2nd - 4th March 2017

A Report on National Conference on 'Academia, Industry Collaborations – Opportunities and Challenges'

Internal Quality Assurance Cell
Sri Ramachandra University

Program Schedule

Day 1: 02.03.2017; Thursday		
Time in hrs	**Topic**	**Resource Person**
8:30 – 9:00	Registration	
9:00 – 9:45	Inauguration	
9:45 – 10:00	Tea	
10:15 – 11:15	The Entrepreneurial University - a larger issue	Mr. K. Rajaraman, IAS Principal Secretary and Director, Entrepreneurship Development Institute of Tamil Nadu (An autonomous society of the Govt. of Tamil Nadu), SIDCO Industrial Estate, Guindy, Chennai
11:15 – 12:15	Global perspectives in University-Industry Collaboration	Dr. Caven S. Mcloughlin Professor, Kent State University, USA & Visiting Professor, SRU
12:15 – 13:15	Industry – Academia HUB: Networking & Collaboration	Dr. K. Sankaran, Director. Centre for Biotechnology & Centre with potential for Excellence in Environmental Science (CPEES), *Anna University*, Chennai
13:15 – 14:00	Lunch – Seminal Hall	
14:00 – 15:00	Stem Cells In Regenerative Medicine Industry Perspectives	Dr Giridharan Appaswamy Research & Development unit, Life Cell international, Tamil Nadu
15.00 – 16:00	Deliverables/Outcome of Academia-Industry partnerships	*Dr*. M. J. *Nanjan*, *Director*, *TIFAC* CORE in Herbal Drugs, SSCP, Ooty
16:00 – 16:15	High Tea	
Day 2: 03.03.2017; Friday		
9:00 – 10:00	Creating patent culture in academia research	Mr. S. P. Subramaniyan Deputy Controller Patents & Designs Chennai
10.00 – 10:30	Tea	
10:30 – 11:30	Optimization of patent portfolio in industry set up	Dr. Sridevi Krishnan General Manager, Corporate Patents, Piramal Enterprises Ltd., Mumbai
11.30 – 12.30	Development of Academia-Industry ecosystem: Bridging gaps for incubating innovation	Dr KK Narayanan Managing Director of Metahelix Life Sciences, Bengaluru
12.30 – 13:30	Lunch - Seminar Hall	
13:30 – 15:30	Group discussion: Real time difficulties in developing Academia-Industry Collaboration	Dr. Arun Balakrishnan Chief Scientific Officer - Omni Active Health Technologies Limited, Mumbai

15.30 – 16.30	Policies to promote Industry – institute collaboration	Prof. S. P. Thyagarajan, Professor of Eminence & Dean (Research), Sri Ramachandra University
16:30	Tea	
Day 3: 04.03.2017; Saturday		
9:00 – 10:00	Recent trends in Industry – institute linkages in India	Mr. Jayaseelan Chairman, IDMA (Tamil Nadu, Kerala & Pondicherry), CEO, Delvin Formulations, Chennai
10.00 – 10:15	Tea	
10:15 – 11:15	Motivations and barriers for collaboration: Successful case studies of CIII	Mr. A. Balachandran, Head, Centre for Industry Institute Interaction (CIII), Vellore Institute of Technology
11.15 – 12.30	IITM Incubation Cell&Sharing of Experiences	Prof. Guhan Jayaraman Department of Biotechnology Bhupat and Jyoti Mehta School of Biosciences, IIT Madras, Chennai& Mr. Harshal S Dr. Rakesh Vital Bioscientific Solutions
12.30 – 13.30	Lunch – Seminar Hall	
13.30 - 14.30	Case Studies of Industry – Academia programs	Dr. K. Balakrishnan Principal Scientist & Head Bannari Amman Institute of Technology-Technology Business Incubator Sathyamangalam, Erode District
14:30 - 15.30	Industry Institute Interaction culture: Panel Discussion	Dr. Anandkumar Surendrarao Invention Transfer Group Fellow, Applied Innovation, UC- Irvine [Talk for 15 minutes before opening the panel discussion].
		Panelists: Prof. SPThyagarajan Dr P.V. Vijayaraghavan, SRU Dr. K. Balakrishnan, Bannari Amman Mr. A. Balachandran, VIT Dr Anandkumar S.
15.30– 15.45	Valedictory	
15.45	Tea	

SRI RAMACHANDRA UNIVERSITY

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V.R. VENKATAACHALAM
President
(Chancellor)

February 2, 2017

MESSAGE

Academic research without application for the benefit to humanity is unnecessary waste of scientific resources. To justify the vision of "Bench to Bedside" research in Health Sciences Institutions is important. Towards this, Sri Ramachandra University is striving to take it forward and fulfill its mission of service to the sick and needy.

I am very happy to note that Internal Quality Assurance Cell of Sri Ramachandra University is organizing a National Conference on "Academia, Industry collaborations – Opportunities and Challenges" from 2nd to 4th March, 2017. Experts from the Industry and Academicians will be interacting during this Conference. I fervently hope that they will bridge the gap that exists now and make research meaningful and beneficial to our country.

Internal Quality Assurance Cell is spear heading this effort and I wish the team and the conference all success!

V.R. VENKATAACHALAM
CHANCELLOR

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MESSAGE

Ever since the inception of Sri Ramachandra Medical College & Research Institute in 1985, the Founder insisted on developing and sustaining high standards and quality in all its pursuits viz. health care, education and research. It is, with this objective in mind, the management and faculty reached out and made several international collaborations including the Harvard Medical School. When in 1994 the institution became a Deemed University the Founder Chancellor Shri NPV Ramasamy Udayar in his interactions with the faculty and members of the staff reiterated that the institution be known through the accomplishments based on quality.

The Internal Quality Assurance Cell (IQAC) of Sri Ramachandra University was initiated with the above objective and all the faculty members in the University were sensitized and trained to look for quality enhancement. Over the years, the Cell has made considerable progress as evidenced by high ranking of the university accreditation with 'A' Grade (CGPA 3.62 on a 4 point scale) and the prestigious Joint Commission International Accreditation (JCIA) of the healthcare facility. Several prestigious university collaborations and close working relations with high quality institutions in India and out of the country were established in the last several years.

In its continued efforts, the Internal Quality Assurance Cell has come up with a 3-day programme designed to discuss the objective of academia and industry collaborations. It is needless to state the importance of such collaborations in developing products that will meet the needs of the humanity at large. On going through the programme I find several national experts drawn from different sources who will be analyzing the opportunities and challenges of academia-industry collaborations. I am convinced that the effort taken by the coordinators of the conference will be greatly appreciated by all the delegates who will be participating in this conference.

I wish them success in meeting their expectations.

Dr. T.K. Parthasarathy

SRI RAMACHANDRA UNIVERSITY

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Date: 21-02-2017

MESSAGE

The National Conference on, "Academia – Industry Collaboration: Opportunities and Challenges" being organized by the Internal Quality Assurance Cell of Sri Ramachandra University is an unique exercise in the current scenario of higher education mandate to facilitate (a) employable, skill built manpower and (b) innovation in Research and Development through active partnership with Industries and other production sectors. The Conference has been planned to provide 360^0 coverage of areas that are to be practiced in both academic institutions and industries for their mutual benefits and for serving the country. It is commendable that the IQAC is able to have resource persons from all the sectors to participate in the Conference.

An ideal Research and Innovation Ecosystem in Indian Universities need to have a seam-less connectivity supported by infrastructure and mentoring by the institutional management among the following building blocks of the eco-system (i) Research Knowledge and Skills (both indigenous and international) (ii) Creativity & motivational mechanism (iii) R & D Grants from Government/Private and NGOs (iv) Good R & D infrastructure, Governance with a accountability (v) Quality Benchmarks for R & D (vi) Outcomes and outputs (vii) IPR & Legal office (viii) Marketing team for Survey, need analysis and support (ix) Incubators for Product development and translation (x) Development of "Startup companies" and mode of technology transfers. Only then, there can be R & D translation from academia - industry to society can take place.

I hope that the National Conference would deliberate on the above and provide recommendations to the University for adoption and implementation!

I wish the delegates productive deliberations!

(S. P. THYAGARAJAN)

SRI RAMACHANDRA UNIVERSITY

(Declared under Section 3 of the UGC Act, 1956)

Dr. J.S.N. MURTHY
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February 2, 2017

MESSAGE

I am delighted to learn that Internal Quality Assurance Cell of Sri Ramachandra University is conducting a National Conference on "Academia, Industry Collaborations – Opportunities and Challenges" from 2nd to 4th March, 2017.

Continuing its quest for Quality in Sri Ramachandra University, this conference will be one more step to enhance the reach of our University with top of the line Industries. This will help both parties and contribute to the National vision of 'Make in India'.

The program has been suitably structured to bring into fore the interest of both Academia and Industry. It is expected that a large number of research oriented faculty of Sri Ramachandra University & other Universities will be attending this conference and benefit from the deliberations.

I wish the conference all success in this maiden venture involving Sri Ramachandra University with Industry.

Dr. J.S.N. MURTHY
VICE-CHANCELLOR

SRI RAMACHANDRA UNIVERSITY

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MESSAGE

I am indeed very happy to learn that the Internal Quality Assurance Cell of Sri Ramachandra University is hosting a National Conference on "Academia–Industry Collaborations – Opportunities and Challenges" from the 2nd to 4th March 2017, as part of its quality enhancement efforts to sensitize faculty on the merits of Academia–Industry Collaborations.

It is my privilege to greet the Senior coordinator, organizers, delegates and participantsin the National Conference and wish them all success in their endeavour to enhance quality in education, research and healthcare.

N. Natarajan

Registrar

To

Lt Col A Ravikumar,

Senior Coordinator,

Internal Quality Assurance Cell,

Sri Ramachandra University.

SRI RAMACHANDRA UNIVERSITY

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30th January 2017

MESSAGE

A program of this is a dire need in health care education. This field is driven by the expectations of many stake holders, whose nature and numbers, keep increasing. As in many other fields technology, research in basics, ethics etc also have great effects. And the players need to understand one another. A face to face program will be a big opportunity by sheer magnitude of size and scope for future. It is going to be a trend setter for us. Some have done it before but we shall do it differently and better.

Best wishes.

