The Role of Key Performance Indicators (KPIs) in Succession of Incubators; A Case Study

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Abstract

During the past decades, incubators are appeared as tools to help strengthening small business performance, a response to the problem of unemployment and relation between government, university, and industry. In other hands, Key Performance Indicators (KPIs) are quantifiable measurements that reflect the critical success factors of an organization and identify future strategies and way to measure progress toward those goals. This article has been prepared in an attempt to introduce the reader, the role of Key Performance Indicators in the succession and progression of incubators. It consists of three parts: The first part is designed to give the reader an analytical and historical insight into Shahid Beheshti University Technology Units Incubator (SBUTUI). The second part, the main body of the article, studied the process of identifying Key Performance Indicators of Shahid Beheshti University Technology Units Incubator, based on it`s goals and strategies. In the final part of the article, strategies for better performance and interaction with internal and external environment is discussed.

Keywords: Key Performance Indicators, Strategy, University, Incubators, and Shahid Beheshti University Technology Units Incubator.
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Introduction

In developed and populous societies, employment is one of the most important issues that affect different aspects of the society. The educated, job creating individuals compose a significant part of the unemployed people who have not been provided with the essential facilities for job creation. In the recent two decades, incubators have played an important role in many countries by reducing self-employment problems. They accelerate the process of development through establishment a collection of small and middle sizes companies (Webb , 2006). Founded on the basis of technology and development of novel ideas, these companies can contribute an outstanding portion to job creation.

There is increasing recognition that Key Performance Indicators (KPIs) help an organization define and measure progress toward organizational goals. KPIs are quantifiable measurements, agreed to beforehand, that reflect the critical success factors of an organization. Once an organization has analyzed its mission, identified all its stakeholders, and defined its goals, it needs a way to measure progress toward those goals. KPIs are those measurements.

In this study, the seven key performance areas of the Shahid Beheshti University (SBU) Technology Units Incubator were identified and the primary KPIs of the SBU Technology Units Incubator were collected by specialists, board of directors, and other stakeholder. They are instructive and consultative, administrative, research and technology, financial, entrepreneurship, environment, and technology companies. Then board of directors and internal and external customer (employees and directors of technology companies) evaluated primary KPIs by questionnaire and SWOT analysis. Finally the problems of the SBU Technology Units Incubator were accounted and middle and short range goals and strategies were designed on the basis of ultimate KPIs. Because of shortage of information and time limitation, we could not compare the KPIs of the SBU Technology Incubator

with past KPIs of the SBU Technology Units Incubator or KPIs of other University Technology Units Incubators.

The Shahid Beheshti University Technology Units Incubator

During the past decades, has drawn a great deal of attention to incubators as a response to the problem of unemployment and relation between government, university, and industry. Today incubators are becoming more common and more visible across Iranian universities, as tools to help strengthen small business performance around the country. They are centers under the management of expertise scientists and support the development of new occupations in active newly established units that have economic aims based on knowledge and technique. They play their role through providing the following facilities and services:

1. The building in exchange for paying rent.
2. Laboratory, workshop and information services.
3. Legalizing, financing, crediting, managing, project seeking and marketing services.
4. Trainings pertaining to the field of expertise and due counseling.
5. Other services related to development and progress of the newly established technology units.

The Incubator Facility of Shahid Beheshti University has started its activities after the ratification of its authorization in 2004 by the Technology Deputy Office in the Ministry of Science, Research and Technology. Whereas many educated, job creating people in Iran are not provided by due facilities to apply new ideas and bring into action their innovations, the Incubator Facility of Shahid Beheshti University has made the reduction of the self-employment problems as a priority of its programmes.The Incubator has since grown from 12 to over 30 emerging technology companies, which have generated more than 400 new jobs and more than $100 million in revenues from sales and research and development grants.

A University-driven community partnership providing early stage technology companies with the enabling tools, training and infrastructure to create financially stable high growth enterprises is the mission of SBU Technology Units Incubator. The aims of it include:

1. To supply the background for commercialization of research achievements.
2. To provide the necessary ground for job creation and support the young researchers` innovations.
3. To assist the prosperity of the local technology-based economy.
4. To provide appropriate atmosphere for broadening the science and technology-based activities of the small and middle size units.
5. To supply the necessities for creation of appropriate occupational opportunities in order to attract the educated innovators in the field of technology.
6. To develop marketable technology products.

