

Best Practice – I

1. Title of the Practice: Technology Business Incubator (TBI)

2. Objectives of the Practice:

- To motivate and inspire students and more startups.
- To equip them with necessary skills.
- To provide necessary assistance.
- Convert innovations into marketable products.

3. The Context

The Technology Business Incubator (TBI) has been functioning actively in the University since the year 2015. As per the analysis there were not any major issues in designing the TBI, but certainly there were challenges in initiating and implementing the functioning of the TBI. Initially, motivating students for the business was a challenge as at this stage of their age, they are acceptably hesitant and immature for a business. But constant motivation and support through the TBI professionals finally led them towards the initiation of the implementation of their ideas. The GEU-TBI works over the concept of innovation for making change, difference, and novelty in the products, services, add value, and business practices to create economic and social benefit.

4. The Practice

GEU-Technology Business Incubator (TBI), hosted by Graphic Era University, Dehradun is a sunshade for the promotion of entrepreneurship at GEU, Dehradun. GEU-TBI administers a business incubator that provides support for technology-based entrepreneurship. We fund, mentor nurture ideas, startups, and entrepreneurs. TBI has focused on the execution of incubation and innovation programs to strengthen the successful growth of economic and social development. GEU-TBI Supports and Nurtures Industries In:

- Dairy and Food Processing
- Electronic Equipment Development
- Computer Software/Hardware Development
- Chemical Product Development
- Bio-Fertilizers
- Bio-Pesticides Panchgavya Products based on Drug and Urine.

GEU-STEP (Science Technology Entrepreneur Park):

GEU-STEP promotes entrepreneurship among students. We invite various eminent entrepreneurs to deliver lectures, workshops, knowledge camps etc to educate students about entrepreneurship. We also actively incubate startup ideas by linking the right investor with the right entrepreneurs. Facilities available for innovation support in TBI–GEU for incubate:

- TATA Technologies –Centre of Excellence
- INTEL -Internet of Things Centre
- Adobe-Digital Marketing Platform
- AWS Academy-Private Cloud Computing facility
- ICT Academy
- Red Hat Academy
- Bentley Centre of excellence
- Microsoft Product Suit Software
- Big Data Analytic Facility
- High performance Computational power of 5 TFLOPS, 2800 cores.
- Seamless Wi-Fi of 1 Gbps links access and 100 Mbps download
- Online subscription to Elsevier, IEEE, ASCE, ASME, EBSCO, ACM,
- ProQuest, Scopus Database, Express Library –McGraw Hill E-
- Books, Subscription of 82 Print Journals and 33 magazines

5. Evidence of Success: List of Statrt-ups recognized by Startup India and Startup Uttarakhand at GEU-TBI with total seat allocation of 40 are:

- Sunfox Technologies Pvt. Ltd.
- Moxie Intelligent Health Care
- Pravartan Technologies Pvt. Ltd.
- Webixun Infoways Pvt. Ltd.
- ASRIOT Pvt. Ltd.
- AVK Education Pvt. Ltd.
- Dtown Robotics Pvt. Ltd.
- KP Code Pvt. Ltd.
- Fruilitious Breverages Pvt. Ltd.
- Villotale Hospitalities Pvt. Ltd.

List of INCUBATES with GEU-TBI: Name Experience Organization Field

Vishal 14 CEO –TBI Educational Services, Scaling of startup, Incubation center development, 3D printing, Entrepreneurship, Fund Raising, Rapid Prototyping, CSR Funding

Guru Prasad 30 Director Mentor - Imaginarium pvt. Ltd. Rapid Prototyping, SLS, SLA,DLP etc

Anuj Duggal 12 Innovation Program Manager –Intel Leadership and innovation in software development, Google Launchpad, global technology community

Apurv Godbole 14 CEO, Drova Aviation product development, market strategy, venture development

A.K Sharma 45 President –AEMCO Project development, engineering innovation, manufacturing

Lalit Sharma 30 MBA Brand Development, Marketing strategy, customer influence

S.C Mittal 40 Consultant Electronic Control System, Hydraulic Valves mfg.

