Practical Insights into Intellectual Property Strategy for a Technical Institute

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Received 23 April 2008, revised 24 September 2008

The paper presents key issues of techno-legal management of intellectual property in a technical institute. It outlines strategies and processes, which may be adopted by the technical institute to generate and protect their intellectual properties through an effective policy formulation. Suggested strategies are process centric and focus on the intellectual output of human resource or results of collective intellectual labour of the institute. It also features management of generated intellectual property (IP) at each stage. It highlights rights and responsibilities of all the participants. A case study based on the activities undertaken by a Ph D student as a participant in the process is presented.

With growing emphasis and importance of knowledge and IP in academic institutions, it is desirable to develop a comprehensive understanding of IP generated by students through interactions with teachers and develop appropriate guidelines to rationalize IP strategy in technical institutes. The interests of faculty, students and researchers as well as of the technical institute need to be delineated and balanced in order to provide a practical IP policy and management framework. The technical institutes should also evolve requisite guidelines for managing any IP produced by faculty, students or researchers and sharing of revenue from exploitation of such IP. It suggests a framework to guide IP policy and management in a technical institute, which may involve delineation of (i) Researcher’s approach to IP strategy, (ii) institute’s approach to IP strategy, and (iii) faculty guidance on student intellectual property rights. It indicates some select schemes, which the technical institutes can take advantage of for seeking support for developing IP management capacity.

Keywords: IP policy and management, technical institute, researcher IP strategy, ownership of IP

Research is a part of academic activity in any technical institute which may create a gamut of IP e.g. patent, copyright, trademark, trade secrets or undisclosed information, lay-out design of integrated circuits, new plant varieties, biotechnological products eligible for patenting, depending upon the broad charter and functional technical disciplines of the institutes. In order to benefit from the IPs generated, one would require effective techno-legal management on the part of the institutes as well as of authors (researchers, techno managers, students, teachers), which may significantly enhance their contributions for economic and technical growth of the national society, in particular, and global community, in general.

IP has gained importance in the present era as protection of IP provided a business with competitive advantage. It also helps to improve professional standing of the inventor. The inventors or researchers do not find problem to provide technical content of IP but dealing with the legal aspects remains one of the major IP blues for them. In order to facilitate researchers, the technical institute would need to introduce mechanisms for protection of IP including recognition of the form of IP and its best possible form for registration process e.g. patentable inventions, enable obtaining of patent by inventors/researchers, facilitate creation of IP portfolios for business venture of an institute/author/inventor, and address business implications of patents in the preparation of patent applications. The technical institutes need to work on creation of new IP e.g. patents or copyright on a routine basis (as is done by the student through the process of submission of assignment or dissertation, thesis, or prototype). Several key issues of techno-legal management of variety of IP artifacts arise in a technical institute which include understanding of the processes of generation of IP, roles of different stakeholders, and their interface with the business world. The main purpose of this paper is to examine some of these issues and provide practical insights into a strategic IP policy and management framework, which may take care of the interests of faculty, researchers as well as of the technical institute.

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Review of Literature

Jackson 1 reviews several aspects of the management of patent strategy for researchers. The patent strategy for academicians/researchers is also discussed in working papers of universities. 2,3 The academic treatment of IP is present in IP policy of various American universities. In some of the universities, there is no written policy whereas in some other universities, for example, University of California, Berkley and University of California, Los Angeles, there are documents like ‘UCLA Library Copyright Policy’ or ‘Policy and Guidelines for Reproduction of Copyrighted Material for Teaching and Research’. 4,5,6 However, many such polices are copyright policies to be used in the library to regulate the uses of information sources. The Asia Pacific Intellectual Property Law Institute provides advisory services to public private entities and State and Federal Government of Australia. 7 This is an example of providing service of generic IP policy as per customized requirement. Bournemouth University Centre for Intellectual Property Policy and Management is also a similar service provider in IP policy making. 8 The implications of these are limited for issues of IP management and strategy relevant for Indian context.

