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in Developing Countries:**

The Experience of Sheikh Bahai Technology Park, ISTT

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Support Service Systems for STPs in Developing Countries:

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Abstract

Economies dominated by the public sector and government rule are characteristic of developing countries and seem to pose serious challenges against the growth of SMEs. STPs emerging in these nations are part of the governmental system but they have the mission to provide SMEs with support and assistance in their growth. Out of this seemingly paradoxical nature of STPs rises the opportunity for them to exploit their potentials as an established socio-economic infrastructure to provide ample opportunity for the growth of SMEs. Their financial resources which are supplied from public funds, their organic and organizational relations within governmental departments, and their influence on decision-making bodies are just a few of their potential assets that can be exploited in a proper way to help the development of a well-established support service system suitably adapted to their local sphere and culture of impact. The sustainability of this type of support system to serve SMEs from public funds and resources calls for proper planning, astute management, and development of indices and milestones to measure their healthy performance against. To be sure, when and where these components are absent, the system may result in an unhealthy network of favoritism and corrupt relations or may even fail to function altogether. The present paper aims to propose a model of support service system that best suits government-owned infrastructures like STPs and as an example will describe its application in Sheikh-Bahae Technology Park at ISTT.

1. Introduction

It has been widely recognized that science, technology, entrepreneurship, and SMEs form the building blocks of economic development in our modern world. The repercussion of this recognition is the priority given by both developing and industrialized nations in their national development agendas to the development of the required infrastructures that realize and facilitate the emergence and evolution of these essential components of human social life. Increasing cognizance of the socio-economic impacts of these components on job creation, improved welfare, enhanced economic empowerment, and the like has caused most countries to develop their own national innovation systems which encompass the mechanisms for the creation and functioning of the components in question. The national innovation systems are being designed to include all the required infrastructures, be it physical, legal, financial, educational, or whatever. A well-defined system of organic interactions among the infrastructures will also be a part of this innovation system. STPs count as one of these physical infrastructures with a direct

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bearing on the development and growth of SMEs while they also exercise their indirect impacts on such issues as entrepreneurship, science and technology, and innovation. STPs are instrumental to local and national development. They have attracted special attention by local and state governments and numerous models have been proposed for and employed in their development and steering.

These models have, generally speaking, evolved from a sound discernment of the three principles of:

- Conglomeration of knowledge-based companies to promote synergy among them;
- Providing strong value-added support services; and
- Legal support coupled with soft loans.

To these must be added the integration of the local socio-economic structures. A culture-bound model then emerges that is unique to its sphere of application. In most industrialized nations, the real-estate model of STP management has been successfully employed to obtain the desired results. The success of the model owes much to the existence of well-established socio-economic infrastructures, operational service systems, and proper support services available through mechanisms outside STPs. These include vast and varied legal consultation services, banking facilities, financial services, angel investors, community-based loan systems, a long standing history and culture of research and technology transfer offices in universities, to name only a few. Developing countries simply lack all or most of these. Naturally, the real-estate model is not expected to become functional in these countries. Rather, the services that are provided by the community at large must be provided within the confines of a park, albeit on a much smaller scale or even a sample of each type of these services. At the end of the day, a different model emerges.

SMEs suffer enormously from the inadequacies in developing countries. To compensate for these inadequacies, or in some cases the mere absence of any services, parks cannot but develop and offer strong value-added services. This is just a prerequisite to ensure their very existence. What naturally follows from this requirement is the development of a park model that forms around the services it will have to provide to its clients. And this simple requirement entails a whole set of other provisions just to provide the services. Inter-organizational relations, influence on decision-making bodies, easy access to expertise knowledge within universities beyond the universally known mechanisms of transactions with academic centers, various types of easement, access to funds, legal provisions and legal relaxation, and perhaps political influences to create awareness among authorities about the importance of SMEs and STPs are only some of these requirements in the successful management of a park.

This paper will first investigate the inadequacies and challenges facing a well-defined support service system in developing countries with state-controlled economies. The possibilities for changing the challenges into boons will be explored in order to develop a support service system around which a park model can be defined. The model will be based on maximum exploitation of organizational, financial, and human resource capacities of the park as a part of the public sector. The inadequacies and problems with

this model will also be described in the meantime. Finally, the experience at S. Bahai Technology Park in the process of maturation will be described as an illustration.

2. Closed socio-economic structures dominated by the state

In state run economies where the public sector owns all or most of the infrastructure, the private sector has only a minor role to play in community life. Lack of adequate regulations and legal provisions to support the private sector would not allow for a competitive market for entrepreneurs. No social, economic, and technical consultation or service grows in such environments. The social facilities and institutions are not shaped to provide these services as the approach was missing in the first place. Public sector organizations, the sole actors of the scene, procure their supplies and equipment only to serve their organizational mission. Even so, there is no collective collaboration and interdependence among them, a situation that makes them look like islands existing in a void. Consequently, nothing can be shared even at the cost of depreciation through time. Time and again, intact and new equipments are discarded or sold out at low prices as they get obsolete without having found the time to serve their purpose enough times.

