

Working Group Report

on
**‘Enabling and Enhancing
University and Industry Linkages’**

Submitted to
The University Grants Commission
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Executive Summary

University-Industry (U-I) collaborations have been recognized as the key enabler to promote innovation ecosystem. Such collaborations deliver far reaching and enduring socio-economic impact that cannot be achieved by working *in silos*. Universities seek the industries association for translational research including scale-up studies and commercialization of their knowledgebase. On the other hand, industries, especially the financially compromised ones, look towards academia for solving their R&D problems to remain competitive, both at the local and global level. Further, the academia welcomes the industry association as it provides an opportunity to work on real-life industrial problems. In addition, active engagement of industry personnel in academic activities along with exposure to students/research scholars to industrial settings through internships help in development of the desired skill-set.

In developed countries, the alliance has been operative and standing viable for close to 4 decades, unruffled by the changes and shifts in the political landscape. Although, India is home to nearly one thousand universities, it has not fully realized the true potential of U-I collaborations, barring a few sporadic cases of such alliances. UGC has a crucial role to play in fostering the collaborations for the benefit of all the stakeholders i.e. academia, industry, students and the government. It requires a multi-pronged approach. The ‘Working Group’, constituted by UGC, recommended several measures to stimulate industry-academia interactions. The summary of some of these recommendations are presented below:

1. Multi-layered Policy Interventions to Facilitate U-I Synergism: To foster robust U-I ecosystem in the academic sector, UGC may constitute ‘*U-I Empowered Committee*,’ to guide UGC in implementing the recommendation and formulate future policy measures for enhancing the industry-academia linkages. Its work may further be supplemented by establishing ‘*Technology-Innovation and Entrepreneurship Cell*’ (TIEC) in the universities. The cell will facilitate U-I interactions by orchestrating together, all the elements that expedite the process of teaching, research, intellectual property (IP), technology transfer and commercialization. Dedicated institute-specific ‘*IP Policy*’ and ‘*Technology Transfer Policy*’ will further define the functional flexibility for the stakeholders (industry and academia), thereby easing their collaboration. To manage several of these activities, the Working Group recommends creation of ‘*U-I Facilitation Fund*’, ‘*U-I R&D Fund*’ and ‘*IP-Fund*’ at UGC. These endeavours will bespeak the intent of UGC in promoting U-I interactions amongst the concerned stakeholders.

2. Entrepreneurial Eco-system: Academia is a key player of the National Innovation Ecosystem. However, its business-averse nature prevents it from realizing its full potential, thereby impeding the translation and commercialization of most of its research. This challenge could be mitigated through the inception of entrepreneurial activities within the university campuses, consequently promoting sustained U-I symbiosis. The Working Group recommends several measures for creating such an eco-system. Establishment of ‘*Incubation*’

and ‘*Pre-incubation Centres*’ within the university, along with a dedicated ‘*Entrepreneurship Cell*’ will not only encourage students, academic researchers and faculty members to orient themselves entrepreneurially, but will gradually profess a culture that is entrepreneurship centric. Definitive policy measures *empowering faculty to take up entrepreneurship*, while serving at the institution, along with financial assistance through ‘*Equity-Based Funds and Low-Interest Loans*’ will go a long way in stimulating academic entrepreneurship. ‘*University Clusters*’, based on the hub and spoke model, will further be vital in disseminating this ideology to the universities that may be locational or infrastructural challenged. Local entrepreneurship ecosystem in industrially-rich areas may also be beefed-up through the setting up of ‘*Technology/Research Parks*’, that not only promote active U-I engagement but also accelerate job creation.

3. Industrial Reorientation of University Programmes and Curricula:

Universities have the requisite tools to sculpt a definite skill-set amongst their students through various courses and programmes. However, reorienting the university programmes and curriculum to suit industry requirements along with initiation of dedicated courses on ‘*Entrepreneurship*’, ‘*IPR*’ and ‘*Technology Commercialization*’ will apprise the students to the requirements of the innovation ecosystem. This will promote industry engagement in curriculum designing and give a fresh perspective to academic learning. Further, courses offering ‘*Internship in Industries*’ for students and researchers will ensure that the students get a good exposure to the industry environment. In addition, introduction of a ‘*Jointly Funded PhD Programme*’, in which a student works on an industry-oriented problem would be a welcome step and enhance his/her chances of securing a job in the private sector.

4. Developing University-Industry Connect: A gap between the functioning of industry and academia is one of the greatest challenges impeding innovation, in the present times. An industry can remain competitive only if it regularly brings out innovative products to the market. For this to happen, it needs a constant inflow of investment. However, due to their low financial bearing, most industries (primarily MSMEs) are not able to freely invest in R&D. This makes it imperative to introduce a set of *Industry-specific R&D Schemes* that work through public-private partnership, allowing the industry to request for financial assistance for a problem-statement that may be resolved utilizing academic expertise and infrastructure. This brings in the need for a mechanism that mediates this disconnect. The Working Group recommends a set of measures to bridge this disconnect. Such as, *Industry-specific R&D Schemes*, ‘*R&D and Innovation Support Centres*’ at select universities in association with Ministry of Small and Medium Enterprises. *Conferences, Symposia and Conclaves* could offer the opportunity for industry to present their problem statements, which can be reciprocated with innovative ideas from academia to resolve them. ‘*I-A Chairs*’ may also be set-up to further stimulate industry-relevant research and programmes within them.

5. Exploiting Reciprocal Knowledge through Mobility between University and Industry: Healthy exchange of perspectives is vital to build an innovation ecosystem that is conversant with the demands and resources of both academia (universities) and industries. This may be achieved through schemes/other arrangements that temporarily

mobilize university faculty members and industry personnel to work in each other's environments. A provision on these lines was introduced by the Union Cabinet, GoI in 2009, however, it still needs to be explored effectively in university system.

6. Establishing Technology Innovation Centers in Frontier Areas: As scientific innovations are the mantra for economic success in the 21st century, UGC may set up theme based '*Technology Innovation Centers (TICs)*' in the university settings. The long-term goal of TICs will be to develop global leadership in a dedicated thrust area. These TICs will have a dedicated scientific staff, high-end instrumentation facility and active industry participation. Each TIC may work under Hub and Spoke model, by networking with other research institutes and public/private organizations.

7. Incentivization in Academia: The credibility and promotion of a university teaching-faculty is heavily skewed towards research publications, thereby offering little motivation for translational research. This makes it vital to introduce incentives that may encourage a faculty to engage in industry relevant innovative research. *Reforming the promotion criteria* to give more weightage to IP, technology transfers, industry linkages, etc. may spur a positive wave towards translational research. Additionally, *performance-based awards* (awarding peer-recognition and monetary support), may be instituted, both at the level of scientists as well as institutes, to incentivize them.

Introduction:

Science, Technology and Innovation (STI) are key drivers for economic progress and job creation. They have had unprecedented impact on economic growth, social development and employment generation in countries that have adopted and encouraged STI. Academia and industry are major contributors in such development and therefore their linkage matter a lot.

Recognizing the role to be played by universities in close conjunction with industry, the University Grants Commission (UGC) resolved to foster closer interaction between them to contribute to the socio-economic progress and the positive outcomes that could emerge therefrom. The UGC, in its 532nd meeting held on 24.5.2018, set a quality mandate with 5 objectives and 10 verticals. One of these verticals emphasizes “social and industry connect”. With a view to realizing the university and industry bond, the UGC constituted a Working Group to study the subject in depth and evolve a strategy as well as road map for implementation towards enhancing the linkages.

The terms of reference as evolved by the Working Group are:

- Examine various issues relating to University–Industry interactions from the perspective of industry, university, faculty and students;
- Suggest measures to
 - intensify University – Industry interactions;
 - take up innovative R&D by faculty that addresses societal needs;
 - enhance student employability through the interactions with industry;
 - build an entrepreneurial eco-system on the University campuses;
- Propose mechanisms to implement the measures recommended at various levels; and
- Any other matter referred by the UGC.

