Financing of Intellectual Property: Developing Countries’ Context

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Converting a creative idea into a financial asset is the essential feature of financing intellectual property (IP). IP can be sold, licensed, used as a collateral or security for debt finance. Valuation of IP is also important to secure loans or finances for business. Whereas in the developed world, IP is treated as an asset and a part of the company’s portfolio, this is less prevalent in developing countries because of the level of their development and very meager IP portfolio in general. Financial constraints and lack of infrastructure are also hurdles creating and maintaining IP in developing countries. Capacity building for innovation is a very significant requirement in IP infrastructure. The industries in developing countries need to appreciate that a good portfolio makes good business sense.

Keywords: IP financing, securitization, IP infrastructure, capacity building

The basic premise of financing intellectual property is how to convert a creative idea into a financial asset. Financial assets are the possession of an entity, which are held for purposes of producing revenues. Intellectual property rights (IPRs), like other financial assets, be they manufacturing plants, bonds, or goodwill, cost capital to produce or acquire, and are owned for purposes of generating a cash return. That is because, they exist to give their owners rights to future cash flow, as patents, brand trademarks, copyrighted text, or industrial designs. They are principally economic or commercial rights and would not be maintained and defended with such vigour and resources by their owners unless they have financial value. Like any other property, IPR can be transferred, sold or gifted. But as economic rights, they are generally held by companies rather than by an individual creator of the right. Many companies treat proprietary IPRs as patents, copyrights and trademarks as a discrete asset.

In recent years, there has been a growing awareness that IP assets can be monetized. IP can be sold, licensed, used as collateral or security for debt finance, or it can provide an additional or alternative basis for seeking equity from private investors, venture capitalists, specialized banks and some times even from regular banks. IP assets may help a company to obtain business finance from investors/lenders. The investor/lender, in undertaking an appraisal of the request for equity assistance or loan, will assess whether the new or innovative product or service offered by a company is protected by a patent, a trademark, an industrial design, or copyright or related rights. Such protection is often a good indicator of the potential of a company for doing well in the marketplace. IP ownership is thus important to convince investors/lenders of the market opportunities open to the enterprise for the commercialization of the product or service in question. Ownership of IP rights over the creative output or innovations related to the products or services that an enterprise intends to market, guarantees a certain degree of exclusivity, and thereby, a higher market share if the product/service proves successful among consumers.

Though the investors/lenders may attach different degrees of importance to IPRs in investing or lending money, there is a clear trend emerging towards an increasing reliance on IP assets in the developed economies as a source of competitive advantage for firms. The investors/lenders are increasingly focusing on firms with a well-managed IP portfolio, even though many problems are yet to be resolved in perfecting security interests in IP.

Securitization of Intellectual Property Assets

The trend of securitization of IP assets started in developed economies during the mid-1990s. Securitization is the process of using the cash flows generated by an asset or pool of assets to support the issuance of debt. Collateralizing commercial loans and bank financing by granting a security interest in

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IP is a growing practice, especially, in the music business, Internet-based SMEs and in high technology sectors.

Securitization normally refers to the pooling of different financial assets and the issuance of new securities backed by those assets. In principle, these assets can be any claims that have reasonably predictable cash flows, or even future receivables that are exclusive. Thus, securitization is possible for future royalty payments from licensing a patent, trade secret, or from musical compositions or recording rights of a musician, feature films, and trademark licensing receivable transactions. In developed countries, factoring of trademarks and music royalties and feature film receivables are already being done. Royalties and returns on their factoring is a big source of income and their securitization can be used to raise finances for the company. At present, the market for IP asset-based securities is small because of the limited number of buyers and sellers of IP securities. For securitization, proper valuation of IP is very crucial.

Valuation of IP is also important to secure loans or finances for business. The practice of extending loans secured solely by IP assets, however, is not very common as yet; in fact, it is practiced more by venture capitalists than by banks. The IP assets stand a good chance of being accepted as collateral financing if their liquidity can be proved and can be valued separately from the company’s business. However, durability of the IP assets for the period during which to repay the loan, and their marketability in the event of foreclosure or bankruptcy, need to be established. All this signifies the importance of in-house awareness of the extent and value of IP asset holdings, including trade secrets, which might be used to collateralize a loan.

