EMBA 4th Semester Project Report on

BRIDGING THE GAP BETWEEN INSTITUTIONS OF PROFESSIONAL EDUCATION AND SMALL AND MEDIUM-SIZE ENTERPRISES

Submitted By :

Abhishek Ganotra

DTU/EMBA/502

Under the Guidance of :

Dr. Bhavneet Kaur

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

May 2018

DECLARATION

I hereby declare that this Project Report entitled "**Bridging the Gap between institutions of Professional Education and Small and Medium-Size Enterprise"** submitted by me to Delhi School of Management, New Delhi, is a bonafide work undertaken by me and it is not submitted to any other university or institution for the award of any degree, diploma /certificate or published any time before.

_____

Signature of the Student

Abhishek Ganotra

Enroll. No.: 2K16/EMBA/502

Semester: 4th , Batch – 2016-18

Date : May, 2018

CERTIFICATE

This is to certify that the project report work certified **"Bridging the Gap between institutions of Professional Education and Small and Medium-Size Enterprise"** done by **Abhishek Kumar** is an authentic work carried out by him/her under my guidelines and supervision. The matter embodied is this project report has not been submitted earlier for the award of any other degree/diploma to the best of my knowledge and belief.

Date:

_ _

Name of the Supervisor **Signature of the Supervisor**

ACKNOWLEDGEMENT

I, Abhishek Kumar, wish to extend my gratitude to Dr. Bhavneet Kaur, Delhi School of Management (DSM), Delhi Technological University and Prof Rajiv Kapoor, Principal, Ambedkar Institute of Advanced Communication Technologies and Research ; for giving me all the guidance and valuable insights to take up this Semester Project.

I also take this opportunity to convey sincere thanks to all the faculty members for directing and advising during the course.

Abhishek Ganotra
2K16/EMBA/502

ABSTRACT

The Science, Technology and Innovation Policy-2013 of India emphasizes on effective Industry-Academia partnership which is crucial to the advancement of Science, Technology and Innovations, ultimately contributing to the economy kitty of the nation.

Secondly, R&D is a capital-intensive activity which neither any government nor industry can afford individually. In India, nearly two-third of the finances for R&D is provided by the public sector and rest (one third) is shared by the private sector. However, in developed countries, reverse trend is observed. A thorough study is required to understand how Indian private sector can be stimulated for enhancing the investments in R&D.

In India, there are few stories of successful Industry Academia partnership in R&D, primarily limited to IITs. Specific models need to be created for the promotion of Industry-Academia partnership in R&D for our country by studying the evidence based on successful models of Industry-Academia interactions.

The Problem

Academics frequently call Industry and the people for help in collection of the data however rarely feed results back in a form that is able to be understood by the public and Industry.

Objectives

1. Determine how innovation is done and being used by SME industry and academic.

2. To find out mechanisms for filing the gap between academic innovation and the innovation needs of industry and to some extent the public.

1.0 INTRODUCTION

There is much discuss the development hole and the learning hole. Ongoing Investigation of Nasscom said that 40% of IT workforce in India is under talented. Innovation is changing at a fast pace in contrast with learning. Early idea expresses the perspective that the business segment neglects to utilize successfully the current assortment of information that is available in the Research and development part, with the goal that it fails to meet expectations in mechanical ingenuity and business execution. The second idea mirrors the information division (e.g. colleges, examine organizations) misses the mark in transmitting its accessible mastery and research discoveries to the mechanical or open division, with the goal that the information area must be rebuked for the substandard execution of the economy. It is along these lines clear that the connection between the exploration segment and the business part is an uneasy one, which calls for further and point by point examination. The collaboration between advanced education/research and industry has on occasion in reality been hazardous. The primary inquiry in question is whether colleges (or open establishments of advanced education and research) can have close and firm associations with the business and open part, so a smooth and compelling exchange of learning is guaranteed. This issue has gotten much consideration in the ongoing years from Govt of India (expertise advancement and different activities). In this structure, turn outs and modern turn offs, communication systems and open information frameworks have turned out to be valuable and operational approach ideas and diagnostic instruments. Obviously, the division lines between logical research and development have turned out to be fluffy, as is seen by the very thought of Research and development. Research can be – and now and again should be – hazardous, as this is the reason for genuine developments. The primary test is to make an adjusted portfolio, where government and market, open financing, and private investment assume a coordinated part. There is a wealth of writing that tries to evaluate the social advantages and financial effects of essential (science-driven or basic) look into.

As of late, we have watched an enthusiasm for the roundabout research-advancement demonstrate (see Figure 1) that may have the capacity to beat the previously mentioned holes in research and development.

