

Industry-Institute Interaction

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Abstract: Industries and Institutes have been collaborating for over a century, but the rise of a global knowledge economy has intensified the need for strategic partnerships. The Institutes are imparting the basic knowledge and skill, but the Industry-Institute-Interaction will enable to undertake research by staff and students relevant to the Industry. The Industry-Institute-Interaction should be designed to run longer period for preparing the manpower of world class in the field of science and technology by inculcating the various skills required by the industry and thereby contributing to the economical and social development at large.

Key Words: Industry-Institute-Interaction, Skill, Knowledge, Performance, Integration, Competency, Opportunity.

I. INTRODUCTION

Technical education forms the backbone of development of any nation. The journey of cooperation between Industry and Institute has taken different forms at different times. Historically it started with simple interaction and gradually evolved to very close partnership overtime. India has one of the largest technical manpower in the world. But compared to its population, it is not significant and there is a tremendous scope of improvement in this area. Bridging the skill gap is the need of the day and decides the national development and economic growth. The need for Industry –Institute-Interaction is explained in section II. The objectives, nature of interaction and benefits are discussed in section III. Section IV contains highlights about constraints and the action plan and result analysis is done in section V followed by the conclusion in section VI.

II. NEED OF INDUSTRY-INSTITUTE-INTERACTION (SKILL GAP ANALYSIS)

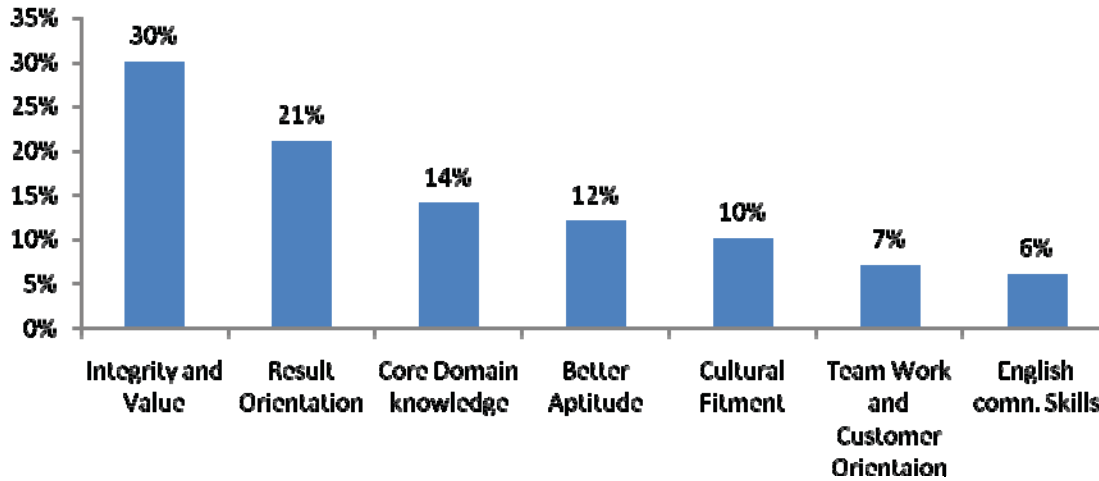
2.1-Skills and the knowledge are the engines of the economic growth and social development of any country that can respond more effectively and promptly to changes and opportunities of globalization.[7]. India is blessed with population of about 70% below the age of 35 years and youths are the most vibrant and dynamic segment as well as potentially most viable human recourse. At same time India is seriously handicapped with very weak and narrow knowledge base with 12.3% gross enrollment ratio as compared to 21% in China and 54.6% in developed countries and the world average is 23.2%. There is a need to convert the available huge human resource potential into a reality by expanding opportunities in the fields such as science technology, engineering, architecture, management etc. [7].

It is estimated that a Global potential shortage of about 38-40 million high skilled workers (13% of the demand), 45 million middle skilled workers (15% of demand) and 10% shortage of low skilled workers (about 90-95 million) in 2020. [4].

