SUSTAINABLE INCUBATOR MANAGEMENT-A CASE STUDY FOR PAKISTAN

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Abstract

Information technology (IT) is impacting all spheres of human activity at an unprecedented rate. Side by side with this development, there is also an intense debate on the contribution of this technology towards productivity and growth on the one hand, and human welfare on the other, in developed and developing countries.

The “Technology Based Industrial Vision and Strategy for Pakistan’s Socio Economic Development” commissioned by the Higher Education Commission (HEC) and the Pakistan Institute of Development Economics (PIDE) lays out guidelines on how to make Pakistan an economically stable and technologically advanced ‘knowledge economy’. Based on recommendations from this document, the Government of Pakistan (GoP) has made investments in infrastructure and human resource development. Sites have been allocated for IT campuses and human resources sent abroad for training. With these trained IT and engineering personnel now returning to the country, plans are underway to develop what USAID\(^1\) calls “centers of excellence, commercial research centers…or to be more concise, incubator centers.” In order to fully utilize the potential of these centers and to establish stronger networking with the universities from where these trained personnel are returning, the concept of “incubator programs” has been floated to facilitate technology commercialization.

Although the incubator phenomenon was conceived in the 1950s, it only mushroomed rapidly in North America in the 1980s. Today, even though America has the largest number of incubator facilities in the world (nearly 1000), most have failed to produce desired results, primarily due to poor management and lack of clear vision. This paper focuses on the development of a sustainable blue print for incubation programs in Pakistan through proactive management and enterprise development. This model would integrate faculty, students, laboratory resources, research facilities and strategically align the objectives of these entities with the industry.

Such programs have the potential to make Pakistani students globally competitive and also diversify the income resources of incubators, hence making them less dependent upon subsidies and acting as true platforms of technological entrepreneurship, small and medium enterprises, which are considered as the drivers of knowledge based economies.

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\(^1\) Evaluation of USAID Higher Education Portfolio, November 2008.
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1- Government of Pakistan’s Human Resource Development Initiative

At the beginning of this millennium, the government of Pakistan embarked on the arduous yet promising journey to make Pakistan’s economy a knowledge-based economy. The idea was to embark on the same path as did Japan, Korea and China by focusing on human centered development (Dr Atta ur Rehman). Many strategic measures were taken, including the establishment of Higher Education Commission, major policy changes, manifold increases in the education budget, creation of a necessary infrastructure; all actions geared towards the design of a favorable environment for the birth and nourishment of a globally competitive industry and workforce. Major policy changes were made to attract foreign direct investment (FDI) in information technology (IT) and Telecom industry. This included giving a tax holiday to the IT industry until 2016, opening all sectors to FDI, allowing 100% foreign equity, waving any sorts of government sanctions for FDI in IT sector, fully protecting foreign investment and allowing 100% repatriation of profits to IT companies.

1.1 Positive Results

These measures coupled with the changing geo-economics of the region have shown positive results. Pakistan’s young yet thriving 2 Billion US$ IT industry has shown an average growth rate of 50% in the past 5 years. Pakistan’s cellular industry has become one of the world’s fastest growing cellular industries with an annual growth rate of 150% and telecom revenue growth of 20%. The annual IT human capital requirement increased more than 250% in 5 years, from 90,000 to 235,000. These achievements have been recognized internationally as well. Lehman brothers described Pakistan as a country with “best IT fundamentals of any offshore outsourcing industry”. And the strong growth prospects in this area are expected to attract further FDI in the coming years. “The software industry in Pakistan has enormous potential to grow from its current size. The worldwide IT services market is growing at the rate of eight per cent in real terms and expected to reach about US 910 billion dollars by 2010. Of this, about 54 % will consist of hardware maintenance, IT management and other services”.