One of the first academic technical institutions in India to develop its own explicit IPR Policy and document was IIT Delhi, which was put in print in 1994. 9 An IPR Cell has been established in the Department of Management Studies of the Institute. Its IPR policy touched upon several techno-legal aspects such as ownership of IP, unprotected IP, software acquisition and ownership, dealing with confidential information, control and evaluation of IP, and commercialization, licensing and revenue sharing resulting from IP. The timely focus on IPR by IIT also resulted in an increasing number of patent applications filed by the institute. The establishment of the Rajiv Gandhi School of Intellectual Property Law (RGSIOPL) in the IIT Kharagpur campus in 2006 provides a large number of trained lawyers to safeguard vital intellectual property in industries like biotechnology, nano-technology, bio-informatics, and information technology and computer software and ensure protection of the nation’s IP in a more systematic manner. 10 IP Policy of IIT Bombay was published in March 2003. The preamble states, “the vision of IIT Bombay (IITB) is to be the fountainhead of new ideas and of innovators in technology and science and its mission is to create an ambience in which new ideas, research and scholarship flourish and from which the leaders and innovators of tomorrow emerge. In fulfillment of its vision and mission, IITB has taken the initiative to promote innovations and to facilitate protection of IP being generated at IITB. Consequently, protection of inventions and other creative works of its faculty, other employees and students as IP has been growing.” 11 Its Industrial Research and Consultancy Centre (IRCC) is responsible for deployment of this policy. A committee at the level of the institute takes up assessment of innovation(s) for protection. The Indian Institute of Science (IISc) is another example of a well-formed IP Policy of a technical institute. The policy aims to facilitate protection and valorization of intellectual properties generated during the scientific pursuit in the institute and offers scope for wealth generation, and betterment of human life. IISc urges all faculty, staff and students to document their IP, so that they can be protected and applied to the gain of the country, the institute and the concerned inventors. IISc facilitates its faculties and staff in a proactive manner in the generation, protection and transaction of intellectual properties that offer potential and scope for shared benefits to both the institute and inventors. Technology transfer gets a prime place in the IP policy, wherein the formation of IP Evaluation Committee plays a significant role. 12

The University Grants Commission has drafted guidelines for creation of awareness and management of IPR in the university system in India. 13 These guidelines provide broad insights for the academic technical institutes in addressing IPR issues, however, there are no explicit considerations of the nature of IP ownership between researchers and the faculty. The guidelines emphasize the need for creation of IPR cells and, in principle, provide guidance on IP ownership of inventors, which may be generated under sponsorship by industry or government bodies. The primary aim of an institutional IPR policy is to create an enabling environment that recognizes and values creativity and innovation, and simultaneously assists in translating these in an orderly fashion into products, processes and services for the widest public good. 14 A good institutional IPR policy sets forth transparent guidelines and benchmarks for ownership, protection and commercialization of the developed IP while, at the same time, upholds the core moral values of
students, academic researchers and faculty such as integrity, merit, academic freedom, and pursuit of excellence.

The publicly funded institutions like Council of Scientific & Industrial Research (CSIR) and Indian Council of Medical Research (ICMR) have also issued their respective IPR policy.\textsuperscript{15,16} Gupta has discussed several practical features of the management of intellectual property rights (IPR) from the point of view of R&D scientists in such publicly funded R&D institutes.\textsuperscript{17-23} From these studies, appropriate lessons, in general, could be drawn for Indian technical institutes in developing practical insights on key issues of IP management and strategy. Indian universities have started exploring such possibilities. The Indian universities also need to realize significance of the valorization of IP just as being emphasized in case of organizations like the CSIR.\textsuperscript{24} The capacity building in IP management is a natural course of action that needs to be emphasized for such technical institutes and publicly funded institutions.\textsuperscript{25} Further, most of these studies provide limited practical information about the nature of IP being generated during the process of research leading to Ph D degree or dissertations submitted by students during Master’s or Graduate degrees and related issues of techno-legal management, the prime concern of the present paper.