Many surveys in India and abroad estimated that only 10% of MBA graduates are employable and same is true for engineering which is below 17% and become uncontrollable if not taken care immediately [1]. It is also estimated that the required skill gap across industrial sector is about 75-80% by 2020. India is a powerhouse of coming decades with 1.3 billion population in working age group of 15-50 years by 2020. It is also estimated that the winner for building the biggest pool of workforce is India as China is down by 10 millions (as they follow one family one child policy) and U.S. by 17 million. [1]. The primary challenge faced by 3/4th of Indian Business is shortage of technical skills, team work, communication and other skills [2]. Middle and high skilled jobs comprise the largest gaps. Middle skills describe highly specialized mechanical, technical and production careers that may require industrial certification. Growing middle-skills, industries such as manufacturing, construction and health care are facing the most significant skill shortages. Employers in high-skills in the field of science, technology, engineering etc. which requires at least an undergraduate degree and also will be hard-pressed to find adequate talent in coming years.[4].

2.2-Percentage of Skill Required by Various Industries: The corporate job survey questioned the employers about the single most important thing they want in their prospective employees. They were given options like integrity and values, domain knowledge, result orientation etc. when questioned about this most of the employers across

industries voted for integrity and values. This was followed by result orientation which was closely followed by domain knowledge as shown in fig.



2.3-Impact of Skill Gap: About 84% of people say that there is a skill gap in their organizations. Therefore impact of skill gap is far reaching and varied with effects on global economics, human capital developments and business performance. In advance economies, skill imbalance will lead to more long term and permanent joblessness and greater polarization of incomes between high and low skilled workers [4]. Effect of skill gap on various fields is as shown in figure (1) [4] and skills required at major fields by 2022 are shown in fig (2) [AICTE].

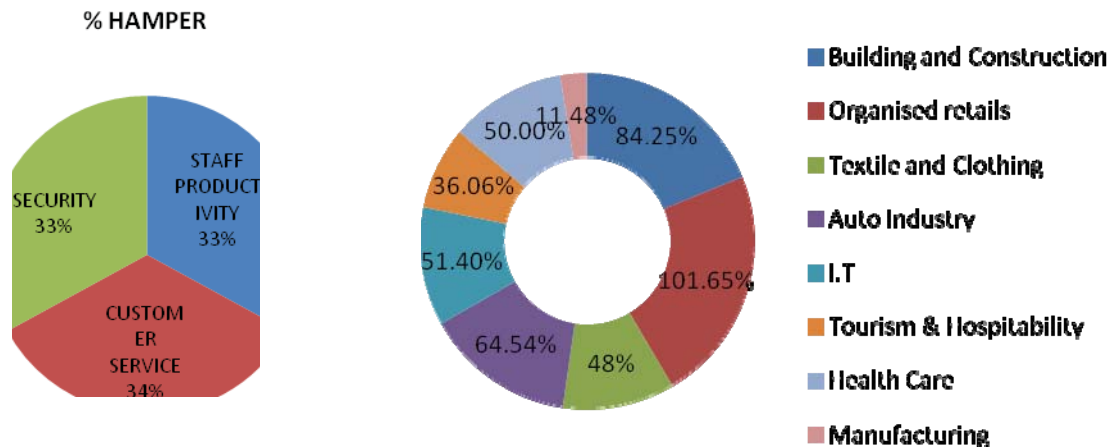


Figure (1)

Figure (2)

III. OBJECTIVES, NATURE OF INTERACTIONS AND BENEFITS

3.1- Objectives-

The above report of skill gap force to set up an effective Industry and Institute Interaction. The major objectives are:

- i) Integration of industrial trainings and other inputs from industry with teaching-learning process. The interaction develops student’s awareness on job functions in the industries, attitude to adapt industrial environment, proper practical and relevant knowledge, skills and competencies etc.
- ii) It helps to cultivate mutually beneficial and lasting relationships with one another [8].