Dr.K.V.SOMASUNDARAM

Inauguration

Dr. Caven S. Mcloughlin
Professor, Kent State University, USA
&
Mr. J. Jayaseelan, Director, Sai Mirra Innopharm Private Limited with SRU
Memorandum of Undertaking (MOU)

The Inaugural ceremony

Inauguration by Dr. Caven S. Mcloughlin

Prof J.S.N. Murthy honoring the chief guest

Release of the scientific proceedings

Mr. K. Rajaraman, Guest of Honour

Inaugural address by Dr. Caven S. Mcloughlin

MOU signed - Sai Mirra Innopharm Pvt Ltd with SRU

The Conference was inaugurated the morning session. Dr. Caven S. Mcloughlin Professor, Kent State University, USA was the Chief Guest. Mr. K. Rajaraman, IAS Principal Secretary and Director, Entrepreneurship Development Institute of Tamil Nadu was the Guest of Honor. The inauguration was presided over by Dr J. S. N. Murthy, Vice-chancellor and graced by Dr S. P. Thyagarajan, Professor of Eminence & Dean (Research), Prof S Somasundaram, Dean of Faculties, Dr P. V. Vijayaraghavan, Director (Academic Admn) & Dean Education and Prof Lt Col A. Ravikumar, Senior Coordinator, IQAC. The meet was attended by over 120 academic and industry representatives. This is the first such programme being organized by the University with the objective of addressing the different modes of collaborations between academia and industry, like Consultancy, Contract Research and Public – Private Partnerships.

An MOU between SRU and Sai Mirra Inopharm for joint research in drug development was signed on the occasion by Dr. S.P. Thyagarajan, Dean Research and Mr. J. Jayaseelan, Director of the pharma firm which is exporting its products to over 40 countries. Speaking on the occasion Dr. Thyagarajan said the countries as incubators for innovative ventures.

Prof. Caven Mcloughlin, Kent University said even multi-national companies are starved of R & D funds and are looking to universities worldwide for innovative research.

Brief summary of the Conference

Day 1

National Conference on "Academia, Industry Collaborations – Opportunities and Challenges" was conducted at Sri Ramachandra University on 2nd – 4th March 2017. The IQAC of SRU organized the conference in a Wi-Fi enabled "smart" lecture theatre. 106delegates attended the conference. The list of external and internal registration is enclosed.

Day one targeted the idea behind the importance of Academia, Industry Collaborations and an glimpse to the initiative that are in existence and those being explored for the future.

The first session consisted of a lecture on the "Entrepreneurial University - a larger issue" by Mr.K. Rajaraman, IAS, Principal Secretary and Director, Entrepreneurship Development Institute of Tamil Nadu.

He focused on highlighting the important part of how academia is an important launch pad for the development of industrials in a silent form and how this particular aspect can widen the possibility of research and development and also progression in to better health care system.

He further focused on the difficulties and hurdles in the path to reinforcing Academia Industry. How the aspect of one being unaware plays a major role and advantages that are aid in progression of an entrepreneurial. He focused on the

Promoting student innovation and entrepreneurship
- Encouraging faculty innovation and entrepreneurship
- Actively supporting university technology transfer
- Facilitating university-industry collaboration, and
- Engaging in regional and local economic development efforts.

He also emphasized that Teachers have a central role, as they have a strong impact on the attainment of learners. Reflective teachers keep their practice under constant review and adjust it in the light of desired learning outcomes and of the individual needs of students. This is an important aspect in promoting Academia, Industry Collaborations

The second session consisted of a lecture on the "Global perspectives in University-Industry Collaboration" by Dr. Caven S. Mcloughlin, Professor, Kent State University, USA. Dr. Cavin brought in the concept of the global knowledge of university industry collaboration as the equators for success. He said that this equations are a loosely contrived cost benefit that is liable to four segments that are; motivation for partnership, communicating your ability, perception that can enhance or limit partnership and the role of money.

The Third session was a lecture on the "Industry – Academia HUB: Networking & Collaboration" by Dr. K. Sankaran, Director, Centre for Biotechnology & Centre with potential for Excellence in Environmental Science (CPEES), Anna University, Chennai Dr. Sankaran highlighted how the lack of Industry – Academia collaboration has stopped the timely instrumentation process in the health care sector as it is poorly understood. Specific to the use and certification of the health care devices. If this aspect of Industry – Academia is commercialized with the appropriate ethical guidelines, this will in turn address the indigenous need of our country's healthcare infrastructure.

The fourth session was a lecture on the "Stem Cells In Regenerative Medicine Industry Perspectives" by Dr Giridharan Appaswamy Research & Development unit, Life Cell international, Tamil Nadu.

He talked about the Life cell and its role in society today, he emphasised that it is making some revolutionary changes with regard to medical health and treatment. He discussed the various techniques that Life cell uses and initiated to analyse and provide data for good health outcome.

He sighted how the academic and the research progress is supported by the industrial collaboration how both aspects have integrated to provide a value added service to society.

The last session was a lecture on the "Deliverables/Outcome of Academia-Industry partnerships" by Dr. M. J. Nanjan, Director,TIFAC CORE in Herbal Drugs, SSCP, Ooty.

He emphasized that the use of science and technology improves Quality of life in society. It helps in addressing the new socio economic order where knowledge plays a new role if advancement in society. He elaborated on the concept of knowledge economics its focus on competitiveness, innovation, setting milestones, research monitoring etc.

He also highlighted the importance of encouraging the process of developing Academia, Industry Collaborations through conferences and publications.

Day 2

The second day of the conference began with the first session on "Creating patent culture in academia research" delivered by Mr. S. P. Subramaniyan Deputy Controller Patents & Designs Chennai.

He talked on the competiveness in publication vs patenting and also between discovery and invention. He further showed concern as to how much India lacks in the reframing of the Patent law. He expressed concern over how Indians should focus on applying for patents, the importance of Make in India program. He explained the importance of Bayh-Dole Act as an important piece of legislation in America which is of importance and can be adaptable for the best he explored the national intellectual property policy that has been introduced in 2016. He also placed emphasis on the IPR awareness – outreach and promotions. The importance to generate IPR, its legal and legislative framework, the commercialization of IPR enforcement and adjudication and human capital.

The second session was a lecture on the "Optimization of patent portfolio in industry set up" by Dr. Sridevi Krishnan, General Manager, Corporate Patents, Piramal Enterprises Ltd., Mumbai.

Dr. Sridevi talked about the importance of patient portfolio management and specifically focusing on how to frame the process relating to the technology. She also focused on how the evaluation and optimization of the portfolio. She highlighted on strategies such as scale, diversification and balance. She also explained about the patient life cycle, planning and sighted examples with case studies.

The third session was a lecture on the "Development of Academia-Industry ecosystem: Bridging gaps for incubating innovation" by Dr KK Narayanan, Managing Director of Metahelix Life Sciences, Bengaluru.

Dr. Narayanan briefed us about the UNISCO science report focusing on the Global Agricultural R & D. He emphasised the importance of research in the field of agriculture and its integration with technology. He reported that academia industrial collaboration for the advancement of education and the progress in agriculture is of vital importance. The lacking in our current government and institutional set up was highlighted by him.

The fourth session was a lecture on the "Group discussion: Real time difficulties in developing Academia-Industry Collaboration" by Dr. Arun Balakrishnan, Chief Scientific Officer - Omni Active Health Technologies Limited, Mumbai. He talked about the importance of inter-disciplinary work that modulate academia industry collaboration. He also emphasised that such strategies will enable the creation of an innovative environment

The fifth session was a lecture on the "Policies to promote Industry – institute collaboration" by Prof. S. P. Thyagarajan, Professor of Eminence & Dean (Research), Sri Ramachandra University.

Prof S.P Thygarajan Sir, started off with the explanation of the hindrance in the start-up of an Industry – Academia collaboration. He highlighted the primary importance in the successful institutionalization of Industry – Academia. The importance of avoiding communication gap. He also highlighted on the factors for multidimensional research and innovation ecosystem to nurture Industry – Academia collaborations. The participation of the private sectors and the industry partnered R and D ecosystem in academic institutes.

Day 3

The third day of the conference began with the first session on "Recent trends in Industry – institute linkages in India" by Mr. Jayaseelan, Chairman, IDMA (Tamil Nadu, Kerala & Pondicherry), CEO, DelvinFormulations, Chennai.

Mr.J.Jayaseelan in his talk highlighted the status of India in the world of pharmacy as India is the third largest producer of Medicine. He expressed on what needs to be done by an Industry: Focus on new drug discovery; Allocate more budget for R&D; Innovate novel drug delivery system technologies

The second session was a lecture on the "Motivations and barriers for collaboration: Successful case studies of CIII" by Mr. A. Balachandran, Head, Centre for Industry Institute Interaction (CIII), Vellore Institute of Technology.

Dr.A. Balachandran explored the concept of corporate innovative programs where he cited examples from Honeywell- Freedom to innovate, Tata Elxsi, ICICI trinity and Fullerton-Finnovatica. He further addressed that Partnering involves lot of challenges; Partnering of Innovations- Autowash wall mount wet grinder- Partnering between a retired engineer and Butterfly. The barriers in Industry collaboration are Institutional bureaucracy, Delays in decision making and Mismatch in expected level of quality/delivery and actual performance.

The third session was a lecture on the "IITM Incubation Cell & Sharing of Experiences" by Prof. Guhan Jayaraman, Department of Biotechnology, Bhupat and Jyoti Mehta School of

Biosciences, IIT Madras, Chennai and Mr. Harshal S & Dr. Rakesh, Vital Bioscientific Solutions.

Dr.Guhan Jayaraman expressed his ideas on the critical factors for a successful entrepreneurial ecosystem the Government, Academia, Market economy and entrepreneurial culture and Industry. He also explained on how BIRAC was started for fuelling the startup revolution through impactful innovation funding. Its role is to support early and late stage innovation research, enabling services for promoting the innovation ecosystem and to commercialize product innovation through partnerships. IIT Madras Research Park pools in R&D personnel, Faculty and students.

He high lighted the major expectations from a startup: Innovative ideas, Proof of concept, Business plan, Team expertise and Compatibility with incubation ecosystem.

He also reported on the Pitfalls of a startup: Long lead times in incubation process, Lack of experienced domain specific mentors, Complex regulatory requirements and Low base of venture capital

The fourth session was a lecture on the "Case Studies of Industry – Academia programs" by Dr. K. Balakrishnan, Principal Scientist & Head, Bannari Amman Institute of Technology-Technology Business Incubator, Sathyamangalam.

The last session consisted of a lecture on the 'Industry Institute Interaction culture' by Dr. Anandkumar Surendrarao, Invention Transfer Group Fellow, Applied Innovation, UC- Irvine continued the panel discussion. The panelistsincluded Prof. SPThyagarajan Dr P.V. Vijayaraghavan, SRU, Dr. K. Balakrishnan, Bannari Amman, Mr. A. Balachandran, VIT, Dr Anandkumar S.

Dr. Anandkumar started off on the Boyle Dole Act of 1980 that mad great advances in the IP rights in the US. He explained the importance of the Industry – Academia collaboration and its role in startups how the IP rights are valuable part of the same. He also discussed as to how this can play a major role in creating job opportunities. He also explored the World Trade Organizations and India's accession and regulation with regard to IP rights. How we are still lacking as a country and how the concept of Industry – Academia collaborations and the IP right can play a major role in developing our economy and annual GDP.