The SBU Technology Units Incubator provides a variety of services such as:

- Mentoring and advising in all aspects of business development and growth including business and strategic planning, legal counsel, accounting/tax, human resources, government contracting, strategic partnerships, marketing and PR, financing, grant preparation, insurance and risk management.
- Access to experienced entrepreneurs through the Entrepreneurs in Residence program
- Educational programs
- Marketing & PR support
- Networking opportunities with peer groups, area professionals, university faculty, and support organizations
- Complimentary memberships in a variety of organizations
- Adaptable space and flexible leases in several locations in the Tehran area

- Access to SBU faculty and labs, library, and support organizations
- Shared reception, office equipment, conference rooms, and other support services.

The Incubator provides client companies with the experience and insight needed to create successful companies through relationships it has created with partners such as The Pooyesh Innovation Instiute, SBU Small Business Development Center, its network of community advisors, professional business development partners, community outreach programs, as well as a dedicated staff.
With the wealth of talent and resources developed by SBU and the benefits of its prime locations, the SBU Technology Units Incubator is poised to make a significant contribution to the economic development of the region's high technology sector. Combined with efforts by other organizations such as: the Tehran High Tech Corridor Council; City of Tehran; the Technology Research and Development Authority (TRDA);The Central Tehran Technology Partnership; and others, the region will soon become one of the nation's premier locations for high-tech enterprises.

The Key Performance Indicators of the SBU Technology Units Incubator

Key Performance Indicators (KPIs) are financial and non-financial metrics used to quantify objectives to reflect the strategic performance of an organization. In other words KPIs are specific measures of an organization's performance in some area of its business. It is a very general concept, with different implementations depending on the type of business and goals of the organization. KPIs differ depending on the nature of the organization. They should not be confused with a Critical Success Factor. Whatever Key Performance Indicators are selected, they must reflect the organization's goals, they must be key to its success, and they must be quantifiable (measurable). Key Performance Indicators usually are long-term considerations. The definition of what they are and how they are measured do not change often. The goals for a particular Key Performance Indicator may change as the organizations goals change, or as it get closer to achieving a goal (Levine , 2000).
The purpose of KPIs is to give a business quantifiable measurement of things. They are important to long-term success of organizations. Identifying the most important KPIs is the first step towards realizing increased profitability and efficiency for most businesses. For KPIs to be useful, they must be consistently quantifiable, have an established correlation to the area of the business in need of improvement. Many things are measurable. That does not make them key to the organization's success. In selecting Key Performance Indicators, it is critical to limit them to those factors that are essential to the organization reaching its goals. It is also important to keep the number of Key Performance Indicators small just to keep everyone's attention focused on achieving the same KPIs (Rawley , 1997).
The aim of present study was to identify KPIs, strategies, and goals of Shahid Beheshti University Technology Units Incubator (SBUTUI) in one and three years range. In this study, first a committee for identifying KPIs of Shahid Beheshti University Technology Units Incubator (SBUTUI) was organized. The members of this committee were specialists, board of directors, representatives of employees and directors of technology companies(TC) and other stakeholders. Then the committee identified seven Key Performance Areas (KPAs) of SBUTUI. The main areas are Instructive and consultative, administrative, research and technology, financial, entrepreneurship, environment, and technology companies. The committee collected 84 primary KPIs in relation to key performance areas of SBUTUI. After that, 16 primary KPIs were omitted by questionnaire that is distributed among board of directors, internal and external customer, and other stakeholders. Finally critical factors of strengths and weaknesses of internal environment and opportunities and threats external environment (SWOT) are recognized and their interaction with primary KPIs is computed in KPIs matrix. 40 primary KPIs are omitted on the basis of means and standard deviations resulted from the SWOT Analysis in KPIs matrix. As table 1 shows, 28 ultimate KPIs have remained in seven Key Performance Areas (KPAs) of SBUTUI.

