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Policies of Academic Research Institutions on Intellectual Property Rights: A Comparative Analysis

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The academic research institutions (ARI) are storehouse of knowledge. The surge in the research and development activities undertaken by the ARI has added to the pool of the technology and innovation to provide solutions to the emerging problems affecting the world. The eminent and young minds of the ARI actively pursue the research work as a part of their thesis. The outputs generated from this research is protected as Intellectual Property of that ARI.

ARIs need to safeguard their Intellectual Property Rights (IPR) from any kind of undue exploration from any other organization including industries and other private partners. In order to ensure this, a policy document is framed by all the ARIs which acts as an interface both at internal and external level for IPR management of that particular ARIs. This IPR policy is binding upon all the staff and students since the time of inception of their association with the ARIs in every form. This study attempts to give a view of the essential points covered in the IPR policies of the well-known National and International ARIs and the practices employed by them for efficacious management of the IP. An attempt is also made to establish the similarities and distinctions in their IPR policies.

Keywords: Research Institutions, Universities, Intellectual Property Rights, Colleges, Patent Protection, IPR Management, IPR Policies

1. Introduction

With the growth in the population all over the world, there is an increase in the pool of human resources available for carrying out the sustainable research and development to solve various global issues by providing innovative solutions. The academic research institutions (ARIs) are the hub of experienced and young minds. ARIs are place of concentration and allocation of various resources for engaging students and faculty in innovation sphere. Nowadays, they specially engage in creating and nurturing special ecosystem for innovation. This is made possible due to various research grants provided by various national and international agencies either solely or in collaborative manner. The outputs generated are either published as research papers in reputed journals or are protected as Intellectual Property (IP) of that ARI before publication spending on type of technology, choice of inventor, choice of applicant or any other related aspect.

Protection of IPR has recently emerged as a highly favourable trend since IPR helps the ARI with benefits like protection from undue exploitation and illicit use of the invention, economic benefits for the ARI from various modes of technology transfer, like licensing, assignment, entrepreneurship, accrues social responsibility of the university, etc. The ARIs are entrusted with the responsibility of effective management of their IPR so that they are able to protect the interest of their faculty and students to derive commercial benefits from research outputs, which add to their financial stability and resource development.

ARIs communicate with their internal populace and the other interested establishments of the outside world via a written document known as IPR policy. Policy can be defined as proposed course of action of an individual, a group, an institution or a government to realize a specific objective or purpose; within a given environment. The use of policies is vital in the task of planning a course of action which helps executive to keep his activities within a prescribed framework of action. Policies give meaning to the objectives by providing concrete form of goals[(1).]

An IP policy provides structure, predictability, and a beneficial environment in which enterprise and researchers can access and share knowledge, technology and IP[2] .The policy is designed and managed by IPR cell or Technology Transfer Office (TTO) of the ARI. It is a comprehensive document which provides all the details (which includes rules, regulations, procedures, etc.) to be followed for the management of IPR, starting from the disclosure of the prospective IP to the IPR cell or TTO. In general, the policies of various ARIs include the following aspects:

(i) Ownership of the intellectual property generated
(ii) Role of technology transfer office/IPR cell
(iii) Invention disclosures to the office in a proper format
(iv) Existence of Non-Disclosure agreements, pre-invention, grant and other agreements prior to filing of any IP
(v) Procedure formulated by the office for protecting IP
(vi) Any condition of waiver from ownership with the pre-disposed condition of waiver

Various ARIs located in India and abroad have their IPR policies available on their website or on the website of World Intellectual Property Organization (WIPO) [2] , so as to provide the information to all the personnel's engaged in research & development activities. The IPR policies of all the institutes including ARIs serve to protect the IP and safeguard the interest of the institutions and the inventors.

As there are many IPR policies in various institutes around the world, an attempt has been made to study the salient features of these policies. The present study was therefore undertaken with the aim to provide a comparative account of the IPR policies to provide the points of similarities, uniqueness and the best practices followed by ARIs.

2. Materials and Methods

In order to understand the practices used by the Academic Research Institutions (ARI) in developing their set standards for IPR management, a total of 10 National and 10 International IP policies of well-known universities/institutions were compared for the similarities and differences among the common traits like ownership, disclosure, role of TTO office, existence of agreements, etc (Tables 1 and 2 respectively).