Towards Intellectual Property Strategy for an Indian Technical Institute

The Motilal Nehru National Institute of Technology (MNNIT), established in 1961, offers undergraduate (B Tech), postgraduate (M Tech) or doctoral programmes in several disciplines in the field of technology, science and management including chemical, civil, computer science, electrical, electronics and communication, information technology, mechanical engineering, production and industrial engineering. Over the years, institute has acquired status of one of the premier technological institutions of India. It has undertaken a large number of research projects and consultancy, several of them being of national and global importance.

Stakeholders in the Process of IP Generation

The typical organizational structure of MNNIT consists of teachers, students, researchers, project officers and other academic, administrative and technical staff. The administrative and technical staffs are facilitators of the primary activities of teachers and students viz. teaching and research. Since their role is service oriented, they are not considered as primary agents of IP generation. Faculty and students including researchers, by the very definition and by their activities are main agents of IP generation. The academic divisions consist of faculty, namely, professors, assistant professors, lecturers, teachers, laboratory in charge, project officers and consultants. Research scholars, students and academic staff constitute Ph D scholars, M Tech, B Tech, MCA and MBA students, are also stakeholders in the process of IP generation.

The Chairman of the governing body of the institute is responsible for broad policy guidelines. The Director of the institute is responsible for day-to-day implementation of the programmes and activities of the institute, functioning of the academic activity through the heads of the academic divisions including Dean (R&D), and Dean (Project & consultancy), and administration through registrar. These functionaries contribute in managing the process of IP generation and commercialization.

Nature of IP

The prime businesses of the institute include teaching, research, and project implementation, development of management tools/business methods, change management, and consultancy. In each of these prime businesses, unique IPs are likely to be created. Faculty members, as employees of the technical institute, are responsible for creating articles, research papers, books, software, video, motion pictures, blueprints, architecture design, prototypes, utility models and machines and other developments that have become the media of new IP products. In addition, technical staff, project managers and techno-managers, as regular staff members, may create various products from printed product catalogues to computer databases. Table 1 indicates the nature of IPs created (products generated) and the corresponding likely forms of IP protection. It may be noted that certain types of IP are unique to the institute and may not be transferable.

Issues of Ownership

During the process of generation of these IP, several stakeholders contribute independently or in a team. The primary role and responsibility of the main actors are indicated in Table 2.
The issues of ownership of IP generally vary with the type of research projects and the nature of participation of main actors in the process of generating IP. It is essential that the parties involved in creative process clearly understand the ownership issues, which should be addressed up-front and incorporated into a written agreement.

**In-house Research**

The prevalent practice in MNNIT is to patent or protect by copyright the IP in the name of the technical institute where first and true inventor remains the employee who has actually contributed. In general, faculty members, researchers and students who are authors of IP are allowed to own and control their IP. However, the laws and practices of different countries vary in assigning rights between universities as employers and researchers and faculty as employees. In India, one of the terms and conditions of appointment in public-funded research institutes is that all in-house research work for which IP protection has to be sought must be assigned to the employing R&D organization.

It is pertinent to clarify here that as inventors or authors of the IP created by the faculty they are the owners but as employees of the technical institute, they are supposed to assign the ownership rights to the technical institute. The ownership rights may be defined differently wherein IP is created by main actors other than the faculty either independently or in collaboration.
with the faculty. As a policy, the technical institute may provide the freedom to faculty and researchers to own IP rights of certain kinds of IP, which may not lead to commercialization e.g. publications or scholarly works.

The IP ownership may be different in the case of collaborative or externally sponsored work, or other exceptional circumstances.

