Findings - Micro Level Analysis
"Indian Institute of Technology Roorkee"

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IP UniLink Consortium meeting

Roorkee, INDIA

Process for data collection

- **Who collected the data?**
  - P.K.Ghosh, Himanshu Joshi, Babita Sinha, Meenakshi, Prakriti.
- **How did you collect the data?**
  - Discussion and interviews with researchers and office bearers of the Innovation system at IITR as well as external experts (legal and policy related).
  - Data collection from the internet (HEI website, legal acts etc.)
- **How many interviews did you conduct?**
  - 8 (with 3-4 interviewers)
- **When did you collect the data?**
  - May, June and July 2009
- **What is your assessment of the data collection process?**
  - Revealed a lot of interesting information but was a bit Time consuming.

Legislative Environment

- **What characterizes the legislative environment for HEI based Innovation and IP in your country?**

  - The IP is held by the institution with provisions for revenue sharing as per the policies of the individual institutions.

- **What are the strengths in your legislative environment?**

  - The National Policy provides a comprehensive and well structured programme for the creation and management of IP relating to education, R&D and training in all its aspects.

- **What are the weaknesses in your legislative environment?**

  - Implementation of policies at state and regional levels is yet to fructify and spread to all levels and types of educational and research institution .

Political Environment

- **Which are the 3-5 most important national/regional programs/policies for supporting Science & Technology, Research and Innovation in HEIs?**
  - The Science Policy Resolution (SPR) – 1958
  - **The Technology Statement – 1983**
  - **The Science & Technology Policy - 2003**

- **What are the strengths of the existing programs/policies?**
  - The programs lay the guidelines for development of a scientific temper in the educational institutes and promotes the culture of innovations and inventions.

- **What are the weaknesses of the existing programs/policies?**
  - The national system of Innovation has been proposed but it has yet to take shape and percolate to different levels.

Brief facts about your HEI

Name:	Indian Institute of Technology Roorkee
Legal Classification:	Autonomous Body created through Act of Parliament
Location:	Roorkee-247 667, UTTARAKHAND, INDIA
Number of: -**Students** -**Professors** -**Researchers** -**Administrative staff**	 4341 362 765 1114
Main academic areas:	Architecture and Planning, Biotechnology, Chemical Engineering, Chemistry, Civil Engineering, Earthquake Engineering, Earth Sciences, Electrical Engineering, Electronics & Computer Engineering, Humanities & Social Sciences,

India

Brief facts about your HEI *(cont.)*

Main academic areas:	Hydrology, Management Studies, Mathematics, Mechanical and Industrial Engineering, Metallurgical and Material Engineering, Paper Technology, Physics, Water Resources development and management, Alternate Hydro Energy Centre
Main research centers:	Centre of Excellence Transportation System, Nano-Technology, Disaster Mitigation and Management Service Centre Continuing Education Centre, Institute Computer Centre, Institute Instrumentation Centre, Information Superhighway Centre, Quality Improvement Programme Centre