The panel dissuasion was started off with above highlighted points focusing on the practical difficulties of the Industry – Academia collaborative partnership being developed and the major concern being the lack of information and communication to indicate the possibility of growth and mutual benefits. The panel also discussed on setting for the future goals in the development of a collaborative set up for using teaching and learning opportunities to enforce Industry – Academia understanding and development of R and D for the same.

An analysis of the online participant feedback was presented during the Valedictory function. The three days conference concluded with lots of appreciation and congratulations by participants.

The Entrepreneurial University - *A Review of Best Practices.*

By K. Rajaraman, Principal Secretary & Director,
Entrepreneurship Development Institute of TamilNadu

Abstract:
Entrepreneurs play an important role in the economic development of a country. Successful entrepreneurs innovate, bring new products and concepts to the market, improve market efficiency and create new value for customers and shareholders in the market. Entrepreneurs, according to Joseph Schumpeter, are responsible for *creative destruction*. They are the real drivers in economic growth and employment.
Creation of entrepreneurship of such higher order would require Universities and Higher education institutions (HEI) to include entrepreneurship and innovation as a part of their vision and therefore embed, support and grow an entrepreneurship and innovation culture among management, faculty and students. This transformation, into what we may call the entrepreneurial university, would lead to wide ranging external collaborations and partnerships and enthusiasm to engage even with the smallest economic and social entrepreneurs inside and outside the campus. In the field of teaching and learning, entrepreneurial pedagogies would be embedded in each department across the university while students and externals would be actively engaged in curriculum design and assessment processes. There would be multiple opportunities to learn by doing and reflect conceptually. Student entrepreneurial societies would be strongly supported as would social enterprise hubs and given encouragement to lead entrepreneurial venturing of all kinds. Overall, in research and teaching the entrepreneurial university will encourage the crossing of disciplinary boundaries perhaps leading to new trans-disciplinary departments. Such a transformation would require investment of effort in five key areas:
•Promoting student innovation and entrepreneurship
•Encouraging faculty innovation and entrepreneurship
•Actively supporting university technology transfer
•Facilitating university-industry collaboration, and
• Engaging in regional and local economic development efforts.

Top management, including Vice Chancellors, have a very critical role to play in developing a vision for Universities and HEIs. Enunciating this vision for E&I into a coherent policy, that cuts across the campus and the economic region surrounding the campus, is the foundation for an Entrepreneurial University. They also have the role of allocating resources, providing leadership and monitoring progress.

Teachers have a central role, as they have a strong impact on the attainment of learners. Reflective teachers keep their practice under constant review and adjust it in the light of desired learning outcomes and of the individual needs of students. As a key competence, entrepreneurship does not necessarily involve a specific school subject. Rather, it requires a way of teaching in which experiential learning and project work have a main role. Teachers do not provide students with the answers, but help them to research and identify the right questions and find the best answers. To inspire their pupils and students, and to help them develop an enterprising attitude, teachers need a wide range of competences related to creativity and entrepreneurship; they require a college environment where creativity and risk-taking are encouraged, and mistakes are valued as a learning opportunity. Developing competences of school leaders and teaching staff — including aspiring new teachers should be the absolute priority.

A GLOBAL PERSPECTIVE ON UNIVERSITY/INDUSTRY COLLABORATION: ESTABLISHING THE EQUATION – FOR - SUCCESS

Caven S. Mcloughlin, Ph.D.,
Kent State University, Ohio, USA

Abstract:

Effective, enduring, international collaboration between university & industry demands a co-equal partnership, spiced with respect, and based on a solid belief that each of the partners has as much to contribute as it has to gain. Ensuring balance in any proprietary relationship requires an identification of the motives for the proposed partnership and cost-benefit analyses to ensure that each side gets equal value.

From the outset, partners must be able to identify what they intend to contribute and what they might gain. The issue of balance, co-equal status, & mutuality of benefit is frequently ignored at start-up.

My perspective today looks at this equation as a loosely contrived cost-benefit analysis of assets and liabilities in FOUR segments: (1) Motives for the Partnership; (2) Communicating Your Availability to an International Partner; (3) Perceptions that can enhance or Limit your Partnership; and (4) Addressing the Role of Money.

MOTIVES require the Indian partner to crisply and with unerring clarity explain your priorities, skills & attributes, and your entity's scope-and-mission. Then it must be communicated ~ initially via a persuasive, targeted, web-identity.

'COMMUNICATING YOUR AVAILABILITY TO AN INTERNATIONAL PARTNER' requires someone on your team who knows how to advertise and communicate a message to the international community using: (1) Specialty knowledge in persuasive communication; (2) Flawless business- English, and (3) Clear knowledge of the international scientific community in whatever is your 'brand-identity.'

Since 'PERCEPTIONSCAN ENHANCE OR LIMIT YOUR PARTNERSHIP' the Indian partner must address misconceptions and realities embedded in the beliefs of Western partners whose knowledge of South India is likely less than their knowledge of the geology of the Moon! Not all perceptions represent truth. Not every stereotype is real. But, every perception, particularly negative images a Western industrialist might have developed about India, MUST be addressed and defused.

Western industrialists are generally unwilling to invest their MONEY initially in a long-term partnership with a major project. Growing-the-relationship will be based on baby-step projects. So, initial projects will likely be a 'teaser' to show that each side can deliver, that relationship can be sustained, and that the value that is promised actually gets delivered. Expecting the big-payoff in the initial project and then delivering only lackluster performance since it is not the mega-Rupee project you had hoped for, is a certain road-to-failure in consolidating a partnership. For example, switching out a high-profile researcher for a junior researcher because the big-

payoff did not happen… is a sure way to not get invited for a follow-up project. Auditing-of-expenditures and justification-of-budgets are critically important to the Western accountants. Fully describing the 'cost-share' provided by the Indian partner (i.e., the actual facilities and personnel cost contributed to the project by the Indian partner) helps the Western partner see the degree that there truly is balance in the delivery of assets by each side in the equation.

These four dimensions represent ways to address start-up modeling for engaging in a long-term enterprise with a Western industrial partner.

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Industry-Academia HUB Networking and Collaborations

Prof. K. Sankaran, Centre for Biotechnology
Coordinator, National Hub for Healthcare Instrumentation Development (NHHID), Anna University, Chennai – 600 025

Abstract:

Indigenous medical and healthcare devices are imperative need of the hour as the country imports 85% of it to serve only 15% of the population. Many indigenous health problems, like infectious diseases, do not have proper diagnostic procedures for timely intervention or prevention. This hopeless situation has resulted from decades of neglect in developing indigenous technology for device development by harvesting the inventive and innovative ideas in the academia to make commercial prototypes by the industries and get it validated by clinicians for medical practice. In another neglected approach, clinician-driven ideas had not been worked upon by engineers to develop commercial prototypes with industrial participation. In this scenario Technology Development and Transfer Division of Department of Science and Technology, New Delhi, and Anna University joined hands to set up a National Hub for Healthcare Instrumentation Development (NHHID) by pooling scientific and engineering talents from Anna University and other reputed institutions to establish: commercial prototype development of healthcare gadgets and their commercialisation; Product Realisation Centre for designing and fabrication of laboratory and commercial prototypes for clinical validation; Testing and Calibration Centre for ensuring certified medical devices for reliable healthcare in hospitals; Business liaison team to promote commercialisation through networking among scientists, engineers, clinicians, industries, Associations, governments, ministries, ministerial bodies, public and private funding agencies. The talk will provide insight into how this model has been successfully developed by academia and functioning to address indigenous need of our Country.

Dr. M.J. Nanjan
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Deliverables/Outcome of Academia-Industry partnerships

Abstract:

The growth in a nation's economy is dominated today by knowledge-intensive goods and services. A key element in this knowledge-based economy is linkages between Universities and industries. Fostering these linkages is expected to provide competitive advantage through faster learning, faster information diffusion and faster knowledge creation and deployment. The Universities, the primary source of highly educated people are, therefore, under increasing pressure today to conduct high quality research and create more effective new knowledge and technology transfer mechanisms. Research is the transformation of money into new knowledge whereas innovation is the transformation of this new knowledge into money. Innovation thus involves the successful exploitation of new knowledge into products, services, etc., anything that the customer/ consumer is willing to pay for. In this context, Universities focus on the creation of new knowledge, whereas the industries focus on innovation, namely the transformation of this new knowledge into products, services, etc.

Academia–Industry partnerships can be facilitated in several ways; high level short term and long term basic research output by the universities, universities do not solely rely on contract research from industries for finance but rather a mix of government and industry financed research, universities and industries strive for interaction among their staff and broaden their contact and improve networking and personal mobility between them, universities provide incentives to the groups and individuals to compensate for their research output and universities take into consideration the input from the industries in order to increase the relevance of their research to industry.

In this context, our experience in TIFAC Centre of Relevance and Excellence in Herbal Drugs, supported by DST, Government of India and Industries, has been rewarding, both to the college as well as the industries with whom the college partnered. Some of the successful outcomes are; development and transfer of technologies for new products to our partnering industries, conducting a specialized M. Pharm. (Phytopharmacy & Phytomedicine) and Ph.D. programme, relevant to the herbal industries, conducting a PG Diploma in "Production and Quality Control of Medicinal Plants" for the benefit of herbal industries, conducting training programmes for the staff from herbal industries in instrumental technologies like HPLC, LC-MS, GC, etc., for standardizing their products, conducting pharmacological, toxicological and efficacy studies on the products given by the herbal and traditional medicine industries so as to help them to market these product abroad, conducting International and National Conferences/Workshops on Herbal Drugs in collaboration with industries and clinical trials on products given by the industry, interacting with several non-partnering industries to test their products, publishing a large number of scientific papers and filing patents on medicinal plants research and generating considerable revenue for the centre through consultancy and testing.

OPTIMIZING THE PATENT PORTFOLIO IN A PHARMACEUTICAL INDUSTRIAL SET-UP

Dr. Sridevi Krishnan
General Manager,Corporate Patents,
Piramal Enterprises Ltd.,Mumbai.

Abstract:
A patent portfolio is a collection of patents or patent applications of a single entity, such as an individual or a corporation. It may be related to a specific product or technology. An innovator pharmaceutical company applies for and obtains multiple patents relating to the product active pharmaceutical ingredient, polymorphs, particle size, salts, solvates, formulation, drug delivery systems and method of use. Manufacturing process patents may also be filed but they are comparatively weak patents because of narrow scope and hence the claim scope can usually be circumvented. Successful patent portfolio management is rooted in managing the patents along their life cycles mainly with the objectives of attracting investors and delaying the generic drug entry into the market.