- iii) It should include emerging framework, robust high quality long term relations based on two way investments of time and resource through regular discussions and exchange of views on the matter related to the preparedness of skilled manpower for the workforce [9].
- iv) Making available Institute infrastructure facilities to the industries and vice versa.
- v) Forecasting the technical manpower requirement for industries.
- vi) Training and knowledge update through faculty exchange.
- vii) Joint R & D activities.
- viii) Involvement of industrial experts in curriculum designing.
- ix) To maintain “Talent Supply Chain”[12]

3.2-Nature of Interactions-

There are different forms of Industry-Institute linkages that have been started in various countries for providing value added approaches and facilitating smooth decision making and reconciliation of different interests from various sectors[3].

3.2.1-Problem Solving Reactions: This helps to optimize technologies to achieve productivity. The industry has to provide contract research or technology transfer initiates for solving intricate problems through R & D. The institutes should be in a position to provide the intellectual augmentations & innovations.

3.2.2-Curriculum Development & Teaching Learning System: Mechanisms to involve industry representatives in formulating curriculum and teaching and learning systems open productive platforms for Industry-Institute-Interactions. Collaboration, discussion and decision making process produce mutual agreements and understanding of the real conditions in the work place, industrial functioning and its expectations.

3.2.3-Scholarships and Placements: The introduction of development funds in the form of scholarships, stipends, sponsorships by industry encourages students to continue study and training programs. This helps in finding the best talent for the industry.

3.2.3-Industrial Tours and Study Visits: Exposing the future workforce to the actual field work, industrial environment, state-of-the-art in science and technology adapted in machineries and equipment operations and helps to provide ways to relate class room theories with actual industrial experiences.

3.2.4-Faculty and Staff Exchange: Staff exchange between Industry and Institute is one of the keys to make Industry-Institute-Interaction successful.

3.2.5-Incubation Centre: Countries all over the world have started establishing incubation centers which allows for the shared access to infrastructure, practices, venture capitals and market information and it facilitates development of product of academia for practical applications.

3.2.6-Evaluation System: This gives the progressive benefit to the Institutes as a way of providing guidance on skills and competency levels of students [3].

3.3- Benefits of Industry-Institute-Interaction:

3.3.1- To The Institute:

- i) Greater resource generation.
- ii) Improved quality of faculty.
- iii) More relevant curriculum.
- iv) Better placement of students.

3.3.2-To The Industry.

- i) Can access the latest technological and management developments.
- ii) Can keep their workforce skill updated
- iii) Can get fresh and well trained technical personnel.
- iv) Can get their research work don through institute collaborative research opportunity

IV. CONSTRAINTS AND ACTION PLAN

4.1 -CONSTRAINTS-

- i) Lack of interest from both sides
- ii) Curriculum is not planned as per job profile
- iii) Education imparted is not job oriented.
- iv) Insufficient time schedule available.
- v) Obsolete lab facilities.
- vi) Goals of both do not match fully.
- vii) Industrial patents

- viii) Rules governing different organizations differently [1,3,6].
- ix) Students do not take summer and winter projects, industrial visits seriously and use the opportunity to learn in industry. So more than 70% projects do not lead to industrial jobs [13].

4.2- Action Plan to take charge of the Skill Gap-

Organizational leaders should look to their learning professionals to help identify the skills and competencies needed now and in the future and to align their development to key drivers for the organization. The following six steps are included in the action plan.