India

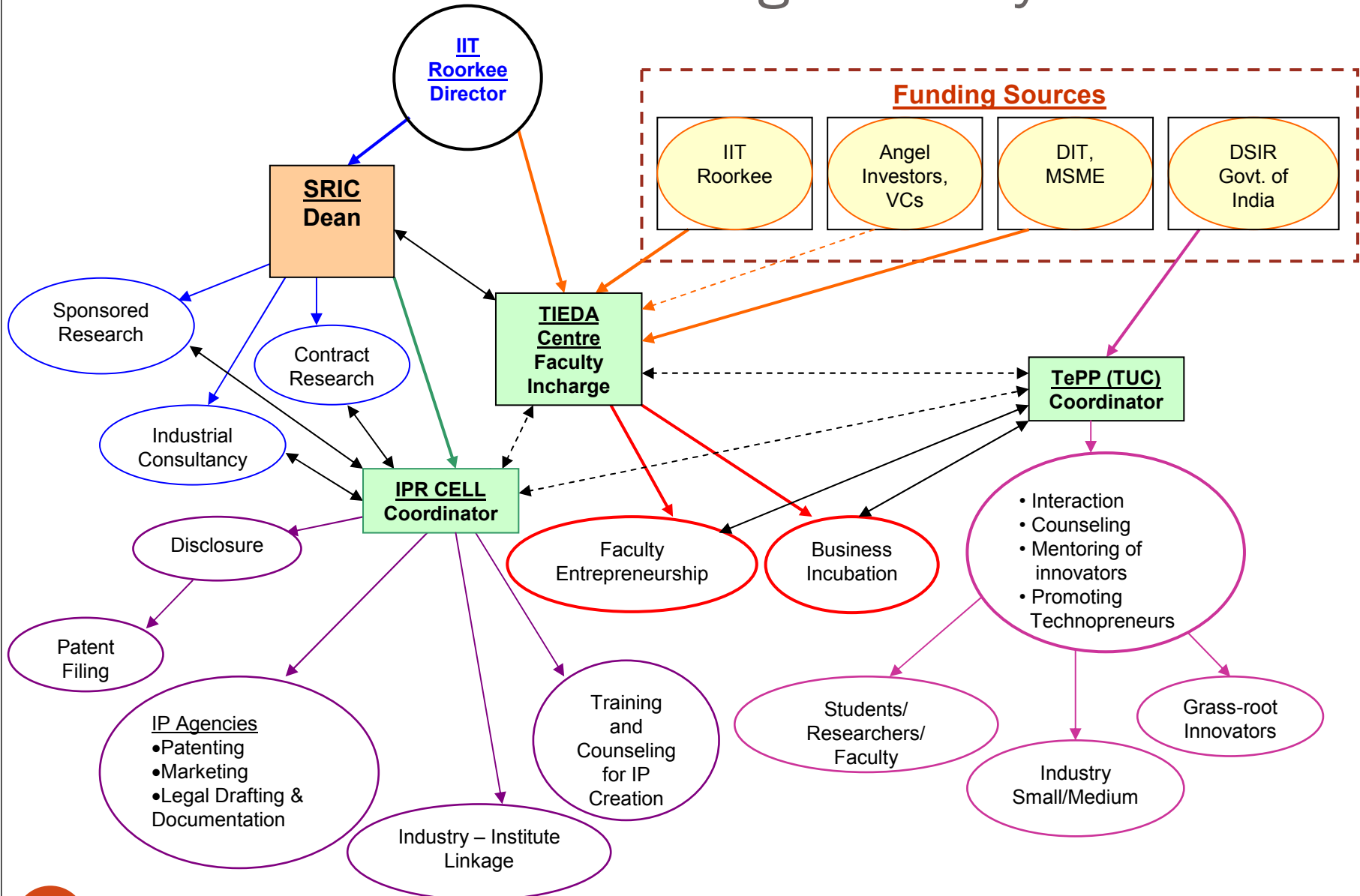# Innovation, IP and Entrepreneurship Policies at your HEI

- **Do you have Innovation, IP and Entrepreneurship Policies?**
  - IPR Policy has been established in the year 2005 with the aim to provide a conducive environment leading to development of intellectual property, to facilitate, encourage, promote and safeguard scientific investigation and research and the freedom of the scholars involved in R&D.
  - The Faculty Entrepreneurship Policy proposes the mechanisms for running companies maturing from technology start-ups based on IPR owned/co-owned by the faculty, and/or mentored by the faculty during the development of prototype of start-up company.

HEI Innovation System

- Which are the most important units/organizations/functions/ departments that are responsible for driving innovation in your HEI?