An innovator pharmaceutical company usually begins with an effective competitive intelligence analysis of the product involving technology scouting vis-à-vis its own capabilities and the market scenario in relation to the said technologies. Unmet medical needs are monitored, the area of innovation or disease area is selected and molecules with corresponding active drug moieties are designed. A variety of molecules are synthesised and the structure-activity relationship is established. At the outset, a patent application may be filed broadly covering a huge range of compounds. Gradually after a clinical candidate is identified, specific selection patent applications may be filed subsequently. The portfolio is built up with follow-on patent applications such as salts, crystalline forms, formulations, drug delivery systems and method of use, which is considered as effective ever greening strategy to extend the product life cycle. In the USA, after receiving drug approval, the granted patents are listed in the Orange Book (OB) by the holder of the New Drug Application (NDA) holder. It is in the interest of the NDA holder to have longest patent term remaining after drug approval which provides a market exclusivity by keeping generics off the market. The NDA holder then decisively and strategically lists the patents in the OBas and when granted in an attempt to create roadblocks for the generics.

The interest of the generic is to have a market entry as soon as possible; hence in USA the Hatch Waxman Act makes a provision for the generic of filing an Abbreviated New Drug Application (ANDA) application accompanied by Paragraph I to Paragraph IV certifications against the listed patent(s) in the OB, even during the life of the patents. In particular, the generic gains highly in terms monetary benefits by obtaining market exclusivity if the generic can successfully withstand the Paragraph IV challenge. However, in the case of a Paragraph IV certification, the generic would be required to invalidate the listed patent or create a product non-infringing with the claim scope of the listed patent(s), which would be extremely difficult in case of a drug substance patent or a method of use patent. Further, for a generic company it is an extremely costly affair to invalidate a patent in the court of law. The patent portfolio of the innovator, particularly the listing of patents in the OB for a specific product is strategically planned with the objective of delaying generic entry.

In general, invention is not a singular event and neither is innovation. Success in the market place with innovation is a journey involving appropriate decision making and effective strategizing, while building on the optimum patent portfolio.

Dr Arun Balakrishnan
Chief Scientific Officer
Omni Actives Health technologies, Mumbai , India

Industry –University Interactions

The above title is one of the most widely used statements to build a bridge between innovation and development of a product. Industry University collaborations have been an excellent bridge to convert scientific knowledge into a product. Although, these sound to be simple, It requires a completely different mindset wherein an important innovation can be converted into a value added product. This application based research is a complete involvement of a multifunctional research interaction. Take an example of a pharmaceutical or nutraceutical product. From early discovery , identifying the molecule or the extract , determining its biological efficacy as a pure molecule or a extract , studying its bioavailability and toxicity profiles in animal models and then designing human clinical studies to determine its value addition , involves different teams and expertise and infrastructure .

Although University research drives basic and fundamental research, some of this knowledge is the ones that can be quickly converted into an active business. The lacunae in University research in many cases stems from the lack of knowledge in the front of development, how one needs to build dossiers of information, data management and relevant accreditations from regulators.

Biomedical/Biosciences innovation depends on the strength of the investigators who are responsible for such product development. Such area of regulated research also brings in the need to see that all the fundamental requirements of product development need to be adhered too. In many University systems, infrastructure is created based on funds. How to put to use these effective business investments require very stringent techno- business mindsets to drive it further. It requires a focused approach .Hence ,I believe that if industry university interactions need to succeed , universities should recruit suitable manpower who can drive science and a business interface in building products .In today's scenario , industries in India and abroad are developing centers of excellence which in such cases of conversion of basic research to a product and requires a merger of dynamic skills to drive them forward . This is a good platform wherein we can foster such techno commercial programs.

Industries require such set ups to compete in global scenario. Many of the Universities have developed high end infrastructure, great subject experts and knowledge and interest. Such faculty with a developmental mindset needs to be roped into this process of translation and product development. Bringing a change in which faculty can be assessed may drive a positive change in industry University spin offs. Many of the western Universities are driven by such changes which has fostered product development from a basic research which has been originated from the University.

In the current scenario running industry university programs as a part of University administered programs will not bring in this desired change. One needs to go back and look at why many of the industrial university interactions in India have not succeeded despite the extensive research funding. If these gaps can be narrowed India can be a great hub for innovative and translational research in the world. It is time that this synergy is developed and one needs to think globally and develop a strong business case.

"POLICY GUIDELINES FOR PROACTIVE ACADEMIA-INDUSTRY COLLABORATIONS"

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Abstract:

Academia-Industry Collaboration is the most often beagled slogan across India equally by Higher Education Experts, Policy planners, Governmental agencies and politicians. Funding agencies like DST-DPRP, DBT-BIRAC & CSIR , support various models of Academia-Industry collaboration, like R&D contract projects to academia by industry; setting up of TBI, Industry-Innovation Centres in academic institutions after building up capacity & skills to both academic & industry partners besides major joint drug/ devices discovery and validation programs. Recently, the proactive programmes of Government of India like 'Make in India' and 'Start-up India' are providing scope and financial assistance to foster talents of the youth and Academia-Industry collaboration. In spite of these, both density and quality of strong academia-industry collaboration has not evolved as a culture across the universities and other higher education institutions The outmoded governmental bureaucratic hurdles and restrictions of Statutory Councils' norms on functioning of Higher Education Institutions, along with the conservative governance system in the individual university strangulate the successful conduct of the University-Industry programs.

The primary aim to institutionalize successful Academia-Industry collaboration is to provide user-friendly and encouraging ecosystem and governance with the singular motive of forging an ambience of voluntary-collaboration & co-operation between Academia and Industry so that seamless progress takes place without any bottleneck. There is a urgent need to have synergy between academic and the industry researchers, since academician can lend the conceptualization and generalization skills and the industry can provide the product-development, technology transfer and commercialization skills through which the conceptualization can be translated into products. It requires great deal of solid interaction avoiding any communication gap.

(a) Design of a multidimensional Research & Innovation ecosystem to nurture Academia-Industry collaboration:

i) Both academic and managerial Leadership with a practical research and development vision and strategy that is capable of responding to new opportunities and challenges
ii) Recognition of the right of individual faculty and other scientists to nurture and use their creativity and innovativeness to the fullest.
iii) Curricula for educational and training programs to be developed jointly by academia and industry and also offered jointly in an integrated methodology of student learning both at the academic institution and at the industry settings. Only then 'industry-ready' employable manpower can be generated.
iv) Protected faculty time for research/dedicated research-faculty.
v) Reward for good research and development performance.
vi) Time-line based, Innovative and facilitative Research Governance.

vii) Quality Ph. D and Post Doctoral candidates with industry work-integrated collaboration in niche research programmes on pre-identified institutional thrust areas.

viii) Easy access to quality technology platforms, discipline and thrust area-related research infrastructure.

ix) Brand value of the institution to attract research interested faculty and post-doctoral students and industry partners

x) Hassle free research training and capability enhancement possibilities at all levels of the faculty to understand and adopt industry expectation for time-bound deliverables as institutional culture

xi) A walk-in ambience for Industries in academic institutions to forge collaboration, with out any institutional restriction in approvals for teaching and R&D programmes with industries; A similar complementarities by industry partners are equally important

xii) Mentorship for successful Academia-Industry partnerships

(b) Private sector participation – Lessons from Computing:

Industry contributes 30% to India's total R&D which is devoted to improving productivity, reducing cost & energy consumption. No basic research support or product development is priority because of government rules which discourage user-friendly PPP model in India as well as industry's apathy to academic. Change in this climate need to be nurtured by both governments / academic institutions and the industries. IT has got boosted because of TCS, Infosys & Microsoft etc., which have programs of R&D for young computer scientists. Similar models have to be replicated by major industry houses for Science, Technology, Environment, Agriculture and Medicine (STEAM)

(c) Recommendations for Industry-partnered R&D Ecosystem in Academic Institutions

- Increase awareness of establishment and use of innovation-incubation centres in universities;
- Establish industry R&D centres within the campuses of Universities;
- Facilitate 'Start-up Culture" in academic institutions and to allow them to be incubatees in the Innovation-Incubation Centre
- Establish IPR cum technology transfer offices;
- Nurture the culture of collaboration in Universities
- Provide free access to researchers from colleges to all the above facilities in universities
- Establish knowledge network;
- Provide incentives for scientists, academics, research institutes and private companies involved in Applied R&D;
- Multi-institutional/multi-disciplinary R&D Consortia among Universities and free access to innovators from non-university community.
- Set up market-research facilities to assess the Commercialization potentials of the R&D products and processes
- Adopt the national and international norms and policy guidelines on IPR and Financial benefit sharing for consultancies and industry-academia collaborations.

Mr. Jayaseelan,

Chairman, IDMA (Tamil Nadu, Kerala & Pondicherry),

CEO, Delvin Formulations, Chennai

Recent trends in Industry-Institute linkages in India

The Pharmacy profession is not only a noble profession but also a equally technical one and as a result of this Pharmacy graduates has multiple scope unlike most of the other graduates. The key is that the graduates need to plan their career well in advance and work their plan to happen. The objective of this article is to throw light on various scopes available for the young Pharmacy graduates.

Scope of Pharmacist

Institution
Government
Industry
Research & Development
Marketing
Clinical, Hospital & Community Pharmacist
Consultancy Services
Opportunities Abroad
Entrepreneur

Government scope for the graduates are limited in number but wide choices are available both in central and state government like Regulatory department,Teaching faculty, Analytical chemists. Good number of posts are available in Government hospital as pharmacists .

Industry side Pharmacy graduates can enter in to both drug Industry and herbal/natural medicine Industry. The professionals can enter in to Manufacturing or Quality control or Quality assurance or Regulatory affairs .In current scenario the graduates can complete their M.pharm before entering in to Industry side.

For entering in to Research and development a person should have clear vision during early stage of his education. Based on his interest he can select the field of Research like formulation, Analytical etc. India is surging to become the hub for contract Research and Product Development. Hence the pharmacy graduates are having very good scope in this field provided they have good score in the subjects and positive attitude towards learning and updating.

It is better to complete their PhD before entering in to the R&D. Many multi National company is collaborating with Indian companies for basic Research and now India is also picking up in the field of finding New chemical Entity .Based on individual calibre any pharmacy graduate can choose to enter in to product Development R&D or to New drug R&D. Clinical Research organisation is doing very well in India as the time and cost for doing trial in India is comparatively very economical.

M.pharm or PhD in pharmaceutical chemistry or Pharmacology will help the candidate to enter CRO.

Marketing is very attractive for young pharmacy candidates. They can go in to pharmaceutical selling and can grow faster in their career. If they have a MBA after pharmacy graduation they can try to enter product department which is the right place for any pharmacy graduate with good creativity. They can also go for Training department or export department to prepare marketing dossiers. Entering in to marketing gives extra edge for a pharmacy graduate to become an entrepreneur later.

Another scope for any pharmacist is to be a Registered Pharmacist and become a clinical or Hospital or community pharmacist. The pharmacist being a Drug expert ,He knew much about Drug, pharmaco kinetics and Adverse Reactions .He assesses drug interaction and maintains record. He is more close to the patient than other medical professional and has a main role in Patient Education. Pharm D course in India is having an excellent scope for the candidate to enter this field. India being the most prominent developing country, the Pharmacy practise in India is going to develop very fast and so choosing Pharmacy as a career will pay rich dividend in coming days. The retail business of drugs in India is growing by 12% to 14% every year. To own a pharmacy will also be a very good option for the pharmacy graduates.