**Collaborative Research**

The academic faculty and students or researchers may collaborate in order to generate IP. In a collaborative research each participant is required to make explicit contribution directed to achieve objectives of the collaborative project. In such a case resulting IP rights are either jointly owned by the collaborators or shared equally amongst them. In an alternative situation, IP may be shared in proportionate to the tangible inputs of time, efforts or resources put in by the respective collaborators.²⁹

**Sponsored Research Work**

The members of the faculty, project staff, or external consultants may contribute as team members in the sponsored research project. Generally, principle for sharing IP during the sponsored research is that funding client owns the IP generated during the sponsored research project. Such rights need to be explicitly defined in the sponsorship agreement. The technical university and participating members of the team of inventors may have the right to use IP for academic and non-commercial purposes.²⁷ The draft UGC guidelines suggests the need of entering into an agreement with the sponsor to define ownership of IP rights.³³ Take for example, a student may be working on a research project sponsored to the Chemistry department by a pharmaceutical company, and he gets paid for participation in the research programme. If the student discovers a novel process for a new drug, and a patent is sought for the same, how the ownership will be determined. Certainly, patent may be obtained in the name of the team of inventors but the rights are to be assigned to the sponsoring company as per the agreement though the first and the true inventor claim goes to the student. The student is entitled for all the moral rights forever.

**Exceptional Circumstances**

The interactions between students and the teachers play a significant role in generation of IP and must be reflected in the processes and strategies of the protection of IP. There might be several examples for such IP, which may include specific web-sites or software code developed as part of student coursework. The solutions provided as a teacher (by one of the co-authors of the present paper) to the students of Master of Science in Cyber Law and Information Security Programme offered by Indian Institute of Information and Technology, Allahabad or the teacher addressing to the problems encountered by a Ph D research scholar in Computer Science and Engineering at MNNIT, Allahabad, involve specific exchange of ideas or intellectual contributions on the part of each stakeholder, viz. teacher and the student. From the first hand experiences of handling such interactions by the authors, it can be stated that many times such interactions cannot be recorded or documented. These interactions entail issues of sharing of creditability, honour, and IP contributions by the two stakeholders. There is no proper understanding of the individual’s rights in the IP in such cases. With growing emphasis and importance of knowledge and IP in academic institutions, it is desirable to develop a comprehensive understanding of IP generated by students through interactions with teachers and develop appropriate guidelines to rationalize IP strategy in technical institutes.

**Rationalizing IP Ownership**

The IP generated by academic faculty may be naturally assigned to the technical university because they are employees of the institute and perform tasks as a course of normal duty. However, in case of other main actors like students or researchers, it is of foremost importance to rationalize ownership of IP created by them. In principle, IP rights of the researchers and students may need to be recognized for IP produced by them either (i) independently without any advice from the faculty or supervisors, or (ii) through interactions with the faculty members, and (iii) with or without utilizing substantial resources of the technical institute. One would need to determine true relationship between students and technical institute. The students in the technical institute are not employed to teach or undertake research so their role cannot be termed as that of an employee. The relationship between students as researchers and the technical institute could be worked out under the principles of contractual relationships. IPR are known to provide competitive advantage and personal credit to the faculty and authors. The interest of an individual faculty, student or researcher may be a means to benefit in career promotion or earn his livelihood. The interests of authors in this sense differ from those of the technical institute who would like to benefit from the investments made in infrastructure and
human resources. A balance is required to be maintained between the interest of the authors in their personal capacity and the technical institute’s interest in terms of ownership and sharing of the IP rights. An effective employee-author-inventor compensation/incentive programme may go a long way towards strategic thinking in IP generation in technical institutes and universities. However, the institute may work out appropriate arrangements wherein students make a priori written agreements that the IP generated by them shall be assigned to the technical university. This may be done at the time of enrolment itself. The project supervisors and the Heads of the Departments would have to share significant responsibilities while delineating operational modalities for recognition, protection and overall management of IP. The technical institute should have the right to impose confidentiality obligations on teachers or students who create, or work on, patentable inventions. The main reason for this is that any disclosure of the invention may destroy novelty and hence render the invention non-patentable. The technical institutes should evolve requisite guidelines for managing any IP produced by faculty, students or researchers and sharing of revenue from exploitation of such IP.