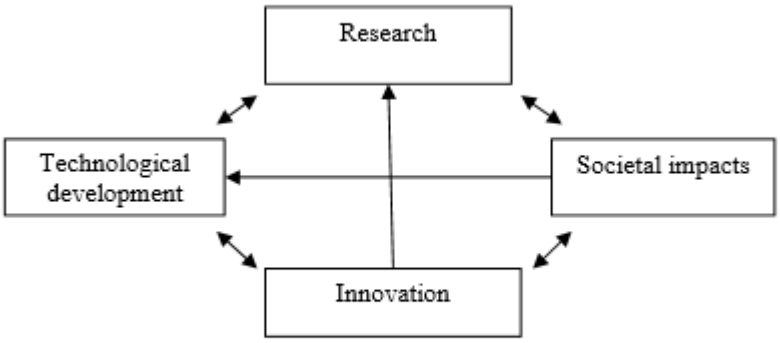


Figure 1. A circular research-innovation model

1.1 Institute of Professional Education Profile

The Indian government's mission is to train skilled manpower of at least 500 million persons by 2020. To achieve this goal, MHRD has decided to set up 300 new polytechnics under PPP mode. For each college, the proposed share of MHRD, state government and industry partner will be ₹ 3.00 crores, ₹ 2.00 crores and ₹ 10.00 crores, respectively. (http://www.aicte-india.org/downloads/Details_of_the_Scheme_171111.pdf)

Excerpts of the same are given below

Scheme of providing Financial Assistance for setting up of new polytechnic under PPP mode.

Agencies involved

(i) Ministry of HRD (Department of Higher Education)
(ii) AICTE
(iii) State Governments
(iv) Industries/private service education providers (Private Partners)

1.2 Industry Profile

There is an abundance of literature on the motives and impacts of innovation, as part of the more general literature on entrepreneurship. The entrepreneur is the owner manager of a firm, and hence both actual ownership and daily management are crucial in business performance. Entrepreneurship may also mean the design and management of business network constellations. Smart relationships with surrounding (third) parties are often regarded as crucial for the survival of firms, especially those relationships concerning information and knowledge. However, the foundations of modern innovation theory were laid down by Schumpeter (1934), with his seminal work on the process of creative destruction. He mentioned five forms of innovation: introduction of new products; introduction of new production processes; entering new markets; using new supplies; and taking new organization forms. In his opinion, innovation is the characteristic of entrepreneurship, inducing a process of economic growth. Over the years, many scholars have elaborated on this concept and have presented numerous definitions and types of innovation. One thing is clear: knowledge plays a crucial role in innovation. This is not the place to discuss at length the substantive literature on innovation studies. Innovations are mostly driven by external incentives, although for some risk-loving people innovation may be a challenge in itself. Innovation is usually not an individualistic decision: the significant influence that business clusters have on the innovativeness of the firm is currently a frequently reported subject. An important group of stakeholders is also formed by the ‘outsiders’; recent research has pointed out that ‘outsiders’ have a positive influence on innovative behavior by SMEs, as they are an influential group in the environment of the firm, in particular through cluster formation and network contacts. Recent

research undertaken by various researchers brings to light that firms which work with ‘outsiders’ are more innovative than firms which do not work with ‘outsiders’. The influence of ‘outsiders’ can inspire the entrepreneur to innovate and prevents the entrepreneur from focusing mainly on his daily concerns and business. In the rest of this paper we will address the question whether, why, and how SMEs deploy knowledge generated and offered by universities of professional education (IPEs) in a particular region (Okhla Industrial Area) in New Delhi, India. Several economists have emphasized that SMEs innovate in a different way compared with larger firms, as is reflected in the general statement : “A small business is not a little big business”. Therefore, it is important to consider the specific characteristics of SMEs in their innovation process. It is not only the size that makes SMEs special. Other important characteristics are: the central position of the entrepreneur (the owner/manager), the short-term scope of SMEs and their local and regional orientation. These characteristics also influence the innovation intensity and strategy of the firm. Crucial for innovation success is the central position of the entrepreneur.

1.3 Objective of Study

Institutions for Higher Education and SMEs - Knowledge transfer

There is an abundance of literature in the field of knowledge transfer that focuses attention on the role of universities (or institutions of higher education). It has become customary to make a distinction in institutions of higher education between universities of professional education and 'regular' universities. The main differences between these two types of institution are that the former do not have an academic Master's programme, do not conduct fundamental research and do not offer possibilities to pursue a doctorate. Strictly defined, a university of professional education can be seen as an institution of higher education offering empirical training and instruction in many industrial arts and applied sciences. A 'regular' university can be defined as a large and diverse institution of higher learning created to educate for life-long learning and for a profession, and to grant degrees. In the present pap**er we will focus on Institute** of professional education (hereafter abbreviated as **IPE**s). Alternative names for this kind of institution are: **ITI's** and polytechnics. The methodological approach of **IPE**s is more practical than the approach of 'regular' universities, and is more geared towards the operational character of SMEs. It is also noteworthy that **IPE**s often play an important role in their own geographic area, as do SMEs (in contrast to the traditional more national and international orientation of 'regular' universities). Therefore, **IPE**s may be more useful to SMEs (in a direct sense) in a regional activity setting than 'regular' universities.

2.0 LITERATURE REVIEW

IPE's and SME's an intriguing outcome of the more provincial and down to earth approach of IPEs is their more grounded center around SMEs, and additionally their more regular and direct contacts with SMEs, this conveys us to the primary subject of this paper: the experience and supposition of SMEs concerning local IPEs. What's more, we may feature the significance of big business instructive projects that are focused at acquiring knowledge into the attractive quality and possibility of beginning a possess business.