So far, the valuation of IP has remained highly subjective for both lenders and borrowers and is generally not understood by most people. However, increasing use of royalty streams arising from licensing to determine the value of IP is a welcome development in enhancing the acceptability of IP assets as valuable assets providing security for debt financing and equity participation. In patents, there are certain risks that need to be addressed in patent revenue securitization, which include: technology marketing and acceptance, technological obsolescence, license payment risk, servicing risk and legal risks.

In recent years, copyright royalties from music publishing to licensing revenues associated with clothing designs, patents and trademarks (goodwill associated with them) have been successfully leveraged in this way. Companies and universities that need capital and that generate significant licensing cash flow, such as small and medium-sized enterprises (SMEs) in biotech businesses, can be in an excellent position to securitize their licenses, depending on the borrowing environment and the state of the equity markets in the country. For the right owner, under the right conditions, securitizations – including those associated with patent licensing – can be uniquely rewarding. Among all the IPRs, patents are more popular because of their status as bearers of technology and their crucial role in the technological development of a country. They are important not only in building a business but also in obtaining venture financing.

Selling off or licensing technology is not a new concept within IP management, but using technology sales to benchmark an IP asset portfolio is new, as licensing today is charged with different functions. However, before financing of IP is contemplated in the form of collateral security to raise funds etc., it is necessary to create and own the property. For that purpose, R&D is the basic requirement of corporations for IP. R&D must result in one of the following two outcomes for it to be effective: (i) Useful and protected IP for deployment within core businesses and (ii) Create assets that produce out-licensing royalties. Because R&D is viewed as cost, R&D outlays compete directly with profits. From this perspective, technology sales seem more like salvage auctions than profit center activities. The driving consideration is to offset expenses borne on R&D.

In the US, technology IP asset wealth of US companies has been recently estimated at a staggering US $1 trillion coupled with an upsurge of licensing activity. Their owners increasingly recognize patents and other forms of IP as their most valuable business assets. As more IP is being created, more royalty revenue is being generated. Nonetheless, the true value of these assets has seldom been accurately quantified on a company’s balance sheet. In fact, IP is not explicitly stated on the balance sheet of most of the businesses. The most likely reasons for this are the requirement of very detailed due diligence process, general lack of understanding in the financial community of the importance of IP protection and the fact that until recently, there was not enough money being generated by financing it.

There are also organizational obstacles most companies face by this kind of financing. Basically,
while one may get consensus from the organization that IP is crucial to the business’ success, exploiting and leveraging this IP is the responsibility of the entire organization and not a single person. The next major obstacle stunting the growth of IP financing is the lack of understanding by IP managers. There are several potential uses of IP royalty financing that need to be considered by potential borrowers, taking into account the potential industries that this type of financing applies to, including, among others, patented technologies in the pharmaceutical, medical device, electronic, chemical, mechanical device, and computer hardware industries; copyrights in the movie, literature and computer software industries; and trademarks in the entertainment, fashion, and sports merchandising industries.5 To be an attractive investment, an IP-backed asset financing, however, must address the following issues: (i) pricing of portfolio, (ii) term and payment of IP revenues, (iii) continuity with existing business practices, (iv) multiple market needs of IP owners, IP users, and financiers and (v) creating practical entry and exit strategies.6

Developing Countries and IP Financing: An Overview

The paradigms to convert creative ideas into assets, however, are different in developing countries. Whereas in the developed world, IP is treated as an asset and a part of the company’s portfolio, hence valuing goodwill, securitization of IPRs, licensing the patent protected technology/assigning the copyright, outright sale of the IP etc., are common practices; none of these are of much importance in developing countries because of the level of their development and very meager IP portfolio in general. This is predominantly true in the field of patents but less so for trademarks and copyright, which are, compared to patents, quite widely used in developing countries.8

There are certain peculiar features of IP regimes in developing countries. There are, in general fewer inventive/and innovative activities in developing countries, lesser filing of patent applications and near lack of IP enforcement mechanisms. These countries are also predominantly net importers of technology. All these factors have great significance on the financing of IP, which requires a number of essential variables, including creation, maintenance and proper valuation to raise money and use IP portfolio as a collateral.