In the current scenario Reverse brain drain is happening in India which means Those pharmacy professionals who went abroad are either coming back to India or collaborating with Indian companies as consultants. This is helping India to become a Global player. Today the latest reports reveals that the domestic Pharma market value is around $15 billion from $3 billion in 1995 growing by 14% annually and the value of exports of medicines from India is around $15.5 billion from nowhere in 1990 with growth rate of over 20% annually. Every third pill taken in the world is from India. Every 3rd application filed in USA for generic drug is from India. India currently occupies fourth position in terms of Volume and 14th in terms of Value at Global level which explains the fact that the cost of medicines in India is less compared with even under developed countries. By acquiring good knowledge in Pharmaceutical profession any one can become a Pharma consultant later.

Enough opportunities are available to go abroad for Pharmacy graduates .The chance is at par or better than IT professionals because Pharmaceutical business is only one which is "Recession proof" . Indian Pharmacy candidates are respected very much in abroad and they can select any of the following field, Registered pharmacist in hospital or drug store, Scientist in formulation or Analytical development, officer in regulatory affairs etc. Candidate should have good English proficiency to enter USA or UK. To enter Europe a fair knowledge of French will be useful.

Entrepreneurship is the final word in any one's career. Pharmacy professionals can became an entrepreneur by owning a Pharmacy or an Industry or an Institution or owning a R&D lab. Having clear vision at early age will help them to be a successful entrepreneur later.

What matters most is how you see yourself. Believe pharmacy course is the best and work hard to make your career.

Motivations and Barriers for Industry Collaboration: VITTBI experiences

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General Manager,
VIT-Technology Business Incubator,
VIT University, Vellore-632014.

Abstract:
VIT-Technology Business Incubator has been collaborating with industries, start-ups and industry bodies like CII, FICCI and TIE. The perspectives shared here are based on the experience gained during the last 14 years by the author and based on the perspectives from his earlier stint of thirteen years in different industries.

Motivations:
Large industries look for partnering with academia for the following aspects:
Access to innovative ideas
Access to talent
Access to some specialised infrastructure
Partnering for joint developments / consultancy assignments including some R & D activities

VITTBI has been partnering / associating with many large corporate innovation programs during the last five years. There is a strong intent to reach out to creative minds (especially students) to source ideas through challenges, competitions and in some cases grooming the ideas to a prototype level. Thus, the corporate firms get access to large pool ideas that their internal R & D / Strategy teams have access to. While many of the organisations do not explicitly decipher their Open Innovation strategy, this seems to be a major reason for large corporate firms to associate with institutions of repute.

MSMEs and Startups look for access to specialised infrastructure and value added services through the incubation program. The motivation would be ease of access and cost of access.

Both Corporate firms and MSMEs look for timely delivery of services, reasonable pricing and responsiveness.

Barriers:
Institutional bureaucracy
Delays in decision making
Mismatch in expected level of quality / delivery and actual performance

While institutions work to a certain rhythm (Semester / Exam schedules / frequent changes in the team), industry needs a consistent level of deliverables and prompt response. The major detrimental aspects that might affect sustaining of an association with an industry are the delays in delivery of promised offering and quality of deliverables.

VITTBI had strived hard to overcome the above barriers and has been quite successful in offering prototyping and testing services to MSMEs and large corporate firms and has provided incubation support to around fifty startups.

Best practices of collaboration between university and industrial small- and medium-sized enterprises

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Abstract:

Promotion of collaboration and teamwork attitude between the academia and SME companies, involving researchers, young engineering students, SME employees and top-management has been reported. The typically yielding collaboration procedure will have different phases and milestones well defined and some best-practices recommended. The collaboration towards a continuous improvement and innovation process is invariably through bottom-up approach. The objective is to focus on localized and specific problematic areas in the SME companies where the potential of improvement and innovation exists. Diagnosing of special situations and proposing new and efficient technical/scientific solutions will follow. Small projects give scope for all stakeholders to smoothly define their roles, achieve high levels of personal trust and design achievable expectations within their competencies. The direct benefits will include among other things (a) training of young students for active problem-solving attitude within systemic industrial perspective; (b) skilling the students and hence empowering them towards professional life; (c) promotion of a collaboration culture between SME and academia for real problems-solving;(d) creating the scope and provision for continuous improvement and innovation processes in SMEs.

SMEs today are recognized as the driving force behind a large number of innovations contributing to the growth of the national economy through employment creation, investments and exports. They assist poverty reduction and wider distribution of wealth too. The academic campuses today besides contributing through typical R&D efforts mentioned earlier; also churn out start-up companies through incubating fundable innovation ideas from students and general public in the incubation facilities (TBIs) inside campuses. TBIs form the crucial component of the co-working movement, the improved pattern of contemporary entrepreneurial generation signaling the decline of the saga of conventional large enterprises. TBIs, invariably, get to the mode of high-trust environment for desired results. Corporate commerce too is witnessing a model migration as we are already part of the knowledge economy. Knowledge infrastructure is virtual, intangible, and intellectual. TBIs are providing value-derived services to the startup and risk mitigation for the investor. TBIs as self-sustaining facilities are bound to work towards improving the probability of success and increasing the rate of growth of the startups all along. The startups once graduated as SMEs open scope and avenue for further collaborations between higher educational institutions and nascent SMEs and between such graduated SMEs and new tenants of the TBIs working from inside campuses.

Industry – Institute Interaction Culture: A Panel Discussion

Anandkumar Surendrarao, PhD
Invention Transfer Group Fellow, Applied Innovation,

University of California at Irvine, CA – 92677 USA

Abstract:

In the USA, the Bayh Dole Act of 1980, allowed for the first time, ownership of IP rights generated from US federal research grants, by universities and affiliated researchers. This ability to file, own and license a patent, without governmental input and interference allows enormous flexibility to US universities for technology commercialization. In academic circles, it is debated whether implementation of the Bayh Dole Act is causative, or even correlated with some of the astonishing successes of university technology commercialization. Regardless, this "IP-centric" approach is preferred at universities as well as by angel investors, VCs and other funding agencies, and has been widely subscribed to. In reality, patent prosecution and commercialization of patented university technologies is a time and resource intensive process. At universities in the US, the most common route for revenue generation is via licensing of patents to companies ranging from start-ups to industry behemoths.

Other avenues for industry-academia collaboration such as exchange of materials, and of human resources are also prevalent. The challenges to such collaborations arise from fundamental differences in organizational structures and motivational principles. In the past decade, a concerted effort has been made to align these academia and industry axes to achieve synergy. Several other factors including but not limited to geographic proximity of a university to industry R&D centers, capital inflow into the region, skill level of job seekers, continue to determine the success ofthese collaborations. Importantly, when the trajectories of academia, and of industry have co-evolved, these academia-industry linkages have often resulted in high returns on investment for all invested parties.

India's accession to the World Trade Organization in 1995 coincided with amends and re-issuance of regulations related to all aspects of IP and IP rights, and Indian IP law is widely acknowledged to be thorough, and comparable to EU and US laws. However, in the 2017 report by the Global IP Center, amongst the 45 nations that contribute to 90% of world GDP, India was ranked only 43rd, while the USA and China were ranked 1st and 27th respectively.Thefactors contributing to this low rank also represent great opportunity to make amends where required – such as in the efficiency and speed of patent examination and approval, proper execution of IP enforcement strategies, and better resource allocation for IP generation *per se*. With such course corrections, initiatives such as the 'Make in India' and 'Startup India' should achieve greater success.

List of delegates

Internal Delegates

S.No.	NAME	DEPARTMENT
1.	DR. R LAVANYA	FACULTY OF PHARMACY
2.	DR. S SHANMUGANATHAN	FACULTY OF PHARMACY
3.	DR. L H THAMEEMUL ANSARI	FACULTY OF PHARMACY
4.	DR. S GOPINATH	FACULTY OF PHARMACY
5.	SHABNA ROUPAL MORAIS	FACULTY OF PHARMACY
6.	MS. MERYN SELVANAYAGAM	DEPARTMENT OF ENGLISH
7.	MS. CYNTHIA MILTON	DEPARTMENT OF ENGLISH
8.	DR. A RUPA	FACULTY OF DENTAL SCIENCES
9.	MS. M ARUNDHATI	DEPARTMENT OF BIOINFORMATICS
10.	MR. S VENKATESAN	DEPARTMENT OF BIOINFORMATICS
11.	MS. T SHEELA RANI	FACULTY OF PHARMACY
12.	DR. S PREMA	FACULTY OF PHARMACY
13.	DR. M SIVAKUMAR	FACULTY OF PHARMACY
14.	DR. N VANITHA RANI	FACULTY OF PHARMACY
15.	DR. S UMAMAHESWARI	FACULTY OF PHARMACY
16.	MR. G RAGESH	FACULTY OF PHARMACY
17.	DR. M G RAJANANDH	FACULTY OF PHARMACY
18.	DR. C VINODHINI	FACULTY OF PHARMACY
19.	DR. M SANGEETHA	FACULTY OF PHARMACY
20.	MR. A ABUTHAYAR	PROFESSOR AND COORDINATOR
21.	MS. BETTY LINCOLN	DEPARTMENT OF BIOMEDICAL SCIENCES
22.	DR. LAKSHMI BALAJI	FACULTY OF DENTAL SCIENCES
23.	DR. SHARADA T RAJAN	DEPARTMENT OF ORAL PATHOLOGY
24.	DR. N MALATHI	DEPARTMENT OF ORAL PATHOLOGY
25.	DR. S ADIKRISHNAN	DEPARTMENT OF DERMATOLOGY
26.	DR. S MURUGAN	DEPARTMENT OF DERMATOLOGY
27.	DR P KENNEDY KUMAR	DEPARTMENT OF MICROBIOLOGY
28.	DR. K S SRIDHARAN	DEPARTMENT OF MICROBIOLOGY
29.	DR. VINAY RAJ THATTARAKKAL	DEPARTMENT OF ENT
30.	DR. S MADHAN KUMAR	FACULTY OF DENTAL SCIENCES
31.	DR. I ATHIBAN	FACULTY OF DENTAL SCIENCES
32.	DR. A SUMATHY	DEPARTMENT OF BIOMEDICAL SCIENCES
33.	DR. M S MUTHU	FACULTY OF DENTAL SCIENCES
34.	DR. SUBBALEKSHMI	FACULTY OF DENTAL SCIENCES
35.	DR. V ABIRAMI	DEPARTMENT OF PHYSIOLOGY
36.	DR. K DILARA	DEPARTMENT OF PHYSIOLOGY
37.	DR. C V DIVYAMBIKA	FACULTY OF DENTAL SCIENCES
38.	DR. S SATHASIVASUBRAMANIAN	FACULTY OF DENTAL SCIENCES