Work under the Course of Normal Duties

The concept of work under the course of normal duties is significant in determining the ownership of IP between faculty or students on the one hand, and the technical institute on the other hand. Legal confrontation may take place between the two about the ownership of inventions that come out of the work undertaken by the former in the role of an employee and latter in the role of an employer under the normal course of of assigned duty. In the case M/s Euronet-Liffe v Dr Pavel Pinkava, the UK Court of law adopted a much broader view of what constituted an employee’s ‘normal duties’ that evolved over time and were not limited to the strict scope of written employment contract. The view of the Court is of greater significance in the light of the fact that IP policies are being framed in technical institutes and universities worldwide.

Strategic IP Policy and Management Framework

Researcher’s Approach to IP Strategy: A Case Study

In case of the research work of a research scholar in a Ph D programme, Table 3 and Table 4 identify key steps and indicate specific activities undertaken in the technical institute while managing Ph D programme, the actors involved, possible IP being generated, stakeholders in the IP so generated, and the nature of

<table>
<thead>
<tr>
<th>Activity undertaken</th>
<th>Actors involved</th>
<th>Possible IP being generated &amp; rights likely to be conferred</th>
<th>Stakeholders involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification of Ph D admissions and related information</td>
<td>Dean (Academics), Dean (R&amp;D), Dean (Projects), Heads of the departments, subject experts</td>
<td>Public domain knowledge/open ware proprietary material likely to be protected as copyright</td>
<td>Technical institute, researchers, supervisors, government R&amp;D funding bodies</td>
</tr>
<tr>
<td>Ph D admission</td>
<td>Head of the departments, subject experts, students-researchers</td>
<td>Several formats of information processes or decision making which may be protected under copyright or if automated as business method patent</td>
<td>Technical institute, candidate researchers</td>
</tr>
<tr>
<td>Electronic filing</td>
<td>Students-researchers, system administrators</td>
<td>Formats for filing individual information and development of related software. Such IP may be protected under copyright or in case of unique contribution as software patent. Individuals have rights on personal information submitted</td>
<td>Technical institute, candidate researchers</td>
</tr>
<tr>
<td>Automated eligibility checking</td>
<td>Competent authority appointed by HODs</td>
<td>Individual information and development of related software. Such IP may be protected under copyright or in case of unique contribution as software patent. Individuals have rights on personal information submitted</td>
<td>Technical institute, candidate researchers</td>
</tr>
<tr>
<td>Call for test (automated)</td>
<td>System administrators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checking the test papers (semi-automated and unique grading scheme)</td>
<td>Dedicated system with information security</td>
<td>Confidentiality of information, formats and grades, confidentiality agreements</td>
<td>Technical institute, system administrators</td>
</tr>
<tr>
<td>Call for interview and related services</td>
<td>Selected candidates, Interview board</td>
<td>Reputation of the technical institute based on quality of its services and results, (trademark/service mark)</td>
<td>Technical institute, system administrators, inventors/teachers, candidate researchers</td>
</tr>
<tr>
<td>Admission formalities after final selection</td>
<td>Selected candidates, Admission section, Finance section</td>
<td>Procedure and criteria of evaluation, automated procedures of decision making may give rise to IP protectable as business method patent</td>
<td>Candidates for research, sponsorship providers, technical institute</td>
</tr>
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</table>

Table 3 — Induction of a Ph D student in a technical institute
rights conferred. There are two main steps in the process of IP generation. In the first step, the technical institute and its managerial functionaries engage in the activities leading to induction of research students for the award of Ph D degree (Table 3). The next step is the research process where students make original contributions either independently or through interactions with their supervisors (Table 4).