In the last two decades, internationally, there has been an unprecedented increase in the level, scope and role of IP protection in general and the geographical extension of minimum standards for IP protection through the TRIPS Agreement and setting higher standards through bilateral/ regional trade and investment agreements. Newer areas are constantly getting covered under IPR, viz., computer software, biotechnology. But developing countries are at a disadvantage in these areas due to lack of resources and infrastructure. Studies have concluded that harnessing of an indigenous technological capacity is the most distinctive single factor determining the success of technology transfer.9

It is, however, notable that with the opening up of trade in goods and services under the WTO, IPRs have become more susceptible to infringement without adequate return to the creators of knowledge. There has been a quantum jump in R&D costs with an associated jump in investments required for putting new technology in the market place. The stakes of the developers of technology have become very high and hence the need to protect the knowledge from unlawful use through IPRs has become expedient, at least for a period that would ensure recovery of the R&D and other associated costs and adequate profits for continuous investments in R&D. Therefore, one expects that a large number of IP rights would be generated and protected all over the world including developing countries. The current importance of IPRs is because of (i) rapidly changing technologies, (ii) shorter product life cycle, (iii) high investments on R&D, production and marketing, (iv) availability of highly skilled human resources and (v) increasing competition in the industry.10 All these reasons have put up new challenges for developing countries.

There are not many companies holding substantial IP in these countries. Trademarks are more common, since the companies/enterprises get assured returns on their goodwill if they are of value. In new technologies, such as information technology, biotechnology, integrated circuits etc., some of the developing countries are showing great promise. They however, lack sufficient resources to translate these promises into commercial assets. For example, India has established itself in the software field, but this is confined to ‘customized’ software services rather than ‘packaged’ products.11 Other areas of value to these countries are traditional knowledge (TK), genetic resources and folklore and related biotechnological inventions where they have big stakes, as they are the
principal suppliers of plant genetic resources (PGRs). In this context, access and benefit sharing are the big issues, with which the international community continues to grapple. The evaluation of TK and making it commercially viable are daunting challenges for these countries.

The knowledge of indigenous people and traditional farmers in the development and conservation of new crop varieties and conserving land-races are significant. These groups constitute an important agency in the conservation of PGRs and transmission of these resources to seed companies, plant breeders and research institutions. Whereas they have remained typically unpaid for their contribution, breeders and seed companies have resorted to IPRs to recover their development expenditures. Who will evaluate their contribution, and at what stage (whether at the point of access to PGRs or when a commercial product is generated out of their use)? and who will be eligible to these benefits and at what rate? are some of the pertinent issues. The economic value of these PGRs, conserved by traditional communities is difficult to quantify, as it has been suggested that the value of farmers’ varieties is not directly dependent on their current use in conventional breeding. Thus, bio-prospecting may become significant.

Though the challenges faced by developing countries are common, the countries vary widely in quality and capacity of their scientific and technical infrastructures. A commonly used indicator of technological capability is the extent of patenting activity undertaken by these countries. If one goes by the international applications through the Patent Cooperation Treaty (PCT), it has to be noted that the share of filing by developing countries till the end of 2004 accounted around 2 per cent with applications coming mainly from Korea, China, South Africa, India, Singapore, Brazil, Mexico, Cyprus, Malaysia and Columbia in that order. In these countries, patent applications although small, are growing at a rate faster than PCT applications in general. Since only few developing countries have a credible indigenous technological capability, others who do not possess the capacity to develop their own technology, have to assimilate technology coming from developed countries. They are thus, dependent on foreign technology - outright sale or licensed, with or without IP protection. In 2001, less than 1 percent of US patents were granted to applicants from developing countries, nearly 60 per cent of which were from seven of the more technologically advanced developing countries. Thus, capacity building in IP in these countries is crucial and whether or not the extension of IP regime assists them in obtaining access to relevant technologies, and how IP protection might help developing countries to achieve their economic and social goals are questions that remain unanswered. Financing of IP has to be evaluated in these countries keeping these parameters in mind.

