A STUDY OF TECHNOPRENEURSHIP IN SMALL AND MEDIUM INDUSTRY.
TECHNOPRENEURSHIP AS A FIRM STRATEGY: LINKS TO INNOVATION, CREATION AND PERFORMANCE

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ABSTRACT

Technopreneurship it is a simple entrepreneurship in a technology intensive context. It is a process of merging technology prowess and entrepreneurial talent and skills. (Technology + Entrepreneurship = Technopreneurship). A person who undertakes risks that has the chance of profit. Technopreneurs distinguishes themselves through their ability to accumulate and manage knowledge, as well as their ability to mobilized resources to achieve a specified business or social goal. The Technopreneur is a bold, imaginative deviator from established business methods and practices who constantly seeks the opportunity to commercialize new products, technologies, processes, and arrangements. (Baumol).

Keywords: Technopreneurship, Technological Innovation, SMEs.
INTRODUCTION

In the quest for sustainable competitive advantage, companies are finding that lower costs, higher quality and better customer service are not enough. Today, they must be faster, more flexible, more aggressive and more innovative in order to maintain the competitive edge. In short, they must be more strategic. Innovation has been one of the key determinants of competitiveness in global firms. This term refers not only to new scientific and technological inventions, but also to system changes and the manner of doing business. Firms that are able to use innovation to differentiate their products and services out perform their competitors, whether this is measured in terms of market share, profitability, growth, or market capitalization.

However, quite often innovative and new technologies fail to translate into products and services, making the process of management of innovations challenging. In an endeavor to enable firms to come out with more and more innovative products and improve the return on investments in innovation and enhance national share in global high technology exports, more and more countries are realizing the need for establishment of formal National Innovation Systems.

TECHNOLOGY PROGRESS IN INDIAN SMES

SMEs, due to their unique characteristics, are found to have inherent capabilities to undertake technological innovations successfully across industries and nations. While there is considerable empirical evidence to throw light on SME innovation contributions in the context of developed countries, there is hardly any evidence to reveal how innovative SMEs are in rapidly industrializing economies like India. This paper reveals the core findings of two empirical “Innovation Projects” implemented in the previous decade in Bangalore, the globally known high-tech city of India. Indian SMEs are largely incremental innovators, prompted by their customers and involved in product and/or process innovations. But majority carried out innovations with internal efforts only whereas the minority which obtained external support, had better technical strength, indulged in more frequent and both product & process innovations. Such SMEs achieved better innovation performance as well as better economic performance. Some of them internationalized themselves in the process. However such achievements are “an oasis” in the vast Indian SME sector.
How to promote (i) innovations, (ii) quality of innovations and (iii) patenting culture among the SMEs is a challenge for Indian Policy Makers. Indian market is growing rapidly and Indian entrepreneurs are making remarkable progress in various industries like Manufacturing, Precision Engineering Design, Food Processing, Pharmaceutical, Textile & Garments, Retail, IT and ITES, Agro and Service sector.

The elements of creativity are sometimes generalized as cognitive, affective, personal and motivational, and social or environmental. Among these, cognitive and affective elements are arguably most important. The cognitive aspects of creativity include basic knowledge (both general and field-specific), perceptiveness, originality, attraction to complexity (e.g., combining, analyzing, and applying different, disparate ideas or concepts), open-mindedness (e.g., resistance to closure, and awareness of creativity. Affective elements include curiosity, humor, independence, and risk-taking.

CHALLENGES TO SME SECTOR

Small and Medium Enterprises (SMEs) are often confronted with problems that is uncommon to the larger companies and multi-national corporations. These problems include the following:

LACK OF IT SUPPORT

IT personnel are in high demand and are often attracted to bigger companies and MNCs. It is very difficult for SMEs to attract good IT personnel. It is even more difficult to retain them. Moreover, good IT personnel are expensive and may not be affordable by most SMEs.

LACK OF IT LITERACY

Many of the employees in SMEs started from the ground up after working with the company for many years. Some of them are often holding supervisory and managerial positions. These employees may not be IT literate and often have high resistance to the changes in the working process that they are comfortable with after many years.