Name of Entity	What is the main focus of this unit?
IPR Cell	To create awareness & provide guidance to academic and non-academic staff on the practices and the rules of the Institute regarding intellectual property rights (IPRs) and obligations within the frame work of the IPR policy of the Institute and to develop an IP Management System.
TIEDA	To undertake Technology Incubation and to promote entrepreneurship to achieve the objective of enabling Technology Transfer and Commercialization of products of innovation activities.
SRIC Office	A full-fledged office operating under Dean (SRIC) provides administrative & accounting support to the faculty undertaking sponsored research and consultancy work. IITR recognizes Sponsored Research (SR) and Industrial Consultancy (IC) as the essential attributes of teaching and research.
TePP TUC	This is a Government of India program which is providing financial support and grants for development of innovative technology based entrepreneurs.

HEI Innovation & IP Management System

IIT Roorkee Director

SRIC Dean

Funding Sources

- IIT Roorkee
- Angel Investors, VCs
- DIT, MSME
- DSIR Govt. of India

Sponsored Research

Contract Research

Industrial Consultancy

TIEDA Centre Faculty Incharge

IPR CELL Coordinator

TePP (TUC) Coordinator

Disclosure

Faculty Entrepreneurship

Business Incubation

- Interaction
- Counseling
- Mentoring of innovators
- Promoting Technopreneurs

Patent Filing

IP Agencies
- Patenting
- Marketing
- Legal Drafting & Documentation

Industry – Institute Linkage

Training and Counseling for IP Creation

Students/ Researchers/ Faculty

Industry Small/Medium

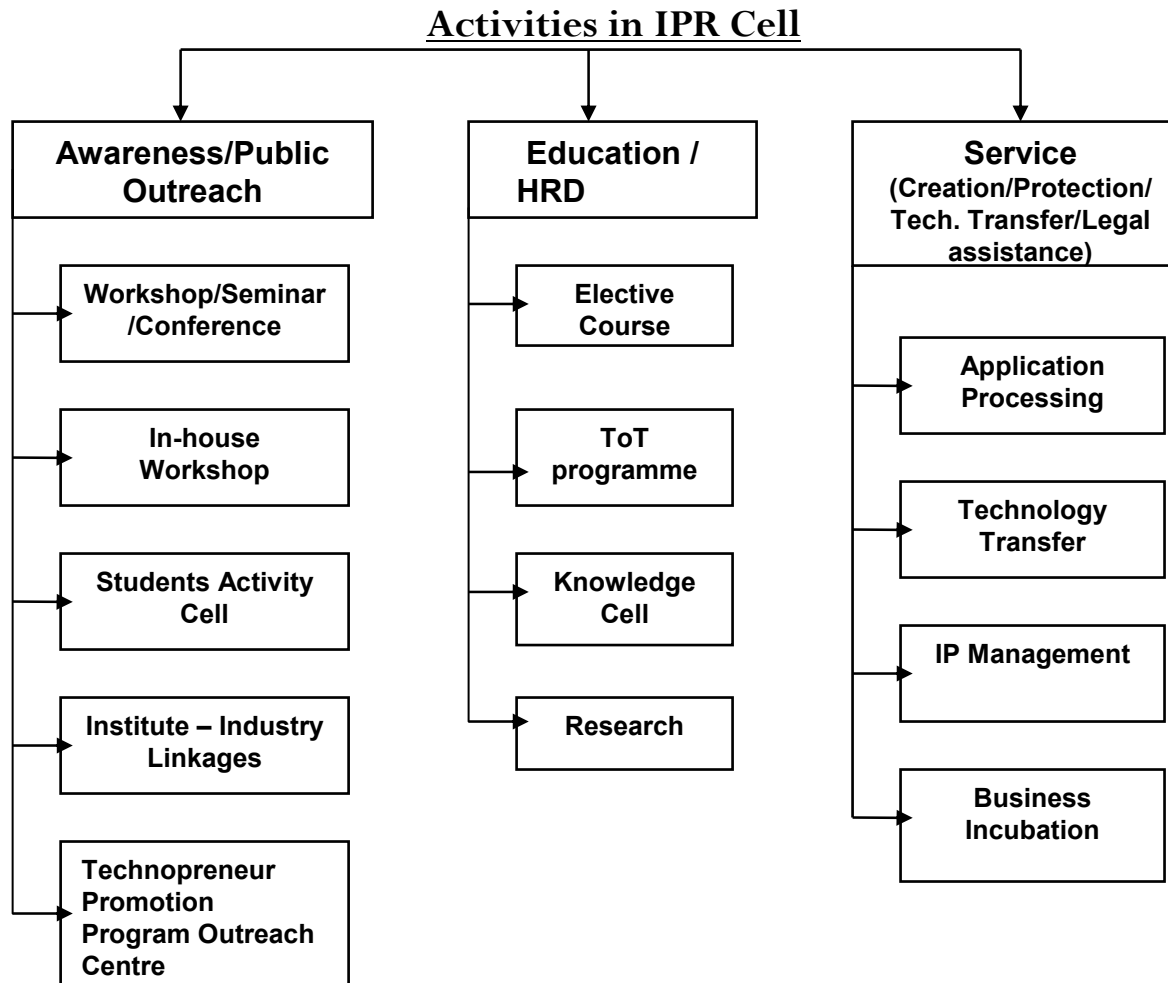Grass-root Innovators

HEI Innovation System

Innovation entity 1 – IPR Cell

- Legal classification and customer orientation (internal/external):

    Institute owned entity with internal orientation.

- What are the academic and professional profiles of the people employed?

    People from various backgrounds like Economics, Science,

    Engineering and Management.

- How is the entity funded?

    Government and HEI base funding.

HEI Innovation System

Innovation entity 1 – IPR Cell (*cont.*)

- What are the main responsibilities and activities of this entity?

Activities in IPR Cell

Awareness/Public Outreach	Education / HRD	Service (Creation/Protection/ Tech. Transfer/Legal assistance)
Workshop/Seminar /Conference	Elective Course	
In-house Workshop	ToT programme	Application Processing
Students Activity Cell	Knowledge Cell	Technology Transfer
