

Intellectual Property Management System: An Organizational Perspective

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In today's knowledge driven economy intellectual property (IP), intellectual capital, and organizational capabilities are crucial for enhancing business performance and economic growth. Intellectual property rights as a key intellectual asset of the organization empowers innovators to collect full value of their invention. It has now become a prerequisite for organizations to develop expertise and capability not only to create intellectual property through R&D, but also to manage it and give it due weightage in strategic decision making. The paper evaluates the role of Intellectual Property Management System (IPMS) in building organizational capabilities to achieve sustainable competitive advantage. The paper also discusses case of an Indian academic institute, where IPMS helped in building organizational capabilities.

Keywords: Intellectual property management, intellectual property strategy, competitive advantage, organizational capabilities

Academic institutions are considered as the powerhouse of knowledge. Initially, knowledge sharing was the primary motive behind establishing an academic institute but gradually academia have started realizing the enormous potential of the intellectual capital possessed by them and utilizing this strength to their advantage. There has been a rise in the academic research outputs mainly in the form of research papers, and commercial yield in the form of protection of innovation and wealth creation is reckoned as both financial and non-financial motivation for growing innovation in academia. In recent decades, many of these knowledge centres have categorically defined their vision and strategy and simultaneously started building advanced capabilities.

The emerging need to combine the educational output with industrial research is aimed at the idea of knowledge creation and transfer. However, there have always been few demarcations between academic and industrial R&D endeavours. Urge to bridge the gap between the academic and industrial research practices has led to adoption of IPRs and their management. IP creation, protection, and transfer has emerged as a toolkit, capable of augmenting R&D and innovation activities in the academic institutes.

Intellectual property (IP) describes ideas, inventions, technologies, artworks, music and literature, all of which are intangible when created,

but become valuable in the tangible form as products or service. IP is a crucial contributor for knowledge economy and generates monopoly position in return for providing payoffs to innovation. Intellectual property management (IPM) approach aims at generation of IP, protection, and leveraging the same into the market and increasing revenue. IPM helps organizations evaluate their patent portfolios.¹ Today, even technology start-up and spin-off companies have started commercializing innovations and existing technologies.² However, successful commercialization of innovation requires that the know-how in question be used in conjunction with other capabilities or assets.³ Organizations have developed Intellectual Property Management Systems (IPMS) to cater these needs, and ensure availability of information and database for strategic decision-making.

This paper focuses on importance of intellectual assets such as IP, intellectual capital, and organizational capabilities, and demonstrates the significance of IPMS as a system aiming towards enhancing the revenue, pace of innovation, and hence improved organizational performance.

Intellectual Property Management System

IPMS, a managerial and policy tool, helps in accumulating and further ensuring the value of a rich IP portfolio. IP strategy implementation requires contribution from several subsystems of the organization, and in turn, helps in maintaining the

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IPM framework and portfolio. Further, this activity comprises patent portfolio maintenance such as improving the flow of potential patents for patent decision processes, portfolio cost management, valuation of patent, and determination of optimum set of conversion mechanism for value extraction from patents. Broadly, IPMS has five key areas of responsibility such as⁴,

- Generation of IP,
- IP portfolio management,
- IP valuation,
- Competitive assessment, and
- Strategic decision-making.

An IPMS helps in maintaining the complete inventory of organization's IP, determination of value of IP assets, expected revenue, and estimates IP's contribution to profitability of the organization, through mapping of each IP asset to firm's products and services, building structure and system for IPM and dissemination of firm's IP assets. IPMS highlights⁴:

- Formulation of IP/patent policy of the organization
- Continual IP generation process
- The need to include all the functional elements, decision processes and their supporting work processes and databases
- Consideration of IP as legal document, business asset, and as a tool for strategic and business decision
- Establishment of competitive assessment practices
- Developing a valuation process and building value extraction tools
- Building licensing, joint venture, joint development, collaborative research, and strategic alliances capability