1.2 Human Resource- Foreign Faculty Development Program

The primary driver of these results is the human capital. Recognizing the need for the improvement of the quality of our human capital, Higher Education Commission (HEC) started an ambitious foreign faculty development program (FFDP), signing agreements with 28 technologically advanced countries and sending Pakistani scholars to those countries for a period of 2-5 years to pursue higher education in strategically selected fields and then requiring them to return back to Pakistan for a period of 3-5 years at least, to share and transfer their knowledge in Pakistani universities. The program is running successfully and there is 100 percent return rate of these scholars who are showing their impressive performances in the universities.

1.3 Next Step-Establishing Industry Links
The next phase of this human centric development requires the alignment of this highly qualified and motivated academic human capital with the industry. This involves “training professionals and workers in line with market demand; creating effective linkages among academic institutions, research centers, and industry; providing incentives to the private sector to invest in human resource development as well as to carry out research and development; and establishing technology incubators and specialized technology parksiii. Thus in order to fully utilize the foreign qualified human resource and to effectively capitalize upon the investments made in higher education, incubators are needed which could weave together academia and the industry. ‘HEC should build on its very successful programs in higher education and possibly expand its efforts over the next five years through capacity building projects, including centers of excellence, research centers.iv

1.4 Academic Incubators- Hubs of Technological Entrepreneurship

We have designed a business model which not only assures the successful management of incubators, but also aligns the objectives and incentives of the highly motivated and qualified young scholars who are returning under the foreign faculty development program with the IT/engineering industry. The main focus in the development of this model is FFDP scholars. Using this model, we plan to turn academic incubators into the central hubs of technological entrepreneurship. An average IT job costs US$ 58,598 in the USA, US$ 35,562 in India and US $27,000 in Pakistan.v This model promises to bring the costs further down by utilizing universities’ in-house resources such as faculty, students, and infrastructure such as labs. But before embarking on the detailed description on that model, we need to understand the fundamentals and best practices of incubators’ management.

2-Academic Incubators

There is broad recognition that entrepreneurial, knowledge-based enterprises are the movers and shakers in economic growth and such ventures need special business development servicesvi. Yet, about 80% of the startups fail within their first five years of their genesis which highlights a strong need of effective incubation facilities which could compress the learning curves of the startups and provide them with necessary initial support in order to improve their survivability.

2.1 Historical Background

Incubators are considered as one of the means which provide these special business development services. A business incubator may be defined as an organization which offers a range of business development services and access to small space on flexible terms, to meet the needs of new firms. The package of services offered by a business incubator is designed to enhance the success and growth rates of new enterprises thus maximizing their impact on economic developmentvii. Although the idea of incubators was conceived in 1950’s, it didn’t see a widespread acceptance until 1980’s. The mushroom growth of incubators, initiated in 1980’s resulted in over 1000 incubators today in North America, the largest number of incubators in any
In 2005 alone, North American incubation programs assisted more than 27,000 companies that provided employment for more than 100,000 workers and generated annual revenues of $17 billion. Because of the number of incubators and studies carried out on their performances, this discussion is predominantly based upon the North American experiences with incubators and best practices suggested by the aforementioned studies.

2.2 Types of Incubators

The incubators can be classified based upon their main sponsoring agency, which in turn determines the main goals and expectations of those incubators. Incubators can be classified as follows:

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical University</td>
<td>Innovation, Faculty/ Student involvement</td>
</tr>
<tr>
<td>Research Institutions</td>
<td>Research Commercialization</td>
</tr>
<tr>
<td>Government</td>
<td>Regional development, poverty alleviation, job creation</td>
</tr>
<tr>
<td>Private sector</td>
<td>Profits, patents, spin-offs, image</td>
</tr>
</tbody>
</table>

Table 2.1: Types of Incubators and their main objectives.

Most of the times the incubators have multiple sponsors which results in the convergence of multiple strengths but at the same time, diverse goals. Our main discussion is primarily focused on academic incubators and the role they ought to play in the creation of the technologies and facilitate their transfer from laboratories to the market.