Before such instructive projects can be built up legitimately, an exhaustive stock of the requirements of the business visionaries in the important concentration amass in the district concerned is vital. Officially over three decades back, Ryans et al. (1987) asserted that the pertinence of private ventures (in the US and Canada) isn't reflected in the run of the mill business college's educational programs: most courses are coordinated toward getting ready understudies for vocations in Fortune 500-type organizations, extensive non-benefit associations, or people in general area. Business colleges can be characterized as doctoral level colleges for business thinks about, offering MBAs and related courses of study. A few parts of independent company administration can without much of a stretch be incorporated into the general business educational programs, as per Ryans et al. (1987), however others are pretty much one of a kind to private company or merit extraordinary consideration in an independent company course. These subjects incorporate investment, enterprise, business association, strategies for success, government relations, and open doors for ladies and minorities. It is additionally essential to stay up with the latest by making broad utilization of outside (visitor) speakers who have unique mastery. It is important that, after 10 years, Vesper and Gartner (1997) specified that the most oftentimes offered enterprise courses at both the undergrad and graduate levels in the business enterprise programs are enterprise or beginning new firms, private venture

administration, field ventures/wander counseling, beginning and running a firm, wander design composing, and wander fund. The main seven general criteria proposed for positioning enterprise programs are, as indicated by Vesper and Gartner (1997):

(I) courses offered (as far as number of various courses, size of classes, number of credits or class sessions, how courses are educated, who is doing the instructing, and so forth.);

(ii) staff productions (books, diary procedures, magazine articles, number of references, regardless of whether information based, how connected, nature of target crowd, length, and so forth.);

(iii) affect on group (open symposia, understudy counseling ventures, organization turn offs);

(iv) graduate adventures (number of new businesses by graduates, graduate interest in the endeavors of others as financial specialists, accomplices, workers or different partners);

(v) developments (made by the alumni of these projects or in the projects themselves);

(vi) graduate new businesses (achievements);

(vii) effort to scientists (facilitating meetings, supporting diaries, making and dispersing new showing materials, distributing pamphlets, and helping different diaries).

Academia-Industry Model (AIM) Academic institutions are the store house of intelligentsia which industrial sector is eager to utilize for its on-going and futuristic R&D activities. It has been observed that industries are eager to tie up with academic institutions which are performing commendably in the domains of patents, technologies and entrepreneurship. In such institutions, industry has contributed financially for establishing centres of excellence, research/testing laboratories, industry chairs and scholarships/fellowships. Industry also grants many research projects to scientists.

The partnership of industries with academia has become more needful and relevant, as they have realized that in order to progress and compete globally, they need to bring scientific innovations in their existing system. Therefore, it is imperative for industry and academia to partner with each other in order to pursue focused research that can be translated into an innovative product/technology/process.

The examples of academia-industry partnership under AIM are as follows:

2.1. Centers of Excellence

2.2. Research Laboratories

2.3 Entrepreneurship Development Programme

3.0 RESEARCH METHODOLOGY

In this applied study we used survey research methodology and asked businesses about their experience of working with. About a one-fourth stated that they had such experience in the past, especially the larger enterprises.

We categorized the enterprises into two groups:

1. Who has already worked with universities
2. Those who hasn't worked with the universities.

The issue experienced by the two gatherings began from correspondence challenges. Absence of money related assets was given just normal significance by the two gatherings. Study uncovered a huge distinction between the two gatherings. Individual cooperation assumes a basic part here, in particular individual communication and trust. Issues must be drawn nearer in a route particularly to need of the endeavor concerned, while participation must be adaptable.

4.0 ABOUT CASE STUDY

4.1 Introduction to the case

In this section, we will focus on the experience that Indian SMEs have with universities, and on the opinion, they have about these institutions. In other words: what are the most important problems for SMEs in establishing and maintaining a relationship with these specific public knowledge institutions? We focus on one area in the Northern part of the India (Okhla Industrial Area and its surroundings, see Map 1). This area shows both the presence of SMEs and a single IPE, which makes it very suitable for our purposes. Although the case study was carried out in the India, the message of this paper is likely also applicable to other regions and other countries. The Okhla Industrial Area region is more or less comparable to the Delhi as a whole, in terms of distribution of firm size. Close to 90 per cent of the firms employ less than 10 people. However, the service sector plays a less important role in this region compared with the India as a whole. Three questions are dealt with in our applied research:

1. What is the opinion of entrepreneurs on IPEs?

2. How are the lecturers of these IPEs perceived by the entrepreneurs?

3. How do graduate-entrepreneurs of these IPEs look back on their university period?

Tool Room & Training Centre (TRTC) at Wazirpur Industrial Area, Delhi and Hi-Tech Vocational Training Centre (HTVTC) at Okhla Industrial Area New Delhi were established, with technical and financial assistance of Government of Denmark and Government of Italy respectively, with the objective of contributing towards the development of industries in and

around Delhi through supply of trained manpower, undertaking job work of machining and manufacturing of sophisticated tools. These centers were functioning as independent societies, registered under the societies registration act, 1860 each having separate Governing council and General body of the society.

The societies of TRTC and HTVTC have been amalgamated and renamed as Delhi Institute of Tool Engineering (DITE) . DITE has come into existence w.e.f. 28th Nov. 2007 and is functioning from Wazirpur Industrial area and Okhla Industrial area as Campus – I and Campus – II respectively.