Similarly over the years at the Indian Institute of Technology, Bombay (IITB), IPMS has been developed resulting in an increase in the rate of generation of innovation outputs, which are then protected and commercialized. How IPMS helps IIT, Bombay in generating, protecting, and exploiting the growing number of innovations and IPs, is illustrated below:

Development of IPMS at IIT Bombay

IIT, Bombay emphasizes on creativity to sustain and grow in an ethical environment that recognizes the importance of innovations and assists in translating them into products, processes and services for commercial exploitation, to achieve the widest public good. R&D outputs of IITB include generation of knowledge base, new product/processes, patents, copyrights, designs, trademarks, technology know how, confidential information. To enhance and augment the rate of innovation at IITB, the Industrial Research and Consultancy Centre (IRCC) facilitates and manages progressive and advanced research practices and has built user-friendly and easily accessible systems. IRCC has also set up IPR Cell to look after the management and exploitation of IPs generated at IITB.

In order to facilitate generation, protection and exploitation of IP generated at IITB, an institutional IP policy has been formulated, which lays down the processes for promotion and support available to innovators. The institute IP policy is committed to nurture and support creative excellence and simultaneously provide the canvas for transferring valuable innovations to the society, thereby creating a self-sustaining symbiotic relationship between the institution and the environment. One of the direct outcomes of this endeavour is that the number of patent applications filed each year has increased from 1.5 patent applications per year (1994) to 22 patent applications per year (2005).

IITB is currently practicing sponsored research, industrial consultancy, collaborative R&D, and technology incubation. Its IP strategy is formulated to cater to the needs of student research, faculty research, and institute-industry interaction. To meet this objective, efforts are made for building institute-industry interaction to promote research consortia, long-term project assignments, and advanced research with valuable technology foresight.

To foster innovation and its commercialization, the IPR Cell is in the process of developing systems and improving understanding of issues involved in technology licensing, technology transfers, and valuation of technologies. This is facilitated by access to experienced technology transfer professionals who combine technical and business know-how, and involve industry for technology development.

As shown in the Fig. 1, IPR Cell administers IP creation, research and education, and spin off firms.

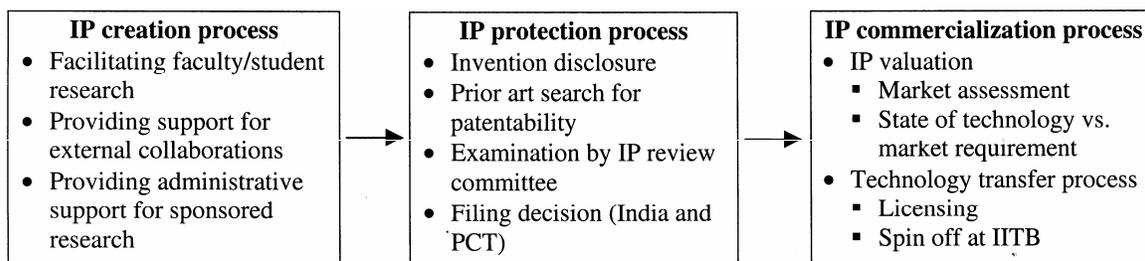


Fig. 1— An overview of IPMS at IIT Bombay

Further it facilitates IP filing in India and abroad through PCT mode. Once an IP is protected, IITB seeks prospective technology buyers and licensees. IP valuation facilitates technology negotiation and licensing process. A strong IP information system has made the task of inventors and institute easier. IPR Cell provides help to conduct prior art searches, and also legal and financial support for IP protection. IITB also strategically encourages collaborative research with industry where the technology can be transferred to the partner organization.

