, poverty alleviation etc. For these technologies and their applications to deliver results, they will need to be appropriate for the Indian context, both from the perspective of applicability and affordability...."⁶

Dealing with the 'Divides'

Knowledge Parks seem to be constructed on the intersection of several divides. There is the digital divide, and then the development divide which places world class premises in an environment lacking basic infrastructure and reflecting abject poverty. There are clear divisions between the elite professionals on the campus and the rest of the outside world. Science and technology are privileged over other disciplines. Can the workplace of the twenty first century be built upon such 'divides'?

Can we build KPs without walls with the primary objective of empowering communities? The L3Farmers initiative of the Commonwealth of Learning could be one such model.

IV. A New Paradigm

Knowledge Parks are exclusive entities structured around professional elites and high-end technologies. How can the rewards and profits of innovation be brought to the four billion people at the 'bottom of the world economic pyramid'?⁷

The traditional approach has been 'to create and commercialize ideas within the confines of closed

entities'⁸ Developments in new ICTs enable us to break out of these confines and to create global 'ideagoras' or virtual spaces in which innovation thrives through collaboration on a scale never before imagined.

Does innovation conflict with our concern for inclusive growth? The answer must be "no." On the contrary, innovation can promote the objective of inclusiveness. In recent times issues of access and equity have dominated the agenda in education, especially, higher education. Open Education Resources (OERs) now give us the tools to promote inclusiveness in education.

Pioneered by the MIT, the Open Courseware movement, based on the principle of knowledge sharing, marks a reaffirmation of the principle that knowledge is our common wealth. The online course materials of the UKOU, with a more self-instructional style, are the second generation. The third generation is collaborative course development as exemplified by the WikiEducator, a course authoring tool being used to develop materials for the Virtual University for Small States of the Commonwealth (VUSSC). WikiEducator is emerging as a dynamic and collaborative tool for developing freely available content. It is moving us from the notion that 'this courseware is mine' to the principle that 'this courseware is for (open) mining'⁹.

The OER movement is largely based on four principles: i) encouraging mass ownership rather than individual possession; ii) having faith in everyone's inherent capability to self-organise; iii) enlisting amateurs as producers of content; and iv) promoting collaboration for the common good. **Can these principles be applied to create the networked Knowledge Parks of the future?**

The Wikipedia is a perfect example of collaboration and innovation. With five full-time employees, it is already ten times bigger than the Encyclopedia Britannica and almost as accurate. However, one of the founders of Wikipedia, Larry Sanger learned that the democratisation of information can also degenerate into an egalitarianism which can corrode professional standards and creativity. So he set up an alternative model in the Citizendium which seeks to balance 'public participation with gentle expert guidance'. The debate in the Wikipedia community between 'inclusionists' and 'deletionists' expresses nicely the creative tension between the ideal of a global intellectual commons and the importance of expert knowledge.

Can the principles of self-organisation and collaboration be applied to make Knowledge Parks more egalitarian, inclusive and profitable?

V. Where do we go from here?

What can we conclude? Without doubt there are individual success stories showing the significant contributions made by Knowledge Parks. However, there is no clear evidence to suggest that the establishment of Knowledge Parks as we know them are the only means for promoting innovation. How can the Knowledge Park concept to move from the periphery and closer to the centre of the education/research/industry interface? In short, how can we trade hype for the few with hope for the many?

What can international organisations such as UNESCO and the Commonwealth of Learning do to further this process?

First, Knowledge Parks do not function in a vacuum. Isolated oases of science, technology and innovation alone cannot generate national or regional development. If national policies for science technology and innovation are integrated into educational policies, schools and colleges can become the incubators for innovation and excellence.

Second, There is need for further research into i) the role of national governments in supporting Knowledge Parks as a development strategy; ii) the critical success factors for setting up effective Knowledge Parks; iii) issues of intellectual property and iv) the regional and cultural characteristics that contribute to the growth of Knowledge Parks.

Third, facilitating south-south collaborations is essential. As new economies emerge and as global demographics change, it is important to forge productive linkages and partnerships. Most of the foreign investors in the existing Knowledge Parks are from the global 'north'. The business and academic establishments from China, India or Brazil have yet to register their presence.

Fourth, effort should be devoted to building framework for KPs predicated on the principles of: a) collaboration and inclusion; b) sharing of infrastructure and resources for the good of all; c) the renewal of higher education institutions to accelerate the achievement of the national and international development agenda

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