DITE has been playing a vital role in the development of micro, small and medium industries through supply of trained manpower in the field of tool making and tool designing and supply of sophisticated tools such as dies, moulds, press tools, jigs, fixtures etc. for the past over thirty years. The Institute runs post- ITI courses in machine operations and die fitting, Diploma course in Tool & Die Making, Diploma course in Mechanical Engineering,B.Tech (Tool Engineering), B.Tech (Mechatronics) and M.Tech (Tool Engineering) to cater to ever challenging needs of technical excellence in the area of Tool Engineering and Mechatronics.

The trainees are given on the job training by well qualified faculty of the Institute. The Courses offered by Institute are approved by various agencies such as four-year Diploma Course in Tool & Die Making by Board of Technical Education, Govt. Of NCT Delhi, B.Tech and M.Tech Course by AICTE and affiliated to GGSIP university. The Institute also conducts various short term courses in the field of Tool Engineering, operation & maintenance of CNC machines.

The institute is also manufacturing sophisticated tools for the reputed Industries viz. Maruti Udyog Ltd, L&T, Voltas, National Institute of Visually handicapped (NIVH), Minda, Steel Strips India Ltd etc. It also provides consultancy service in the field of Tool Engineering to the SSI sector. DITE is perhaps the only Institute in the country where the degree level course in Tool Engineering is being conducted. Our endeavor is to make DITE as the center of Excellence in Tool Engineering and Integrated Engineering's. The Trainees of the Institute are absorbed by the industries through campus interview during the final year of their training period.

4.2 Data Collection Sources/Techniques

The documents of the Okhla Enterprises Affiliation were utilized for focusing on the names and addresses of the organizations. We purposely took a gander at the parts administrations, assembling, development, and wholesaling, in light of the fact that we believed that organizations from these divisions would be more intrigued by an association with learning foundations than different firms would be. It is important to say that we intentionally did not restrain ourselves to innovation driven ventures but rather that our examination was likewise open to more customary firms, as they fit in exceptionally well with the connected and provincial focal point of IPEs. We drew nearer altogether 1292 firms with no less than 5 yet not in excess of 50 workers (April 2017). 401 of them restored their frame in time. This implies a reaction rate of 31.0 for each penny. As a rule this score is attractive and sufficiently high to put forth broad expressions for these divisions in this locale. Nonetheless, not all organizations addressed all inquiries. 38.1 for each penny of the taking an interest firms utilized under 10 individuals, though 61.9 for each penny utilized in excess of 10 individuals (the division amongst little and medium-sized, as indicated by previous Indian guidelines). From Table 1 it turns out to be evident that exclusive a little minority of the SMEs in the locale made utilization of at least one of the predefined information foundations (minimal more than 10 for every penny). The foundations are

counseled significantly more by medium-sized ventures than by little endeavors. The predefined organizations were all 'normal' colleges or IPEs (there was additionally one choice to tick the appropriate response other, which was finished by near 30 for each penny of the respondents who made utilization of any learning foundation). More than 90 for each penny of the respondents who made utilization of a learning foundation said an IPE. Not as much as just 10 for each penny of the respondents who made utilization of an information establishment said a 'general' college.

4.3 Data Analysis

Table 1. Knowledge institutions by SMEs

	Small	Medium	All
Yes	5.9	17.4	13.0
No	94.1	82.6	87.0
Total	100	100	100

N= 399
P-value .00

Half the respondents made used one or more institutions for problem solving as stated in Table 2. Also degree of intensity is varying over time between the two sub groups.

Table 2. Intensity of knowledge relationship

	Small	Medium	All
Low	42.9	50.0	48.9
Moderate	28.6	22.5	23.4
Very	14.3	15.0	14.9
Variable	14.3	12.5	12.8
Total	100	100	100

N= 47
P-value 0.98

There isn’t significant difference in the way the relationships are as per Table 3.

Table 3. Ways of bringing about the relationship

	Small	Medium	All	P-value
Deliberately brought about by the entrepreneur	57.1	37.5	40.4	0.33
Deliberately brought about by the institution	28.6	27.5	27.7	0.95
Through a third party	0.0	17.5	14.9	0.23
Coincidence	14.3	12.5	12.8	0.90
Through graduates	0.0	12.5	10.6	0.32
Other	0.0	15.0	12.8	0.27

N= 47

Differences between subgroups are negligible as shown in Table 4. Internships are considered more popular than the rest.

Table 4. Forms of the relationship

	Small	Medium	All	P-value
Internships	42.9	60.0	57.4	0.39
Training & development	28.6	22.5	23.4	0.73
Joint innovation	14.3	12.5	12.8	0.90
Contract students	0.0	12.5	10.6	0.32
Contract research	14.3	2.5	4.3	0.15
Alumni days	0.0	5.0	4.3	0.55
Other	0.0	20.0	17.0	0.19

N= 47

Most important subjects as per study are Marketing and quality. However less difference between two subgroups is observed. Exports hardly plays any role at all.