**IP and SMEs in Developing Countries**

Another issue of significance in the context of developing countries is their limited industrial base. The threshold countries are dominated by small and medium enterprises (SMEs). In India, small-scale industries (SSIs) alone constitute 96 per cent of industrial units in India and its number is over 3 million. Also, till recently, no official category existed for medium sized industries in India, which has now been created under the proposed Small and Medium Enterprises Bill, 2005 (ref. 16) SMEs are engaged in innovations at different levels, though not necessarily in technological areas. The financial considerations of these firms are totally different from bigger companies, like those from developed countries. With the advent of TRIPS/WTO, the industry in developing countries is facing international competition as well as internal competition. Strengthening innovations and management of knowledge, including management of IPRs, by the SMEs has to be a top priority of the governments in these countries to ensure their survival in a globalized world.

In most of these countries, in fact, governments do provide encouragement and support to high-tech start-ups and other innovative SMEs through grants, guarantees, subsidies and/or soft loan schemes, which are provided via various public funding institutions and banks that directly or indirectly recognize the importance of IP assets. Companies must recognize IP not only as a legal asset but also as a financial instrument. As the owner/manager of a SME, one must therefore take steps to understand the commercial value of the IP assets of the company, ensure their proper valuation by professionals and understand the requirement(s) for their proper accounting in the accounts books and balance sheet. Above all, one has to ensure to include IP assets of his company in the business plan when presenting it to potential investors/lenders.

Bojan Pretner has categorized SMEs into two categories according to their business objectives in terms of financial considerations related to IP and
importance for them to own an IP portfolio. The first set relates to the business objectives of advanced self-innovating companies, mainly MNCs, which can be conveniently labeled as ‘innovation leaders’. The second set of business objectives relates to the group of enterprises that may be called ‘innovation followers’. Innovation followers are companies selling self-developed products, but which have been developed with a slight time lag, after innovation leaders have already published their IP holdings. Most SMEs, throughout the world and many companies in developing countries belong to this group.17 Therefore, while assessing a country’s innovation/inventive capability, one has to devote attention to the SMEs in these countries as a source of innovation.18

Low Utilization of IPR by SMEs in Developing Countries

SMEs, in general, are small users of IPR. One of the principal economic considerations for innovation leaders is to stimulate and monitor R&D. Other considerations include blocking competitors and improving one’s bargaining position. All these involve costs and financial burden, which most SMEs in developing countries are unable to bear and further have little incentive to do so. Also, in these countries, R&D is mainly undertaken by public institutions or funded by them. Private initiative is not very encouraging. Moreover, in order to exercise control over potential competitors if they infringe an IP right, an appropriate capability is necessary. This capability, in turn, requires money and highly skilled advisers, an expense, which is far from negligible, especially in a globalized world. In most cases, only large firms are in a position to pursue the above objective on a continuous basis.

Unfortunately, the cost issue is not the only explanation for the low utilization of patents by SMEs, or other innovation followers. Low technical value of their IP is also a reason why SMEs prefer not to go for protection and spend money to obtain and subsequently monitor infringement by competitors.18 Further, being innovation followers, their technical solutions are based on mainly adoptive R&D.19 This is also true in the case of trademark and copyright, including music and film industry.

In terms of financing of IP, these firms, and for that matter, every firm first of all, has to assess which category of IP has priority in terms of relevance to its business. For example, patents, industrial designs and trademarks may all be relevant. However, it is unlikely that all of them will have the same degree of priority. For firms in developing countries, it may well be that a higher priority is given to a trademark than to the protection of an industrial design as it is less cumbersome to create and its success in the short-run is assured. Having established the proper ranking, the next obvious question is how strong is the need to have the relevant protection. Can the costs of protection be saved if protection does not bring much returns? This aspect is closely related to the issue of piracy and counterfeiting issues, which have gained so much notoriety in relation to developing countries. Next relevant question is that once it is decided to protect its innovation, what is the right type of IP? Answers to these will provide a direction in creating and then evaluating IP assets.