39.	DR. AKILA GANESH	FACULTY OF DENTAL SCIENCES
40.	DR D PRIYA	SENIOR RESIDENT , DEPT. OF OPTHALMOLOGY
41.	MS. P AKILA	FACULTY OF NURSING
42.	MS. LISY JOSEPH	FACULTY OF NURSING
43.	MS. V SANTHI	FACULTY OF NURSING
44.	MS. A MANJULA	FACULTY OF NURSING
45.	DR. G NEELAKSHI	FACULTY OF NURSING
46.	MRS. LALITHA SUBRAMANIAN	DEPT. OF CLINICAL PSYCOLOGY
47.	MS. A VALARMATHI	DEPT. OF OPTOMETRY
48.	DR. S ANANDHA LAKSHMI	DEPT. OF OPTHALMOLOGY
49.	DR. D DIVYA	DEPT. OF PATHOLOGY
50.	DR. G GIRISH	DEPT. OF CTVS
51.	MS S LATHA	FACULTY OF PHARMACY
52.	MR. S KARTHIK	FACULTY OF PHARMACY
53.	MS. S. NAGALAKSHMI	FACULTY OF PHARMACY
54.	MR. J SRIKANTH	FACULTY OF PHARMACY
55.	DR. V S ANANDA RANI	DEPT. OF ANATOMY
56.	DR. T VIJAYA SAGAR	DEPT. OF ANATOMY
57.	MS. T N NIRMHALAA	DEPT. OF EMERGENY MEDICINE
58.	MR. K KAVIARASAN	DEPT. OF BIOMEDICAL SCIENCES
59.	DR. C DEEPAK	FACULTY OF DENTAL SCIENCES
60.	DR. MUKUNDAN SUBRAMANIAN	DEPT. OF ENT
61.	DR. RAM SABARISH	DEPT. OF PERIODONTICS,FACULTY OF DENTAL SCIENCES
62.	DR. VAMSI LAVU	DEPT. OF PERIODONTICS,FACULTY OF DENTAL SCIENCES
63.	DR. E ELAVARASHI	DEPT. OF BIOTECHNOLOGY
64.	DR. MAGESH R	DEPT. OF BIOTECHNOLOGY
65.	DR. NITHYA JAGDISH	DEPT. OF OTHODONTICS, FACULTY OF DENTAL SCIENCES
66.	DR. VIGNESH KAILASAM	DEPT. OF OTHODONTICS, FACULTY OF DENTAL SCIENCES
67.	DR. SWETHA RAGHAVAN	DEPT. OF PSYCHIATRY
68.	DR. T SRIMATHI	DEPT. OF ANATOMY
69.	MS. S DEEPA	FACULTY OF PHARMACY
70.	DR. LEENA CHAND	DEPT. OF BIOCHEMISTRY
71.	MR. A D GOPAL SWAMI	FACULTY OF PHYIOTHERAPY
72.	MR. A RAJARAJESWARI	FACULTY OF PHYIOTHERAPY
73.	DR. ALIYA JASMINE	DEPT. OF COMMUNITY MEDICINE
74.	DR. G V AKILA	DEPT. OF COMMUNITY MEDICINE
75.	DR. M ANITHA RANI	DEPT. OF COMMUNITY MEDICINE
76.	DR. KRISHNENDU MUKHOPADHYAY	DEPT. OF EHE
77.	DR. J MOHAN	DEPT. OF PLASTIC SURGERY
78.	DR. T SRI KRISHNA KUMARAN	DEPT. OF PLASTIC SURGERY
79.	MR. BENEDICT PAUL	DEPT. OF BIOTECHNOLOGY

80.	MS. SUDHA PATTAN	DEPT. OF RADIOLOGY
81.	DR. G PRAVEEN KUMAR	FACULTY OF PHARMACY
82.	MR. S RAMESH	FACULTY OF PHARMACY
83.	DR BEN S ASHOK	DEPT. OF BIOCHEMISTRY
84.	MR U NITHIN KUMAR	DEPT. OF BIOCHEMISTRY
85.	MR P KUMAR	DEPT. OF BIOTECHNOLOGY
86.	MR THIRUMALAIKUMARAN R	FACULTY OF PHARMACY
87.	DR T K GOPAL	FACULTY OF PHARMACY
88.	DR. S VIJAYAKUMAR	DEPT. OF ANATOMY
89.	MR K YUGESH	DEPT. OF ANATOMY
90.	DR. A ANUPRIYA	DEPT. OF ANATOMY
91.	DR. TRIPTHI SUGUMAR	DEPT. OF NEUROLOGY
92.	MR. T SIVA	DEPT. OF ANATOMY
93.	MR. C P KIRTHIKA	DEPT. OF ANATOMY
94.	DR. P THANGAM JESUDSAN	DEPT. OF ANATOMY
95.	DR. M SARAVANAN	SRMC & RI
96.	DR. J V BALASUBRAMANIYAN	DEPT. OF CARDIOLOGY
97.	MS. P VIJAYA SAMUNDESWARI	FACULTY OF NURSING
98.	DR. R SRINIVAS	SRMC & RI

External Delegates

S.No.	NAME	UNIVERSITY/INSTITUTIONS
1.	DR. CHRISTINA MARY P PAUL	ACS MEDICAL COLLEGE
2.	DR.SUCHARITHA	DG VAISHNAVA COLLEGE
3.	DR. S JAYAKUMARI	SCHOOL OF PHARMACEUTICAL SCIENCES, VELS UNIVERISTY, CHENNAI
4.	DR. E SUSITHRA	VELS UNIVERISTY, CHENNAI
5.	MR. K MURUGAVEL	CHETTINAD HOSPITAL & RESEARCH INSTITUTE
6.	DR. S SUBASHINI	SAVEETHA MEDICAL COLLEGE AND HOSPITAL
7.	DR. S HEMALATHA	B.S. ABDUR RAHMAN UNIVERSITY
8.	DR. M. K SANGEETHA	B.S. ABDUR RAHMAN UNIVERSITY

FEEDBACK QUESTION

QUESTIONS RESPONSES 209

Select the session *

you may choose single or multiple sessions for your feedback

- [ ] SESSION 1 - THE ENTREPRENEURIAL UNIVERSITY - A LARGER ISSUE
- [ ] SESSION 2 - GLOBAL PERSPECTIVES IN UNIVERSITY-INDUSTRY COLLABORATION
- [ ] SESSION 3 - INDUSTRY – ACADEMIA HUB: NETWORKING & COLLABORATION
- [ ] SESSION 4 - ENTREPRENEURSHIP & 'START-UP' CULTURE WITH INDUSTRY COLLABORATION
- [ ] SESSION 5 - DELIVERABLES/OUTCOME OF ACADEMIA-INDUSTRY PARTNERSHIPS
- [ ] SESSION 6 - CREATING PATENT CULTURE IN ACADEMIA RESEARCH
- [ ] SESSION 7 - OPTIMIZATION OF PATENT PORTFOLIO IN INDUSTRY SET UP
- [ ] SESSION 8 - DEVELOPMENT OF ACADEMIA-INDUSTRY ECOSYSTEM: BRIDGING GAPS FOR INCUBATING INN
- [ ] SESSION 9 - GROUP DISCUSSION: REAL TIME DIFFICULTIES IN DEVELOPING ACADEMIA-INDUSTRY COLLAB
- [ ] SESSION 10 - POLICIES TO PROMOTE INDUSTRY – INSTITUTE COLLABORATION
- [ ] SESSION 11 - RECENT TRENDS IN INDUSTRY – INSTITUTE LINKAGES IN INDIA
- [ ] SESSION 12 - MOTIVATIONS AND BARRIERS FOR COLLABORATION: SUCCESSFUL CASE STUDIES OF CIII
- [ ] SESSION 13 - IITM INCUBATION CELL & SHARING OF EXPERIENCES
- [ ] SESSION 14 - CASE STUDIES OF INDUSTRY – ACADEMIA PROGRAMS
- [ ] SESSION 15 - INDUSTRY INSTITUTE INTERACTION CULTURE: PANEL DISCUSSION

y Collaborations: Opportunitie

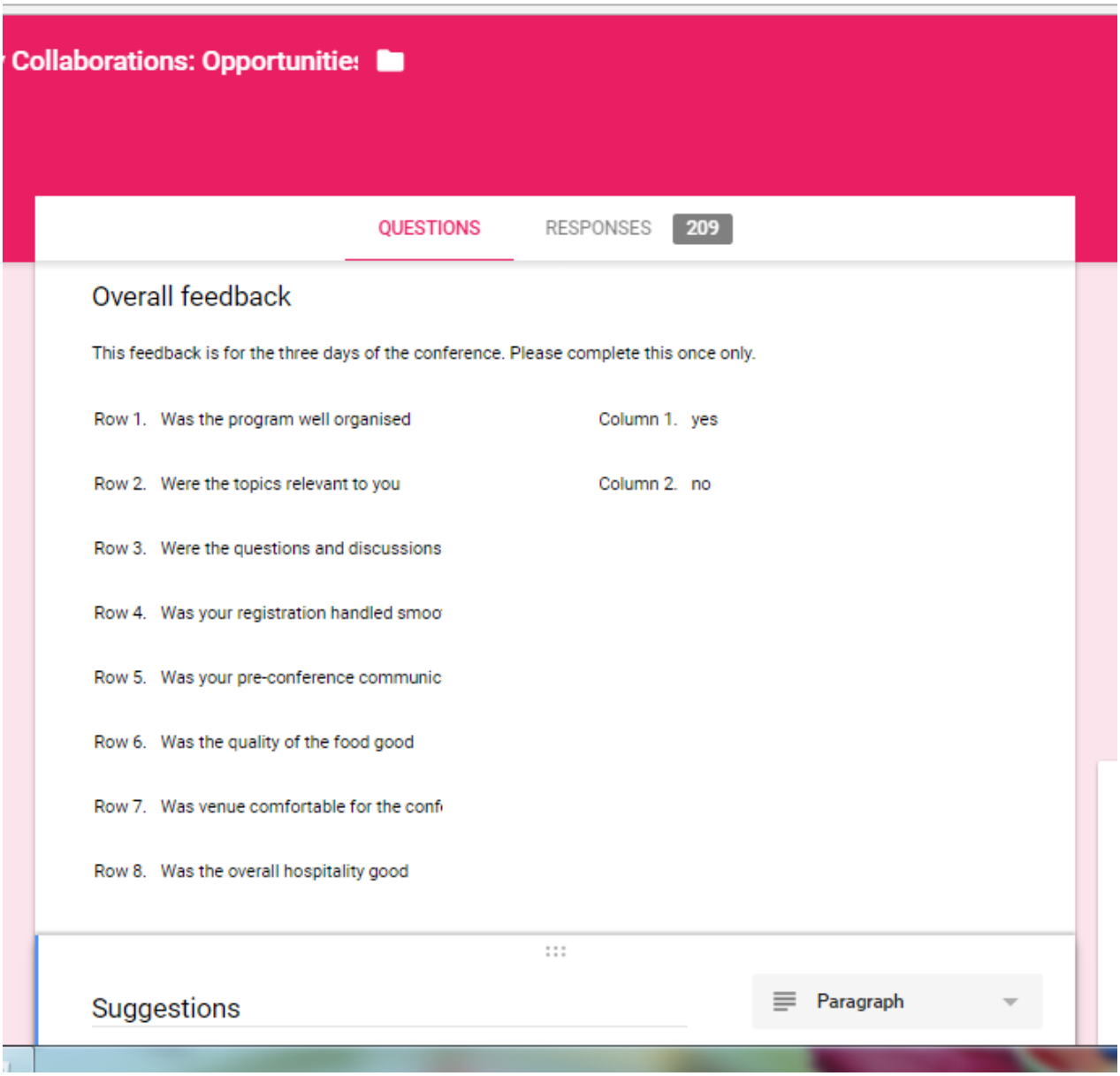
QUESTIONS RESPONSES 209

Feedback *

Row 1.	Content of the presentation	Column 1.	Not as expected
Row 2.	Depth of presentation	Column 2.	Met my expectations
Row 3.	Clarity in presentation	Column 3.	Excellent
Row 4.	Usefulness of the presentation		