The Working Group met on 13th May 2019, 12th June 2019 and 11th July 2019 at UGC and a subgroup on 20th September 2019. Further, the group interacted with representatives of Industry Associations viz. FICCI and CII. It also perused various reports as well as other available information on the subject. The Working Group deliberated at length on various issues relating to University-Industry linkage and related aspects.

Based on the available information and deliberations, the Group developed the report that proposes specific measures to create an enabling eco-system for fostering and enhancing university-industry linkage. In arriving at its recommendations, the Working Group has liberally drawn from the earlier reports as well as other available inputs.

University–Industry Linkage (U-I linkage): Opportunities & Challenges

Universities and Higher Educational Institutes are crucibles of new knowledge. They work at the cutting edge of science and develop human resource at higher levels with required skills. Industry in turn uses these resources – knowledge-base and trained manpower – to translate the new knowledge into useful and patentable applications as well as technologies to enhance their competitiveness, besides creating jobs. Such close linkages are mutually beneficial in a

variety of ways. The industry would gain: (i) new knowledge at affordable prices; (ii) trained manpower with requisite skills in new and emerging areas of science; and (iii) access to best of the R&D facilities. Industry can accelerate translational research by leveraging the knowledgebase from universities to remain competitive. It can also make R&D more cost-effective and source early stage innovation support through public funds to reduce risk etc. On the other hand, universities would benefit from: (i) increased flow of financial resources for their research activities; (ii) opportunity to work on relevant industrial problems; (iii) identification of research areas of interest to industry; (iv) enhanced capacity to train manpower better aligned to industry needs; (v) internship opportunities as well as enhanced employment opportunities for their students; (vi) development of courses / curriculum with industry inputs; (vii) engaging the industry personnel for teaching assignments (as practice-track faculty) etc. Whilst, the elite institutions to some extent have been able to forge engagement with industry, the tier II and III Universities find it hard to engage with the industry due to lack of networking, resources, and capability. Similarly, large corporations engage with top tier institutions, the bulk of SMEs are unable to engage with quality institutions either for consulting, research or student internship/apprenticeship. Although such interactions at all levels are necessary for generating industry-relevant knowledge at affordable cost and developing human resource with required skill sets, presently such interaction is at a sub-optimal level.

Hitherto universities are looked upon as teaching and manpower-training centers. Recognition of the standard of a university and its quality of education is directly linked to its inherent R&D strengths and its continuous knowledge renewal with new research, many universities have created excellent research facilities with modern equipment and are contributing well to basic research. Thus, they are making good efforts to enhance their research quotient. Thanks to the National Institutional Ranking Framework (NIRF) of the MHRD-GOI, a university's performance is no more measured solely on the number of graduates and post-graduates it produces. It is a comprehensive measure that includes Teaching, Learning & Resources; Research & Professional Practice; Outreach & Inclusivity; Graduation Outcomes; and Perception. Thus, number of PhDs produced, research papers published, patents, technology leads generated, industry linkages established, revenue generated, start-ups catalysed, entrepreneurial ecosystem enabled etc. are all being given due importance and weightage. An enhanced university–industry linkage could substantially contribute to all these performance indicators and contribute to better ranking of universities.

Micro, Small and Medium industries dominate the Indian industrial sector. The MSME Ministry's 2017-18 Annual Report says, MSMEs are contributing to 29% of GDP; 45% of Manufacturing Output; and 40% of Exports. The 6.34 Cr. units are providing jobs to 11.10 Cr. people [8.45 Cr. Male (76%) and 2.65 Cr. Female (24%)], by no measure, a mean achievement! A matter to rejoice is, of these units, those in Rural areas are more, at 3.25 Cr. (i.e. 51%) than the 3.09 Cr. (i.e. 49%) outfits in Urban areas. More than 20% of the total units are owned by women! However, a matter of concern is, due to their small size and low profitability, MSMEs are not in a position to make significant investments in R&D, owing to

the nature of research being long drawn, risky and expensive with uncertainty about the end result. Universities with good research facilities and expert faculty could provide the required R&D support for MSMEs enabling them to compete in the marketplace. Though well placed to serve this segment very effectively, there is no significant structure and mechanism in the universities to serve this constituency or recognition to venture into this initiative.

In universities publications are of primary importance for career progression. There has been considerable growth in the number of publications and their quality, over the years. However, the rate of patent-filing in the university system is very low due to lower priority attached to technology development, innovation and patenting. Attracting the best faculty, both young and experienced, to participate in the innovation and industry-oriented R&D has been a challenge. The university system in the western world as well as in high-growth economies like China, Korea and Taiwan encourage and support innovation and industry-oriented research and duly recognize such efforts. Therefore, a supportive environment and an appropriate incentive structure are essential for attracting faculty to applied research to catalyze enhanced interaction between university and industry.

However, there are several organizational bottlenecks in forging such interaction and these need to be addressed. For example, there needs to be formalization of modalities for: (i) recognizing industry-oriented R&D work and reports as academic outputs for performance evaluation of faculty; (ii) sharing of revenues earned through industry-oriented work with the involved staff; (iii) IPR sharing policy etc. These aspects, if unresolved, stand as hurdles on the path for fostering institute-industry interaction.

It is important to recognize that mutual trust is very essential for building strong university-industry linkage. Unfortunately, such trust cannot be built over night. It must be built assiduously over a period. Universities must make a conscious effort to put in place appropriate structures and measures that foster such mutual trust.

In this context, the Group examined and deliberated several measures and a few of the relevant ones are recommended in the following sections:

Recommendations

1. University-Industry Linkage Facilitation Cells

1.1 **Technology, Innovation and Entrepreneurship (TIE) Cell:** In many universities there is no systematic approach in place to continuously engage with the industry. As a result, industry interaction remains one-off effort and there is inadequate and noncommittal follow-up. Further, during the research activities, the university generates significant amount of knowledge, some of which needs IP- protection. Also, the knowledge-base* is dispersed and lost with the superannuation of the faculty member concerned. There has been no concerted effort to collect such knowledgebase. There is also no mechanism in the university for promoting interaction with the industry on an ongoing basis to make the latter aware of the knowledgebase available with the university. It is in this context that the Group

recommends that each university set up a dedicated TIE Cell (Technology Innovation Entrepreneurship). The other options could be ‘EDIFICE’ Cell (**ED**ucational **I**nitiative **F**or **I**nnovation-**C**onnect with **E**nterprises) or BLENd Cell (**B**usiness **L**inkage and **E**ntrepreneurship **D**evelopment) or UNITED Cell (**U**niversity-**I**ndustry **T**ogetherness for **E**nterprise **D**evelopment) or any other suitable name to facilitate and foster university-industry interaction synergizing science, technology, innovation and entrepreneurship and evolve new measures from time to time that would further the symbiotic relationship. The Cell, *inter alia*, may have the following functions:

- To act as a hub of innovation that nurtures and supports creativity, Intellectual Property (IP) and entrepreneurship in the campus;
- To act as a ‘knowledge repository’ for technology and innovations in Higher Education Institution and be the industry-liaison office to facilitate technology transfer to enterprise;
- To enable IP related activities including protection and management;
- To evolve IP policy as well as transparent rules and guidelines for protecting IP, transfer of knowledgebase and sharing of revenues with staff;
- To catalyze entrepreneurial activities in the campus through creation of Incubation Centers, Growth Phase Centers and Technology/Research Parks;
- To organise entrepreneurship development programmes to encourage and nurture entrepreneurial skills of students and faculty;
- To facilitate training programmes for development of Human Resource ;
- To facilitate and develop inter-departmental collaborative projects for sourcing financial resources from various government departments;
- To conduct studies in the areas of technology, innovation and entrepreneurship and to document case studies of start-ups for using them as study material and learning aids, etc.