Table 5. Substance of the relationship

	Small	Medium	All	P-value
Marketing	42.9	26.7	31.8	0.54
Quality	50.0	23.3	31.8	0.20
Strategy	28.6	16.7	20.5	0.57
Finance	14.3	13.3	13.6	0.87
Working circumstances	7.1	10.0	9.1	0.62
Environment	0.0	3.3	2.3	0.44
Export	0.0	0.0	0.0	--
Other	35.7	26.7	29.5	0.85

N= 44

Quality improvement is the most important factor for respondents to form relationship as per Table 6.

Table 6. Purpose of relationship

	Small	Medium	All	P-value
Quality improvement	42.9	54.1	52.3	0.59
Efficiency increase	42.9	37.8	38.6	0.80
Sustainability contribution	14.3	27.0	25.0	0.48
Facilitating innovations	28.6	13.5	15.9	0.32
Other	14.3	27.0	25.0	0.48

N= 44

Enterprises who have relationship with institutions are more satisfied with it. However some respondents have varying thought for the same as per Table 7.

Table 7. Satisfaction with the relationship with knowledge institutions

	Small	Medium	All
Very dissatisfied	0.0	2.6	2.2
Dissatisfied	0.0	2.6	2.2
Neutral	14.3	10.3	10.9
Satisfied	71.4	71.8	71.7
Very satisfied	14.3	10.3	10.9
Varying	0.0	2.6	2.2
Total	100	100	100

N= 46
P-value .98

In scarcely any case was an administrative appropriation conceded (yes) (Table 8). Nonetheless, the appropriations that were conceded just halfway secured the costs. There were not really any contrasts between the two subgroups.

Table 8. Subsidized firms

	Small	Medium	All
Yes	14.3	5.3	6.7
No	85.7	94.7	93.3
Total	100.0	100.0	100.0

N= 45
P-value 0.38

Generally speaking, respondents were uninformed of the administrations that the foundations offered (benefit combination obscure). In their eyes, these associations are organizations for instruction, not for business improvement. To a lesser degree they were not acquainted with the methods (strategies obscure) (e.g. concerning conveyance time and classification).

Table 9. Problems perceived in relationships with knowledge institutions

	Small	Medium	All	P-value
Service assortment unknown	35.0	37.4	36.5	.63
Procedures unknown	27.1	31.1	29.6	.42
Too time-consuming	7.9	14.9	12.3	.04
Not able to find the right person	5.0	11.1	8.8	.05
Too expensive	6.4	3.0	4.3	.11
Unclear recommendation	2.9	3.4	3.2	.77
Lack of understanding	0.7	3.4	2.4	.10
Secrecy	0.0	0.4	0.3	.44
Other	12.9	10.6	11.5	.51
None	38.6	34.0	35.7	.38

N=375

Initially, it is fascinating to take note of the result that organizations that utilization the learning establishments have less issues than non-clients. Besides, there are two things that non-clients have fundamentally a greater number of issues with than the clients: benefit arrangement obscure, and methods obscure. Evidently, encounter assumes a part here, since clients have less issues. The issues specified might be viewed as purposes behind the non-clients not to make utilization of these establishments. Or maybe shockingly, there were additionally two things that a bigger number of clients than non-clients saw as an issue: a too tedious relationship and a misty proposal from the IPE. (allude table 10)

Table 10. Problems perceived by establishing and maintaining a relationship with knowledge institutions

	Users	Non-users	All	P-value
Service assortment unknown	23.5	39.0	36.9	.03
Procedures unknown	19.6	31.3	29.7	.09
Too time-consuming	19.6	11.0	12.2	.08
Not able to the find right person	15.7	7.7	8.8	.10
Too expensive	3.9	4.3	4.2	1.00
Unclear recommendation	7.8	2.5	3.2	.06
Lack of understanding	2.0	2.5	2.4	1.00
Secrecy	2.0	0.4	0.3	.14
Other	9.8	11.7	11.4	.70
None	49.0	33.4	35.5	.03

N=375

”13% of the SMEs in this Indian peripheral region have made use of a public knowledge institution. Between the small and medium-sized firms there are hardly any differences concerning the following aspects: the intensity of the relationship (predominantly hardly), the ways of bringing about the relationship (usually deliberately sought for by the entrepreneur), the forms of the relationship (mostly internships), substance of the relationship (mostly marketing and quality), the purpose of the relationship (mostly quality improvement), satisfaction with the relationship (mostly satisfied), and whether they had had any governmental subsidy (hardly ever).

In our case study, frequently perceived problems with establishing and maintaining a relationship with knowledge institutions appeared to be service assortment unknown and procedures unknown in our case study. However, more than one-third of our respondents did not experience any problems. There appeared to be some differences between small and medium-sized firms: the latter more often mentioned problems such as the relationship being too-time consuming, not able to find the right person, and the perceived lack of understanding by the institution. Furthermore, we see some differences in our case study between firms that had already made use of these public knowledge institutions versus the ones that had not. Based on the outcomes of this project, a number of interesting recommendations can be formulated. Knowledge institutions are recommended to follow a double strategy towards attracting SMEs into the knowledge circulation process. The first line of approach considers those firms that do not yet make use of these institutions. The most important reasons for not making use of the institutions in our case study are unfamiliarity with the services and the procedures. Communication is the key word in this situation. It might be useful to integrate stakeholders

here, as they might be of importance in convincing the entrepreneurs that it is useful to make use of such institutions.