The research process is the most creative phase in the creation of IP. If the research involves generation of patentable inventions, it would be desirable that the research student, supervisor and management of the institute evolve an appropriate strategy for taking patents for the invention. There are several issues that need to be considered e.g. whether taking a patent is the most suitable course of action for the protection of the new invention or is invention to be kept confidential? Jackson defined the patent strategy for a technology area as the science and art of managing research to meet competition in the market place under advantageous conditions and suggests military strategy model for defining patent strategy of an individual researcher. In this model, the key elements include defining the extent of patent coverage desired, method of acquiring intellectual property, identifying competitive advantage, making response to

<table>
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<tr>
<th>Activity undertaken</th>
<th>Actors involved</th>
<th>Possible IP being generated &amp; rights likely to be conferred</th>
<th>Stakeholders involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research scholar’s enrolment, participation in the course work or repetition of the course work/other</td>
<td>Research scholar</td>
<td>Assignments, articles or other written output resulting as part of the course work gets protected under copyright</td>
<td>Research scholar, technical institute</td>
</tr>
<tr>
<td>Policy formulation</td>
<td>Technical institute, various committees</td>
<td>Institute policy guidelines are public domain knowledge available as freeware or its documentation protected under copyrights</td>
<td>Technical institute, research grant commission, government funding bodies</td>
</tr>
<tr>
<td>Comprehensive viva voce and other examination</td>
<td>Research scholar</td>
<td>Compilation of directed study material protected under copyright; such material is available for fair academic use in the technical institute under the provision of fair dealing</td>
<td>Research scholar, expert committee, invited external member</td>
</tr>
<tr>
<td>State of the art seminar and other intermediate progress reports or development of a prototype</td>
<td>Research scholar, supervisor</td>
<td>Presentations made or reports submitted by the research scholars are copyrighted material. If such results are unique or novel invention then protectable by patent; In case of full sponsorship of the project, moral rights and adequate compensation remains with the first and true inventors but IP rights (commercial) goes to technical institute.</td>
<td>Research scholar, supervisor, evaluators appointed by a committee</td>
</tr>
<tr>
<td>Open defense</td>
<td>Research scholar, HOD concerned, supervisor, invited experts</td>
<td>Publications made of the original research output and contributions are copyright protected. Demonstration of product/process, if novel, may be applicable for protection by taking a patent, provided there is no prior publication</td>
<td>Technical institute, author/inventor, supervisor, internal examiners appointed by a committee</td>
</tr>
<tr>
<td>Thesis submission (product and/or documentation)</td>
<td>Research scholar, technical institute, supervisor</td>
<td>Ensured original contribution to the body of knowledge reflects protection under copyrights. Associated contributions by way of novel devices or hardware or other domains of knowledge may be protectable under design rights or patents or other forms of IP</td>
<td></td>
</tr>
<tr>
<td>Evaluation of thesis and award of degree</td>
<td>Research scholar, subject experts, technical institute</td>
<td>Criteria of research evaluation involve use of IP of experts, while the formats used for evaluation are copyrightable; Certificate authorized by Technical institute is indicative of its IP and services mark, if any.</td>
<td></td>
</tr>
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</table>

Table 4 —Research process of a Ph D student in a technical institute
competitive patents, co-ordination of patent filing, and changing the strategy depending upon the context. The specific questions for development of a patent strategy for an invention can similarly be raised. What is the invention? What is to be achieved by filing patent application? What additional information is needed for the patent application? When must this application be filed? Who is going to develop the information for the patent application? Who is going to prepare the application? How much information should be disclosed in the application? How broadly can/should the invention be claimed? Where is patent protection wanted? The IP management process in the technical institutes would need to consider these questions as a first step in defining a practical approach to the patent strategy of researchers.

Institute’s Approach to IP Strategy

The practical approach to IP management, in essence, may involve the following:

- Develop mechanisms for recognition of new ideas or invention as potential IP.
- Establish an IPR Management Cell in the technical institute.
- Establish a local IPR committee under the chairmanship of a senior faculty member in the technical institute, which may act as a knowledge management and technology or IP watch group. The committee may invite one or more IP expert from Government bodies or from industry as external members to guide its activities. The industry expert may facilitate commercial implication of IP generated within the institute.

IPR Management Cell may act as convener of the committee. This committee may help in identification and recognition of IP. The committee may also look into the possibility of commercialization of products from a project or activities relating to research/testing/consultancy/survey/dissertation/thesis/project report.