Mere creation of such a dedicated cell demonstrates the seriousness the university attaches to such activity and sends a right signal to the industry. The Cell should be adequately staffed and funded. The adequacy of the staff should be left to the university. Nonetheless, it should not exceed 5 -7 scientific officers including patent experts depending upon the size of the university and the amount of knowledgebase it generates. The salaries of the staff should be met from the university budget (Account Head ‘Salaries and Allowances’). To support the TIE cell activities a sum of Rs. 15 crore may initially be earmarked. It would be important to create such a Cell for making visible progress on this front.

(Action – UGC & University)

**Knowledgebase - is the University’s readily available, translatable and commercialisable knowhow, process and/or process improvements, technology, a new product, technique and technical knowhow, intellectual property (patents, Designs, Copyrights), and data relating to the product / process.*

1.2 Empowered Committee & a Dedicated Cell at UGC: In addition, it is recommended that UGC constitute an Empowered Committee to advise it on strategies to be adopted for enhancing the U-I linkage and employability of the students, through periodic

interaction with various constituents as also to implement the recommendations. It could also review of the ongoing activities from time to time and suggest new measures for furthering the U-I interface. Besides, the Empowered Committee may provide useful inputs to the UGC on Skill Development, Entrepreneurship, IPR, Technology Development, Innovation etc. The Empowered Committee may be broad based with experienced professionals representing diverse fields such as academia, industry including industry associations/apex bodies, public-funding agencies and financial institutions. It is recommended that the Committee be chaired by a renowned industrialist, with the Vice Chairman, UGC (ex-officio) as the Co-chair to bring in the kind of traction and visibility that the initiatives deserve. The Empowered Committee shall be served by a dedicated Cell established at UGC to coordinate the activities of University-Industry linkage and to help implement the recommendations emerging from the deliberations of the Committee. Besides, the Cell would bring out periodic reports on the status of University-Industry linkages. The Cell would also be responsible for maintaining the record/data pertaining to the U-I programmes/activities and serve as a facilitating interface for interactions with universities.

(Action – UGC)

1.3 U-I Facilitation Fund: The Working Group also recommends creation of U-I Facilitation Fund as various schemes / measures that are proposed to be implemented, particularly TIE cell, IPR activities, entrepreneurial activities etc., will require funding. In order to cater to these needs, initially, UGC may consider earmarking a sum of Rs. 225 Cr every year. With time and progress of the activities, it could be increased suitably. This will act as a testimony of the determination and commitment of the UGC in promoting U-I linkages and usher in an industry-oriented shift in university system.

(Action – UGC)

1.4 Policy Research Centres on U-I linkages: University - Industry linkages are dynamic in nature and require a deep insight to understand the best fit model(s) for furthering the linkages. In developed countries, many universities have dedicated Policy Research Centres that provide research based new directions. On similar lines, for providing continuous inputs to the Empowered Committee to evolve new strategies, the Working Group further recommends UGC to set-up fully funded three 'U-I Linkage Policy Research Centres' at three different locations. These centres will develop well researched new strategies as well as required policies in consultation with stake holders from time to time and suggest these to the Empowered Committee for further consideration. Each of these centres may be adequately staffed with faculty (at least 3- 4 faculty members) and researchers, preferably from different disciplines.

(Action – UGC)

2. University – Industry R&D scheme:

An R&D scheme that supports industry–university collaborative research projects that aim at expanding the knowledge of the industrial processes; understanding the know-why; improvements in industrial processes; and generally, address the applied research concerns of the industry is very important for catalyzing the U-I linkages. Unfortunately, there is no scheme that focuses and promotes collaborative R&D between University-Industry covering all disciplines. It is in this context that the Working Group recommends that an R&D scheme should be initiated to support the collaborative projects between university and industry. These projects could be at any stage of development. It should be mandatory that the proposals come from industry in collaboration with a university; but the research will be carried out at university or jointly. It should be open to all universities and all disciplines, with preference to multi-disciplinary proposals. The required project funding should be shared between the UGC and industry in a ratio of 70:30. This initiative, besides enhancing the industry–university interaction, will promote initiation of industry- oriented applied research in universities as well as promote IP activity. UGC may work out further details of the Scheme, once it is approved. The Scheme may be managed by the dedicated Cell at UGC under the overall guidance of the Empowered Committee. The Working Group further recommends that a sum of Rs. 100 Cr. per year be made available initially to the Scheme. This will be in addition to the U-I Facilitation Fund. Over a period of time, the scheme may consider to expand to cover International Partners.

(Action – UGC)

3. Entrepreneurial eco-system

With a view to converting part of their research into novel, innovative and commercially viable technologies, products and services, universities are moving into translational research, albeit slowly. Universities could become the cradle of entrepreneurial activity as they offer an excellent ecosystem and ambience - knowledge-base, strong domain expertise, contemporary skills, infrastructure, diverse intellectual resources and skilled manpower – for such activities to flourish on the campus. Therefore, many developed nations world over encourage and enable their Higher Educational Institutions and other research establishments in setting up entrepreneurial activities, besides permitting the faculty members to engage in scientific enterprises (ventures that leverage scientific research, know-how, inventions, innovations and scientific expertise) while in professional employment. Such a measure not only ensures the continued involvement of the researcher in translating the inventions or innovations to valorised knowledge but also unleashes the entrepreneurial skills of researchers. Further, encouraging entrepreneurial activities on the campus are in tune with the Government initiatives such as Start-up India, Stand-up India, Make in India, Digital India etc. Furthermore, independent studies elsewhere have shown that the risk-taking capacity of the start-ups are much higher than the existing companies. They are thus better suited to take the new knowledge generated

by the universities and take it through the translational process to realise useful products or services. Thus, entrepreneurial activities on the campus will greatly enhance the U-I interaction ecosystem. In order to increase the participation of students, researchers and faculty in the entrepreneurial activity in particular and to create an entrepreneurial ecosystem on the campus in general, the Working Group recommends a slew of measures for implementation.

3.1 Incubation Centers (ICs): All universities may be encouraged to set up Incubation Centers (ICs) on their campuses to encourage entrepreneurship among the students and researchers, towards enhancing the U-I interaction. The idea is that students and researchers should become job providers instead of job seekers and contribute to the socio-economic development of the nation. The startups in the ICs should offer jobs / internship opportunities to students and researchers. It is heartening that the Union Cabinet had approved universities setting up ICs as an independent entity. The Working Group recommends that universities should preferably set up sector agnostic ICs. There are many agencies viz. DST, DBT/BIRAC, NITI Aayog, MeitY etc. that provide partial financial support for setting such ICs. Universities may be encouraged to source funds from these agencies. In exceptional cases, UGC may consider providing part funding for setting up such centers from U-I Facilitation Fund. An initial sum of Rs. 20 cr may be earmarked for this activity.

(Action – UGC & University)

3.2 Pre-Incubation – Building an eco-system for incubation activity on the university campus is necessary for ensuring long-term sustainability. A good number of students and researchers, as first-generation entrepreneurs, lack the necessary exposure to start their entrepreneurial journey, although having good ideas. The pre-incubation activity on the campus will enable the students and researchers to have a first-hand experience in incubating their ideas. The Working Group recommends universities to initiate the pre-incubation activities on the campus and make them open to all disciplines. The broad parameters that should guide the pre-incubation are: a) creation of separate space and facilities; b) pre-incubation for testing the idea feasibility; c) conducting, twice in every year, a “Concept Competition” to short list the ideas; d) providing the short-listed candidates free space and consumables, etc. The duration for pre-incubation can be 3 to 6 months depending on the domain area, and a small amount of stipend may be considered for students, if necessary, for their sustenance. Concurrently, pre-incubates may be imparted knowledge on the core aspects of entrepreneurship for enabling them to understand the basics of starting up and building businesses. This effort will help the pre-incubates to develop sound and bankable proposals that may attract investors. It is expected that a significant number of the pre-incubates might graduate into their start-ups. The UGC may financially support this activity from the U-I Facilitation Fund. To begin

with, a sum of Rs. 30 Cr. may be specifically allocated for this activity. With demand, the allocation could be increased in subsequent years.