Mr. Mittal 30 Consultant Electronic projects

K.N Kotiyal 50 Consultant industrial, pollution control

Sakshi Gupta 4 Trainer Entrepreneurship

List of Funding:

S.N. Name of the Agency Funds Sanctioned Funds Received

1 NSTEDB (DST, Govt. of India) Rs. 2.94 Crores Rs. 1.10 Crores

2 Bayer Crops Science Ltd. Rs. 1.046 Crores Rs. 1.046 Crores

3 Govt. of Uttarakhand Rs. 1 Crore Rs. 2 Lakhs

6. Problems Encountered and Resources Required: There were not many problems or challenges faced in the implementation of GEU-TBI. However, certain essential minor difficulties were:

- Motivation among the students, • Building of confidence for their business ideas,
- Lack of Industry and Market Trends among the students etc. And these were encountered by conducting various activities, workshops and training sessions.

Best Practice – II

1. Title of the Practice: Academic-Industry Collaborations

2. Objectives of the Practice: The primary aim of this practice is to aid GEU in establishing a high quality people repository in various industry oriented technologies and skills. GEU has established strategic tie-ups with many national and multinational companies with the following objectives in mind:

- To ensure that programmes offered are in line with the needs of industry.
- To create expanded research and learning opportunities.
- To generate internships, organize Hands-on-Trainings, and generate employment opportunities.
- To provide opportunities to visit different companies to gain insights and exposure to the corporate environment and to enable students to have interaction with top executives.
- To provide opportunities to have increased number of publications and patents.

3. The Context: There were not any major issues or challenges. But several requirements for success were identified below: • Genuine people were needed who have a vested interest in the MOU's success and who could make it possible to match industry and university interaction.

- Industry must be willing to assign their best and brightest technicians to collaborative ventures.
- An infrastructure must be in place to execute, manage, evaluate, and reward collaborations.
- Frequent and clear communication was needed on expectations and progress at all levels of the partnership.

4. The Practice:

Academia and industry share a symbiotic relationship. Academia produces graduates who are absorbed by industry. Research work in universities are taken up by the industry and turned into products and services. Memorandums of Understanding (MOU) have been established for the purpose of enriching the technical education process and to jointly work for enriching the quality of education. Few are quoted below:

- Tata Technologies Limited: MOU signed to get assistance in development of Engineering courses, curriculum revision, impart training through SMEs and support internship.
- Infosys: MOU signed to incorporate industry relevant modules in the course curriculum.
- Wadia Institute of Himalayan Geology, Dehradun (WIHG): MoU signed in the field of Earth Sciences and Geotechnology for sharing of RD facilities and PhD programs.
- IBM India Pvt. Ltd.: MOU signed for Career Education Program.
- Sapient: Sapient agreed to conduct events at the campus under Campus-Mentorship-Program.
- Association of Chartered Certified Accountants ACCA: To have seminars, conferences, common projects and publications on ACCA and accounting profession.
- International Skill Development Corporation (ISDC) Project India Pvt. Ltd.: To develop the undergraduate program of B.Com train faculty in International Accounting and Finance.

- Bombay Stock Exchange (BSE) Institute Limited: To conduct 20 hours program on Introduction to Technical Analysis.
- Institute of Management Accountants (IMA): To achieve CMA certification.
- Siemens Ltd.: For training program on basics of AC/DC drives and basic course on Automation.
- Steinbeis Centre for Technology Transfer India (In affiliation with Steinbeis GmbH Co. KG fur Technologietransfer, Germany): To promote training through SATE in the field of Advanced Technology Training and Entrepreneurship, especially Renewable energy, Automation, Manufacturing, Automotive and Aerospace Technologies.
- Amogeo ITES india Ltd. Provide services in getting the best academic curriculum in Renewable Energy to bring in a 'Certification program for Rooftop Solar Photovoltaic'.
- ORACLE: To provide technical support under Oracle Technical Support Policies in effect.
- Centre for Research in Engineering and Applied Sciences, UAEM, Av. Universidad, Col. Chamilpa, Cuernavaca, Morelos, Mexico: Exchange of academic and administrative staff visits to pursue Research, guest lecture, internship study abroad programs.
- Evertch Engineers Private Limited (EEPL): To provide hands-on-training on power system practices for UG Electrical Engg. students.
- CodeChef: To conduct Certificate Exam on Data Structures and Algorithms.