LACK OF FORMAL PROCEDURE AND DISCIPLINE

Most SMEs do not have formal procedure or often these are not documented. Furthermore, there is tendency for these procedures to change frequently. This makes it difficult for third party and newcomer to understand the existing business practices and match them with the IT process.

UNEVEN IT AWARENESS AND MANAGEMENT SKILL

As company grows, new managers are often introduced into the company. There will also be old managers who are promoted from the rank and file. Some of these managers may not been trained in the leadership and management skill. These uneven skill among the managers often caused conflicts during the implementation.

LACK OF FINANCIAL RESOURCES

As a SME/SMI, financial resources are often limited. This often forces company to select a solution, which appear to be cheap initially. However, the hidden costs will start to emerge during
implementation. This sometime causes the project to be abandoned or sometime sent the company into further financial crisis.

LACK OF HUMAN RESOURCES

Implementations of some bigger scale IT project especially those that involve business process across different departments or require large amount of initial data entries require human resource during the implementation. Some SMEs are often in the stage of frequent fire fighting and shortage of manpower. This makes it very difficult for them to allocate time to carry out implementation. Furthermore, there is always a conflict between getting the daily routing work going and to do the "Extra" IT implementation.

LACK OF EXPERIENCE OF USING CONSULTANTS

A good consultant often save time and effort, and help to prevent pitfalls during the IT projects. However, most SMEs are lacked of experience in working with consultants. The lack of knowledge in the field of IT makes them difficult in identifying good consultant for the projects. They often feel that the consultant costs is too high and they can handle it with their own staff. If the company has no staff that are experience and knowledgeable in the IT project, avoiding external help often costs more to the company eventually.

Small and Medium Enterprises significantly contribute to industrial, economic, technological and regional developments in all economies, developed and developing, though the definitions of SMEs may vary (Agarwal 2005). In India, it is estimated that there are over 1.4 million small industries, out of which about 30 per cent may relate to manufacturing. SSI sector account for about forty percent of total industrial production, thirty five to forty percent of total exports and a significant share in employment (close to 2.5 million) and close to 8% of GDP. However SMEs or SSI sector (now called as micro, small and medium enterprises, MSMEs) are going through a transition phase including restructuring of strategies and facilities since the announcement of new policies in 1991 and thereafter progressive adoption of liberalised and globalising policies in India. We will however continue to use 'SME' nomenclature as it is more popular, and widely accepted.

SMEs need to be vitalised for competitiveness and sustainable growth under new world trade rules and faster technological changes, including wider use of ICT, besides new business models. Several initiatives have been taken by the government from time to time to promote and support MSMEs, including new support measures, financing mechanisms, and gradual de-reservation of items for production. Innovations and technologies are becoming more crucial for competitiveness and sustainability of SMEs, in the emerging international trade regime. MSMEs (or SMEs) need to adopt internationalisation strategies in tune with objectives and strategies and global supply chain management of transnational corporations (TNCs) or large companies. Some of the recent initiatives, key issues and best practices evolved worldwide to vitalize and internationalise SMEs, particularly from technology point of view have been discussed in this paper.

It draws lessons from the studies carried out by the author recently in 2005-06 for UNESCAP, after a desk research and field surveys and visits to SME related organisations in select four developing countries in Asia Pacific region.(The National Manufacturing competitive Council, 2006). This study report was also discussed in an UNESCAP international workshop held at Seoul, South Korea, in Jan. 2006, (Agarwal 2006,a) in which about thirty countries and international agencies participated. The findings were further presented in another seminar at Seoul in March 2006.
and a workshop at Beijing, republic of China, in Oct. 2006 (Agarwal2006,b,c). Prevailing technology capability building measures and national manufacturing strategy recently announced in India have also been discussed, and some suggestions made to internationalize to improve competitiveness of SMEs in India.

It is hypothesized in this paper that vitalization and internationalization of select SMEs is necessary in developing countries such as India, and technological inputs and support is a prerequisite for their growth and competitiveness; along with a comprehensive policy framework, implementation mechanisms and built evaluation systems.