(Action – UGC & University)

3.3 University Clusters for Promotion of Entrepreneurial Activity - Whilst the effort of UGC is to encourage entrepreneurial activity in all the universities, many of them may not be in a position to set up an ICs due to locational disadvantage and lack of entrepreneurial spirit in the region. In such cases, the Working Group recommends that UGC may adopt a cluster approach in a hub and spoke model, where the hubs are the ones with Incubation centers and spokes are those that are unable to set up ICs. Such universities may be encouraged to set up pre-incubation facilities to nurture entrepreneurial ecosystem and link these universities to hubs. Those of who graduate from the Pre-incubator and wish to pursue the entrepreneurial journey will move to the hubs. This approach will not only ensure a uniform development but also encourage entrepreneurship activities even in less privileged universities.

(Action – UGC & University)

3.4 Technology /Research Parks: In addition to the ICs, universities, particularly in the industrialized regions, may be encouraged to set up Research Parks, where land availability is not an issue. Such Parks would encourage the industry to set up their developmental activities in emerging areas (not manufacturing activities). It should be mandatory for the industries to utilize the expertise of university faculty. The companies located in the Park offer many opportunities including internship and employment to students and researchers from the university. The Working Group recommends that UGC encourage and facilitate select universities to set up such Technology / Research Parks. UGC may adopt the IIT, Madras model with necessary modifications to suit university system. This measure would significantly enhance the industry-academia interaction.

(Action – UGC & University)

3.5 Faculty Enterprise scheme – The Union Cabinet approved in 2009, permitting the faculty members to get involved in science and engineering driven scientific enterprises, while in service. The Working Group recommends that universities adopt the Union Cabinet decision and implement it forthwith. To facilitate the universities towards such an initiative, representative guidelines may be provided by UGC. The University of Hyderabad (UoH) has recently implemented the said Scheme. The Working Group perused the guidelines evolved by the UoH (Annexure 2) and the Group recommends adoption of the said guidelines by the UGC and through its facilitation, by other Universities.

(Action – UGC & University)

3.6 Seed Fund – As stated earlier, many students and researchers, as first-generation entrepreneurs, lack necessary financial resources to start their entrepreneurial journey. In

order to nurture innovations by young innovators and entrepreneurs, seed-fund support to incubates is one of the essential factors in entrepreneurship promotion. Accessing start-up and angel finances have always been difficult for innovative businesses, especially at the initial stages, due to long gestation period involved. The Working Group recommends providing SEED (Seed Equity for Entrepreneurship Development) assistance to universities (as grant) for supporting potential innovative ideas/projects that would emanate from the students / researchers and others. This initial funding would greatly boost translation of entrepreneurial ideas and reach a stage where investors would gain confidence and feel comfortable to commit investments. Initially, a sum of Rs. 50 Cr. may be earmarked for this activity from the U-I Facilitation Fund. Detailed guidelines may be formulated by UGC for operationalizing the recommendation.

(Action – UGC)

3.7 Courses on Entrepreneurship – Students need to be exposed to nuances of entrepreneurship early in their careers. Thus, courses should be offered on the campus as part of regular curriculum to create awareness on the opportunities of pursuing entrepreneurship. The main objective of these courses should be:

- To spread awareness among the students, research scholars and faculty as well as other stakeholders about entrepreneurship;
- To train the participants in the nuances of entrepreneurship;
- To raise the spirit of enterprise by awakening entrepreneurial traits;
- To encourage and motivate the participants to become entrepreneurs;
- To facilitate the participants to set-up science-based and technology-driven enterprises.

These courses will provide insights into entrepreneurship in terms of skills, culture, challenges and information required to take up entrepreneurship as a career. This initiative will trigger and facilitate participants to translate their innovative ideas into reality, without being constrained by their lack of confidence, time, planning or in-depth knowledge. Students may also be encouraged on design thinking and practical approaches to learning, which will develop an entrepreneurial mindset.

It is learnt that AICTE as well as MHRD-TEQIP have also facilitated establishment of Entrepreneurship Development Centres across Engineering Institutions. These may effectively be utilised in the interim period.

Faculty must be trained on how to provide structured mentoring to students who wish to launch their own startups. Therefore, a shortened version of “Introduction to Entrepreneurship” may also be introduced in the ‘Faculty Orientation Programmes’ and

made mandatory. Thereafter, faculty may be encouraged to utilize MOOCs to further their knowledgebase.

(Action – UGC & University)

4. Enhancing the IP Activity

In the current globalised economy, IP plays an important role. Industries are not interested in accessing the 'knowledge-base' that is not IP protected, as they have to make huge investments in translating that knowledge-base into commercial products, processes and services. Industries operate in a very competitive market and hence can ill afford either to copy the technology of others or allow others to infringe on their technologies. Universities are an excellent source of new knowledge as they work at cutting edge of science. Further as universities are opening up for translational research, their potential to develop innovations will enhance manifold. It is therefore necessary for the universities to protect the generated new-knowledgebase and maintain such knowledge-base for making it available to industry. Patenting is expensive, but essential. The Working Group therefore recommends that UGC provide funds separately for IP activity at universities. To have due accountability as also discipline, the IP activity expenses may be shared between the UGC and the university in 70:30 ratio. Universities should meet their share from the savings in other heads as well as the revenues generated in licensing the patents. The patenting activity should also put in place a mutually acceptable IPR policy and fix upper limits to royalty in licensing. If necessary, different criteria for different industrial sectors could be considered so that the industry is very clear about the ground rules. Further, the Working Group recommends a sum of Rs. 70 crore be allocated for this activity from the U-I Facilitation Fund, initially. This allocation could be enhanced as the patenting activity gathers momentum in university system.

(Action – UGC & University)

5. Recognition to Industry related applied research work

Although, academic research and applied research are mutually not exclusive, faculty performance evaluation today excessively leans towards peer-reviewed research publications. Relatively low or nil priority is assigned to technology development and industry-related applied research. Many awards, rewards and recognition are also based on research publications. Applied research that generates, technical reports, consultancy assignments, brings in money for research activities, patents etc. figures as part of neither performance evaluation nor for awards and rewards. Unless such outputs are considered

for performance assessment, faculty will not take up applied research seriously. The Working Group recommends that the performance measures be revisited, and applied research outputs be given due weightage in performance measures. Indeed, applied research outputs should mandatorily be made part of performance evaluation. Further, to encourage the faculty to take up applied research, part of the revenues generated from consultancy projects, troubleshooting efforts, sponsored research and knowledgebase transfer should be shared with the faculty involved in such efforts. Appropriate guidelines may be evolved by UGC.

(Action – UGC & University)

6. Technology Innovation Centers in Frontier Areas

Technology Innovation Centres (TIC) are gaining ground in developed countries. These are usually set up in select domain areas in academic / research institutions. The basic objective of such Centres is to provide necessary thrust in select areas for development of highly innovative technologies that can provide global leadership to the country. The Centres should be equipped with state-of-the-art facilities with highly qualified manpower usually sourced nationally or internationally at competitive salaries. These Centres are different from the Centres of Excellence or research institutions, in the sense that they concentrate on one specific subject and pool together all the resources that are needed to develop commercially viable technologies in specific frontiers of science. Many developed countries have adopted this kind of model to build new knowledge so that it could be advantageously leveraged to the benefit of the industry and the nation at large. For example, UK has identified high value manufacturing, energy and resource efficiency, transport systems among others for setting up such TICs. The Working Group recommends that UGC consider setting up such Centres initially in 5 select areas that are of high priority in socio-economic relevance to the nation. The UGC may consider setting up these Centres in a hub and spoke model. The Hub will be at the main centre, whereas the spokes could be dispersed at different places based on the knowledge available. Identification of areas could be done through extensive consultation with experts and stakeholders in the fields concerned. These Centres should have freedom to acquire IP from various sources including abroad in the chosen areas and leverage its own IP for cross-licensing. For making the Centres efficient and effective, suitable oversight mechanism for ensuring good functioning and proper governance, should be put in place. It is expected setting up each such centre may take about 3 years and cost around Rs. 70 cr. UGC may make an appropriate allocation towards setting up such centres. The Working Group recommends an allocation of Rs. 75 crores in the first year over and above the earlier suggested 'U-I facilitation Fund' allocation.