For this purpose, we investigated, amongst other things, the opinion of entrepreneurs, who had recently had one or more of such internships, on the capacities of their supervising lecturers. Interviews were held with 27 entrepreneurs, who were already in the network of Delhi Institute of Tool Engineering, and who almost all had had an internship in the previous 5 years. In other words: they were really capable of giving their opinion on their supervisors.

The interview period was April 2018 – May 2018. The study was conducted in the same region as the study described in the first section. The average age of the entrepreneurs was 42.3 years, and all are male. Their level of education was rather high: 21 of them held a university degree, and 5 respondents were sole shareholders of the firm. Most of the firms were operating in the services sector or in the construction sector.

The average firm size is 107.5 full time equivalents. 13 firms employed less than 50 people (small firms), 11 firms between 50 and 250 people (medium-sized firms), and finally 3 firms more than 250 people (large firms). Most firms considered themselves to be in the maturity stage (10). Then follow the growth stage (8) and the renewal stage (6). From Table 11 it becomes clear that more than one-quarter of the respondents consider their own firms as very innovative (this is subjective of course), and more than half as rather innovative. About 10 per cent see their own firms as hardly innovative and another 10 per cent as not innovative at all. 16 firms felt the urge to improve the innovativeness of their firm. “

Table 11. How innovative do you consider your firm?

	%
Very	29.6
Rather	51.9
Hardly	11.1
Not	7.4
All	100

The most widely recognized sort of development is the new item, specified by more than seventy five percent, nearly took after by enhanced items (see Table 12), where it ought to be said that every respondent could tick in excess of one answer. At that point take after enhanced procedures, new administrations, new procedures, lastly enhanced administrations. In the classification other, among different advancements, joined items administrations were said.

Table 12. Kind of innovations

	%
New products	76.0
Improved products	72.0
Improved processes	60.0
New services	52.0
New processes	44.0
Improved services	36.0
Other	12.0

These high unbiased scores show that the administering teachers don't have an unmistakable profile according to their understudy business visionaries. The most noteworthy score is for skill and individual contacts: the greater part of the respondents evaluated this thing to be sure or even extremely positive. At that point take after adequacy and pragmatic experience, with scores marginally higher than 40 for each penny. Around 33% of the respondents were (exceptionally) positive on coordinated effort, adaptability, sympathy, client introduction, and training by the managing speaker. Inventiveness came in the base place,

by a long shot: not as much as just 10 for each penny were (exceptionally) positive concerning this part of the speakers they managed.

Table 13. Opinion on the supervising lecturers

(very) positive	%
Expertise	51.9
Personal contact	51.9
Effectiveness	44.4
Practical experience	40.7
Collaboration	37.0
Flexibility	37.0
Empathy	33.3
Customer orientation	33.3
Coaching	29.6
Innovativeness	7.4

In rundown, they concern the prior contribution of the two business people and teachers in the examination extends, an alternate and prior acquaintance of understudies with the subject of development, an elective way to deal with advancement and the need to consider diverse instructive levels.

At long last, it can be inferred that the approach of our contextual analysis appeared to have worked. This opens the way to expand the examination into exploring potential outcomes to enhance the procedure of learning dissemination amongst IPEs and SMEs.

Graduate business people thinking back The focal point of this subsection is on 45 alumni of DITE, who are presently running their own organization (in the future alluded to as IPE-graduate business visionaries). Various highlights are revealed, among which are the

individual attributes of these IPE-graduate business people, and the kind of firms they run. Besides, consideration is paid to the part their college course has played in the choice to begin their own particular business, and to the potential outcomes for building up a future connection between these graduates and their previous IPE. The idea of graduate business people is ending up increasingly in vogue.

The Indian government's mission is to train skilled manpower of at least 500 million persons by 2020. To achieve this goal, MHRD has decided to set up 300 new polytechnics under PPP mode. For each college, the proposed share of MHRD, state government and industry partner will be ₹ 3.00 crores, ₹ 2.00 crores and ₹ 10.00 crores, respectively (http://www.aicte-india.org/downloads/Details_of_the_ Scheme_171111.pdf).

The Mechanical Innovative work (IRD)- IIT Delhi (http://ird.iitd.ac.in/content/about-ird): The IRD unit is dependable to give managerial sponsorship and administration to the differed sorts of undertakings that are attempted by the workforce of IIT-D. Through IRD, IIT-D has laid solid accentuation on supported research and modern connections (Fig. 3.7). It has added to taking care of mechanical issues pertinent to the necessities of the nation. IRD has started different industry supported ace degree projects to improve mechanical investment in Research and development and building training. Primary region for which IRD is working:

· Supported research ventures (high effect ventures)