2.3 Services expected by the incubators

Most common Business Incubator Services are to help with business basics, networking activities, marketing assistance, financial management, access to virtual networks, establishing links with strategic partners. Provision of loans and guarantee programs, access to angel investors or venture capital. They also help with regulatory compliance, intellectual property management and technology commercialization assistance along with comprehensive business training programs. With all the above mentioned expected services, the goals of the academic incubators (AIs) could be categorized into two levels of services:

2.4 Real-estate focused phase of development

This is the basic level of service expected by the AIs. It involves providing low-rent office space, internet/communication facilities, and tax breaks and other similar incentives to the start-up companies. The responsibilities of the incubator management teams this level are restricted to rent collection, building maintenance and refurbishment of tenant services. But the level of
cooperation among the incubator management and the start-up companies is expected to evolve to a much deeper and broader level, enterprise development - so that the real benefit of incubation process could be reaped.

2.5 Enterprise Development

The incubator management team is expected to provide the enterprise development services to the start-up companies. This includes creating a business consultancy value network, fully utilizing resources and tremendous opportunities by the sponsors and the wide spectrum of skills available in the academic institutions in the form of faculty, students and lab resources. AIs should become a central node of this symbiotic value network, creating and maintaining an entrepreneurial synergy, and hence integrating the startups in this ecology - suppressing their learning curves and facilitating their graduation as full-fledged sustainable firms. This level of involvement could be depicted in the following figure:

![Figure 2.1: The central integrator role of Academic Incubator](image)

The above figure shows the central role that AIs could play in bringing together different stakeholders with diverse goals and aligning their goals in such a fashion that a true entrepreneurial synergy could be formed - Extending Entrepreneurship to Intrapreneurship, fully capitalizing the resources and align the objectives of all the stakeholders so that not an entrepreneurial value chain but an “Intrapreneurial value network” could be formed. A network that would eventually be a reliable infrastructure that could provide the startups a buffer from initial mistakes, market vicissitudes, tough competition, and misjudged assumptions - ensuring a better survival rate of the startups which presently stands at merely 20%.

3 - Why Academic Incubators Fail
3.1 Background

Most of the 1000 incubator facilities in the USA are public-private partnerships, with initial support coming from the federal, state and local government bodies. About 80% of these facilities operate as not-for-profit entities. Approximately half of these total facilities are affiliated with the universities.xiii

3.2 Performance Measurement Criteria

Although most of the academic incubators are reluctant to share their performance record openly, their success rate could be analyzed independently based upon a number of parameters including

1. Number of enterprises created
2. Survival rate of these incubated enterprises
3. Jobs created
4. Research commercialized
5. Overall profitability of the incubator
6. Improvement in the university-business links
7. Faculty/Student involvement
8. Refinement of the entrepreneurial skills of the startups’ management

These performance parameters can help measure the effectiveness of the Academic incubators, their role as business laboratories, bridging the gap between universities and the industry.

3.3 Reasons behind Failure

Unfortunately most of the AIs have failed to achieve the desired goals. Today they rely incessantly on subsidies to survive. It is ironic that facilities created to improve startups’ sustainability today struggle for their own survival, hence representing a poor model for the tenants. They continue to exist in isolation, not establishing any meaningful association with the academia. They have not been able to commercialize research on a broad scale. Neither have they been able to fully engage with the faculty or the students. As a result, the government and the universities are increasingly becoming frustrated and gradually withdrawing the subsidies which has placed the basic concept of AIs under question.

It was disturbing to find that, on average, nearly 75% of incubator managers' time was being spent on non-incubator responsibilities and incubator real estate issues such as rent collection, maintenance and the management of refit or refurbishment of tenant spaces. A median of only 10% of incubator managers' time was spent working with tenants.xiv

3.4 Lack of Planning and clear vision

The factors contributing towards this poor performance are mainly flaws in planning and operating the AIs. The planning flaws include lack of a proper business plan. In many instances
it was found that universities started incubators without a proper need assessment and market analysis. Incubators were started just because other universities were doing it. It became a sort of a conventional symbol to have an incubator. These incubators were later used as a means of boasting strong relationship with industry whereas in reality, industries were never analyzed or involved in the decision making process while taking these initiatives. It was not realized that there are certain environmental conditions which need to be satisfied before a successful academic incubator could be built in any area.