Institute – Industry Linkages	Research	IP Management
Technopreneur Promotion Program Outreach Centre		Business Incubation

HEI Innovation System

Innovation entity 1 – IPR Cell (cont.)

- What are the strengths of this entity?
  - IPR Cell has developed as a vigorous body creating considerable awareness, eliciting and promoting innovation leading to creation of IP.
  - Regular contact and coordination with the faculty and researchers.
  - Regular training and workshop facilities for IP Creation.
  - Support for Technopreneurship.
- What are the weaknesses of this entity?
  - IP Management facility is yet to be stream-lined.
  - No Legal Documentation Cell
  - No Economic evaluation Cell

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HEI Innovation System

<u>Innovation entity 2 –</u> **TIEDA Centre**

- Legal classification and customer orientation (internal/external):

    Internal entity belonging to HEI.

- What are the academic and professional profiles of the people employed?

    Office still under formulation

- How is the entity funded?
    - Funded by Institute
    - Government Funding Agencies
    - Private Funding Agencies

HEI Innovation System

Innovation entity 2- TIEDA (*cont.*)

- What are the main responsibilities and activities of this entity?
      The proposed activities for TIEDA are:
  - Assessment of techno-commercial viability of proposals and resource planning
  - Preparation of Business plan
  - Prototype Development
  - Technopreneur development
  - Mentoring and advisory services
  - IPR and legal advise
  - Technology and business incubation
  - Assisting in mobilizing finances
  - Skill development program for managing business
  - Assisting market research

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HEI Innovation System

Innovation entity 2- TIEDA (*cont.*)

- What are the strengths of this entity?

  - Yet to be practically identified when the entity will start working. However, objectively it is supposed to provide a system for Technology Transfer and commercialization of innovation made by the institute.

- What are the weaknesses of this entity?

  - Yet to be truly identified, will emerge when the entity will start working.

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HEI Innovation System

Innovation entity 3: SRIC Office

- Legal classification and customer orientation (internal/external):

  Internal entity belonging to HEI with internal orientation.

- What are the academic and professional profiles of the people employed?