2.1 Universities Selection Criterion

- For selecting International ARIs various ranking parameters, like Berlin Principles on Ranking of Higher Education Institutions, QS world ranking, Times Higher Education World Ranking, Academic Ranking of World Universities (ARWU) and Webometrics Ranking System were considered. However, no parameter containing IPR and innovation explicitly was found. After an extensive literature survey, a paper titled "The Role of Universities in the National Innovation System[3]was considered which enlist the universities according to R&D expenses, number of academic persons and number of patent applications was selected (Table 1).
- The Indian universities were selected from the ranking given by National Institutional Ranking Framework, Ministry of Education, and Government of India for the year 2021. Out of all the parameters, '**Research'** (Ranking Re-arranged as per their IPR score from 1st twenty institutes) was selected. The '**Research Parameter'** includes those Higher Educational Institutions (HEIs) which has higher outputs in terms of publications, citations, patents, research grants and spending on research. This category includes those HEIs publishing more than 500 research papers in peer review journals or at least 1,000 students pursuing PhD (Table 2).

3. Results and Discussion

Policies of various national and international ARIs list down the best practices for management of

Table 1 — Universities selected for analyzing IPR polices of outside India[3]

Data on the world's TOP 10 universities			
Massachusetts Institute of Technology	952.017	2977	425
Stanford University	1.110	4478	150
Harvard University	1123	4512	274
California Institute of Technology	400.312	1022	229
Oxford University	758.621	6436	188
University of Cambridge	687.619	5755	258
Swiss Federal Institute of Technology Zurich	329.26	2621	90
Imperial College London	472.91	3825	125
The University of Chicago	433.328	2538	135
London's Global University	602.338	6146	95

Compiled by the author based the data of QS Quacquaredli Symonds Limited; Nations Science Foundation (the USA); Higher Education Statistics Agency; JUSTIA Patents; Massachusetts Institute of Technology Stanford University; Harvard's Office of Technology Development; California Institute of Technology (Caltech); Oxford University; University of Cambridge; Swiss Federal Institute of Technology Zurich; Imperial College London; University of Chicago; London's Global University.

Table 2 — Institutes Selected for analyzing IPR policies located within India [4]

S. No	Name of the Institute/University	IPR Score (out of 20 as per NIRF 2021)	Overall Rank
01	Indian Institute of Technology, Chennai	20	02
02	Indian Institute of Technology, Bombay	20	03
03	Indian Institute of Science	16	01
04	Indian Institute of Technology, Kanpur	16	06
05	Indian Institute of Technology, Delhi	14	04
06	Indian Institute of Technology, Kharagpur	08	05
07	Indian Institute of Technology, Guwahati	08	09
08	Jawaharlal Nehru Center for Advanced Scientific Research	08	19
09	Indian Institute of Technology, Roorkee	06	07
10	Vellore Institute of Technology	06	12

intellectual property rights. All the policies are laid down in accordance with the laws of the land they are bound to follow. There are certain aspects which are common with all the policies while some aspects differ and are unique to particular ARIs.

3.1 Similar Aspects in Policies of Various Universities

While studying, following aspects were found similar in nearly all university. These are given hereunder:

(i) Policies of ARIs clearly lay down the **definition of Substantial Use of Resources,** according to that all kinds of research grants provided by various national and international agencies are provided to ARIs for successful execution of the research project to generate an output which is beneficial to the society.

(ii) The ownership of all the tangible and intangible resources including all kinds of IP rest with the ARIs.

The mandatory Ownership of IP generated in the ARIs are:

- The ownership of the intellectual property generated using the substantial resources of the ARI will belong to the ARIs themselves.
- The inventors whenever asked will provide the assignment of their rights in invention to the ARI.
- The ARIs at the time of engaging the personnel executes a relevant agreement with the inventor, highlighting the fact that the entire IP generated during the course of their engagement will belong to the ARIs.
- While the inventor is on Sabbatical/Deputation or Lien, it is mandatory for the inventor himself, to take care, that the present engagement does not interfere with his obligations towards the ARIs.
- The policies describe in detail the cases of sponsored R&D (where the agenda for the research is set up by the institute personnel and research is funded by the external agency), collaborative R&D (where the R&D projects are in joint collaborations with the third party)

(iii) The policies provide a comprehensive account of the role of **technology transfer office (TTO) or the IPR cells of the ARIs.**

(iv) The inventors are required to disclose the **entire details of the invention to the office**, for assessing if the invention is suited for IP protection.

(v) The TTO ensures the **secrecy and the non-disclosure of the inventions** to other branches of ARIs as well as the third party.

(vi) The ARIs follow the concept of **joint ownership with third party**. The third party involved can be industry, funding agency, consultancy firm, governmental organization or any international organization, depending upon the terms and conditions laid down in the memorandum executed prior to start of the research project.