3.5 Poor Tenant Selection

As a result AIs ended up with companies which were not supposed to be there. Because of incubators’ cash flow requirements, early tenants are likely to be chosen on their capacity to pay rent rather than their growth potential. Moreover virtually no attention is paid to the alignment of companies’ objectives and universities’ vision. It is not unusual to find a company in an AI with a completely different scope, locating itself in the incubator only to avail low rent space and hence restricting the role of the incubator to a first tier partnership only; real-estate based association.

3.6 Inadequate Entrepreneurs

An inadequate pool of entrepreneurs also contributed towards the poor performance. Incubators were run by people who were never involved or observed the process through which the startups have to go. As a result the companies locating themselves in the incubators do not consult the incubator management as the experience of ‘academic incubator managers’ seem insufficient or irrelevant to them. The condition is further worsened due to the absence of an active board and a committed champion. Thus the incubator managers have to continuously struggle to muster political and financial support for their programs.

3.7 Cultural Gap

The root cause of poor governance is lack of the appreciation of the culture gap between academia and the industry. Incubators are supposed to bridge the industry and the academia. Therefore the management needs to include people form both of these segments; segments which are so much dependent on each other yet so distant culturally. The academic incubators have to be affiliated with universities but need not to be administered by the universities. University administered incubators result in dormant, static, isolated buildings which try to call themselves incubators. The students interviewed at one of the top engineering universities in the USA called their incubator program as a ‘cemetery of projects’.

3.8 Lack of networking opportunities

Another factor is the lack of proper networking opportunities. The universities have resources using which they could frequently hold seminars, exhibitions, training programs, career fairs, and
talks. All these events attract industry personnel to the universities and could be used to allow the incubated startups an access to the industry leaders. Unfortunately, very little is thought and done regarding utilization of these networking resources.

3.9 Undercapitalization of In-House Resources

But the most serious factor is the undercapitalization of universities internal resources. These resources include: Faculty, Students and Laboratories

Faculty members’ experience could be of immense value to the entrepreneurs. Engineering and sciences’ faculty has a remarkable knowledge base and ideas. Business faculty studies hundreds of startup companies through case studies and has a philosophical knowledge about the process through which these companies have to go through. Unfortunately the faculty does not get involved with the companies in the academic incubators the way it should.

3.10 Faculty-Lack of Incentives

Faculty’s lack of involvement is the lack of incentives- as they are expected to get involved voluntarily. This involvement is besides their teaching assignments. Therefore it is taken as a burden by many of the faculty members and they prefer to stick to their teaching jobs. The result is a complacent faculty, settled in a comfort zone of academic environment, distant from the outside world activity, and preparing the workforce for industry which it has very little knowledge about.

3.11 Underutilized Student workforce

Students are another resource which remains underutilized and undercapitalized by the incubated businesses. Students could bring creative energy which is a pivotal element of entrepreneurial environment and that also at a lower cost than the external help. Yet no significant student internship initiative was found in majority of the academic incubators. As a result the AIs end up losing this opportunity and the student graduates end up with the tag of ‘fresh graduates’, meaning graduates coming out directly from the universities, or to be more precise, graduates lacking any real or relevant industry experience. As a result either the industry feels reluctant to hire the ‘fresh graduates’ or else these highly talented, motivated and energetic engineers and scientists end up being exploited, accepting jobs at wages far less than what is a true reflection of their skill set.

3.12 Underutilized Laboratories

Finally the expensive and valuable equipment available in universities also remains inaccessible by the incubated companies. This is another serious undercapitalization. Startups’ main concern is lack of financial resources. Access to the labs in the universities could help the startups significantly keep down their costs. Moreover it could result in a better utilization of this equipment in the labs themselves. In many instances, equipment worth millions of dollars was
found either underutilized or not utilized at all in the labs. Mutual projects which could benefit both the startups in the incubators and the students in the universities are never carried out. As a result the labs remain unreachable to the incubators and continue to house rusting valuable equipment.