- Identify the form of IP protection (e.g. patent/design/copyright etc.)
- Evaluation and certification of IP by the IPR Cell/Institute Committee to facilitate necessary protection (e.g. invention/prototype/innovative process/biological or other types of technological inventions, or new and original creations).
- Indication of the IP support required from the institute including legal or administrative support (e.g. filing of a patent application - national or PCT, prior art search facility, information supply, legal or technical support like patent facilitation). The registration activity is required to be undertaken by the technical institute on behalf of the student/teacher/researcher/institute.
- Facilitate in protection of IP by seeking registration. IPR Management Cell may facilitate in the registration process for copyright/patent or other forms of IP protection depending upon the commercial and academic suitability in India or abroad. It may help in seeking legal advice and drafting and filing of appropriate application for IP protection. Follow up actions need also be taken up for the grant, maintenance and licensing/assignment of IP at institute level.
- Explore possible industrial link ups and production possibility for exploitation of IP.

Providing necessary help in handling assignment/license issues of IP can be taken up through Industry-Institute interface. Drafting and negotiating agreement involving IP transfers should be undertaken with expert legal advice. Suitable provisions of field specific technology mapping can be offered by the technical institute by usage of software like PATMAP etc. The negotiated agreement of IP transfers must take care of uncommon or unknown technologies at the time of transfer. Unbalance negotiation should be avoided (where only one side is represented by legal council).

- Generation of revenue from IP created. Formulate and implement revenue sharing schemes and guidelines (e.g. scheme for work made for hire or scheme for in-house invention under project etc.).
- Maintenance of IP on the part of the institute during the period of protection (related processes of evaluation and decision-making). An automated process of reminder and warning can be developed for maintenance.
- Develop guidelines for IP ownership of one or more of the participants in IP generation.

Key check points:

- Keep track of plagiarism in case of a copyrightable material identified (open source software tools can be used);
- Undertake prior art search for any new research project or student project or initiating work on a new inventive idea;
Collect technological information from the authentic sources for complete probing;
Develop guidelines for the evaluation of potential IP. Not to discard an IP on the basis of a single checking process; and
Establishing guidelines to resolve issues related to IP ownership e.g. for work-made-for hire, fair dealing, transformative derivative work, or use of open source ware/freeware with or without attribution.

Faculty Guidance on Student Intellectual Property Rights

**IP Awareness: Catch Them Young**

The interest around the issue of ownership of IPR of what is created, invented or discovered by students reflects a complex situation on the part of students, faculty and providers of sponsorship. Several initiatives may be taken for IP awareness wherein faculty could provide its guidance. These may include e.g. introduction of awareness or sensitization programmes for undergraduate and post graduate courses, introduction of a compulsory core paper on IP at Masters and Doctorate level: achieving the minimum grade should be a requirement for continuation of such courses, and display of sources of information for different IPR management at laboratories, class room, library and reading rooms.

The faculty may also provide guidance on key questions of IP ownership e.g. what if the student makes an invention in a course they are taking? What about undergraduate theses? What about situations where students develop design changes or problem solving in case-based learning on problems submitted by companies? Appropriate norms may be developed for practical faculty guidance to students. It may be required that the faculties are trained first in related IP issues involved, before taking up or participating in an innovative project or research.

**Developing IP Management Capacity**

There are several initiatives which technical institutes can take advantage of in developing capacities for IP management. For example, Technology Information Facilitation Programme (TIFP) is one of the components of the Technology Promotion, Development and Utilization (TPDU) programme of the Department of Scientific and Industrial Research (DSIR) to generate endogenous capacities. The technical institutes may avail such opportunity of project support for the development of IP capacity. A similar initiative is the project Technology, Innovation, Management and Entrepreneurship (TIME) of the National Science and Technology Entrepreneurship Development Board (NSTEDB), Department of Science and Technology (DST) and the Federation of Indian Chamber of Commerce and Industry (FICCI). It provides through Online Interactive Services comprehensive information source, namely, ‘Patent Guide’, which deals with patenting and compliance to patent related laws and regulations.