(Action – UGC)

7. University linkages with SME Sector

As mentioned earlier, most of the industries in manufacturing sector in India are in micro, small and medium category and lack capacity, both in terms of financial and R&D strengths, to face global challenges. Nonetheless, these sectors form an important segment of national economy as they provide large employment and contribute significantly to GDP. Therefore, MSMEs need to be nurtured through handholding for enabling them to reach the level of global competitiveness. A cluster-based R&D access system may be well suited to them. The Working Group recommends that UGC set up **R&D and Innovation Support Centres** at select universities in close proximity to the SME clusters, initially at 10 locations. Such Centres should be established with the help and support of Ministry of MSME. These Centres should be equipped with modern facilities relevant to the cluster activities. The Centres could support R&D activities for incremental improvements, new technology developments as also cost saving measures related activities. Further, the R&D activities under the Centre could be taken for individual companies or for a group of companies in a cooperative mode. In addition, the Centre could provide:

- Centralized analytical and testing facilities for characterization and performance evaluation of products;
- Multipurpose pilot-plant facilities for scale-up studies;
- Patent facilitation services;
- Library services including on-line access facilities;
- Modular research laboratory workspaces which can be leased to SMEs for a specified period for concept proving in process / product-oriented research.

A suitable working model could be evolved to operationalize the Centres with participation of the industries from the cluster. The effort of the Centre should be to work out a variety of approaches to position the manufacturing sector competitively. To part fund this activity, a sum of Rs. 20 cr may be earmarked under U-I Facilitation Fund.

(Action – UGC & University)

8. Mobility of Faculty / Researchers from University to Industry and vice versa.

Good scientific personnel are in great demand in industrial laboratories. Temporary mobility of researchers from university to industry and *vice versa* should be encouraged. Besides the sabbatical provision, the Union Cabinet in 2009 approved mobility of

researchers from one organization to the other. The Scheme provides for researchers / faculty to spend up to two years in industrial laboratories to gain invaluable experience of working on complex industrial projects. The Working Group recommends that UGC adopt the Scheme and deploy it advantageously. During the period of two years, researchers / faculty concerned should be allowed to draw industry-driven salaries. UGC may evolve appropriate guidelines for operationalising the scheme.

(Action – UGC & University)

9. Introducing industry-relevant courses in the academic curriculum

One of the primary objectives of the University is to develop proficient and well-rounded graduates ready for employment, particularly by industry, through quality education. Given the complexity of business environment and to match the requirement of sustainable competitive edge, it is necessary for the both entities to come closer for productive interface. Therefore, the universities need to know the requirements of the industries and professional organizations, such as banks and financial institutions, service industries etc. Towards this objective, the Working Group recommends

- (i) Universities may interact with industry sectors at regular intervals to identify the needs and integrate these into courses or developing new courses with the help of industry. Technocrats/ Professionals/ Executives from Industries may be engaged in not only designing the curriculum but also as adjunct/practice-track faculty for taking up such courses alongside the university faculty.
- (ii) Teaching-learning processes can be improved by integrating industrial training / internships to the students which also provides an exposure to the functioning of the corporate world. Therefore, students may be encouraged to take up industrial training / internships with industry to gain valuable experience. With a view to enthuse the students such industrial trainings / internships should be creditized.
- (iii) Inclusion of industry experts and their active participation in governing bodies and all Board of Studies.
- (iv) Industry may be encouraged to set up Scholarships/fellowships at the universities to undertake industry specific research problems / trouble shooting.

Thus, Industries can participate in academic programs in multiple ways and cross-fertilize ideas for systems improvement. Participation of industry professionals in university education system will create positive impact on employability.

(Action – University)

10. Permitting university faculty to be on Boards of companies

Another measure that could significantly enhance the industry-academia interaction is permitting the university faculty (Professors) to be on the Boards of companies. Such participation would facilitate linkages and flow of financial support to industry-relevant research activities of the university.

(Action – UGC & University)

11. Industry Chair Fellowship:

As indicated earlier talented scientific personnel are in great demand in industrial laboratories. It is increasingly becoming necessary for Universities to retain their good faculty, otherwise the chances are that they may move over to other lucrative opportunities in industrial settings. For universities to retain its best faculty, specifically those involved in applied research, there is a need to introduce suitable monetary or otherwise incentives. As one of the measures, the Working Group recommends UGC to create “Industry Chair Fellowship” in different disciplines at universities. The Chair Fellowships will be created through sponsorship by industry or an individual in a chosen area of interest. These fellowships will operate on the principle of variable compensation package (salary plus). The basic salary comes from the university as an employee and the plus comes from the contribution from industry or sponsor. The fellowship shall be open to both serving faculty as well as the superannuated faculty. For the superannuated faculty, the ‘plus’ component will be in addition to his pensionary benefits. The universities will have to scout for such sponsors and UGC may not have any role, except for providing guidelines for creation and operation of such fellowships.

The Working Group further recommends that the Chair Fellowship should be fixed at Rs. 50000/ month. Professor level Faculty members with a proven track record of the Industrial Research are only offered these fellowships for a specific period. Initially, the fellowship could be for 5 years and renewable thereafter. The number of such fellowships may not exceed 5 – 7% of the faculty strength of the university. There shall be no age restriction for selection of a faculty for the fellowship. These Chairs will be created either through a onetime endowment or a guaranteed annual contribution from an industry or individual sponsor. The contributions from the industry will not have any upper or lower limit. The contributions shall come to University and in turn University shall pay the fellowship to the chosen faculty, thus avoiding two pay-masters. These Chair Fellowships shall be named either on company name or by an individual name as suggested by the sponsor or company. For example, “Infosys Chair Professor”, “Reliance Chair Professor” or “------(Individual name) Endowment Chair professor” etc. The

faculty members will continue to perform their research activities in the university, while being beneficiary of an additional “Chair Fellowship” by virtue of their contribution to the applied research. The essence of all these fellowships is to provide incentives to performers.

The selection process shall involve the sponsor, three external Experts (one of them from Industry) and VC (as chairman).

(Action – UGC & University)

12. University-Industry Connect Performance Award

University-Industry Linkage has been well accepted and practiced world-wide for stimulating innovation-ecosystem on the campus. To encourage and promote University-Industry connect, many nations have introduced incentivization schemes. For example, Government of France awards ‘Carnot’ label to institutes excelling in innovations. This tag (Carnot) enables the institute/s to seek special grants from the funding agencies, which could be used for developing R&D infrastructure, providing funds for attending conferences/seminars, introducing scholarships/fellowships, purchases of consumables and so on. In India, AICTE-CII and ARRIA ranks Higher Education Institutes based on their innovation set-up which includes industry-academia connect as well. The Working Group recommends that UGC may introduce ‘University – Industry Connect Performance Award’ at the University level and at individual faculty level. At the University level the Award may be fixed at Rs. 50 lakh and the amount could be used in furthering the University – Industry Connect. At faculty level the award may be fixed at Rs. 5 lakh and it will go to the individual faculty member. A university may win the award a maximum of 3 times, whereas the individual faculty may win the award once in life time. UGC may evolve the criteria for selection of the awardees and the number of awards in each category. This initiative will motivate both the Universities as well as faculty to excel in Industry Connect.