4 - Proactive Incubator Management

We have designed a new approach titled ‘Proactive Incubator management’ which involves diversification of income resources of academic incubators by introducing project management teams, fully utilizing the in-house resources such as faculty, student interns, and laboratories offering financial incentives, and doing commercial development projects ensuring professional standards to address some of the major issues faced by the AIs today. Although this idea is designed for an engineering/IT university environment, it could be implemented with minor changes to any universities offering natural sciences degrees.

4-1 Basic Idea

The present situation discussed above could be depicted in the figure below:

![Diagram](image)

Figure 4.1: Present scenario existing in majority of the AIs, showing universities and the incubators existing in isolation despite being located in same premises

Whereas a new management layer is proposed in the incubator administration. This management team would report directly to the incubator manager, and manage multiple projects, involving the faculty as well as students. This organizational structure is depicted in the figure below.
This approach would result in the integration of the underutilized resources mentioned in the beginning of discussion; faculty, students and the labs. The Project managers would be able to connect these academic resources with the incubator managers, hence filling the chasm that currently exists between almost all academic incubators and their academic institutions.
4-2 Alignment of Academic Resources - University

4-2.1 Mode of Engagement

It is encouraged that universities become a shareholder in these companies. The joint venture model would ensure active participation, interest and diversification of risks for both the incubation companies as well as the universities. But the companies should not be administered directly by the universities for the sake of entrepreneurial element. The universities should recognize their traditional bureaucratic culture and the adverse effects it could have on the companies. The university should provide the companies with space, resources, assistance and access to its in-house resources including faculty, laboratories and students and then only monitor the performance of this whole activity, without indulging into day-to-day management of these companies.

4-2.2 Benefits for the universities

Even with highly qualified faculty and considerable resources provided by the public sector, the IT/Engineering universities in Pakistan are expected to lag behind in the areas of creativity and innovation. This model would bring the industry closer to the university and add academic creativity to it. The success of the companies would result in additional revenue streams for the universities as well. The spin-offs from the incubator would improve the IT/Engineering universities an image of a hub of entrepreneurial activity. Moreover the university would grow more aware as an organization. “We reject majority of the commercial projects because we have only 80% of the skill set available in-house”, said dean, Institute of Space and Technology, Islamabad. Through this model, it would be made sure to fully maximize the in-house resources.
and complement them by hiring professionals from market whenever and wherever required. It
would be the job of the Project managers (PMs) to hire and engage those professionals.
Furthermore, an additional revenue stream would enable universities to become more
independent, autonomous and market oriented, thus reducing their reliance upon government
subsidies and grants. Universities would have a further advantage of having a very competitive
faculty and incubating graduates with a very desirable skill set for the market. This would
improve university’s ratings and potential graduate candidates would be more attracted towards
the participating universities.

4-3 Aligning Faculty’s Incentives

4-3.1 Mode of Engagement

The faculty would submit its resumes and areas of interest along with its skill set to the PMs. The
PMs would then look for compatible projects, plan their execution keeping the concerned faculty
in loop. The faculty members would also be required to submit their time availability details.
Once the project execution begins, the faculty would be expected to participate in the process
actively, taking leadership role, encouraging student involvement. The faculty’s performance and
activity level would be directly monitored by the PMs and the monetary payments would be
made during and/or at the end of project. Despite being the intellectual leaders in the project, the
faculty members would have to recognize the importance of market awareness and client
satisfaction for the project success and thus would be expected to work in accordance with the
instructions from the PMs.

4-3.2 Benefits

The primary concerns of the foreign qualified faculty returning to Pakistan include possible low
pays and corrosion of their skill set due to the current stagnant cultures of Pakistani universities
and absence of the domestic market for their skills set. This model addresses both of these issues
by first providing an extra revenue stream for the faculty members, and secondly, promising
projects from competitive markets that would allow the participating faculty to continually
update their skills and to have an awareness of the latest market activity. This would have a
direct impact on the quality of research that they carry out.