Acquisition/Licensing of Technology and IP

Access to technology is a crucial issue for developing countries, which they acquire under sale or licensing agreements from organizations/corporations from developed countries. Valuation of technology under sale or license is very significant. IP generates money right from the development or creation stage. For example, a licensor may realize payments for his software right from an embryonic stage. Both the licensor and the licensee negotiate the license in view of the revenue-generating capacity of the invention. Special care is needed while examining the IP issues taking into consideration all clauses related to patents, trademarks, know-how, plant drawings/design, raw materials, etc. Once an open exchange matures, valuation will be more reliable and thus leveraging of IP becomes a logical tool for an IP owner and transferee to use in managing assets. The licensees in developing countries can take help of these exchanges before entering into a deal of technology licensing.

On technology acquisition by medium-sized or big companies in developing countries, issues of IPRs in such agreements must be comprehended properly to find out about the ownership issue over the improvement made to licensed technology. The following three-tier system for handling IPR issues may be helpful, i.e., (i) internal assessment, (ii) discussion with consultants or consulting agencies or publicly funded centres and (iii) discussion with patent attorneys. The government may help in the second level by imparting training in scanning and studying patent information, specifically full text patent documents and other information.

From the licensor’s viewpoint, there are good reasons to license IP. Among others, when the licensor’s trademark is licensed for use in the market
along with the IP, the licensee’s marketing efforts benefit the licensor’s reputation and goodwill (as long as the licensee maintains quality in product, service and sales). Licensing may allow a firm to achieve some degree of control over its own innovations and also over the direction of the industry.20

Apart from patents, trademarks can also be licensed.21 Trademarks are the **sine qua non** for franchising. The strategic use of trademark in franchising is a valuable business model in many countries. Thus, a firm should consider a trademark licensing or franchising agreement only if it is: (i) in the business of marketing a product or service and the brand/trademark of that product is owned by another; or (ii) entering or expanding the existing market for its product or service for which it owns the rights conferred by a trademark.

In copyright, licensing helps in the economic exploitation of the work through entrepreneurs like publishers, film producers and record manufacturers. Movie industry license agreements, in fact, are typical examples of copyright licensing. There are four major kinds of agreements in this regard, viz.: (i) development and rights appropriation – when the company enters into an agreement with the author or owner of the original work; (ii) pre-production – involves employment agreements; (iii) financing and production – involve production – financing-distribution agreements; and (iv) distribution and exploitation. In copyright licenses, the license costs depend upon the shelf life of the work, often not extending more than five years; this fact needs to be taken into account while signing the contract.

**Specific Challenges for IP Financing in Developing Countries**

There are certain problems, typical of developing countries, in IP financing. The whole exercise - to create and own an IPR at this juncture of their development is an arduous task. The whole journey from inventing, to obtain a patent, then to get venture capital to exploit the patent, build a business around it, grow it larger and then go public is riddled with problems. Once the product is developed or IP is at the stage of exploitation, the issue of financing of IP arises, i.e., securitization, licensing/franchising etc. The innovators/inventors, mainly companies, lack strategies in filing the applications, as well as necessary resources and requisite knowledge. The PCT route may provide them priority in all the designated countries for their invention.

IP in the form of a patent once granted needs to be maintained by paying annual fees for the period of its validity and it needs to be protected against any infringement. In IP financing, the risk of infringement litigation is not uncommon when two companies are dealing in the same stream of technology. Small companies are usually not in a position to pursue infringement litigation. If the royalty stream has been financed, then the licensor-patent holder has already received a significant portion of the anticipated lost revenue resulting from an infringer entering the marketplace. A licensee’s loss in this case would be more. Financing companies have to take into account these risks while financing IP as security.

As R&D and innovation go hand-in-hand, a well laid out R&D infrastructure is required in these countries along with well-trained manpower. Similarly, for management of IPR, a good support system is required, including legal, technical, financial and administrative functions.