(Action – UGC)

Conclusions

The University – Industry linkages, although mutually beneficial, did not progress in the country to the desired level. University which acts as a centre of knowledge is in most cases unaware of the societal aspiration. Whilst, some evidence of cooperation particularly between premier institutes and industry is present, in general it is sub-optimal due to lack of seriousness and poor coordination between universities and industry. The Working Group constituted by UGC had examined the issue comprehensively and came up with a series of recommendations for enhancing the University – Industry linkages. Among others, the Working Group recommended setting up of Technology, Innovation and Entrepreneurship Cell (TIE Cell) in each University to act as a nodal unit and coordinate with Industry. Similarly, an empowered committee may be constituted by UGC with an eminent industry person to guide and provide desired thrust to the U-I linkage. Further, the WG recommends setting up University–Industry R&D scheme with a specific allocation of Rs. 100 cr and Rs. 75 cr for creation of Technology Innovation Centres in frontier areas. In addition, the WG recommends creation of U-I Facilitation Fund specifically for:

S.No.	Activity	Allocation in Rs. crore
1.	Incubation Centres	20
2.	TIE Cell	15
3.	Pre-incubation activities	30
4.	Seed Fund	50
5.	IP activity	70
6.	Linkages with SME sector	20
7.	Miscellaneous activities	20
	Total:	225

Thus, a total of Rs. 400 crore is recommended to initially promote the University and Industry linkage. By creating such an eco-system, it is expected to boost the incubation and entrepreneurial activities and shall enhance the IPR outcome at the university level, besides closer linkages with industry. Such a linkage can enhance the employability of graduates coming out of these Universities. Further, by cooperating in designing and delivery of education and collaborative research programmes universities can play an important role in imparting required skill sets to students as well as contribute to technological development at industry. It, therefore, does necessitate that MHRD/UGC should create a separate Funds to support in enhancing the U-I linkage activities to make it a sustained Industry-Academia Engagement.

In order to achieve optimum outcome from this linkage the Government and Professional Bodies like FICCI, CII, ASSOCHAM etc. can play an important and facilitating role.

The Associations can take an active role in identifying industries that are willing to create Industry Chair Fellowships in all disciplines of knowledge and support both at policy level and at implementation level.

Implemented sincerely, these measures will have a far-reaching affect in the years to come on the University system.

The Working Group feel honoured to have been given the opportunity by UGC to develop the report.

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Guidelines for Faculty Enterprise Scheme

(Permitting the Faculty members to have an equity stake in scientific enterprises while in professional employment with the University)

1 Preamble

Scientific Enterprises (ventures that leverage scientific research, know-how, inventions, innovations and scientific expertise) are key indicators of innovation system of a country. With a view to translating the scientific research into commercializable knowledge, many developed nations worldwide encourage and enable their faculty members from universities, academic and other research institutions to set up commercial entities while in professional employment with the organizations. Such a measure not only ensures the continued involvement of the researcher in translating the inventions or innovations to commercializable knowledge but also unleashes the entrepreneurial skills of faculty and thereby contributing to economic development of the nation. Interestingly, such enterprises are often established in the campuses of academic institutes and universities due to their special needs and resource requirements such as strong domain expertise, contemporary skills as well as access to specialized manpower, facilities and know-how. In 2009, Union Government had permitted the Faculty members to involve with such Science and Engineering driven Scientific Enterprises (vide a notification no. 3/3/2009-TU/Knowledge to Equity dated May 25, 2009 by Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, Govt. of India).

The proposal below prescribes the guidelines for implementing the Faculty Entrepreneurship Scheme at University of Hyderabad (UoH).

2. Definitions:

For the purposes of this document, the word(s) / terms that are used in this document have the meaning as defined below:

- i. **Company:** A company is a legal entity incorporated under the Companies Act and it will have perpetual succession and common seal, allowed by legislation that engages in business (that makes, buys, or sells goods or provides services in exchange for money). Companies can be formed by individuals or group of people as an independent organisation empowered with legal rights which are usually only reserved for individuals, such as to sue and be sued, own property, hire employees or loan and borrow money.
- ii. **Conflict of Interest:** Conflict of Interest arises when a faculty member/scientific officer or his family member's interest in a Start-up/Spin Off interferes or has the perception (to an independent observer with reasonable justification) to interfere with his or her professional obligations to University. Therefore, a Conflict of Interest may prejudice a Faculty member's ability to perform his or her duties and responsibilities

objectively. The Conflict of Interest can be financial or non-financial. Conflict of Interest also covers “Conflict of Roles” and “Conflict of Commitment”.

- iii. **Equity:** The capital of a company is divided into equity shares. An equity share forms a unit ownership of a company and gives its holders the powers to share the earnings / profits in the company as well as to vote at shareholder’s meetings of the company. Such a shareholder has also to bear the losses incurred by the company.
- iv. **Entity:** Entity means a legal person or company constituted primarily to commercialise knowledgebase. Entity in this document means either the Scientific Enterprise or Start Up or Spin Off.
- v. **Faculty/scientific officers:** Faculty / scientific officers means such categories of staff as notified by the University under it from time-to-time and shall include all levels.
- vi. **Family:** Family for the purpose of this document means the employee’s wife or husband, his/or her dependent children and dependents for example father, mother, widow sister(s) etc.
- vii. **Income:** Payment received including but not limited to a salary, wage, stipend, honorarium, dividend, interest, rent, proceeds from any sale, loan forgiveness or payment of indebtedness or any other contribution received, any community property interest etc. Income also includes outstanding loan and pro rata share of any business entity or trust.
- viii. **Investment:** Investment can be defined as the act of putting money, effort, time, etc., into something to make a profit or get an advantage, of the money, effort and time invested. A financial investment is a monetary asset, physical or tangible purchased, for example, stocks, bonds, bullion, etc., with the idea that the asset will provide income in the future or will be sold at a higher price for a profit. An important feature of financial investments is that they carry high market liquidity.
- ix. **Knowledge base:** Knowledge base means (and includes) all inventions/innovations (whether patentable or not), invention/innovation disclosures, trade secrets, know-how, proprietary information, technical data documentation, data collections, databases, concepts, processes, software, design drawings, materials, support services and the like, whether or not the foregoing are in tangible or intangible form.
- x. **Scientific Enterprise:** Scientific Enterprise means an entity that leverages scientific research, knowhow, inventions, innovations and expertise and translates them into commercialisable technologies/products.
- xi. **Scientific Establishment:** Scientific establishment means the University of Hyderabad.
- xii. **Spin-off:** A Spin-off is an independent start-up firm formed by the scientific establishment (in the present case University) either independently or along with its employees or outsiders. Spin-offs typically operate at arm’s length from the establishments and have independent sources of financing, products, services, customers, and other assets. The spin-offs may license technology/intellectual

property from the parent organization. Such spin-offs are important sources of technological diffusion in high-tech areas.

- xiii. **Start Up:** A start-up is an entrepreneurial venture that is in the early stage of the life cycle of an enterprise where the entrepreneur moves from the idea stage to product or process or service development. Typically, start-up aims to meet a marketplace need by developing or offering an innovative product, process or service. A start-up is a legal entity that engages in business and commercialization of new products, processes, or services.

The proposal:

2 Eligibility

The scheme shall be applicable to all permanent faculty members/scientific officers, who had completed 5 years of service in the University.

3 Procedure

- i. The University shall designate and notify an officer/authority or a committee for examining requests from faculty members/ scientific officers seeking permission under the provision for Faculty Enterprise Scheme.
- ii. Any faculty members/scientific officers desiring permission shall apply to the notified authority in the prescribed form (Appendix I) seeking permission to have a stake in an Entity;
- iii. In the event of more than one faculty members/scientific officers collectively investing in the Entity, each one of the faculty will have to seek the permission to have a stake in the Entity;
- iv. In the event of more than one faculty members/scientific officers belonging to different institutes/universities/organizations collectively investing in the Entity, each one of them will have to seek the permission to have a stake in the Entity from their respective organizations;
- v. The notified authority shall examine each application in accordance with the procedures established by it and make an appropriate recommendation to the competent authority.