4-4 Aligning Students Objectives

4-4.1 Mode of Engagement

Initially only final year students are expected to be involved in this model. During their final year
projects/thesis, they would be expected to choose the projects going on in the incubators, in
consultation with their project supervisors. Although the students are not expected to hold the
equivalent skill set of professional engineers, they would be able to provide intermediate level
skills. They would be paid for their work and at the end of the projects, would receive certifications/recommendations for their involvement.

4-4.2 Benefits

Market is usually reluctant to hire fresh graduates due to the fear of irrelevant skill set and thus additional costs associated with hiring them. This model addresses those concerns by making sure that the graduates have competitive skills, would have worked on professional projects during their degrees and would have been taught by the faculty with an updated skill set. The participating students would be paid and would also receive certifications/recommendations of intermediate skill set. This would provide the students with an additional revenue stream, improving their access to higher education. Moreover it would improve their employment chances.

At large this apprenticeship program would improve the quality of Pakistani IT workforce, leading to lower unemployment rates. Many developed countries, such as Germany owe their success stories partly to similar nationwide apprenticeship programs. If implemented successfully, this model would turn the incubators into vocational laboratories for the students.

4-5 Aligning Incubators’ Objectives

4-5.1 Modes of Operation

The incubators would be university-affiliated but not university-administered. They would be located inside the university premises, either as a separate building or having a completely independent space, such as a few floors in one of the university buildings. Their organizational structure has been depicted in the figure above. The incubator would be primarily managed by the incubator manager (IM). IM would be responsible for senior level management, selecting incubating companies, matching their objectives with the university’s vision, garnering political support for the incubator, hiring and monitoring Project Managers (PMs), and making sure that the incubator doesn’t fall into the trap of mere real-estate management.

The second layer of management would be comprised of Project managers. Project managers would be hired from the market, based upon their sales & marketing and project management skills. This is a people-intensive activity therefore would require a thorough appreciation of the ‘human element’ in the success of the projects by the PMs. The university culture is very different from the market and even though the academia prepares the future professionals and leaders for the market, a huge chasm exists between these two entities. This model intends to bridge this gap, and the building elements of this bridge would be these PMs. They will recognize the differences and the opportunities existing in both environments and then construct an ecology where a mutual compromise is achieved, ensuring maximum gain for all the stakeholders.
One of the main reasons behind Pakistani universities’ stagnation is the employment structure where it is virtually impossible to fire any worker. This stagnation would be addressed by the continual evaluation of the PMs whose incentives would be based upon the performance of their projects and the revenue generated from them. Therefore it is the sole responsibility of the PMs to make sure that projects are successfully, ensuring quality, timely completion and budget constraints. Any PM who fails to assimilate into this environment would be let go.

4-5.2 Benefits

Currently the incubators are facing problems due to financial constraints and their inability to integrate with university culture. The sources of revenue are either the rent from the tenants or the grants from their parent organization. This result in their inability to sift through the list of companies which desire to locate themselves in the incubator, and thus end up choosing companies based upon their ability to pay rents rather than their growth potential or the relevancy of those companies with the university’s objectives. Moreover the reliance on grants results in requirement of political support and political compromises. All these factors result in a dormant, real-estate focused incubator, becoming a poor model for the incubating companies.

This model promises alternative revenue streams for the incubators, by making incubators active partners in the incubating companies. Incubator management is to be actively involved in the selection, execution and completion of the projects that would be carried out in the incubators, thus eliminating the gaps and the lack of interest between incubator managers and the incubating companies. Moreover the incentives of the incubator managers would be based upon the success of these projects, thus aligning the incubator sustainability with the manager’s retention and promotion.

Furthermore, the incubators would be selecting the projects that would align with the universities, their faculty’s skill set, student objectives, and lab resources. Thus the projects that would be brought in would be closely aligned with the areas where university is working, thus automatically resulting in political support for the incubator and hence saving incubator manager’s valuable time for enterprise development activities.

5 - Knowledge Process Outsourcing

In the end, we discuss how the emerging trends of the Knowledge Process Outsourcing (KPO) Industry create an opportunity that would seamlessly integrate this model with the Pakistani government’s initiative, Pakistani workforce skills set and USAID’s economic and educational development objectives in the region.

