

IASP 2002 Asia-Pacific Seminar on Science/Technology Parks and Business Incubators

Paper Title:

**Networking Research Organizations as a Parallel System with STPs:
Securing Resources and Extending Potentials**

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Theme:

**Theme 3: Science Parks and Business Incubators:
Networking for the benefit of their companies and regions**

Networking Research Organizations as a Parallel System with STPs: Securing Resources and Extending Potentials

Mostafa K. Eghbal, B. A. Shrirani, M. Nosoochi, M. Keshmiri, and A. Atafar

Executive Summary

One aspect to which science and technology parks (STPs) are committed is bridging the resources in universities, research organizations, and local industries into a unified operational network. In their initial growth stages, however, STPs may not be able to attract all potential partners from public and private sectors into a desired network for more efficient utilization of their research facilities and expertise knowledge. In this paper, the experience by Isfahan Science and Technology Town (ISTT) in establishing a Partner Research Network is introduced and analyzed. The new horizons for more cost-effective technical services by STPs resulting from the research network infrastructure are also highlighted. Finally, the network management system operating outside, but parallel to, a STP management system will be discussed.

Introduction

The networking of homogeneous systems leads to cumulative efforts and, thereby, to accelerated development. Networking experiences around the world have attracted universal attention to the idea so that incubators and technology parks in the developed world are currently experiencing this new trend.

Many science and technology parks follow the idea of creating a good bridge between universities, research centers and local companies and industries. At the beginning of their activities, however, STPs may not be able to attract private companies and technology oriented institutions to reside in the park. This is especially true for many parks that are starting their activities in the developing countries. There are several reasons why companies may not risk transferring entirely to parks property including:

- The park at the early stage may not be able to accommodate the needs of the well developed companies,
- The companies may lose their well established business contacts in their original location,
- Relocation is usually very costly,
- The companies have to adjust themselves with new rules and regulations within the park

Whatever the risks, many companies would like to establish a good contact with science and technology parks with the hope of investing for future growth and development. Some of the advantages for such contact include:

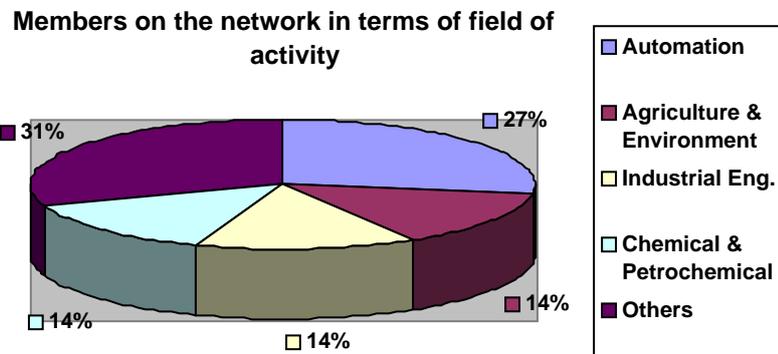
- Having access to technical services offered by the park and other companies that reside in the park,
- Establishing a business contact with other companies and institutions,
- Access to human resources coming from spin-offs of universities and research institutions.

On the other hand, newly established parks and incubators are interested to create good contacts with the companies and research institution in their area. Through such contacts they are able to help start-up companies to establish new business contacts and have access to technical supports that may not be available in the park. Creating a network among university and independent research institutions, private companies and research and development units of the industry may be an alternative for established companies as well as STPs.

Isfahan Science and Technology Town established its first incubator, named Qadir Incubator, in the year 2000. Companies were admitted to the incubator that soon grew to be large enough to win contracts from local industries. The demands for technical services grew to an extent beyond the financial resources provisioned by ISTT. It was soon recognized that no single investment, however large, could provide enough facilities to meet the demands of the tenant companies. Neither would it be possible to respond to the growing demand for companies to solve technical and technological requirements of the industries operating in the province. It was accordingly decided that the technical services required by these tenant companies had to be provided from local research organizations outside ISTT. A preliminary study was carried out to investigate the potentials for local resources. Along the same lines, studies were carried out on networking systems and network management as the best means of linking unorganized systems with complementary structures and/or facilities. The resources, hitherto unknown to the local systems, were identified and a networking system was designed to link these systems within the framework of ISTT's demands and requirements.

The Network in Creation

When Qadir Incubator was first established, there were a number of private and public organizations that were far beyond any incubation stage. They, therefore, did not need to be admitted to the incubator. On the other hand, there was as of yet no park at ISTT to accommodate these developed research organizations. However, their willingness to maintain relations with ISTT and its tenant companies as well as their rather advanced facilities instigated ISTT management to develop a cooperation scheme with them. In the year 2000, a series of research units from private, public, and academic institutions were admitted as partners with ISTT. Initially, the establishment was no more than a series of service providers to ISTT and its incubator's tenant companies. Currently, the number of such companies and organizations has grown to 36 in 10 various fields. They form a vast range of research potentials and capabilities. Diagram (1) depicts the distribution of these units in terms of fields of activity.



The establishment of this initial partner network brought with it an atmosphere of cooperation and booming development as the members on the network easily shared their resources (both software and hardware). The network somewhat acted in the form of a research park as one of the two subdivisions of ISTT, the other one being Qadir Incubator. It maintains a virtual representation at ISTT with no geographical location.