4 Competent Authority for Approvals

- i. The competent authority for the faculty members shall be the Vice-Chancellor of the University;
- ii. Notwithstanding anything contrary contained in any other rule, order or notification but subject to the provisions of this scheme, the competent authority shall permit faculty members/scientific officers to have an equity stake in scientific enterprise;

- iii. The approval shall specifically state the exemption of that particular faculty members/scientific officers from relevant CCS conduct rules to enable the faculty member/ scientific office permitted by the competent authority to avail of the provision. In case the institutions follow its own conduct rules, the approval specifically shall state that the exemption from relevant rules is granted for enabling the scientist to avail the provision.
- iv. The approval must also specifically mention Guidelines to avoid a possible conflict of interest (as indicated in section 5 of Annexure I) in the form of do's and don'ts;

5 Responsibilities

5.1 Faculty member/Scientific officer

- i. Shall primarily be responsible for the organization he/she is serving and shall be bound by any instruction, general or specific, that the University may issue from time-to-time;
- ii. Shall bring potential conflict of interest issues to the knowledge of the University (as per Annexure I, section 5) and be guided by the instructions that the competent authority issue from time-to-time;
- iii. University may issue Guidelines from time-to-time for avoidance of conflict of interest, if necessary;
- iv. Shall not directly or indirectly associate himself/herself with any process, notwithstanding the permission granted
 - a. To license knowledge base to the Entity;
 - b. For the purchase or hiring of goods and services from the Entity; and
 - c. To the evaluation of goods or services that compete with the goods or services of the Entity;
- iv. May provide professional advice to the Entity, upon request from the Entity, on such terms and conditions as the University may prescribe;
- v. If desires to be associated with the Entity as non-executive Director, he/she would need to seek the approval specifically from the University (vide section 4 & 6 of the proforma);
- vi. If desires to be associated with the Entity full time and guide the activities in the initial phase, he / she has to take lien from the University. Such lien can be taken for a **maximum period of 3 years** and in accordance with the extant rules of the University;

- vii. Shall, in the event of Entity's merger with another unit or acquiring another unit or coming out with an Initial Public Offering (IPO) or disinvesting his/her share in the entity, inform the University in advance .

5.2 Entity

- i. Should not be construed as an agent or representative or part or organ of the University. The Entity is solely responsible for all the activities undertaken by the Entity or for any liabilities that may arise from the activities of the Entity;
- ii. Can utilize the resources of the University (the term 'resources' shall be construed widely and include, laboratories, equipment, personnel and space of the University) with prior approval in writing and on such terms and conditions as the University may prescribe;
- iii. Shall, subject to the existing rights or licenses, have the option to license knowledgebase from the University by paying royalty (upfront or staggered with milestones or a combination of both), in accordance with the extant policies, rules and regulations of the University;
- iv. Shall continue to be liable to the University for payment of royalty even if the faculty member/scientific officer concerned disinvests his/her stake in the Entity;
- v. Can source the knowledgebase from anywhere for the faculty member/scientific officer to take equity stake; the knowledgebase need not be from the same University;

5.3 Scientific Establishment (University)

- i. Notwithstanding anything contrary contained in any other rule, order or notification but subject to the provisions of this scheme, shall permit a faculty member / scientific officer to have an equity stake in the entity;
- ii. Shall license knowledgebase to the Entity on terms that are no worse than the terms on which the University would have licensed the knowledgebase to another person on arm's length basis;
- iii. In its discretion may take equity stake in the Entity in lieu of royalty;
- iv. If decides to disinvest the equity, it will be first offered to the promoters of the Entity;
- v. Shall reserve the right to take an independent decision, as it deems appropriate, in the event of the Entity merging with another Entity or acquiring another Entity;
- vi. Can offer its equity to be placed under the IPO, in the event the Entity decides to go public with an IPO offer.

6. Modification to the rules

Modifications to these guidelines can be effected by the University with the approval of its competent authority.

Application for seeking approval of the University for investing in the equity stake of a Scientific Enterprise / Spin Off

1. Details of the Faculty Member/Scientific officer:

- i. Name:
- ii. Designation:
- iii. Department/division/school in which he or she currently working
- iv. Address for communication including Telephone, mobile, fax and email (office)
- v. Residential address including Telephone, mobile, fax and email

2. Details of the Entity:

- i. Registered name of the Entity:
- ii. Registration number and other details:
- iii. Registered Address of the Entity with telephone, mobile, fax and email
- iv. If the entity operating from another location other than the registered office please give details of the location and complete address including telephone, fax, mobile and email:
- v. Profile of the Entity including broad outline of the activities:
- vi. Business Plan of the Entity (enclose a copy):
- vii. Give brief details of Knowledgebase and where it is acquired (enclose a proof of acquisition):
- viii. Give details of the promoters including address with telephone, mobile, fax and email, brief back ground and their personal equity stake in the Entity:
- ix. Give details of the Board of Directors including address with telephone, mobile, fax and email, brief back ground and their personal equity stake, if any, in the Entity:
- x. Give details of the present functioning of the Entity including the name and contact details of the chief operating officer / Managing Director etc. In the event the Entity is yet to be established, give proposed functioning of the Entity and the role of the faculty member / scientific officer who is seeking to take an equity stake in the Entity:

3. Details of Equity stake proposed to be acquired by the Scientist:

- i. Face Value of each Equity:
- ii. Number of Equity shares to be acquired:
- iii. Total value of the stake in Rs.:
- iv. How is it proposed to be financed:

- v. In case the acquisition is in a phased manner, please indicate the phases and approximate number of shares in each phase
- vi. Do the Faculty member /Scientific officer and their family members (wife or husband and dependent children and other dependents only) hold or propose to hold equity shares in the same Entity, please give details:

4. Other permissible provisions:

- i. Does the Faculty member / Scientific officer intend to take lien? Yes/No
- ii. If yes, state the period and date from which the Faculty member / scientific officer intends to take the lien:
- iii. Does the Faculty member / scientific officer wish to be associated with the Entity as non-executive director on the BoD?
- iv. If yes, specify the role of the Faculty member/ Scientific officer as Director on BoD
- v. Does the Faculty member/ scientific officer propose to offer consultancy to the Entity? Yes/ No
- vi. If yes, give the approximate consultancy man days per year:

(in the event of the University permitting the Faculty member/ scientific officer to offer consultancy to Entity, a separate agreement will have to be entered between the concerned for the consultancy assignment as per the University norms)

5. Conflict of Interest Disclosure:

The conflict of interest arises due to the dual responsibility of a Faculty member / scientific officer, who invests in an Entity, has to take on one hand as faculty / scientific officer of the University and on the other as an investor in the Entity. Every Faculty member/Scientific officer who seeks approval to invest in a Scientific Enterprise shall have to identify such issues which are likely to become conflict of interest and project these up front for the Management of the University to assess and suggest possible remedial measures to be followed by the Scientist.

- i. Please state the possible / anticipated conflicts of interest:

While the approval in force, if any other conflict of interests is envisaged these may also be brought to the notice of the appropriate authority of the University.

(Please see the indicative list of possible conflict of interest given in the enclosure.)