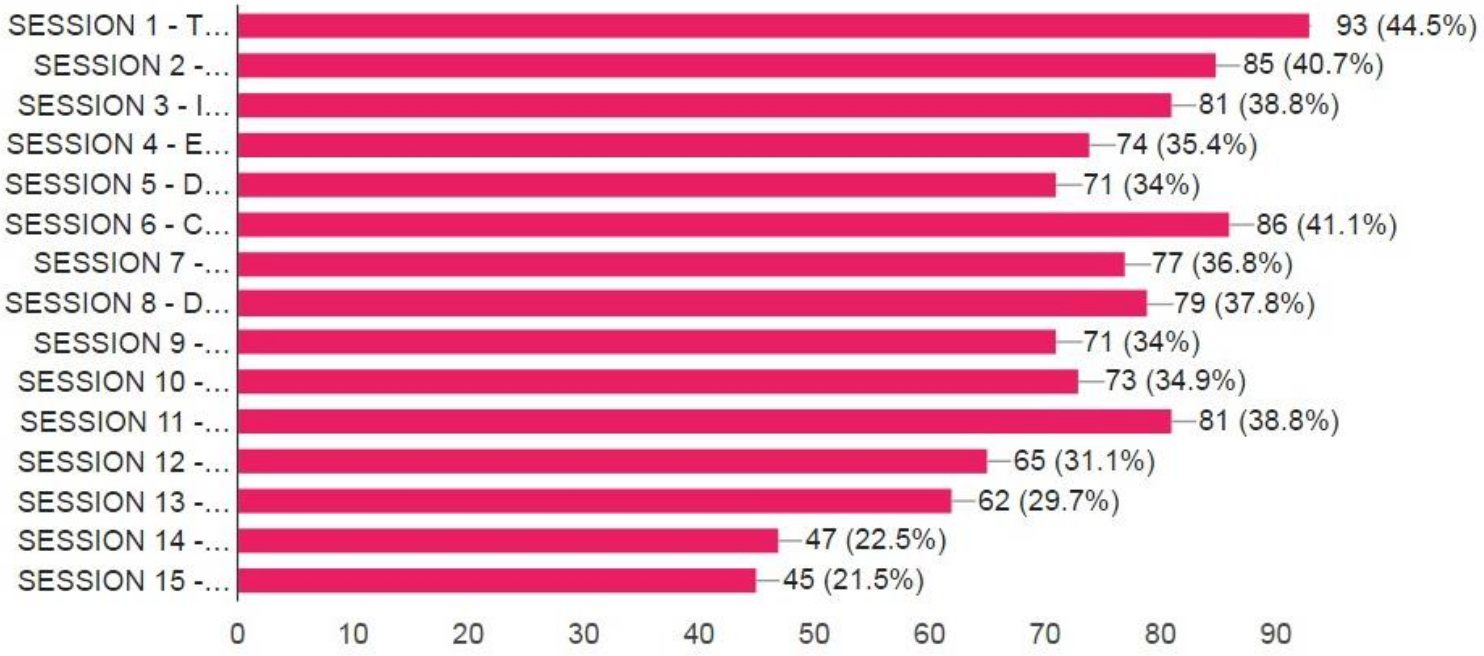
Feedback *

Row 1.	Conference improved my understanc	Column 1.	Agree
Row 2.	I would like to attend more such con	Column 2.	Disagree

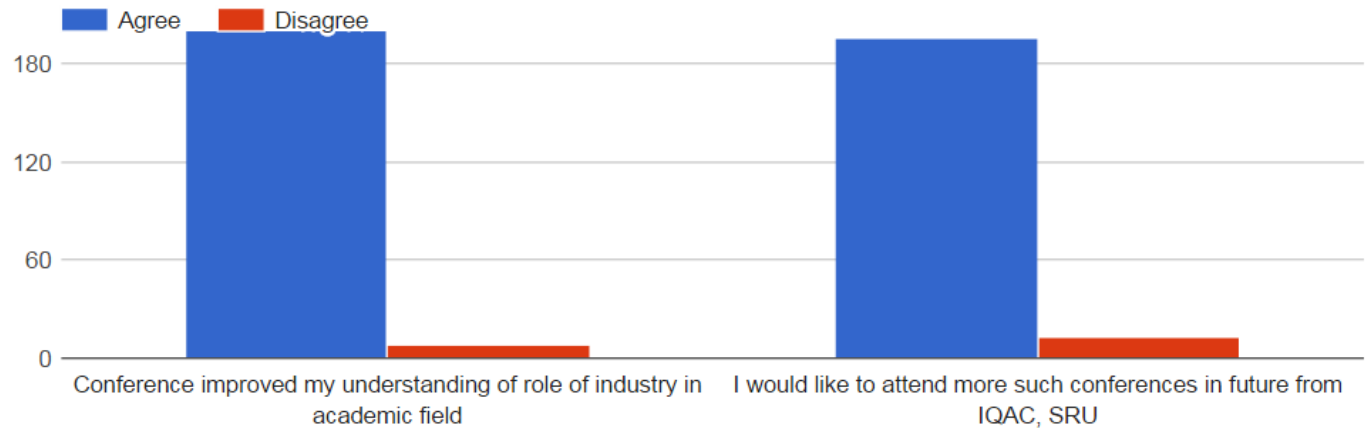

Collaborations: Opportunitie
QUESTIONS
RESPONSES 209
Overall feedback
This feedback is for the three days of the conference. Please complete this once only.
Row 1. Was the program well organised
Column 1. yes
Row 2. Were the topics relevant to you
Column 2. no
Row 3. Were the questions and discussions
Row 4. Was your registration handled smoo
Row 5. Was your pre-conference communic
Row 6. Was the quality of the food good
Row 7. Was venue comfortable for the conf
Row 8. Was the overall hospitality good
Suggestions
Paragraph

FEEDBACK ANALYSIS REPORT

Select the session



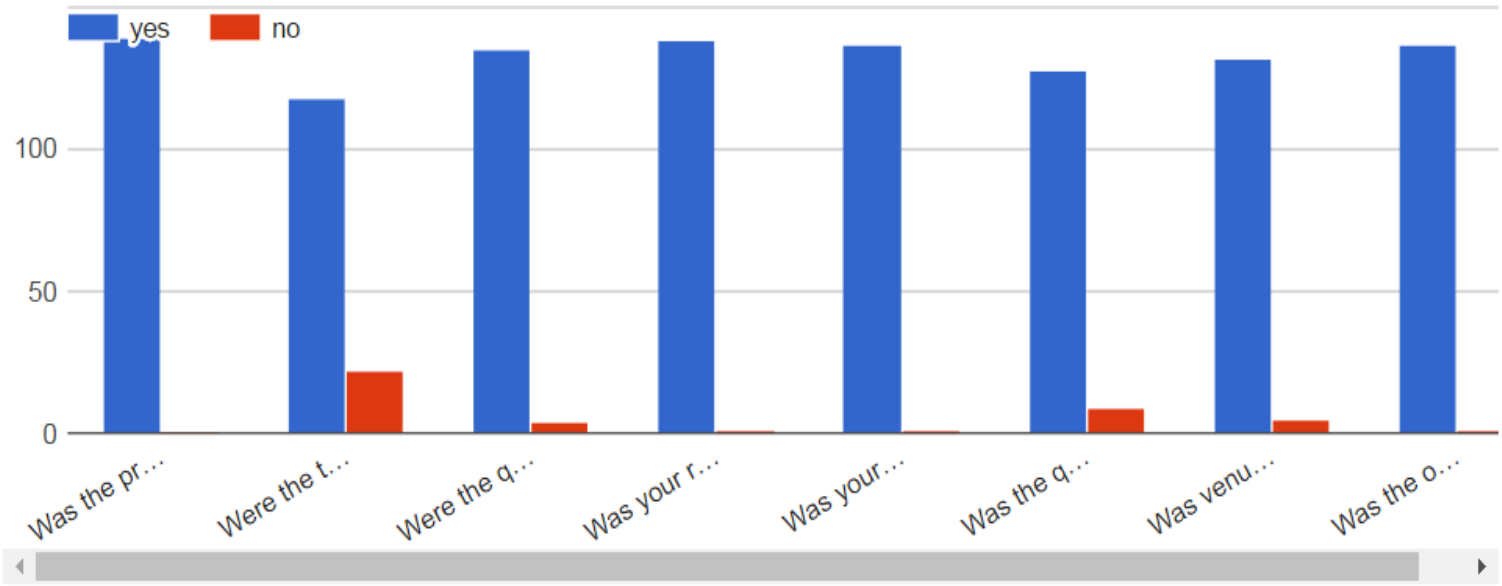
Feedback


Agree
Disagree
180
120
60
0
Conference improved my understanding of role of industry in academic field
I would like to attend more such conferences in future from IQAC, SRU

This feedback is for the three days of the conference. Please complete this once only.