**R&D in India**

Compared to developed countries, the expenditure on R&D in developing countries is very small.22 In India, the expenditure on R&D is increasing over the years but is still nowhere near the average of developing countries. As a percentage of GNP, the R&D expenditure has moved from 0.71 per cent in 1996-97 to 0.81 per cent in 1998-1999 and 0.94 per cent in 2000-2001 (ref. 23). Presently, it is around 1 per cent with the contribution of the private sector also increasing over the years. In order to encourage R&D in the private companies, the Government of India has introduced many fiscal and support measures. These measures include tax benefits, such as income-tax relief on R&D expenditure; weighted tax deduction on R&D in electronics, telecommunications, drugs and chemicals; depreciation allowance in new plant and machinery set up on indigenous technology; tax holiday to commercial R&D companies, etc.

Besides, many state governments also give number of incentives in their respective state to encourage R&D in private companies, in the form of tax exemptions, infra-structural support etc. Apart from tax reliefs, the Government of India also has many schemes to support R&D in industries. The Home Grown Technology scheme provides funds up to 50% of the cost of the project for scale up of technology. The scheme is operative through the Technology Information, Forecasting and Assessment Council.
(TIFAC). The Programme Aimed at Technological Self Reliance (PATSER), operated by the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, aims at promoting and supporting industry in developing indigenous technology and also absorbing imported technologies. In this endeavour, involvement of an academic or an R&D institution is considered essential. The Technology Development Board (TDB) provides loans for development of technology to the marketable level. These schemes cover the risk involved in R&D and industry to feel encouraged to try this avenue for doing R&D for new products and processes. These benefits, however, are available only to those industries which possess some infrastructure for doing R&D.

Data available with the Patent Office since 1995 has revealed that most of the applications coming from SSIs relate to drugs and pharmaceuticals including herbal drugs followed by engineering, electronics and chemicals. However, the number of applications by companies engaged in electrical engineering, electronics and telecommunication is very low, although maximum recognized R&D units operate in these areas. Industries more frequently involved in R&D are food products, chemicals, rubber and plastics, non-metallic mineral products, metal products and machinery and equipment. Chilean experience has been reported to be similar. Thus, it can be inferred that the range of innovation/inventive activity is low and limited in these countries. Improvement in this situation requires the capacity building in the IP sector, including the stakeholders.

Significance of IP Infrastructure in Capacity Building for Innovation

Before one may think of financing of IP, there has to be IP worthy of protection and leveraging. Most of the companies in developing countries do not possess enough of that. Increasingly, it is being realized that the real innovation bottleneck is not the supply of new knowledge, but external factors surrounding the process, including lack of necessary infrastructure.

It has often been highlighted that in developing countries, a great gap exists between IPR and economic development policies, leading to low financial support for IPR institutions at all levels. IPR is not been mainstreamed in the national development policies. Similarly, they are also not being mainstreamed into donor assistance programmes. There is a need of short-term and long-term assistance since IP laws are to be administered immediately. The WIPO extends help to many of these countries in this task, but developed countries, which are obliged to extend help under Article 67 of the TRIPS Agreement, have yet to take concrete steps in this direction.

Developing countries may need assistance in making an assessment analysis before making formal requests for financial assistance from the donor agencies. They need to prepare a national policy process that generates a national action plan with priorities. Since these countries are rich in traditional knowledge (TK), genetic resources and folklore, capacity building in IPR policymaking/administration should cover developing countries’ desire to establish protection and benefit-sharing arrangements for TK, folklore and biodiversity. In many developing countries, meaningful research is undertaken in agriculture and new varieties are created. Their innovation needs to be quantified and rewarded. Policy-makers must carefully consider which type of protection is appropriate for each innovation whose needs are being served, and how to weigh expected costs and benefits. The development of indigenous technological capacity in these countries is a key determinant to decide these issues. This capacity determines the extent to which these countries can assimilate and apply foreign technology. Similarly, who provides technical assistance, how it is presented and what is its scope, are of primary importance if these countries are to use IP tools effectively in the pursuit of their sustainable human and economic development goals. Capacity building in the technical field is thus very crucial to these countries. Bearing in mind the limited resources provided for IP technical assistance today, its effectiveness, its inclusiveness in terms of stakeholders, and its openness in addressing both strengths and weaknesses of current programmes, exploring ways to improve them are essential. Surprisingly though, very limited independent analytical work has been undertaken in this area and the literature is scare.