Outcomes of IPMS at IIT Bombay

IPMS has contributed to the institute in terms of increase in IP filing, technology transfers, and introduction of several new research programmes. Funding received from industry sponsored research projects too has increased manifold (Rs 101.31 lakhs in 2002-03 to Rs 672.57 lakhs in 2004-05). Monthly publications of IRCC, 'Update' and 'R&D Spectrum' highlight the ongoing practices and upcoming innovations at IIT. As part of institute-industry partnership, IITB has carried out studies for Oil and Natural Gas Corporation, for effective exploitation of India's hydrocarbon and coal reserves. IITB has transferred, licensed several technologies, one such technology developed indigenously was supercritical fluid extraction design. IITB has also introduced a research consortium programme for VLSI design centre to generate generic knowledge and develop platform technology in the area of VLSI design, automobile design centre for skilled manpower generation and collaborative R & D projects. Recent technology transfers from IITB include ASAN (the low cost ATM), software for optimization of laminated object manufacturing (OPTILOM), GRAM Drishti software, a learning based tool for automatic address segmentation, supercritical fluid extraction system design, novel matrix heat recovery units (MHRU). Government of India too is engaged in

building IITB and industry partnerships. A core group has been formed for Center for Automotive Research (CAR) to promote R & D in key automotive technologies. There are several other promotional schemes of the department of science and technology through projects with industries to enhance indigenous research.

IP Development in India: Changing Paradigm

Knowledge assets are recognized as constituent source of competitive advantage.⁵ At the national level, the Indian government is committed to encourage and promote the generation and protection of competitive intellectual assets generated as a result of rapidly growing R&D programmes. Government of India focuses on fostering scientific research in universities and other academic, scientific and engineering institutions, thereby attracting the brightest young people for careers in science and technology, by conveying a sense of excitement concerning the advancing frontiers.⁶ These initiatives of the government are focusing on synthesizing the innovation system encompassing legal, financial, and other related aspects of IPM. In addition to several legislative changes, Indian government has also taken measures to streamline and strengthen the intellectual property management systems in the universities.

Today, India has world-class technical manpower with approximately 250 universities, 1,500 R&D units, several IITs and engineering colleges. India is increasingly becoming a choice for many global organizations to relocate their state of the art research and development facilities. For instance in 1996, the Council for Scientific & Industrial Research (CSIR) set up an Intellectual Property Management Division (IPMD) as a resource centre for motivating, guiding and supporting scientists in patenting their research results. Activities of IPMD have become extensive and today CSIR is the largest patent filer organization from India.

R&D oriented academic institutions in India are keen on setting up IP protection system. This mechanism is expected to enhance the pace of institutional R&D and further generate revenue by way of commercializing the technology. For academic institutions to become world class in R&D, global recognition and reward of innovations and inventions is imperative. The fundamental challenges for India are in the area of IP generation, protection, and their management system. This requires deeper understanding and appreciation of technology transfer and licensing. At present in India there is a shortage of trained R&D personnel, especially Ph Ds, to meet the projected demand. Considering these constraints, there is immense scope of progress and development in the area of IPM.

Conclusions

When indigenously developed technology, and research outputs of a country are protected, they in turn strengthen the economy of the nation, as other countries will purchase the product or service of the country inventing, researching and developing the new products and services. Organizations today have started defending their patent portfolios more aggressively, hence IP needs to be managed according to the business strategy and innovation practices of the organizations.

A review of literature suggests that a well-constructed system for IP is fundamental to extract full value and to create intangible asset portfolio to extract value. IPMS is recognized as a support mechanism to develop and practice a sound IPM in the organization. It has been stated in literature that organizational strength, competitor's strength, and the industry sector where the organization is functioning, contribute to building IPMS. Technical institutions

have a decisive role to play in building and leveraging an IP oriented culture in the academic institutes. Capitalization of intellectual creativity and enhanced R&D is crucial for academic institutions. For instance, IITB places special emphasis on R&D and IPM to emerge as a global leader in advanced technology as well as to reach out to the national and social needs of the country.

The field of IPM possesses large scope for conducting extensive research. An upcoming area that may be examined is identification and quantification of the role of government in building and sustaining industry-academia collaborations. Another area requiring in-depth research is IP portfolio management and IP valuation. Considering the ongoing activities in this field one can perhaps imagine that by 2025, around 30 per cent of the new knowledge that will determine critically the industrial competitiveness of major firms around the world, will be produced in India.

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