5. Evidence of Success

GEU-IBM Labs: IBM labs are set-up at GEU and are in function to facilitate students not only in learning basics of Machine Learning, Data Science, Block Chain, Python, Cognos Business Intelligence or Cloud Computing tools like Watson, but also learning how to implement those services online by using the IBM tools and products.

Tata Technologies: Various Centers are:

- Mechatronics Center
- Manufacturing Execution System (MES) Center
- Advanced Manufacturing Center
- Teardown and Benchmarking Center
- 3D printing Technology Courses Designed in association with various industries as per the Academy-Industry -Collaborations:
- B.Tech. in CSE (Hons.) in association with IBM for following specializations:
 - Machine learning and Artificial Intelligence
 - Cloud Computing
 - Data Science Artificial Intelligence
 - Information Security
- B.Tech Mechanical Engineering Hons. (Robotics and Automation) in association with Tata Technologies.
- B.Tech Mechanical Engineering Hons. (Automobile) in association with Tata Technologies.
- B.Com.(Hons.) International Finance and Accounting with ACCA,UK.
- B.Com. (Hons.) Corporate Accounting and Financial Analysis with CMA,US.

6. Problems Encountered and Resources Required: There were not many problems faced in the implementation.

Institutional Distinctiveness

We visualize Graphic Era (Deemed to be University) as a community, whose members, work for positive transformation of the society through quality education with thrust on research, innovation and entrepreneurship. Entrepreneurship is one most useful attribute to be cultivated among students in the context of a developing country like India with a great demographic dividend. Technology business incubators are a powerful tool of economic development. They promote the concept of growth through innovation and application of technology. NSTEDB, DST has approved a grant of Rs. 294.20 lacs for establishment of TBI at Graphic Era in the year 2015. It is a recognized centre supporting the State Startup Council to evaluate and recommend proposals for recognition under startup policy of Uttarakhand. It is only the second TBI (besides IIT Roorke), sanctioned by NSTEDB in the state of Uttarakhand. As on date, 32 start ups have been incubated with 19 belonging to the students of Graphic Era (deemed to be University). 7 Technology products developed at TBI so far are likely to be commercialized soon. TBI-GEU has developed a strong Industry connect and has received a donation of Rs. 1.05 crores from Bayer Group of Companies under CSR. Credentials of this TBI have also been rewarded by the Govt. of Uttarakhand. Directorate of Industries of the state Govt. has also sanctioned a grant of Rs. 1 crores under Uttarakhand Start up policy as capital grant for expansion of TBI-GEU. Acknowledging and appreciating the startup ecosystem at the institute, AICTE (MHRD) has approved a unique program, MBA (IEV), aimed at facilitating budding innovators and aspiring entrepreneurs to convert their ideas into viable products services and raise their own startups sustainable ventures. The Institute is one amongst only 4 institutions in the country which has been sanctioned this program. Innovation and entrepreneurship are intertwined and go hand in hand. With it in view, technical support like High performance Computational power of 5 TFLOPS, 2800 cores, Seamless Wi-Fi of 1 Gbps links access and 100 Mbps download has been made available in the institute. We have state of the art lab facilities in collaboration with industry leaders to provide innovation and entrepreneurial support to incubates. Centers of excellence have been developed in collaboration with the industry leaders like TATA Technologies, INTEL -Internet of Things, IBM, Sapient, Steinbeis Centre for Technology Transfer India, Siemens Ltd., Adobe, AWS Academy- Cloud Computing facility, Bentley Ltd., Microsoft, Infosys, Big Data Analytic facility, ORACLE, and Amogeo ITES india Ltd. etc. These labs and industry linkages enable the institute to offer specializations in areas like Cloud Computing, Machine learning and Artificial Intelligence, Data Science Artificial Intelligence, Information Security, Robotics and Automation, Automobile, Aerospace Engineering etc. to provide them much needed exposure of contemporary areas of entrepreneurship. The University has also procured latest software and entered into MoUs with industry leaders like Emersion Process Management (India) Private Limited, CGG services (NL) B.V, Netherland, Bentley. The University has also published 40 patents and organizes regular entrepreneurship meets.