5-1 Knowledge Process Outsourcing

Knowledge Process Outsourcing, KPO, an emerging trend, is the outsourcing of information-related, knowledge-related, or judgment-related business services. It could be considered a high-
end activity of the business process outsourcing (BPO) industry. BPO began in the 1990’s and focused on relatively elementary and standardized processes. KPO on the other hand, focuses on the highly skilled activities which were traditionally considered part of a company's competitive advantage or core activities. The defining difference between BPO and KPO is that KPO is usually focused on knowledge-intensive business processes that require significant domain expertise.

5-2 KPO Growth Potential

According to a recent study by “Evalueserve, a Gurgaon based outsourcing company having service chart for global world”, the global KPO market is expected to grow at a cumulative annual growth rate (CAGR) of 46 per cent, to $17 billion in 2010. The primary benefits of KPO are 40-60% of costs reduction as compared to the cost of professionals in the client’s country of origin. Other benefits include access to top quality, experienced and high-level intellectuals. Some of the growing areas of KPO include engineering designs, pharmaceutical, biotechnology research, analytical services such as equity research and financing research, and market research. Most of the KPO service providers are located in countries such as India, Russia, Israel and China, they employee professionals like Lawyer, MBA graduates, scientists and Engineers.

5-3 KPO Emerging Trends- An opportunity for Pakistan

Because of the presence of such highly qualified faculty in the Pakistani universities, an opportunity exists for Pakistan to explore and attempt to claim its due share in this emerging market and our model could be a means to this endeavor. According to a study conducted by NASCOM in association with the global consulting firm Booz Allen Hamilton, it is estimated that global spending on engineering services would reach US$ 1.1 trillion by 2020 from US$ 750 billion in 2004. Currently, around US$ 10-15 billion is off shored and there is a huge potential for the offshore segment, which is anticipated to be around US$ 150-225 billion by 2020. As the main driver of KPO industry is the highly qualified human resource, we could connect Pakistani faculty with this industry through incubators. As there is presently a shortage of venture capitalists in Pakistan, an access to KPO industry could provide startup companies in the incubators with the necessary financing as well a market which is growing very fast and faces a shortage on the supply side.

5-4 Pakistan- An attractive location to outsource

The recent efforts by the Pakistani government to encourage FDI in IT sector have started to show positive results. Pakistan has become the 20th most attractive outsourcing destination, according to consulting management firm A.T. Kearney. The country made a significant jump on A.T. Kearney’s 2009 Global Services Location Index released May 18. Pakistan went from Number 30 in 2007 to Number 20 in 2009. Thus an increasing number of IT universities, their active incubators, growing local IT industry and an emerging trend could be merged together to improve the exports, employment and knowledge-base of the country.
In order to serve the KPO industry the suggested business model needs to be taken one step forward by establishing offices in key countries including the USA, UAE, Singapore, Malaysia and UK. The suggested model is depicted as follows:

Figure5.1 : Coordination among university, Incubator and the PMO overseas

References

- i www.pseb.org.pk
- ii “Technology-based industrial vision & strategy for Pakistan’s socio-economic development”, PIDE, HEC, COMSTECH
- iii Technology Vision: “Technology-based industrial vision & strategy for Pakistan’s socio-economic development”, PIDE, HEC, COMSTECH
- v The buying Triangle, LLC, 2006
- vi “Assessing the performance and sustainability of technology based incubators”, Rustam Lalkaka, New economy and entrepreneurial business creation in Mediterranean countries, Trieste, Italy, Dec 2000
- vii “Best Practices in Incubator Management”, Andrew Buff, AUSTEP, Strategic Partnering Pvt, Ltd
- x “ Assessing the performance and sustainability of technology based incubators”, Rustam Lalkaka, New economy and entrepreneurial business creation in Mediterranean countries, Trieste, Italy, Dec 2000
• xiv “Best Practices in Incubator Management”, Andrew Buff, AUSTEP, Strategic Partnering Pvt, Ltd