Another drawback of these closed systems is that creative minds and university graduates would not take the high risk of starting their own business and, thus, SMEs will not exist in a true sense. Rather, university graduates who are potential entrepreneurs would look for employment in the public sector and will change into civil servants. This state of affairs has led to chronic and even devastating poverty in most developing countries as investments are just burdens on government budgets without any returns. The poverty then gets into a spiral whirlwind that devours all resources.

Despite the availability of limited consultation services on business planning, or renewed attention paid to the educational aspects of entrepreneurship, and some limited venture capitals, such services often fail to bear fruit basically because of their limitations, lack of a professional outlook in these services, and/or the unavailability of other chain requirements for establishing robust businesses.

Having mentioned a number of the most important negative aspects of closed economic systems, one should not jump to the conclusion that STPs are doomed to failure after all. These adverse facets and barriers to the growth of SMEs can, nevertheless, be changed into opportunities, as has already been in a number of cases with glittering success stories, once a healthy park model is set up around the particular conditions in which they are to operate.

3. The Model Proposed

As already mentioned, STPs lend the appropriate infrastructure for the development of SMEs. Real-estate management models of parks in developing countries with closed and state-controlled economies must be ignored in favor of models which incorporate strong value-added support service systems. A properly designed program will be required to handle the services. The model developed here will give due consideration to the following three principles:

- An understanding of the requirement for having a strong support service system in operation;
- Taking full advantage of the legal and financial resources available to government owned STPs in setting up the service system and the gradual development of the system to a breakeven point where there is no more demand for public funds;
- Exploiting park's capacities in terms of its prestige and social value, its relations with other public sector organization as well as national and international bodies.

3.1. Understanding the need for the support service system

Whether park management should embark on establishing a support system depends on the socio-economic conditions on both local and national levels. At the same time, it is normally taken for granted that there should exist a strong value-added support system as the backbone of STPs in the conditions described above. However, the debate here revolves around whether or not the park management should be directly involved in offering and managing these services. The no-interventionist model is the one commonly practiced in industrialized countries where the park follows a real-estate model. Here the management is only responsible for the erection of the physical entity as a park, i.e., the buildings and equipment plus a management team with procedures and organization in place. The park is in fact considered a success when it fulfills some externally defined goals of local development, urban or rural economic development, creating competitive markets, etc. The bodies defining these goals are usually the municipalities, local governments, or even state governments within a general regional plan. SMEs are then nurtured on an array of services provided by entities outside the parks. This is mainly because of the maturity of social institutions in free economies. However, in the case of closed economies, the interventionist model by which the park management designs and procures the required services intramurally seems appropriate if the park is ever supposed to be attractive to client entrepreneurs.

3.2. Exploiting financial and legal capacities of parks

STPs in state controlled/closed economies are typically owned by the public sector. Like all other departments, these STPs have access to public funds and enjoy a level of legal support with a good safety margin. These can indeed be regarded as assets to be exploited towards an end. First comes an evaluation of the park clients. The needs analysis will be followed by prioritization of the needs. The resources then have to be identified and secured from within the park or from other sister organizations within the government. Interestingly, this also includes expertise knowledge from academic centers or mentors from university or industry. A pivotal factor in all this will certainly be the financial resources and funds available to the park secured from public funds. The availability of public funds accelerates the process of developing and offering services, which attracts more clients. However, caution must be taken as this potential opportunity may turn into a threat for the success of the park. The danger lies in the fact that offering these services may create long-term expectations on the part of clients while it also increases the size of park administration. The overall impact of these two drawbacks will be the disaster of increased financial commitments and the requirement for greater funds from the government.

An already tested approach to avoid this state of affairs will be to restrict the commitments such that the park management undertakes the development of services in the initial stage and covers the overhead charges and commissioning costs in order to market their park. But immediately after an acceptable level of productivity is secured, the support services must be handed over to the private sector. This is when clients are demanding for the services and a secured market exists for them. A second aspect of this approach will involve the formulation of policies for each and every service. The policies will set a time limit over which the service is offered to a given type of client, a limit is also set for the acceptable costs of developing a given support service, and finally, an evaluation system is adopted to assess each service at the end of the time limit. This will help to decide whether the service is to be continued or discontinued. A final aspect is to design proper mechanisms and guidelines for handing over the support service system, partially or wholly, to the private sector.

3.3. Exploiting Park's capacities

Being part of the public sector allows the park management to establish easy interactions and the sharing of resources with other organizations. Agreements can be drafted and signed to pool resources in other departments to serve the park clients. This is of special importance and a strong advantage in the case of relations with universities. Lab and technical services as well as academic consultation are thus handy in parks.

These are the major resources of STPs in closed economic systems that can be exploited to make a successful park.

4. Developing the support service system in the park

The development of services involves the two stages of planning and implementation. Planning involves the phases of needs analysis and prioritization which, in turn, include the subdivisions of identifying existing facilities and resources and defining the level of the service required. In planning for services, it is essential to draw upon the general policies of the park which indicate the special fields of activity defined for the park and the regional economic capacities. Polling the applicants or tenants about their expectations and demands will disclose client needs. Integrating these data will define the level of the services and the prioritization of the services. For instance, in areas where land and office space is a value-added service for certain companies, attention must be concentrated on creating those spaces while in smaller towns the priority may be given to other services of importance. A distinction must also be made between services that must be provided or created by the park management (interventionist approach) from those that are readily available through outsourcing. As a last stage, the financial contribution of the park management and the time limit for this contribution (subsidies) must also be decided upon. The ultimate goal of the park is to reduce its contributions to zero after an arbitrary period of time so that a major portion of the services is gradually handed over to the private sector.