· Consultancy employments

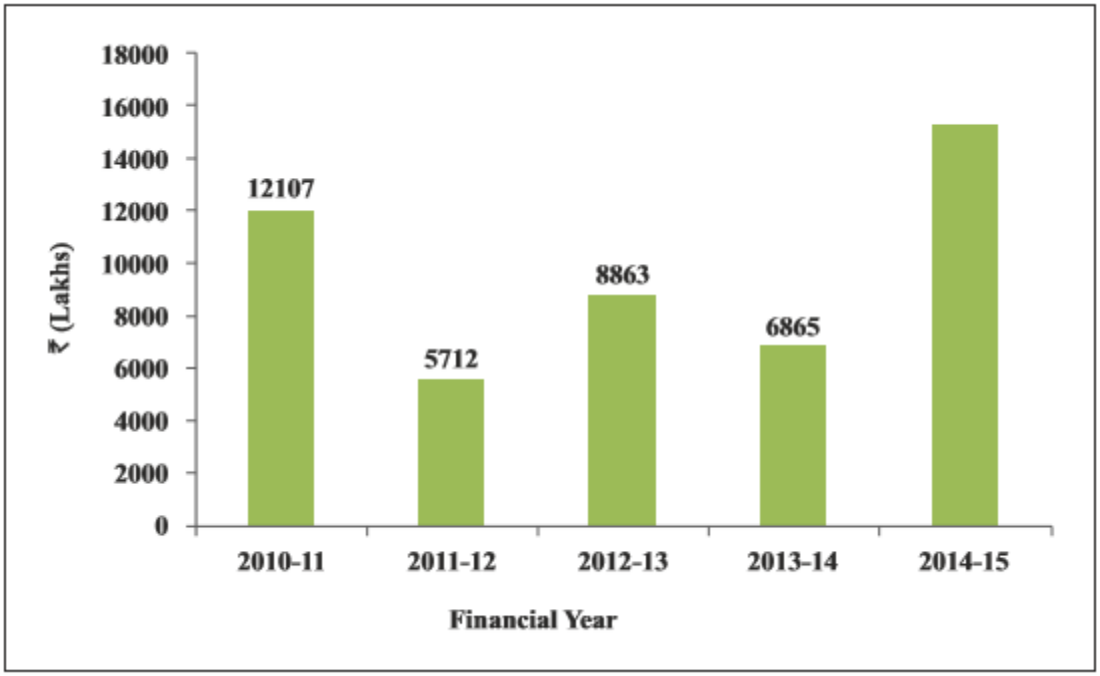
· Proficient advancement finance

· Licensed innovation rights

· Supported cooperations

· Industry supported M. Tech programs

Financial Year	**Sponsored Research Projects**	
	Numbers	**Sanctioned Value (Rs Lakhs)**
2010-11	130	12107
2011-12	123	5712
2012-13	142	8863
2013-14	150	6865
2014-15	164	15377



Sponsored Research Projects undertaken Under IRD (2010-15)

"Foundation for Innovation and Technology Transfer (FITT) (**http://www.fitt-**iitd.org/): FITT was established in 1992 as a registered society. It is one of the most successful industrial interface organizations in the country. It aims to foster, encourage and build-up commercialization of R&D in IITD for mutual memberships. It has grown as self sustaining center having numerous financial reserves in form of 0.36 crores in year 2015. FITT itself consists of number of services that are involved in ` innovation, technology and product development in collaboration with number of industries and generation of entrepreneurs and start-ups. Services offered by FITT are as following: · Information support service to industry and R&D organisations · Transfer of technology relating to proven R&D outputs · Research partnership with industry for technology development and its commercial applications · Innovative problem solving consultancy with industry clients · Industrial

access to the array of specialised equipment and central facilities HRD programmes · Corporate membership of FITT · Facilitate funding for development of innovative ideas of commercial implications With strong support from the government, FITT has established Incubation Centers such as TBI, Biotech Incubation Facility, Science and Technology Parks. FITT has been a huge success in terms of I-A collaborative project which has generated 52 crores of assets since last 5 years. There are ` more than 64 corporate clients who avail corporate membership of FITT and draw mutual benefits from the services that FITT offers and in return contributed to ~ 17 lakhs of FITT earnings. Further, >46 ` companies are presently incubated in FITT that has potential to become successful ventures. FITT works towards bringing the research outputs of the scientific community to the market by way of patenting their innovative research and preparing a business model for their applied research ( ). For details please see pages 122-137 iii) Airtel IIT Delhi Centre of Excellence in Telecommunications (AICET): Collaboration between DoT, GoI, IIT-D and Bharti Airtel Ltd. (tri-partite MoU), lead to the establishment of AICET at IIT-D. This center mainly focuses on 'Telecom Technology and Management' and is a part of the Bharti School of Telecommunication Technology and Management, which was set up at IIT-D in 2000. It aims to generate technology that is at par with the world standards thereby evolving India into a global leader in the area of telecom."

"In total, 45 IPE-graduate entrepreneurs participated in our project, through face-to-face interviews, or interviews by telephone or by email. 35 of them were male and 10 female. 14 of them were born before 1986, i.e. were older than 30 years when the interviews were conducted. Table 14 shows when the idea arose to start a business. More than half of the respondents got the idea when they were still a student (during period of study), and more than 20 per cent while working as an employee. One

respondent decided to start a business during unemployment. The category other contains almost a quarter of all answers, including the one that people had the idea of becoming an entrepreneur even before they entered university. One of the respondents even indicated that the idea arose shortly after his birth."

Table 14. When did you get the idea to become an entrepreneur?