The impromptu creation of the network as a response to immediate needs soon came under control and necessary revisions were made to tailor the growing system into a more efficient whole. A strategic plan was developed which required the network to be established in the three stages of system development, commissioning, and operation. In each of the three stages, ISTT acts as a strong mentor, providing consultation services, management, organizing meetings, formulating plans and policies, defining criteria for membership, and establishing objectives and guidelines.

After the implementation of the first two stages, ISTT delegated its sponsoring role to a Supreme Council and an Executive Board, on both of which ISTT remains a member. This is mainly because both nature and mandate of ISTT are different from those of the members; they are research organizations. This unique status makes ISTT capable of maintaining an impartial management role since it is not regarded as a competitor but only a dependable partner with universal recognition among executive and academic institutions.

Networking: A Definition

A networking of research partner institutions consists of a number of such institutions with similar shortcomings and objectives that will take advantage of the relations and advantages offered/provided by joining the network towards the achievement of their objectives and the successful handling of their shortcomings. Some of the shortcomings causing research bodies to join the network include:

- Limited software and hardware resources in addition to inadequate organizational structure;
- Lack of access to information; and
- Inadequate business regulatory systems.

Some of the most important common objectives among them include:

- Organizational and economic development and growth;
- Economically profitable technology-based activities;
- Improved quality management; and
- Capacity-building and improved human resources.

Two sets of internal and external objectives have been defined for the Partner Research Network. The more important of the first set include:

- Cumulative efforts among members through establishing consortia not only to promote sharing facilities and expertise knowledge among the members but also to improve their capabilities for large-scale projects;
- Facilitating internal information exchange; and
- Promotion of teamwork and goal-oriented scientific research.

The second set of objectives regulating the external relationships of the network includes:

- Technological development with emphasis on private sector participation in scientific research activities;
- Increased competitiveness; and
- Facilitated external relations of members with other research organizations.

This experience has given enough cause for ISTT to embark on networking the present partner network with companies operating within ISTT's science park. The new definition requires the networking system to hold its own management independent of ISTT, making it at best a partner with ISTT. This new entity may be regarded as a virtual science park with the capability to enter into new networking relations with similar bodies and systems such as ISTT or other parks in the region.

Strategies for Full Operation

The strategies adopted include:

- Taking the responsibility by ISTT for the management of the newly-established Partner Research Network during the commissioning stage in order to strengthen and support the network to reach maturity;

- Sharing of ISTT's resources with the network members and vice-versa for optimized utilization;

The first strategy requires ISTT to provide full support to the steering and management board of the network in terms of financing and facilities. This stage is expected to complete within two years at the end of which an independent steering management will be set up and ISTT will enter into a structural networking relation with the Partner Research Network. A Council on Policies and Guidelines is also provisioned to form at the end of this two-year period. ISTT will continue its support through membership on the council.

Future Activities

It is part of the mandate of the transitional management to develop the constitution and by-laws of the partner network. The organizational administration system must also be defined and formed. An executive manager will be assigned for the transitional system to take responsibility for the implementation of the decisions and coordination among members. It is highly desirable that the members join in participatory schemes in implementing research projects. During this process, shortcomings in terms of regulatory systems and equipment will have to be identified and duly addressed.

Concluding Remarks

It may not always be possible to provide all that is required for the development and growth of tenant companies within the four walls of a science and technology park. There are also companies, industrial R&Ds, private and public technology-based bodies, and academic centers that wish to boost their development and potentials through contacts with STPs but are not in pre-mature stages to be admitted as tenant companies to incubation systems. This creates a promising environment for sharing potentials through establishing a networking system: the already established systems can not only share each other's facilities and expertise knowledge but can also take advantage of the innovation and market opportunities created within STPs. The impact of this networking is two-fold in that savings can be made on resources and start-ups can also develop with greater momentum when they find easy access to advanced equipment and markets for their services.

Networking from this standpoint can also be pushed one step further ahead to include STPs as well. It is common knowledge now that there are a vast variety of incubators hosting companies with different fields of activity. Rather than enlarging each incubator or STP to include a greater variety of fields, incubators and/or their mother institutions (STPs) can share facilities, expertise knowledge, and information to augment their potentials, providing wider and more efficient services to their tenants and companies. It is not unimaginable to have such networking at an international level. The only hurdle that must be given serious consideration is a proper management system that, while allowing for economical and time-consuming activities, avoids any centralization or the formation of a type of large corporation. Warnings in this regard are rightly based on the undesirable consequences of monopolies and the drawbacks associated with big trusts. This could only divert STPs from their first and foremost mandate: that of creating jobs for a larger portion of the population through SMEs and individual innovations.

The networking from this outlook must go as far as it helps STPs to avoid redundant and double investments where resources are inadequate. It must also help faster and easier sharing of information and expertise knowledge often hindered by inadequate regulations and relations.

The experience by ISTT in this regard is one promising example in which democratic measures are being thought out to allow for maximum flexibility and freedom for companies and members in the network. Members and the network itself are regarded as units operating within the park, though physically located elsewhere.

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