  People from Engineering, Science, Management and Commerce background with Accounts and Administrative experience.

- How is the entity funded?

  Government base funding.

HEI Innovation System

Innovation entity 3: SRIC Office (*cont.*)

- What are the main responsibilities and activities of this entity?

  Sponsored Research (SR) and Industrial Consultancy (IC) activities allow the institute faculty to work on cutting edge research topics and on practical problems faced by industries. These activities are considered essential for the complete professional growth and help in augmenting teaching and research efforts.

- What are the strengths of this entity?

  Office of the Dean (SRIC) provides administrative and accounting support to the faculty undertaking sponsored research and industrial consultancy work. SRIC office plays a strong promotional role by liaising with industry & government organizations and providing IPR support and incentives to the faculty.

HEI Innovation System

Innovation entity 4: **TePP (Technopreneur Promotion Program) Outreach Centre (TUC)**

- Legal classification and customer orientation (internal/external):

  External entity, program of Government of India with internal and external orientation. IITR acts as the outreach centre for **Uttrakhand** area.

- What are the academic and professional profiles of the people employed?

  People from Science, Engineering and Economics background with research and administrative experience.

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HEI Innovation System

Innovation entity 4: TUC (*cont.*)

- How is the entity funded?

  Government of India base funding, administered through DSIR (Department of Scientific & Industrial Research).

- What are the main responsibilities and activities of this entity?

  TePP provides financial support to selected and screened innovators having original ideas for converting them into working models and prototypes.

HEI Innovation System

Innovation entity 4: TUC (*cont.*)

- What are the strengths of this entity?

  - Bring out the latent innovation potential and creates a channel for converting ideas into marketable products.

  - TePP provides financial support not only to the formally educated innovators but also to the grass-root innovators of the society having only the basic level of education.

  - Creating vast scope for Entrepreneurship development.

HEI Innovation System

Innovation entity 4: TUC (*cont.*)

- What are the weaknesses of this entity?
  - Identification of innovative ideas and innovative persons is a random process that requires considerable effort and time.
  - The conversion of ideas into viable products requires consistent handholding and personnel guidance/mentoring which limits the number of innovations that can be handled.

Innovation Activities, Processes, Practices and Procedures

1. What do you consider to be **good examples of information and communication processes** in the areas of innovation and IP in your HEI?

- IPR Website plays a major role wherein the IPR Cell communicates on the activities for innovation and IP.

- Institute publicises the pioneering works being carried out by its researchers in the R&D magazine named "SCI-TECH" of IIT Roorkee.

- Seminars, Events, Fairs and Workshops for innovation, technology / business incubation, business planning etc.

- Student Activity Forum – disseminates information and elicits participation in various schemes and programs promoted by IPR Cell.

Innovation Activities, Processes, Practices and Procedures

2. What do you consider to be **good examples of awareness building and education processes** in the areas of innovation and IP in your HEI

- IPR one semester systematic Elective Course for UG and PG students educates students and researchers on the issues related to creation and management of IP.

- Short-term Awareness and Training programs also plays a vital role in awareness building in the field of innovation and IP.

Innovation Activities, Processes, Practices and Procedures

3. What do you consider to be **good examples of processes for 'searching for value in research'** in your HEI?

- IITR supports the researchers to find "value" in their research by the process of Novelty search/Drafting for patent filling and licensing.

Innovation Activities, Processes, Practices and Procedures

4. What do you consider to be **good examples of processes for 'assessing the value identified in research'** in your HEI?

- The Intellectual Property Assessment Centre (IPAC) is an expert technical Panel that assesses the technical viability of the invention.

- IPAC also assesses the economic viability of the invention.

Innovation Activities, Processes, Practices and Procedures

5. What do you consider to be **good examples of processes for 'evaluating possibilities for protection and seeking protection for innovations'** in your HEI?

- Novelty Search is a process to determine if an invention can be protected by IPR and the IP Agencies support the researchers to develop a technical description report.