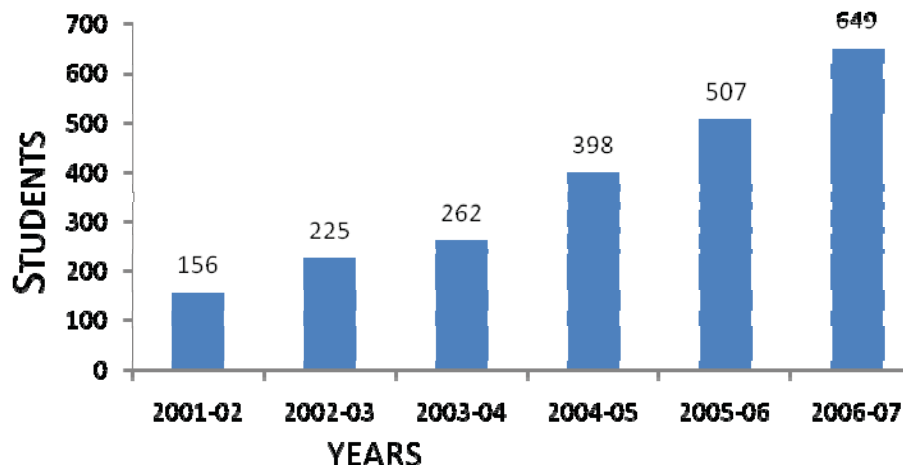
- i) Understand the organizations or a unit's key strategies, goals and performance metrics.
- ii) Identify competencies and skills that map to strategies and performance metrics.
- iii) Assess the skill Gap.
- iv) Set goals and prioritize the path to filling Gaps.
- v) Implement solutions.
- vi) Monitor and measure results and communicate the impact. [4].

V. RESULT ANALYSIS-

Impact of Industry-Institute-Interaction: Some the case studies of an effective Industry Institute Interaction are as follows [11].

- 5.1 *MICROSOFT – CISCO-INTEL- UNIVERSITY OF MELLBOURNE*: Assessment tools for two core skill sets: collaborative problem solving and ICT literacy involving six countries and trained about 5000 students.
- 5.2 *Aalto University with IDBM*: The program has significantly enhanced Aalto University ties with Industry, Training 703 students in 168 company projects with 114 partner companies and establishing a direct recruitment platform for IDBM students. University is close to market developments because its students are engaged with cutting-edge business models which include real-world service or product innovation, creating major value for the Industry partner.
- 5.3 *Energy Bioscience Institute with University of Illinois*: It hosts 60 research groups including 129 faculty members and over 300 post doctoral researchers and graduates. EBI supports with \$ 500 million for 10years.
- 5.4 *Audi with Technical University of Munich*: It supports over 100 Phd. Students working on technology and innovation issues and 50 from other University students.
- 5.5 *Annual employment report between 2001-2007 from an Engineering College in Tamil*

ANNUAL EMPLOYMENT REPORT



Nadu.[5]

- 5.6 *I-I-I-AT Motichand Lengade Bharatesh Polytechnic*: Trained about 600 students from S.S.L.C (Passed/Failed), I.T.I, and Diploma on C.N.C.operations and programming at “BHARATESH C.N.C CENTRE” and earned more than 15 lacks. More than 2000 students undergone special trainings like Seminars from industrialists, workshops, industrial visits, in-plant trainings etc.

5.7-Some of the lessons from effective collaborations can be summarized as follows [11]:

- i) To attract Industry involvement, the programs of Institute must be strongly oriented to Industry.
- ii) Develop Win-Win Partnerships
- iii) Communicate the benefits of a new generation of innovative thinkers.
- iv) Develop pool of academics with deep understanding of industry and business experience.
- v) Committing to long-term partnerships.
- vi) Ensuring company scientist and researchers engage Institute.
- vii) Establish strong communication linkage with the industry team.

VI. CONCLUSION

Only 21% of business leaders say that they are satisfied with their organization ability to access talent when needed [12]. So it is necessary to fulfill the aspiration of other 79% business needs. Industry-Institute-Interaction can be made successful with all the Institutions, Alumni, Professional bodies, Industrial associations, Government agencies etc. work towards inculcating the required skills in the student community at large. Faculty members of the institutions should be aware of the various schemes from Govt. as well as other organizations for skill development and practical trainings. For countries like India, where huge man power resource is available, Institutions should come forward to take active part to grab this opportunity.

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