(vii) Every IP Policy has **dispute resolution and conflict of interest clause** for settling the disputes between the inventors, with the management of the ARI, or any kind of third party involved.

(viii) The **rules of administration** of IPR policy within the ARIs. EXPLAIN MORE???

(ix) In case the inventions can be protected by IP, the inventor **is first obliged to get it protected before publishing**

(x) Fair Use of the IPR policy among all the staff and students of the ARIs involved in the study.

Jawaharlal Nehru Center for Advanced Scientific Research has an IP Management Cell. This cell **IP Management Committee** formulates policies/ guidelines/best practices which are consistent with the mission/goals (teaching, training, research and development, dissemination of new knowledge generated, innovations for public benefit, etc.) of the Centre. It meets regularly to address the issues

concerned with securing, evaluating, protecting, maintaining, ownership of IP, disclosure of IP, marketing, commercialization and licensing of IP, distribution of revenue/royalty, rights and obligations of inventors. However, IP Policy is not available on the website of the centre.[5]

The website of Swiss federal institute of Technology, Zurich[6] has only general guidelines for IPR protection and no specific policy is present.

3.2 Different Aspects in Policies of Various Universities

IPR policies of different ARIs differ on various aspects as per the requirement of that particular ARI. The different aspects of the various policies are given in tabular form in order to show comparability among them (Table 3).

After analysing the various policies, some of the points of discussion are:-

(i) **Who will own the IP?-** IP can be either owned by the ARI or the individual working with the ARI [(7)] The present paper compares two models of university IP ownership, i.e. university ownership versus inventor ownership. For this study top 10 universities are taken from the list of 200 universities from the World Universities Ranking

Table 3 — Different Aspects of Various IPR Policies

UNIVERSITY	CONDITIONS
Indian Institute of Sciences	(i) IP developed during the personal time of employee which is neither connected to his/her regular work and nor developed using the resources of the ARIs shall not belong to the ARIs. (ii) work for hire, Contract R&D Project, are completely funded by funding agency
Indian Institute of Technology Mumbai	(i) Inventor / creator may not be employee of institute; (ii) Not utilising the significant resources (iii) Institute may not be keen for protection of the invention
Indian Institute of Technology, Chennai	(i) Institute may not be interested in protecting IP. (ii) In case of foreign filing, if commercial potential is found to be low, the institute may decide not to proceed towards national phases. Above points not clear??
Indian Institute of Technology, Delhi	(i) IP is unrelated to the inventor's engagement (responsibilities associated with employment) with IITD. (ii) Activities pursued outside of normal working hours of IITD are allowed
Indian Institute of Technology Kharagpur	(i) Copyrightable Materials (ii) IP created without using institute resources
Vellore Institute of Technology	(i) Clear distinction between Background (IP before the start of the project) and Foreground Intellectual Property (IP generated after the start of the project) (ii) Ownership of Intellectual property. In all the applications filed by the Institute for the ownership of intellectual property rights, the persons who have directly contributed intellectual inputs shall be mentioned as inventors or creators. (iii) In case of thesis/dissertation/project report written by a student, the ownership of copyright shall rest jointly with the student and his/her guide. However, in such cases, the Institute may demand assignment of the ownership of the copyright in full. Where the Institute does not demand such assignment or where the copyright has not been assigned to the Institute , the Institute will be entitled to a non-exclusive, non transferable license to use the work within the Institute for non-commercial educational and research purposes, and to possess a limited number of copies for such purposes. (iv) The IP cell, would meet the expenses of IP to the stage of filing i.e. the statutory fee and patent attorney's fee. If there are no takers for the technology within 30 months from the date of filing, VIT shall not assume the responsibility of further payments. (vi) In case the inventors need more time to identify the potential technology takers. They may approach the IP Management Committee to extend this time frame. In case the inventors are interested, VIT may re-assign such rights back to them to sustain such IP on condition that the inventor(s) pay VIT one and half times the initial expenses incurred by VIT for filing the IP. (vii) If VIT opts not to undertake such protection in any specific country requested by the inventor(s), VIT may assign rights of the IP in that country to the inventor(s) for the purpose of such protection. (viii) A decision on annual renewal of IP rights will be taken by the IP Evaluation Committee. If VIT decides not to renew the IPR in any country, then it may assign the rights of the IP in that country to the inventor(s) upon a request to that effect from the inventor(s

(*Contd*.)