At the national level, key factors that need to be addressed in innovation capacity building are technology and information infrastructures, legal framework, business support services, human resources and financial infrastructure. The help of international agencies can be taken to build this infrastructure. Commercialization of innovation into new processes and products that can benefit the economy requires infrastructure such as universal
standards, policy and guidelines, venture capital, skilled labour, organized alliances and networks. Equal emphasis needs to be given to the provision of these infrastructures to ensure that world-class research and its commercialization can take place.27

**Technology Infrastructure**

Developing countries need to put in place national network of well-equipped laboratories and workshops with facilities for standard tests/analysis and high level scientific and technical research work in various fields, including high technology, as these are important for all persons engaged in innovative and inventive activities. They should invest heavily in innovation and technology infrastructure. In the case of India, there exists a sound infrastructural base for science and technology in the country.28 For example, in the field of information technology (IT), India has earned itself a reputation. Software Technology Parks of India (STPI)29 have played a seminal role in accomplishing this status. But in most other cases, such infra-structural support has not translated into IP creation, as the other variables are absent.

**Information Infrastructure**

Automated information systems are key requirements for efficient administration of IPR and an important indicator of institutional capacity. Although some larger, higher income developing countries have fully automated systems for searching and application processing to grant IPR, a large number of countries still have manual, paper-based systems. This not only hinders efficient processing of applications, but also greatly complicates collection of important statistical and management information.30

**Legal Framework**

The legal awareness about IP rights is very low in developing countries and because of that most of inventors/innovators do not take advantage of the laws. The industry has yet to learn defensive as well as aggressive management of their IPRs, by protecting their own rights while at the same time not to infringe others’ in order to avoid any infringement suits. These countries face arduous institutional challenges in implementing IP protection. The challenges include formulating appropriate legislation, administering IPRs in line with international obligations, and enforcing and regulating IPR in a pro-competitive manner appropriate to national levels of development. Most of these countries lack an effective implementation of IP laws. Judicial delays are the order of the day, which means that cases can take years to see resolution and payment of damages on IPR violations. A specific enforcement mechanism may lead to an effective implementation of these rights. In Chennai, where there is a separate Deputy Police Commissioner who deals with copyright infringement, the industry has reported a steep decline in film and music piracy. This success could be repeated in other regions of India provided government and industry cooperate in dedicating sufficient resources to strictly enforce IPRs. There is also an Intellectual Property Appellate Board (IPAB), effective from 15 September 2003, created to entertain appeals from the orders/decisions passed by the Controller of Patents and the Registrar of Trademarks and Geographical Indications in the matter of patents, trademarks and geographical indications, as the case may be, under new legislation. The IPAB, however, has no power to try infringement proceedings. There are also some impressive private sector initiatives.31

**Business Support Services**

Another important plank of innovation facilitators is that of business support services through appropriate government agency or professional association that forges and maintains a link between the inventors/innovators, research organizations and SMEs with respect to sourcing of technologies, know-how, equipment, workshops and test laboratories for quality assurance, and formulation of demand-driven research projects, and ready commercialization of inventions. In India, an extensive system of broad public consultation has evolved over the years, which includes public workshops on issues such as protection of biodiversity and traditional knowledge, use of compulsory licensing, and the need of high-level expertise in the academic, business and legal communities. At the same time, the government has adopted a policy on industrial location and incentives for the development of sub-sectoral clusters of SMEs. Such clusters would share facilities, with common pool of information network on markets, venture capital, databases, etc. Sustaining regional innovation clusters requires continuous interaction between research centres, universities and local business leaders in order to sustain cluster growth and the development of new knowledge-based industries.32

A prime example of such clusters and initiatives is the National Innovation Foundation (NIF). The Department of Science and Technology and the Government of India constituted the NIF with an aim
to recognize and support the creative potential of innovators at the grassroots and harness their creativity to help make India self-reliant and a leader in sustainable technologies. NIF has been successfully providing institutional support in scouting, spawning, sustaining and scaling up grassroots green innovations and helping their transition to self-supporting activities. There are many such organizations in India that have been scouting innovations at the grassroot level, particularly, in TK, biodiversity and folklore.