- National patent office and IP agencies evaluates the patentability of the applications and the IPR Cell of IIT Roorkee monitors these applications and registrations for the HEI.

Innovation Activities, Processes, Practices and Procedures

6. What do you consider to be **good examples of commercialization processes** in your HEI?

- Department of Management Studies at IITR support researchers to create a business plan for their inventions.

- Technopreneur Promotion programme (TePP) offers Business development services and support a start-up company around an invention.

- Technology Incubation & Entrepreneurship Development Activity (TIEDA) Centre processes Technology and Business incubation to offer or find a place for a start-up company.

Innovation Activities, Processes, Practices and Procedures

7. What do you consider to be **good examples of ongoing processes** in the areas of innovation and IP in your HEI?

- Creation of gross awareness and interest of every researcher of IITR for IP Creation out of the innovative work in individual areas of research

- Maintenance of systematic records of all innovative works being carried out in the institute.

- Various interactive processes involving teachers and researchers links research results to HEI teaching and the development of HEI research agenda.

- Maintenance of IP portfolio of the Institute.

Innovation Activities, Processes, Practices and Procedures – Summary

- In your assessment – what are the **strengths and weaknesses** of your current activities, processes, practices and procedures for Innovation and IP management in your HEI?
  - The <u>strength</u> of the HEI's innovation system is the cohesive nature of the various processes, practices and procedures developed by IPR Cell.
  - The <u>weakness</u> of the HEI's innovation system is that some of the units are in the infant stage and others are still under formulation.

Historical Review –Ownership

- Who has received ownership (at the time of creation) for HEI based IP during the last 3 years?

Year	HEI (%)	Professor/researcher /inventor (%)	3rd Party Partners (%)	Other (%)	Total 100%
2006	100 %				**100%**
2007	100 %				**100%**
2008	100 %				**100%**
Historical total (since HEI foundation)	100 %				**100%**

Historical Review – IPR

- What **type of IPR** protection is most frequently applied for?
- In the last 3 years?
  - Patents
    - Historical total since HEI foundation?
      - Patents

- **In which countries** is IPR protection most frequently applied for?
  - In the last 3 years?
    - Within National territory.
  - Historical total since HEI foundation?
    - Within National territory.

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Historical Review – Licenses

- How many license contracts has the HEI as a whole signed?
  - In the last 3 years?
    - The Licensing for some of our patents is under process.
  - Historical total since HEI foundation?
    - NIL

- What is the most common subject of license (invention, brand, software, etc.)?
  - In the last 3 years?
    - Invention
  - Historical total since HEI foundation?
    - Invention

Historical Review – Start-ups/Spin-offs

- How many start-ups/spin-offs has the HEI as a whole created?
  - NIL

Culture for innovation

- **How would you assess the culture of innovation at your HEI:**

  - To drive the responsibility of innovation and IP processes - the Technology Transfer unit and researchers are often active, and the institute leaders, research centers and the students who are interested & motivated are available when needed.

  - As the resources to drive and manage innovation - IITR has enough information and appropriate budget with competitive personnel.

  - IITR has clear goals, milestones and indicators to support teams in their work.

  - While working for innovation, the researchers at IITR feel energized and get good inspiration.

  - The researchers share a dynamic relationship with colleagues

Culture for innovation

- What characterizes the culture in your HEI?
  - Very open
  - Communicative
  - Less Hierarchical
  - Transparent
- What values are important?
  - The freedom to explore, self-motivation and drive towards excellence.
- How would you like to improve the culture in your HEI?
  - Awareness has to be created among researchers to orient their work towards IP generation.
  - There is a need to create resource pool comprising of legal, commercial and related areas.

Final Assessment

- What factors/measures do you use in your HEI to determine if you are successful or not in being an 'Innovative University'?
  - Novel problems
  - Indigenous/local problems
  - Teaching based on research
- Based on the factors listed above – how satisfied are you with how your HEI is performing with Innovation and IP Management?
  - Most actors are fairly satisfied.