6. Approvals are being sought for

to take Equity stake in the Entity - number of equity shares (% of the equity authorized share capital)

to take lean for a period of ----- years beginning (dd/mm/yyyy)

to associate with the Entity as non-executive Director

to provide professional consultancy to the Entity

7. Undertaking:

I resolve to undertake that:

my primary responsibility is towards the University and I shall abide by the instructions of the University from time to time;

I am personally responsible for the Activities of the Entity and the liabilities arising out of it;

I shall not involve the University name, without its express permission, in the matters pertaining to the Entity;

notwithstanding any permission granted to me, I shall not directly or indirectly associate myself:

- a) with any process to license knowledge base to the Scientific Enterprise
- b) with any process for the purchase or hiring of any goods and services from the Scientific Enterprise; and
- c) with the evaluation of any goods or services that compete with the goods or services of the Scientific Enterprise.

Signature _____

Name of the Faculty / scientific officer _____

Witnesses (signature with complete address):

1. _____

2. _____

Potential “Conflict of Interest” (COI) Issues that may arise under Faculty Entrepreneurship Scheme (FES)

Preamble

While permitting the faculty member and scientific officer to have an equity stake in scientific enterprises / spin offs while in professional employment with the University (hereinafter referred to as Scientific Establishment), conflict of interest may arise at any stage and these need to be adequately addressed. It is to be recognised that FES is most likely to be operative in the domain of Faculty member and Scientific Officer’s Knowledgebase and therefore entrepreneurial activity must be balanced by careful review of the proposed relationships. It is necessary to avoid either perceived or actual conflict of interest issues with respect to FES scheme implementation. Both University and Faculty member/Scientific officer have to be responsibly optimize and mitigate Conflict of Interest.

People covered under COI Guidelines

In the present context, the following people are covered under COI:

- Faculty member /Scientific officer & their family (if any) holding equity in scientific enterprise, start-up or spin-off;
- Regular employees engaged in decision making; and
- Emeritus faculty and others as notified by the university from time to time.

Nature/Type of COI That May Arise When Creating Start Up/Spin-Offs

The potential Conflict of interest may arise due to any of the following actions:

1. Diverting lab or project funds and / or staff or research students to the entity;
2. Spending significant time in the entity during the official working hours;
3. Unauthorized use of laboratory resources / space for the activities of the entity;
4. Use of laboratory facilities outside the terms of the agreement between the university and the entity;
5. Pursuing activities related to the entity in the laboratory which is likely to benefit the entity commercially;
6. Participating or lobbying for IP/technology licensing or for any other matter (allocation of space, use of facilities etc.) with university on behalf of start- up/spin-off/scientific enterprise or vice a versa;
7. Negotiate with the entity on behalf of the university;
8. Use of university official e-mail addresses, seal, logos, letterhead, telephone and other communication facilities to correspond on behalf of the entity;
9. Participating in the process for Purchase of any goods or service from the entity;

10. Transmission to the entity any unauthorized information, records, results, materials, or work product, etc., which have been acquired through research at university or through studies conducted on behalf of private and public bodies by university for the private gain of the staff member;
11. Consultancy to the entity that imposes obligations that conflict with university's IP Policy or with university's obligations to other research sponsors; and
12. Taking administrative action or any decision within the university which is beneficial to a business in which he/she has a financial interest.

The above actions that may lead to Conflict of Interest must be avoided.

Guidelines for Managing, Resolving & Mitigating COI

The approval given by the University to the faculty member or scientific officer must specifically mention instructions to avoid anticipated **conflict of interest** as specified in these guidelines.

Following procedures and guidelines are to be followed for managing, resolving & mitigating COI:

- a) The concerned Faculty member / scientific officer shall make a full disclosure on his/her/family's equity holding in any entity and bring potential conflict of interest issues (as defined above) to the knowledge of the Scientific Establishment (including the information on Shareholders and Shareholding pattern of the entity as per the proforma given at **Appendix 1**). The general advice is to make a disclosure when in doubt. He/she will be guided by the recommendations of the Standing Committee or any other instructions that the Scientific Establishment (University) may issue from time to time. The concerned Faculty member / scientific officer must also update disclosure on his/her and family's equity holding in the entity once a year and whenever there is a change in the status of information;
- b) Each laboratory / institute shall set up a Standing Committee for the review of each COI disclosure and suggest measures to avoid, manage or mitigate the COI. The Standing Committee will be guided by the present guidelines. The Standing committee must be headed by at least a senior professor / Dean of a school / Pro VC and must have four more members viz. two senior professors, one external expert nominated by VC and Scientist-in-charge, TIE-U. The chairperson and members of the Standing Committee must not have any equity holding in that entity. Standing Committee recommendations shall ensure that laboratory / institute interests are not compromised while at the same time, it does not hinder the objectives of the scheme and functioning of the entity;
- c) The entity can utilize the resources of the Scientific Establishment (the term 'resources' shall be construed widely and include, without limitation, laboratories, equipment, personnel and space of the Scientific Establishment) only with prior approval in writing and on such terms and conditions that the Scientific Establishment

may prescribe. Towards this, the laboratory / institution shall enter specific agreements with the Entity with clearly defined terms of payment;

- d) The concerned Faculty member / scientific officer shall primarily be responsible for the Scientific Establishment he/she is serving and shall be bound by any instructions, general or specific, that the Scientific Establishment may issue from time to time;
- e) The concerned Faculty member/ Scientific officer shall not directly or indirectly associate himself / herself with any process, notwithstanding the permission granted:
 - to license knowledge base to the Entity;
 - for the purchase or hiring of goods and services from the Entity; and
 - to the evaluation of goods or services that compete with the goods or services of the Entity;
- f) Disclose the relationship of his/her proposed lab activity to the entity and how the employee will ensure separation of his/her organisational role from the employee's role or interests in the entity. Further, the Faculty member / scientific officer concerned should provide a list of projects being pursued and Intellectual Property (patents, trademarks, copyrights, etc.) filed by the Entity, to the University at the beginning of every calendar year;
- g) Must not claim ownership of an invention on behalf of entity which resulted from their activities in the university;
- h) No Faculty member / Scientific officer should be permitted to invest in more than two entities;
- i) The university may prescribe upper limits of time involvement in the entity. However, such involvement could be few hours a day and cumulatively it should not exceed one working day per week. Beyond these limits, if the concerned Faculty member / scientific officer wishes to provide professional advice to the entity, he/she must seek the approval of the competent authority or may explore alternate options such as taking lien;
- j) The concerned Faculty member / scientific officer, if he/she desires to be associated with the entity as non-Executive Director, he/she would need to seek the approval specifically from the Competent Authority;
- k) The concerned Faculty member / scientific officer, if he/she desires to be associated with the entity full time and guide the activities in the initial phase, he / she must take lien from the university. Such lien can be taken for a maximum period of 3 years and governed by the pertinent rule;
- l) The concerned Faculty member / scientific officer shall, in the event of the entities merger with another unit or acquiring another unit or coming out with an Initial Public Offering (IPO) or disinvesting his share in the entity, inform the Scientific Establishment in advance. Similarly, the Scientific Enterprise should also inform about the potential dilutions planned/actualized and the entities/individuals involved

in such an activity; Wherever, potential conflict exists, written consent must be obtained from the competent authority before any commitment is made.

Competent Authority

Vice Chancellor of the University is the competent authority in all the matters pertaining to COI. In all the matters of COI, VC's decision is final and binding.

Members of the Expert committee :

1. Prof. I. K. Bhat, Vice Chancellor, Manav Rachna University, Faridabad
2. Prof. Rupinder Tewari, Department of Microbial Biotechnology, Panjab University, Chandigarh
3. Prof. Ravindra D. Kulkarni, Pro-Vice-Chancellor, Mumbai University, Mumbai
4. Dr. D Yogeswara Rao, Visiting Professor, Univ. of Hyderabad
(Former Chief scientist, CSIR & Adviser, O/o PSA)
5. Prof. Dileep Malkhede, R Adviser, AICTE, New Delhi
6. Prof. A. K. Sapre, International Institute of Professional Studies, Devi Ahilya Vishwavidyalaya, Indore
7. Dr. (Mrs.) Renu Batra, Additional Secretary, UGC, New Delhi