	N	%
During period of study	23	51.1
Other	11	24.4
While working as an employee	10	22.2
During unemployment	1	2.2
Total	45	100

The following inquiry was what influenced them to choose to begin their own business. In excess of one answer could be given (altogether 67 answers were given here). From Table 15 it turns out to be evident that precisely 60 for each penny of the respondents had an inborn inspiration: it was a thought they needed to figure it out. More than 33% specified opportunity as their inspiration (not to work for a manager). Right around one-quarter specified that enterprise in their family was motivation to begin their own business. More than 10 for every penny demonstrated that it was fortified amid their times of study. At long last right around 20 for every penny said different reasons, shifting from encountering dissatisfaction while filling in as a worker to tolerating the test to begin their own business and being propelled to be yearning by a venturesome life partner.

Table 15. What made you decide to start your own company?

	N	%
An idea I wanted to realize	27	60.0
Freedom	16	35.6
Entrepreneurship in family	10	22.2
Other	8	17.8
Years of study	6	13.3

At last, we asked our IPE-graduate business people the part their instruction played in their self-awareness, consequently concentrating on information, capacities and system. From Table 16 it turns out to be evident that their instruction assumed a vital part in the improvement of their insight: the greater part of the respondents said much or even in particular. The Likert-scale score is 3.38 here. The system thing, in any case, demonstrates a very surprising example. 66% of the respondents showed that their instruction contributed nearly nothing or even almost no to their system. More than 15 for each penny gave a nonpartisan answer, while somewhat more than 15 for every penny demonstrated much or even in particular. The Likert-scale score on organize is much lower than the ones on information and capacities: 2.16.

Table 16. What was the contribution of your education?

		Knowledge	Capabilities	Networks
Very little	N	4	2	16
	%	8.9	4.4	35.6
Little	N	6	7	14
	%	13.3	15.6	31.1
Neutral	N	10	12	8
	%	22.2	26.7	17.8
Much	N	20	20	6
	%	44.4	44.4	13.3
Very much	N	5	4	1
	%	11.1	8.9	2.2
Total	N	45	45	45
	%	100	100	100

More than one-third of the respondents saw a future role for their former university in building and developing networks (see Table 17).

Table 17. What can the university do for the entrepreneurs?

	N	%
Networks	17	38.6
Nothing	12	27.3
Specific training	6	13.6
Other	6	13.6
Coaching	3	6.8
Internships	1	2.3
Total	45	100

Another idea was coaching student entrepreneur. Almost a quarter indicated that they saw no model for themselves in the future.

Table 18. What the can entrepreneurs do for the university?

	N	%
Guest-speaker	19	42.2
Nothing	12	22.2
Give business advice	7	15.6
Internships	5	11.1
Other	3	6.7
Workshops	1	2.2
Total	45	100.0

4.4 Findings and recommendations

In this paper, we have explored the relationship between institutions for higher education and SMEs. Bridging the gap between these institutions and SMEs is one of the important challenges of present economic policy. Our paper showed that, although the relationship obviously has some potential, a number of gaps have to be bridged in order to arrive at a fruitful collaboration. On the basis of our circular research innovation model we focused on three case studies. The first case study dealt with the opinion of entrepreneurs on universities of professional education (IPEs).

It became clear that only a small minority of SMEs make use of IPEs. The main reasons for this are that the service assortment and the procedures are unknown by most entrepreneurs. The second case study addressed the way the lecturers of IPEs were perceived by IPE-graduate entrepreneurs. Our research made clear that innovation was hardly an explicit topic in the projects that were shared by the IPEs and the SMEs, and that the entrepreneurs were not impressed by the lecturers knowledge of innovation. Finally, with 45 graduates (all now having their own firm) we looked back at their years of study. We found that, overall, they were positive on the way knowledge was transferred to them and on how their capabilities were developed. However, networking received inadequate attention during their period of study. Our study makes a number of recommendations. First, knowledge institutions should follow a double strategy towards attracting SMEs into the knowledge circulation process, for firms that do not make use of these institutions yet and for those who do so already. 'Communication' is the key word for the former group, 'smooth cooperation' for the latter group. Furthermore, our research suggests that both entrepreneurs and lecturers should be involved early in a project. Also, innovation should be introduced differently in the relevant project. On the basis of the third case study, we also recommend bringing together IPE-graduate entrepreneurs with student-entrepreneurs: this is a promising form of entrepreneurship education, with the IPE-graduate as a new sort of teacher-mentor. Various lessons can now be formulated concerning entrepreneurship education/coaching, graduate policy and research. A well-functioning system of coaching (aspirant-)student-entrepreneurs should be set up at IPEs. Matching student-entrepreneurs and IPE-graduate entrepreneurs and facilitating the coaching process are the main challenges here. It is critical that within the graduate policy of IPEs, special attention should be paid to those graduates who have (or had) their own firm. Such relationships would have to be followed on a

longitudinal basis, in order to yield interesting research results, from which others can learn. Finally, special attention should be paid to networks, their viability and sustainability, and advanced Internet communication.

4.5 Limitations of the study

This study is based on IPE's and SME's of a particular region. Recommendations are based on study a specific geographical location. It might or might not be relevant to other verticals of society.