The initial implementation period of the service system is the time it takes for the park to reduce its financial contribution to zero. Needless to say, the duration will be a function of the park's financial resources and management skills. The initial implementation stage

is also accompanied by losses of funds as the services provided are not fully utilized by clients or as there are not enough clients yet to exploit the whole capacity. The losses are covered by the park until a breakeven point is reached when the private sector finds enough incentives to take over. Increased number of tenant companies and their appreciation of the value of the services are two factors that reduce the losses. An adequate evaluation system must be in place to assess the services and the manner in which they are delivered. The factors evaluated include the costs, clients' demand, effectiveness of the services in enhancing the companies' success level in terms of their production, and the level of client satisfaction with the services. Based on these, a decision can be made as to continue or to discontinue each service.

5. The experience at S. Bahai Technology Park

Isfahan Science & Technology Town has in its master plan the development of a number of special focus technology parks and an urban area. The site for this town is located in Isfahan Province, central Iran. The development of the town will take place in a number of phases the first of which is the development of Sheikh Bahai Technology Park. This is of a general type park. The establishment of the park started in 2001 when the first incubator was established at ISTT. Currently, a number of multi-tenant buildings exist in the park and land is being given on lease or sold out to companies to build their own facilities. The park occupies an area of 30 hectares located within the 520 hectares of ISTT's property. Over 70 companies are accommodated in the park: 60 in the park's incubators and 10 in the MTBs. The fields of the companies within the park include:

- Biotechnology
- Management and economics
- Manufacturing
- Materials and Metallurgy
- Automation
- ICT
- Chemicals and petrochemicals.

Despite the many shortcomings so far, the park has succeeded in offering the following advantages to its tenants:

- Reduced overhead and running costs;
- Synergy among companies through interactive cooperation;
- Utilization of the software, hardware, and human resources of IUT
- An assortment of technical and general support services; and
- Architecturally attractive office spaces and buildings.

These advantages are gradually attracting international companies or those domestic ones with international partners.

5.1. Support services at Sheikh Bahai Technology Park

The services developed so far include:

- Tenancy services, including leased office, workshop, and lab spaces managed exclusively by the park. The revenue losses in this area depends on the amount of space unoccupied.

- Office services, including typing, secretarial services, Xerox, personnel management, These services were first implemented from S. Bahai park resources but they are now handed down to the private sector. The park has no revenue losses in this area.
- Consultation services, including management, marketing, legal, and technical consultation services. These services were first offered to clients at no charge but by the private sector. After two years, the financial contribution by the park was reduced to 50%, the rest being paid by clients.
- Technical services, including lab and workshop services. The equipment include those provided within the park or those which are shared from IUT's labs and workshops according to charges within a specified pricing structure. The agreement with the university and a number of other laboratories and organizations within the province has made a perfect service system covering almost all the demand by the companies. The contribution by the park has reduced to around 45% over a period of two years.
- Information services, including the Internet and library services. Library services are provided within the framework of an agreement with the universities in the province, especially IUT. ISTT covers all the costs for this type of service. Internet services were initially provide to clients at no charge but after two years, the management of the internet services was wholly handed over to the private sector. Presently, the contribution by ISTT to this service has reduced to 20% of the total costs.

The trend in the development of these services and the way they are provided to clients indicate a healthy and replicable system. It is predicted that over a 3-year plan, the financial contribution or the subsidies paid by ISTT will be reduced to 20% of the total expenditure for providing these services.

Conclusion

STPs have evolved in different environments and with a variety of missions. Although the most common feature making an entity a typical park lies in its mission to provide an environment where SMEs can grow to help local economies, their management systems and their local requirements for achieving their objectives may be maximally different. Running a park in an environment of free market economy with ample technological and market opportunities is best fit for a real-estate park model. However, developing and managing an STP in a closed state-controlled economy is a totally different story. Under the latter scenario, experience at ISTT has shown that what might seem to be the challenges and barriers against developing SMEs can be exploited as opportunities to materialize the same objectives pursued by parks in free market economies of industrialized nations. It only takes time and skill to bridge a number of island resources synthesized into a working system of support services that creates ample attraction for entrepreneurs within the framework of a STP. The interventionist model developed in this paper has been tried in real life situation to provide the type of support services that must be available with the larger sphere of the whole community. These services when provided within the confines of a park will have a greater attraction as they are value-added in a real sense. However, care must be taken to avoid the undesirable consequences

inherent in any privileged easement. To avoid potential problems, restrictions must be laid on the duration of providing services at subsidized prices so that the private sector can take over the park management as soon as possible. Undefined cost ceilings must also be avoided. Regular assessment of the services paves the way toward the privatization of the service systems within parks.