KPAs	KPIs	Ratio
Instructive and consultative	1. Ratio of work shop evaluation to total workshop of SBUTUI	0.25
	2. Ratio of the hours of scientific and professional consultancy to total TCs	0.714
	3. Ratio of the hours of instructive workshops to total TCs	1.14
	4. Ratio of the mean of participants in workshops to total members of TCs	0.22
Research and technology	5. Ratio of the number of innovations of TCs to total TCs	0.36
	6. Ratio of the number of published papers of TCs to total TCs	0.14
	7. Ratio of the number of web connected TCs to total TCs	1
	8. Ratio of attendance of SBUTUI in International Fairs to total attendance in the fairs	0.11
financial	9. Ratio of the credits of TCs to total TCs	35*
	10. Ratio of SBUTUI non-government income to SBUTUI government credits	0.1
	11. Ratio of employees payroll costs to SBUTUI total costs	0.3
	12. Ratio of Instructive and consultative costs to SBUTUI total costs	0.11
administrative	13. Ratio of SBUTUI board of directors to the total employees of SBUTUI	0.2
	14. Ratio of SBUTUI experts to the total employees of SBUTUI	0.33
	15. Ratio of SBUTUI official faculty to the total employees of SBUTUI	0.13
	16. Ratio of the total employees of SBUTUI to total TCs	1.07
entrepreneurship	17. Ratio of total members of TCs to total TCs	6.35
	18. Ratio of female members of TCs to total TCs	0.36
	19. Ratio of students outside of the SBU to total members TCs	0.28
	20. Ratio of Ph.D and MA students of SBUTUI to total members of TCs	0.46
environment	21. Ratio of official space of SBUTUI to total space	0.79
	22. Ratio of welfare space of SBUTUI to total space	0.25
	23. Ratio of Instructive and consultative space of SBUTUI to total space	0.04
	24. Ratio of research and laboratory space to total space of SBUTUI	3.4
technology companies	25. Ratio of start-up TCs of SBUTUI to total TCs	0.125
	26. Ratio of admitted TCs to total applications of SBUTUI	0.08
	27. Ratio of faculty members in TCs to total members TCs	0.176
	28. Ratio of concluded financial contract of TCs to total TCs	0

* Million Rails

Table 1. The KPIs measures of SBU Technology Incubator

On the basis of KPIs measures of SBU Technology Units Incubator (table 1) in seven key performance areas, some points are stated:

1. **Instructive and Consultative**
   - Increasing the productivity of SBUTUI human resources
   - Increasing the evaluation of workshops

- Increasing the quantity and quality of workshops
- Enriching of consultancy

2. Administrative

- Evaluation and continuous correction of programs and processes
- Increasing the number of experts and specialist
- Increasing the number of official faculty
- Training and development of human resource of Technology Units Incubator

3. Research and Technology

- Supporting the development of new technologies
- Preparing facilities for increasing the number of published papers and books
- Increasing the quantity and quality of attendance in international fairs
- Developing the creative, innovative, and competitive culture in technology companies

1. Financial

- Developing financial management and staffing skills of technology companies directors
- Diversifying the governmental and nongovernmental incomes of SBUTI
- Decreasing the staff costs and increasing the effectiveness of operational costs
- Paying salary and rewards based on performance

2. Entrepreneurship

- Facilitating the product process distributing and using the knowledge and information
- Increasing the number of female members of technology companies
- Increasing the number of students outside of the SBU
- Increasing the number of faculty and Ph.D and MA students

3. Environment

1. Increasing the productivity of present spaces
2. Decreasing the space and increasing the effectiveness of official space
3. Preparing and developing research and laboratory space
4. Increasing the space and effectiveness of welfare space

4. Technology Companies

- Helping the technology companies to the independence of governmental support
- Preparing facilities for technology companies in order to pass faster start- up stage
- Increasing the space and facilities of SBUTUI for accountability to ever- increasing requests
- Preparing facilities in order to increasing the contract of technology companies with organizations outside the SBU

Proposed strategies for SBU Technology Units Incubator (on the basis of KPIs)

Final aim of present study was to identify proposed strategies of Shahid Beheshti University Technology Units Incubator for board of directors. Some of this strategies include :

1. Developing organization and human resource of SBU Technology Units Incubators.
2. Developing scientific, professional, and technological relations with national and international organization associations.
3. Identifying and using environmental opportunities in IT area with attention to strengths of SBUTUI.

4. Facilitating the product process distributing and using the knowledge and information of SBUTUI.
5. Assuming the request-oriented approach in instructive, research and technological processes.
6. Supporting the development and usage of new technologies in SBUTUI.
7. Using from the scientific and professional facilities of SBU.
8. Investing in the markets of knowledge- based products.
9. Creating the system of continuous control and evaluation for programs and processes.
10. Supporting and creating national innovative and intellectual property rights systems.
11. Helping the Technology Companies to the independence of governmental support.
12. Increasing the interactions with organizations outside the SBU.
13. Increasing experts, consultants, and part time faculty in SBUTUI.
14. Increasing the scientific and professional interactions between the Technology Companies.
15. Preparing facilities for increasing the number of contracts of Technology Companies.
16. Increasing the quantity and quality of Instructive and consultative courses.
17. Increasing the attendance in International and national Fairs.
18. Preparing facilities in order to increasing the published papers and books in SBUTUI.
19. Developing project and financial management and staffing skills of technology companies directors.
20. Diversifying the governmental and nongovernmental incomes of SBUTUI.

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