

Science and Technology Park at NSIT: A Critique

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1. Synopsis

There is an ongoing debate at NSIT regarding the creation of an on-campus Science and Technology Park. While significant progress has been made towards establishing such a park on NSIT campus, there is an increasing voice of dissent regarding the motivation, objective, justification and modus operandi for the institution of such a park on NSIT campus. In this brief note, I outline the various competing models of such parks existing successfully all over the world and the history of such parks and their economic justification. I also list the essential ingredients of such parks. In the end, I present my own opinion on whether or not NSIT should have such a park. The material used in preparation of this note is not my original and has been taken from a large number of internet websites, Wikipedia etc and these sources have been listed in the references at the end.

2. Introduction

The word Science Park is synonymous with Technology Park, Research Park, Science and Technology Park, Biotechnology Park, Science centre etc. The purpose of these parks is to engage in product advancement and innovation. These terms are different and distinct from business parks (which focus on administration) and industrial parks (which focus on manufacturing).

Universally, the collaborating agents include science and research institutions of higher education (including universities as well as government labs), high technology science based companies, venture capital agencies to support spin-off companies, technical services companies and testing services companies. The nature of collaboration between these agents can be contractual, formal or operational.

Also, almost universally, science parks have been created around existing universities or national labs with the express intention of sharing the knowledge and expertise of these institutions with companies that may benefit from that knowledge. The nature of this 'benefit' is in terms of creating new and innovative products and NOT to carry on regular business and trade. The other alternative use and need of the science parks has been to allow cutting edge research and development in a university sector to find expression in the form of a technology and/or product through a start up company that can be easily created and maintained (at least in the infancy stage) in a science park with all the required infrastructure in place. These science parks have either been created and owned (wholly or partly) by the university or developed jointly with other entities, although there are instances of such parks being owned by non-university entity but having a formal agreement with a participating university.

The bottom-line is that universities and national labs with substantial science based research output as reflected in the number of publications and patents have felt the need

to convert the research into tangible technology and products through companies (freshly incubated or existing) established on their science parks. The larger goal of such science parks is to create wealth for the university as well as the community in which the university exists. The impact of a science park can be seen from the fact that, on an average a job in a science park leads to creation of 2.57 additional jobs in the economy. Closer to home, the impact of Hsinchu Science park on the Taiwanese economy has been dramatic, increasing the per capita GNP of Taiwan from 1920\$ in 1979 (just prior to the creation of the Hsinchu Science Park) to 13198\$ in 1997.

3. History of Science Parks

The very first science park was created in the USA in 1951 by Stanford University in the shadow of what is now known as the Silicon Valley. Majority of the Science parks have been created and administered by universities. The number of science parks in North America exceeds 140. United Kingdom has some 80 odd science parks. Science parks help create new businesses and wealth.

The idea of Science parks has matured and with passage of time, it has stabilized and has been fine tuned. The International association of Science parks (IASP), a premier world wide network of science and technology Parks has standardized the operating features of science parks and is as follows:

“A Science or Technology Park is a space, physical or cybernetic, managed by a specialized professional team that provides value-added services, whose main aim is to increase the competitiveness of its region or territory of influence by stimulating a culture of quality and innovation among its associated businesses and knowledge-based institutions, organizing the transfer of knowledge and technology from its sources to companies and to the market place, and by actively fostering the creation of new and sustainable innovation-based companies through incubation and spin-off processes.”

This definition is attributed to Luis Sanz who is the Director General of the IASP. This definition emphasizes the fact that knowledge is now-a-days generated in many different sources besides the University, although this institution remains, of course, the most relevant one in terms of research and knowledge creation.

4. Survey of Science Parks

Here is a list of a few large and successful science parks from around the world. It is important to note that most of these are structured around a prominent university or a group of universities, engaged in some very serious knowledge creation activities. As an example, and perhaps not the best of examples, Purdue University, which runs the Purdue Research Parks, was granted more than 60 patents between July 1 2007 and June 30, 2008. The Hsinchu science park had more than 280 hi-tech companies on their campus in 1999.

Name	Participating Universities	Land Area (acres)	Covered area (sq. feet)	Start date
Research Triangle Park, North Carolina	NCSU, Duke University, University of North Carolina	6971	20,000,000	1959
Purdue Research Parks	Purdue University and regional campuses	1129	NA	1961
Stanford Research Park	Stanford University	700	10,000,000	1951
Sandia Science and Technology Park	Sandia national Labs, University of New Mexico	200+	3,000,000??	NA
SOPHIA ANTIPOLIS PARK, France	University of Nice-Sophia Antipolis, CNRS labs,	6000	N/A	1969
Cambridge Science Park, UK	Trinity college and other colleges of Cambridge University	152	1,650,000	1970
Hsinchu Science Park, Taiwan	National Chiao Tung University and National Tsing Hua University.	1430	NA	1980

5. Science Park in the context of NSIT

From the information in the previous sections, it is clear that the only reason that any company would want to locate their office in a Science park would be to seek collaboration with the faculty and researchers from the associated university and not for cheap (or otherwise) rent.

Let us look at some facts and figures about the research and teaching aspects of NSIT.

- Of the required faculty strength based on student strength, NSIT has, on rolls, only about 30% faculty. The shortage is fulfilled with the help of visiting guest faculty
- Many of the guest faculty would be ineligible even to apply at NSIT, were they to seek regular NSIT employment.

- The use of technology within the Institute for its own functioning is no better than a municipality school. Even though the institute has more than 1000 computers and a functional network, less than 5% of the faculty members have their own WebPages. Less than 2% maintain their websites with any regularity.
- Less than a quarter of the faculty has official institute e-mail address.
- In its 25 years of existence, not even a single patent was granted to NSIT.
- More than 50% of the Professors at NSIT do not have even a single publication of any sort (not even a newspaper article) in the last 2 years.
- The total number of refereed journal publications by the entire NSIT faculty in a calendar year, on an average, is less than 25.
- Less than 2% of the NSIT faculty offers any consultancy services to the Industry.
- Less than 5% of the NSIT faculty has written any book or book chapters.
- Less than 2% of the NSIT faculty has written any book for an internationally acclaimed publisher.

Forget the abovementioned shortcomings, the Institute, in its silver jubilee year, does not even have a stable and adopted Administration Manual, which although has no direct bearing on the science park, but indicates a casual attitude on the part of the Institute that seriously undermines any efforts towards building an environment conducive for research work.

Considering the dismal record of NSIT towards knowledge creation, the proposed park at NSIT with 200,000 sq feet of covered area is at best a joke and at worst a real estate scam in the making.

Thus the only reason why any company would want to locate their offices at the NSIT Science park (were it to become a reality) would be simply to seize cheap rent options.

Therefore, in my opinion, **at this point of time**, there is no merit in having a science park of any flavor (Science Park, Science and Technology Park or Science and Technology Entrepreneurship Park). Giving up any real estate for the creation of such a park would only lead to future resource crunch.

6. References

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5. List of Science Parks in UK:
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6. "Taiwan's Silicon Valley: Hsinchu Science Park", Irving T. Ho.
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