Challenges faced by Indian SMEs

![Graph showing various challenges faced by Indian SMEs]

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Dearth of easy finance and credit instruments</td>
<td>79%</td>
</tr>
<tr>
<td>Limiting Regulatory policies</td>
<td>78%</td>
</tr>
<tr>
<td>Unavailability of modern technology</td>
<td>76%</td>
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<tr>
<td>Lack of infrastructure facilities</td>
<td>74%</td>
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<tr>
<td>Absence of exclusive marketing platforms and</td>
<td>72%</td>
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<tr>
<td>distribution networks</td>
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</tr>
<tr>
<td>Labour laws and availability of affordable</td>
<td>70%</td>
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<tr>
<td>skilled labour</td>
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</tbody>
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*Source: FirstBiz-Greyhound Knowledge Group SME Survey 2014 (n=540)
A FirstBiz - Greyhound Knowledge Group initiative*

The difficulties faced by the tier-2 and -3 cities are manifold compared with those in the tier-1 cities. According to the survey, organizations from tier-3 cities find it more difficult to obtain credit owing to high interest rates and those from tier-2 and -3 cities find obtaining term loans without collaterals a major obstruction as compared to tier 1 cities.

Interestingly, 71 per cent of the companies were not aware of the government’s credit guarantee scheme for access to collateral free credit from banks. More importantly, of the 29 per cent respondents that were aware, 99 per cent said the scheme did not help them as it is difficult to access information on the scheme from banks.

"Small organizations hold high expectations that this budget will have a policy that encourages creation of an SME exchange - dedicated stock exchange for SMEs acting as a common financial organization for financial and equity trade," the survey has found.

A. Selvarani & Kanagaraj Venusamy, “A Study of Technopreneurship In Small And Medium Industry. Technopreneurship As A Firm Strategy: Links To Innovation, Creation And Performance” – (ICAM 2015)
Now the biggest problem for these companies to get is that they are not getting clients for their business and this problem is increasing day by day. Stringent austerity measures in their own economy has resulted significant drop in consumption and lack of opportunity. Hence it’s a huge opportunity for the consultants in India to get these SME good platforms in India in term of clients in the form of JV and partnership and also getting them capital. Currently India is going to be in the path of significant roller coaster ride of GDP growth hence expansion and development of the business across all industries is the demand of the future Academic and R&D Organizations Involvement in technology Enhancement

Some of the engineering and technical institutions such as IITs, National Institutes of Technology and CSIR Research Laboratories, are also providing R&D and technology related support facilities and services to the SMEs including training and skill development programs. However, access to these facilities are generally not easy, and often lack the business needs of entrepreneurs. There are very limited start-up enterprises based on technologies or intellectual property from academic and R&D institutions. Ministry of Small Industries and Development Commissioner, have a wide network of technical, design, training, pro-type development, testing etc., facilities all over the country spread up to district levels. But, these facilities need to be modernized and tuned to emerging needs.

A. Selvarani & Kanagaraj Venusamy, “A Study of Technopreneurship In Small And Medium Industry, Technopreneurship As A Firm Strategy: Links To Innovation, Creation And Performance” – (ICAM 2015)
1. Operation of the firm/company is very short years. (Percentage of firms with respect to years)

2. Research and development and training facilities not upgraded.
3. Resource issues due to improper entrepreneurial activities.

OBJECTIVE

1. Explore and analyze more general elements in Technopreneurship.
2. To investigate the innovation and creation among small and medium enterprises.

Approach: Case studies, Positivistic approach

METHODOLOGY

Empirical research based on surveys and interviews with testable hypothesis. Mixed methods and action research

FINDINGS

There are three relevant questions with respect to Indian SMEs. First and foremost, it is important to know whether at all, Indian SMEs are technologically innovative. Secondly, if yes, to what extent? Thirdly, what is the nature of their innovations and what are their achievements? These questions assume significance because India has not yet gained international attention for its
 industrial innovations, leave alone SME innovation, unlike it has gained attention for its relatively high rate of economic growth in the global economy

REFERENCE