With a view to generate IP culture in young minds of the students, it is suggested to work on the development of educational content and associated depository of Web Services for IPR. For example, a formal proposal on this concept was earlier submitted to the Ministry of Communication and Information Technology. It identified the IP artifacts, duties assigned, rights acquired on the part of the investigators and the technical institute. One of the main objectives of the project was to prepare educational content for IP considering the specific requirement of students, researchers, academicians in Engineering and Technology. The project aimed to generate (a) a pedagogical content to cater specific need for IPR education in B Tech, M Tech, Ph D. course work, particularly in engineering, technology, and science, in general, (b) an interactive depository of web services to cover the computer based and assisted assignment and its solution, (c) an open source based tool/system for IPR and WTO literature/material/case studies/web services at institution (MNNIT) level with Creative Commons license, and (d) instructional Manual to be used by the teachers for proposed IPR course for classroom teaching. Once implemented such project may help in strengthening awareness about IPR.

**Future Direction of Work**

There is limited information by way of practical case studies in the Indian context on several of the key issues of IP awareness, protection, management, strategy, and policy. The actual projects undertaken in the technical institutes leading to generation of IP in different technological domains may be used for developing insights into such issues. These issues need to be examined in the perspectives of the history of IP and IPR of a technical institute. Based on which, one could project a future strategy plugging the techno legal loopholes and suggest a robust legal and managerial framework. A sound technological...
mapping infrastructure is a prior requirement for such issues to be addressed. The further work can be taken up to create a body of knowledge for the introduction of IPR as a subject at various levels in the technical institute.

Further, the judicial decisions on IPR are based on the interpretation of the Acts concerned in its true spirit. The strategies derived logically on the basis of prevailing Act and judicial decisions obtained on the basis of the measures of these interpretations must be cross-checked and answers to this ‘how-to’s should be able to create awareness about various forms of IP management and their commercial utility. Over a period of time, the Acts are likely to be influenced by new elements as its replaces the old ones. The IP strategies may also require certain changes. Newer issues continue to arise in all IP domains, which the technical institutes should continue to monitor and adjust their strategic IP managerial and policy framework.

Conclusion

The key issues of techno-legal management of IP in a technical institute include understanding of the processes of generation of IP, and the roles of different stakeholders in this process. The studies in the literature provide limited practical information about the nature of IP being generated and related issues of techno-legal management during the process of research leading to Ph D degree or dissertations submitted by students during Master’s or Graduate degrees. Several unique IPs are likely to be created in a technical institute either independently or in a team, which may include faculty members, students or researchers.

The primary role and responsibility of the main actors during the process of generation of IP has been indicated and practical insights given on the issues of ownership of IP depending upon the type of research projects, viz. in-house research, collaborative research or sponsored research. It is essential that the parties involved in the creative process clearly understand the ownership issues, which should be addressed up front and incorporated into a written agreement. The interests of faculty, students and researchers as well as of the technical institute need to be delineated and balanced in order to provide a practical IP policy and management framework. The key steps while managing the Ph D programme e.g. the actors involved, possible IP being generated, stakeholders in the IP so generated, and the nature of rights conferred are indicated in case of the research work of a research scholar in Ph D programme.

It is suggested to develop a comprehensive understanding of IP generated by students through interactions with teachers and evolve appropriate guidelines to rationalize IP strategy in technical institutes. The framework to guide IP policy and management in a technical institute may involve delineation of (i) researcher’s approach to IP strategy, (ii) institute’s approach to IP strategy, and (iii) faculty guidance on student intellectual property rights. Salient features of which have been outlined.

Acknowledgment

The authors convey their sincere thanks to the organizing committee of the National Workshop on Intellectual Property (NWIP) 2007, and IPR Cell of MNMIT, Allahabad, for giving an opportunity to present results obtained from research. The authors are also thankful to the reviewers for their valuable suggestions and also for defining the ways of calculating the domain. They specially thank Dr V K Gupta, Scientist, National Institute of Science, Technology and Development Studies, New Delhi, for providing critical knowledge inputs and valuable guidance.

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