Table 3 — Different Aspects of Various IPR Policies — (*Contd.*)

UNIVERSITY	CONDITIONS
University of Oxford	Created without using the substantial resources of the university
University of Cambridge	If the terms of sponsorship agreement dictates
Massachusetts Institute of Technology (MIT)	No Significant Use of MIT Facilities or Funds/ Request for MIT Waiver (decision will be finalized by the committee)
Harvard University	Ownership of an Incidental Invention
Yale University	i. IP created during:- ii. paid consultancy engagement with the company iii. IP if not related to activities and does not involve use of facilities iv IP made in response to a problem posed by the company v IP based on non-public information provided by the company vi Not involving University facilities vii Not involving University-administered funds
Imperial College of London	Students generate IP in the course of their study without:- • Using the resources of the university • Not build upon the existing IPs of the university • Not generated in association with any employee • Not having the status of College Employee
London Global University	a) UCL agrees that copyright in scholarly materials and teaching materials shall belong to the UCL staff member who is the author/originator of such materials, except where those materials fall within any of the specific categories institutional materials, computer programs, technical specifications and technical designs, works created in the course of sponsored/funded research or work commissioned by a third party, teaching materials which are specifically commissioned by UCL or a third party, database, sound recordings, films and broadcasts created for the purpose of teaching. b) UCL shall own IP created by UCL staff outside the course of their duties where Additional UCL Support has contributed to the development of such IP. Additional UCL Support means support from UCL which is more than incidental and which is over and above that normally provided to UCL staff for activities outside the course of duties, and could include (but is not limited to): (a) provision of funding; (b) use of UCL IT resources; (c) use of UCL premises, facilities, equipment and/or capabilities; and/or (d) use of UCL IP, including use of UCL name and/or branding.

2011-2012 (THES) list in order to analyse IP policies of the acknowledged world's best universities. *All the selected 10 universities adopt the university ownership model.* A specific example of inventor ownership model is also analysed as well, the name of which is the University of Waterloo in Canada. This university is acknowledged for its entrepreneurial capacity although it is not listed within top 200 universities in THES 2011-2012. An inventor working in an ARI is hired by the ARI to create, disseminate and transform the knowledge into invention for the societal benefit. Since there is an contractual obligation of the employee towards the ARI, the ownership of the invention rest with the ARI in majority of cases. Moreover, during recruitment, an inventor is obliged to follow all the administrative policies of the ARI, which includes the IPR policy as well. The ownership of the IP rests with the ARIs itself; however, there are few following unique aspects to this:-

(a) The institute provides the right to the inventors to own the IP in some of the clauses mentioned above in Table 3. In these cases:-

- ARIs retain the non-exclusive, non-transferrable, irrevocable, royalty free worldwide license for research and educational purposes;
- Inventor has to remit to the ARI the legal expense borne by the ARI;
- Inventor has to provide the certain percentage of the earning obtained through commercialization

(b) University of Cambridge has University's wholly owned subsidiary, namely Cambridge University Technical Services Ltd (CUTS), who becomes the proprietor of any intellectual property right that is then granted or registered. A University staff member who is the relevant creator shall be named as such in the application.

(c) The policy has to clearly provide the guidelines for:-

- Definition of Significant usage of Substantial resources. Many a times, the significant resource

category may not include usage of library facilities, internet connection, use of office equipment and office staff, of Institute facilities and equipment, types of innovations ,etc.

- Inventors has to specifically mention in writing that if the created IP resembles the IP from the other specific project of the institute, inventors have to specify in writing.
- The policy of Indian Institute of Technology, Kharagpur, provides clear cut definition of significant usage of financial resources, infrastructural facilities, personals covered under IP Policy.

(d) With respect to commercialization of IP:-

- IIT Mumbai, maintains the IP for a period of 07 years. If the IP is commercialized or utilized during these years, institute will continue to pay the fees.
- For California Institute of technology, the relevant office will assess, If the university has provided extraordinary resources, potential for commercialization along with the interest of the university in holding equity. In this case:-

(i) For the equity interest, patent protection is done using university support and the profits are split between 50:50 or pre-determined ratio amon

(ii) If university has equity interest but provides no additional support- inventor has to repay the university from first gross income and then proceed on their own

(iii) If university takes no interest, they may proceed on their own.

- Imperial College of London has arrangement with its commercialisation partner, , wherein Imperial Innovations has the first right to commercialise College IP.

Conclusion

Considering the above study following conclusion is drawn:

a) The IP policy plays an instrumental role in administering the IPs of the ARIs.

b) In case the ARIs are interested in providing the ownership exemptions, ARIs has to clearly mention the exemptions criteria, sharing of the revenue, duties and obligation of the inventors and the exemption for the ARIs as well.

c) The commercialization of the IP protected must be carried out in a very cautious manner with the involvement of the inventor

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