The Government of India through various ministries has also set up nodal agencies that provide entrepreneurial assistance, investor facilitation, processing of all applications which require government approval, assisting entrepreneurs and investors in setting up projects (including liaison with other organizations and state governments) and in monitoring the implementation of projects.

Human Resources

Development of human resources for capacity building is very significant, as research, innovation, inventive activities, operation and maintenance of equipment and facilities, and indeed the management of industrial production, especially in the high technology sectors are increasingly becoming more skill demanding. Similarly, the production of quality goods, expertise for the product design, the maintenance of sophisticated equipment, and the marketing of products have become important. There is a dearth of skilled manpower in most of the developing countries.

It is clear that there have been considerable achievements in the last 5-10 years in terms of modernizing IP infrastructure and developing associated human resources in the developing world. However, there is a need to progressively increase the rate of generation of high quality skilled human resource at all levels. Developing this kind of infrastructure through training, funding of specific programmes, or in-kind assistance is complementary to the creation of strong IP institutions. Together these kinds of efforts will promote a healthy IP environment.

Financial Support

A key issue for developing countries is the institutional capacity for commercialization of research and knowledge. Capital investment is vital for the development and operation of industrial enterprises and R&D organizations as well as for transforming an invention or innovation into a product for the market. It is well recognized that an invention becomes important only when it is put into use. From creation to the development stage, IP is an expensive proposition which most of the firms in these countries are not able to bear. Financial support for innovation practices is necessary, which must also be institutionalized within enterprises, which are the chief custodians of R&D resources and play a leading role in technological innovation. At the same time, lack of financial resources to obtain and maintain patents has been identified as an important factor by the industry for the low patent activity. Venture capital and other benefits in developing IP into a commercial product would be incentives for creating worthwhile IP. Financial infrastructure is also crucial in acquiring and maintaining IPRs, and defending infringement cases, particularly in foreign countries.

It is important to have programmes of investment and development, which will provide (i) venture capital for new industries (or older ones seeking expansion/ modernization), (ii) funds for collaborative research between industry and research laboratories and (iii) funds for the commercialization of research results. Equally important are financial support through fiscal incentives, such as, tax relief on R&D expenditures, excise duty waiver/exemption, import duty exemption for some machinery and equipment for research, tax holidays as well as other tariff measures aimed at assisting SMEs, as discussed earlier. In addition, private and public sector interaction and collaboration needs to be institutionalized to share cost, garner research and commercialize innovation. The resources committed must be considered as investments towards capacity building for innovation.

Conclusion

In IP assets backed by financing, one has to look up to companies, universities, licensing departments, to translate IP into a financial asset. In other words, it is the securitization/licensing, which may create revenues. In IP financing methods, the transaction can employ a vast array of licenses, transfer contracts, and enterprise law to craft relationships. Whether IP asset financing succeeds or fails will ultimately rest on the shoulders of licensing professionals. The IP inventory has to be used into cash-generating corporate assets. IP derivatives will similarly be successful only if they can make, hold, and deliver market value. Extracting market value from IP assets is a great challenge and even greater opportunity for licensing professionals.
The parameters in IP financing in the case of developing countries are in variance to developed countries. Being the importers of technology and other IP, they have to keep in view the benefits accruing to them from these deals. To benefit from new dispensation of IP, there is a need for capacity building at different levels in these countries before these companies really benefit from creating an IP portfolio.

At the same time, industry needs to appreciate that a good portfolio makes a good business sense. If one were to take into account all the benefits provided by the government and the benefits that may accrue from correct tax planning, no industry can rule out creating an IP portfolio for itself. Further it can help in securing loans, enhance market image and attract good alliances. But because of the complexities involved in getting an IPR, it is unlikely that companies in these countries can be successful in the development of products with a short life-cycles and low prices. In case of India, there certainly seems to be an opportunity for Indian companies to develop products of intermediate complexity targeted at niche markets.

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