1. Was the program well organized

Overall feedback



2. Were the topics relevant to you
3. Were the questions and discussions handled to your satisfaction
4. Was your registration handled smoothly
5. Was your pre-conference communication informative and clear
6. Was the quality of the food good
7. Was venue comfortable for the conference
8. Was the overall hospitality good

SUGGESTIONS

Please provide your suggestions for future conferences/ workshops, - Topics, number of days, venue or organizing method

- Fantastic programme
- Fantastic programme
- Duration for each speaker to be made half an hour only beyond which our attention span is not there
- Very well organised...Keep up the same in future workshop/conferences
- I guess this can be combined for 2 days. Lot of pharma topics and many people from pharma industry and as a clinician i felt it is little more focused into one subject. However it was a good initiative from the University. Many new things i came to know like HUB and Start ups and Incubation centres. Will our University allow a 'Start Up" inside the campus. I have a start up which i can bring into the university.
- Delivery of the content and the interaction could have been maintained within the specified time.
- Duration for each talk to be trimmed so as to catch the attention of audience and the program can be done in 2days itself instead of 3days
- Sessions can be trimmed and the programme can be done 2days
- Most of the talks were on the already developed products and speakers could have concentrated more on how the starters can get benefits from industries,

procedures, whom to contact, the level at which they can approach industry all these informations are expected by the delegates. But some talks were useful. Thanks

- Can have a industry visit
- Clinical part is not concentrated. Lunch is provided late as the session is extended.
- EXCELLENT
- More and more industry participants needs to be encouraged for participation to satisfy the objectives of such type of noble forum, smoothly. I think, a maximum of two days program would attract more participants, particularly from industry sectors.
- Topics can be so designed to meet the common interest areas of research by multidisciplinary team members .
- Well organized programs ,may be two days will be better.
- Overall the conference is organized well. Particularly the session about patent culture and the patent portfolio was excellent and useful. All the best
- If the topics of the presentation would be from our discipline, it would be helpful to apply in our practice beneficial. Otherwise all the presentations were sincerely taken care. Excellent efforts by presentors and organizers. Any it is eye opening

for me to know about other discipline too. It is additional information. I Thank the organizers for given this opportunity to acquire new knowledge. Regards

- future conference topics should be more relevant to the faculty
- it was good. provided the basic knowlege to academiacian as platform to get collaboration with industry, expecting more such type of conference
- general information relating to all speciality,not alone like pharma or herbal drug,it makes us to lose interest. Thank you so much to the IQAC team members for their organisation,it was so good.
- Great job in giving us this opportunity. But a request to follow up on the discussion held and implement the concepts like research parks, incubators in our University also.
- MANY SUCH ACTIVITY
- Kindly restrict the speakers to adhere to the timing
- Excellent. Keep it up.

PRESS RELEASE

dt NEXT * 7
Chennai, Friday, March 3, 2017

SRU CIPET tie-up to develop dialysis membrane

CHENNAI: Sri Ramachandra University (SRU) is in joint research with CIPET (Central Institute of Plastics Engineering and Technology) to develop indigenous dialysis membrane and non-touch bins for the disposal of highly toxic hospital wastes, its Vice-Chancellor Dr JSN Murthy said on Thursday.

Speaking at the 3-day National Conference on academia-industry collaborations here, he said, the Dialysis membrane project under the nephrology department is in its first stage and non-touch bins is in second stage of development. Both are now being imported and when developed the Indian membrane will cut the cost of dialysis, he added.

An MOU between SRU and Sai Mirra Inopharm for Joint Research in drug development was signed on the occasion by Dr SP Thyagarajan, Dean Research and J Jayaseelan, Director of the Pharma firm which is exporting its products to over 40 countries.

Speaking on the occasion Dr Thyagarajan said the industry should support the universities with their CSR funds in setting up research parks as in western countries and incubators for innovative ventures.

Front ranking universities should take up at least one bright idea along with industrial collaborators for developing an International product Entrepreneurship Development Institute Director, K Raja Raman said.

Inaugurating the meet attended by over 120 academic and industry representatives, Prof Caven Mcloughlin, Kent University said even Multi-National companies are starved of R & D funds and are looking to universities worldwide for innovative research.

CHENNAI THE HINDU
FRIDAY, MARCH 3, 2017

Varsity to develop dialysis membrane

CHENNAI

Sri Ramachandra University, in association with Central Institute of Plastics Engineering and Technology, will develop indigenous dialysis membrane and non-touch bins for disposal of toxic hospital waste. At the three-day national conference on academia-industry collaboration, Vice-Chancellor J.S.N. Murthy said the dialysis membrane project was in its first stage and non-touch bins were in the second stage of product development.

NEWS RELEASE

SRI RAMACHANDRA UNIVERSITY

Porur, Chennai-600 116. Telefax : 044-23860217. www.sriramachandra.edu.in

SRU IN JOINT RESEARCH WITH CIPET TO DEVELOP DIALYSIS MEMBRANE

Chennai, 2nd March, 2017.

Sri Ramachandra University is in joint research with CIPET (Central Institute of Plastics Engineering and Technology) to develop indigenous dialysis membrane and non-touch bins for the disposal of highly toxic hospital wastes, said Dr.JSN Murthy, Vice Chancellor at the three day national conference on academia- industry collaborations here today. Dialysis membrane project under the nephrology department is in its first stage and non-touch bins is in second stage of product development and will go in for production in the next stage. Both of them are now being imported and when developed the Indian membrane will cut the cost of dialysis of millions of people every day, he added.

An MOU between SRU and Sai Mirra Inopharm for joint research in drug development was signed on the occasion by Dr.S.P.Thyagarajan, Dean Research and Mr.J.Jayaseelan, Director of the pharma firm which is exporting its products to over 40 countries. Speaking on the occasion Dr.Thyagarajan said the industry should support universities with their CSR funds in setting up research parks as in western countries as incubators for innovative ventures.

Front ranking universities should take up at least one bright idea along with industrial collaborators for developing an international product said Mr.K.Raja Raman, Director, Entrepreneurship Development Institute of Tamilnadu.

Inaugurating the meet attended by over 120 academic and industry representatives, Prof.Caven Mcloughlin, Kent University said even multi-national companies are starved of R & D funds and are looking to universities worldwide for innovative research.

Dr.P.V.Vijayaraghavan, Director, Academic Administration, Dr.A.Ravi Kumar, Sr Coordinator, Internal Quality Assurance Cell and Dr.K.V.Somasundaram, Dean of Faculties were among those who participated in the event.

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For more information pl contact... Dr.Lt.Col. A.Ravikumar, Sr. Co-ordinator, IQAC, SRU, 9840433002,
T.G. Nallamuthu, Consultant, Media Relations, SRU, 9940399346, 9444265578, mediarelations@sriramachandra.edu.in

செய்திக்குறிப்பு

SRI RAMACHANDRA UNIVERSITY

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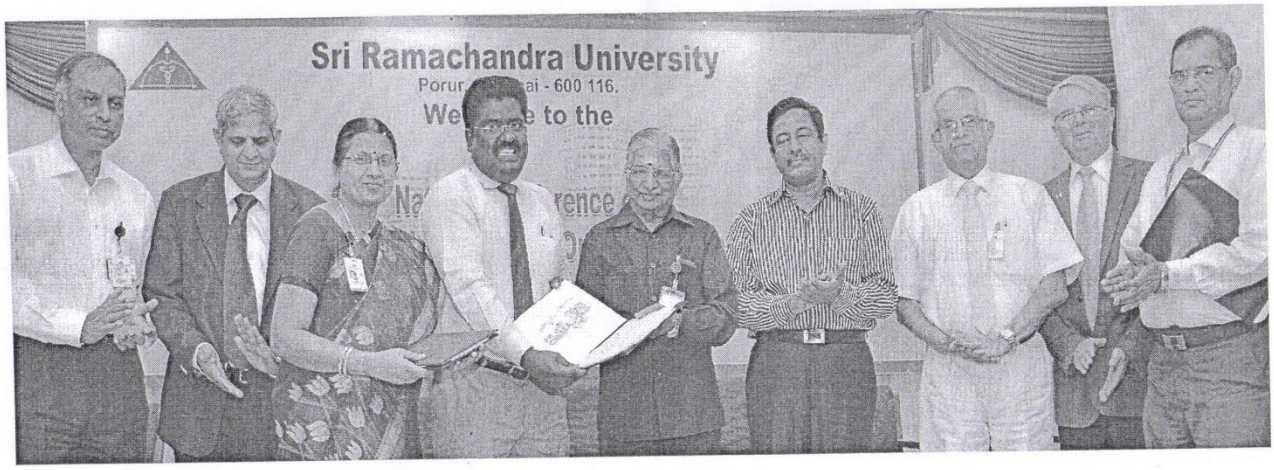

Photo caption

An MOU between Sri Ramachandra University and Sai Mirra Inopharm for joint research in drug development was signed by Dr.S.P.Thyagarajan, Dean Research and Mr.J.Jayaseelan, Director of the pharma firm at the inauguration of the three day national conference on academia- industry collaborations in chennai today. Also seen in the picture are Dr.A.Ravi Kumar, Sr Coordinator, Internal Quality Assurance Cell, Dr. JSN. Murthy, Vice Chancellor, Dr. D. Chamundeeswari, Principal, Pharmacy College, Mr.K.Raja Raman, Director, Entrepreneurship Development Institute of Tamilnadu, Dr. K.V. Somasundaram, Dean of Faculties, Prof.Caven Mcloughlin, Kent University and Dr. P.V. Vijayaraghavan, Dean-Education, SRU.

முன்னணி பல்கலைக்கழகங்கள் ஏதாவது ஒரு நலல உததலைய பயனபடுதத தொழில் நிறுவனங்களோடு சேர்ந்து உலகளவில் பயன்படுத்தப்படும் பொருளை உருவாக்க வேண்டும் என்று தமிழ்நாடு தொழில் முனைவோர் மேம்பாட்டு கழக இயக்குனர் திரு. K. ராஜாராமன் கூறினார். 120 கல்வி மற்றும் தொழில் நிறுவன பிரதிநிதிகள் கலந்து கொண்ட இந்த மாநாட்டை துவக்கிய கெண்ட் பல்கலைக்கழக பேராசிரியர் கெவின் மேக்லவ்க்லின் மிகப்பெரிய பன்னாட்டு நிறுனங்களிலும் ஆய்வு மற்றும் பொருள் மேம்பாட்டுக்கான நிதி பற்றாக்குறை உள்ளதால் அவர்கள் புதியனவற்றைக் கண்டுபிடிக்க பல்கலைக்கழகங்களை நாடுவதாகக் கூறினார்.

நிகழ்ச்சியில் பல்கலைக்கழக கல்வித்துறைத் தலைவர் Dr. P.V. விஜயராகவன் தர மேம்பாட்டு உள் அமைப்பு ஒருங்கிணைப்பாளர் Dr. A. ரவிக்குமார், பலதுறைத்தலைவர் Dr. K.V. சோமசுந்தரம் உள்ளிட்டோர் கலந்து கொண்டனர்.

மேலும் விபரங்களுக்கு..... ... Dr.Lt.Col.A.Ravikumar, Sr.Co-ordinator, IQAC, SRU, 9840433002,
T.G. Nallamuthu, Consultant, Media Relations, SRU, 9940399346, 9444265578, mediarelations@sriramachandra.edu.in